

*This white paper examines the opportunities for the Trump Administration to use FAA management reforms, innovative financing mechanisms and private sector capital—adopting governance models applied successfully throughout the global ANSP sector—to accelerate the modernization of America’s civil aviation infrastructure.*

## **FAA Infrastructure Modernization under the Trump Administration**

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*The stunning results of the 2016 presidential election proved that tens of millions of Americans expect significant change in Washington. Donald Trump’s vow to “drain the swamp” in government resonated with voters fed up with dysfunctional and wasteful federal departments and agencies hamstrung by inefficient practices. Whatever one’s political leanings, the incoming Administration offers a unique opportunity to create better agencies that fulfill their objectives in a timely, cost-effective manner, while reducing waste and stimulating private sector job growth.*

*America’s economic health and vitality are uniquely dependent upon a modernized and safe air transportation system, which today contributes to increased trade and commerce, supports 12 million jobs, generates \$1.5 trillion in total economic activity, and underwrites 5 to 6 percent to U.S. GDP. However, our air transportation infrastructure is—quite literally—crumbling, and modernization programs such as NextGen, overseen by the Federal Aviation Administration, are wastefully managed and years behind schedule.*

*This paper suggests that the incoming Trump Administration and the new Congress will necessarily break with the policy and operating practices of the former Administration that adversely impacted the aviation system. By overhauling FAA management and procurement, using innovative financing mechanisms such as public private partnerships, and tapping available trillion-dollar pools of low interest rate private sector capital, ATC modernization will once again get back on track. Congress will only need to appropriate a small percentage of the total costs to modernize, in turn creating the modern and efficient air transportation system America needs.*

### **World War II Technology**

It is difficult to sugarcoat the condition of America’s civil aviation infrastructure, including the air traffic control (ATC) system itself. This critical national asset utilizes World War II-era surveillance radar technology as the basis for safe separation of aircraft flying at 500 miles per hour. Position fixes are updated every 12 seconds<sup>1</sup> due to the physical rotation of the radar dish, and over this time aircraft can travel a mile or more in distance. Safe separation today dictates that aircraft must fly five

miles apart<sup>2</sup> as a result of these delays. The FAA inventory of radios supporting air-to-ground voice communications is between 40 and 50 years old<sup>3</sup>, while switches used to communicate between pilots and air traffic controllers use 1980’s technologies. Aircraft follow inefficient routes to their destinations in order to stay in touch with various ground-based control centers, while terrain or altitude may cause aircraft to disappear from radar altogether. In oceanic areas, pilots may be out of direct communication with controllers for hours at a time and new satellite-based surveillance systems such as

Aireon, a U.S. system made available to aircraft in other countries, remain prohibited in U.S. airspace. Aireon is an important piece of NextGen<sup>4</sup> which holds some promise for ATC modernization but under FAA management has been very slow to come online. GPS is not widely utilized for ATC services, although the first GPS satellites were launched in the 1970's and avionics appeared in the 1980's. An ADS-B network will change this over the coming decades, but aircraft operators are slowing the adoption process down due to the costs of installing expensive new equipment in their aircraft, citing the lack of incentives (benefits) to do so. The long-term cost to implement NextGen has been estimated by FAA in the \$40 billion range. But according to DOT Inspector General Calvin Scovel, "We're clearly not going to make it with a total of \$40 billion in investments.... We're probably looking at years beyond 2025—perhaps another 10 even. We're probably also looking at total expenditures on the magnitude of two to three times that of the initial \$40 billion."<sup>5</sup> NextGen also entails billion dollar costs that aircraft owners must invest so that their aircraft can communicate and navigate within the new ATC system architecture.

**Federal Budget Picture and Impact on FAA**

Inspector General Scovel's estimates assume business as usual at FAA. Management, structural and governance problems, and Congressional funding quirks, have become major hurdles to economically efficient and timely ATC modernization. Although under current law the FAA has the authority to adopt highly efficient purchasing practices, the current administration has refused to use this authority. Flexible rules governed by the Acquisition Management System, designed to streamline FAA procurement, remain an unused tool in the toolbox.

It is true that capital spending on aviation infrastructure in America has been constrained due to decades of underfunding (Figure 1) where capital spending lagged behind operating costs. The history of under-investment began to take hold of FAA

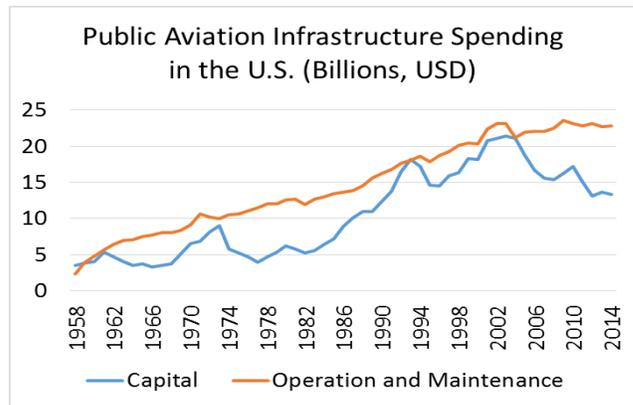


Figure 1 - Spending Deficit on Aviation Infrastructure (Source: OMB)

programs in the 1980's with inadequate funding reauthorizations and Continuing Resolutions that continue today.

In the FY2017 President's Budget Submission<sup>6</sup>, the Obama Administration sought \$2.8 billion for FAA facilities and equipment out of \$16 billion in total requests. A multi-billion dollar maintenance backlog exists for program areas included in the Air Traffic Control Facilities Sustainment Strategic Plan.

It is difficult to understand how \$2.8 billion of F&E funds could make a positive impact on modernization when the DOT IG states that the NextGen bill alone could be as high as \$80 to \$120 billion. It is also hard to imagine that a Republican Congress, facing growing deficits, will tax the American people to address the shortfall.

FAA in recent years has outright rejected innovative financing mechanisms that have become widespread in ATC modernization with nations around the world. So much so that a major train wreck becomes completely predictable when, on January 1, 2020, tens of thousands of U.S. aircraft will become subject to an enforced ground stop. All this because under the old Administration, FAA failed to implement loan guarantees (innovative financing) passed by Congress in 2012 to ease mandated equipage costs for the private sector. This failure effectively shut down a billion-dollar private sector funded incentive program meant to rapidly accelerate ATC modernization.

## **Offshore Best Practices Abound**

Case studies using powerful and innovative financing mechanisms, with powerful outcomes, abound with our allies in the United Kingdom and Canada. In 1997 the National Air Traffic Services (NATS) of the UK estimated an additional £100 Million in annual investment would be required over a decade in order to increase ATC capacity for future growth. In July 2001 a PPP was created between the British government and the U.K. Airline Group, a consortium of 7 British airlines. The Airline Group was given a 46% share of NATS and operational control for almost £800 million.<sup>7</sup> The operating improvements were staggering: a 40% reduction in underlying controllable costs; reduced levels of operational delay; operator fuel savings; and a 98% reduction in the average delay time per flight. Canada has a similar story to tell, and today efficiently manages some of the busiest ATC regions in the world such as the North Atlantic.

## **Government Ownership of Transportation Infrastructure is no Longer Necessary or Even Possible**

These visionary governments, all by necessity due to fiscal constraints, handed over ATC system ownership and control to non-government entities. In days gone by, federal, state and local governments would set aside capital to make the needed investments in new or remediated infrastructure to keep up with requirements. Taxes and bond proceeds would be used to finance the projects. Today this is an unsustainable model because federal, state and local governments are, quite frankly, broke, and the knowhow to best tackle the complexities of modernization reside in the private sector.

According to the American Society of Civil Engineers, in the U.S. alone over \$3.6 trillion is needed in infrastructure investment to keep pace with maintenance and future drivers of growth.<sup>8</sup> The global “infrastructure gap” is so wide that closing it

any time soon will require an estimated \$40 trillion to \$50 trillion.”<sup>9</sup>

Public-private partnerships (PPPs) that own and operate infrastructure in need of investment are the model best considered under today’s budget deficit reality. Common themes of PPPs include the transfer of development risk to the private sector in exchange for innovative, long-term relationships between the public and private sector. PPPs often involve a contract between public-sector authorities, in this case the FAA, and a private consortium, in which the private sector provides a public service or project (concession) and assumes substantial financial, technical and operational risk in the project. In some types of PPP, the cost of using the service is borne exclusively by the users of the service and not by the taxpayer. In other types (notably the PFI<sup>10</sup>), capital investment is made by the private sector on the basis of a contract with government to provide agreed services and the cost of providing the service is borne wholly or in part by the agency responsible. Government contributions to a PPP may also be in kind (notably the transfer of existing assets).

PPPs hold promise for ATC modernization and can attract needed long-term capital without a need for a debilitating public tax burden. FAA corporatization would be one such application of a PPP, and alternatively, FAA assets could be rolled into a PPP that would then update those assets into a modern facility FAA could staff and operate.

## **Trillions of Dollars of Long-Term Capital Currently Sit on the Sidelines**

An extraordinary amount of long-term capital is available but underperforming, sitting on the sidelines in money market accounts, and could be tapped for long-term infrastructure investment. Amongst OECD nations, \$25.2 trillion in pension fund assets were available at the end of 2014.<sup>11</sup> As proof of concept, over 185 large pension funds had investments in infrastructure in 2015 (up by 36% from 2014).<sup>12</sup>

Infrastructure investments are attractive to pension funds, as funds can be put to work over very long time periods, often have returns linked to inflation, and hence can hedge pension fund obligations that are sensitive to inflation. Also, infrastructure investments can generate attractive investment yields in excess of those available in the fixed income or money markets, without higher volatility. Finally, infrastructure investments provide portfolio diversification to pension funds, due to their low correlation with traditional asset class cycles (e.g. real estate, equity stocks, etc.).

### **FAA Infrastructure Modernization under the Trump Administration**

The incoming Trump Administration is vigorously promoting infrastructure modernization as an economic and job-creating stimulus, thus becoming a post-inaugural priority.<sup>13</sup> Early proposals released during the 2016 Presidential campaign offered incentives to investors to unleash up to \$1 trillion worth of infrastructure investment over 10 years, embracing PPPs and other innovative mechanisms in the process. Other ideas to leverage private sector capital, probably using the federal government's own credit, will be forthcoming in the months ahead.

As referenced in the Trump Doctrine, the goal of the new Administration as it pertains to civil air transport, and the new "vision" applicable to FAA, emphasizes several points:

- Transform America's crumbling infrastructure into a golden opportunity for accelerated economic growth and more rapid productivity gains with a deficit-neutral plan targeting substantial new infrastructure investments;
- Harness market forces to help attract new private infrastructure investments through a deficit-neutral system of infrastructure tax credits;
- Employ incentive-based contracting to ensure that projects are on time and on budget;

- Work with Congress to modernize our airports and air traffic control systems, while ensuring that American travelers are safe from terrorism and other threats; and
- Link increased investments with positive reforms to infrastructure programs that reduce waste and cut costs. Complete projects faster and at lower cost through significant regulatory reform and ending needless red-tape.

Implementing this vision will be best achieved under the corporatization of FAA's Air Traffic Organization, within a specialized PPP framework. This will entail spinning off most ATC functions except safety oversight, modeling the delivery of ATC services after commercialized independent air navigation service providers in other countries, creating an aviation stakeholder board to oversee this work, and funding the newly formed corporation through a transparent schedule of cost-based user fees. An adjunct or an alternative to corporatization, if politically too difficult, involves placing existing FAA ATC asset classes into special purpose entities owned by private sector consortiums having purchased them, which can then be efficiently modernized.

Application of modern management and innovative financing approaches, including a PPP model, and methods such as "Systems as a Service" will assign more risk to the operator or consortium responsible for modernization and sustainment. Use of innovative financing options would serve as a critical supplement to existing financing programs, new forms of Build America Bonds, and other prudent funding opportunities.

Congress has a critical role, and must create the legislative framework for these methods to proceed in law. From a fiscal standpoint, Congress will only need to appropriate a small percentage of the total costs to modernize, in turn rapidly creating the modern and efficient air transportation system America needs.

The benefits of these plans are clear: jobs, economic vitality, a modernized air traffic control system, and

an innovative approach that blasts away ingrained agency inefficiencies without raising taxes on working Americans. In this way, the Trump Administration can take concrete steps to “drain the

swamp”, achieve the “Vision,” and progress toward real civil aviation infrastructure renewal.

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<sup>1</sup> "Antiquated Air Traffic Control Systems Are Becoming a Serious Threat to Safety." *The Economist*. The Economist Newspaper, 10 Aug. 2016. Web.

<sup>2</sup> Ibid.

<sup>3</sup> [Federal Aviation Administration FY 2017 President's Budget Submission](#)

<sup>4</sup>. NextGen proposes to transform America's air traffic control system from a radar-based system with radio communication to a satellite-based one. GPS technology will be used to shorten routes, save time and fuel, reduce traffic delays, increase capacity, and permit controllers to monitor and manage aircraft with greater safety margins. (Source: Wikipedia)

<sup>5</sup> [Statement of Calvin Scovel, Inspector General, U.S. Department of Transportation, before the House Aviation Subcommittee, Hearing on ATC Modernization, February 5, 2014](#)

<sup>6</sup> [Federal Aviation Administration FY 2017 President's Budget Submission](#)

<sup>7</sup> International Public Management Journal, Volume 7, Issue 3, pp. 385-414, 2004.

<sup>8</sup> [2013 American Society of Civil Engineers Report Card for America's Infrastructure](#).

<sup>9</sup> *Public-private Partnerships and the Global Infrastructure Challenge*. Rep. no. FK0124: EY Global, 2015. Print.

<sup>10</sup> Private Finance Initiative

<sup>11</sup> *Pension Markets in Focus*. Rep. OECD, 2015. Web. 30 Nov. 2016.

<sup>12</sup> Mooney and Newlands. "Third More Pension Funds Invest in Infrastructure." *Financial Times*. N.p., 7 Feb. 2016. Web. 30 Nov. 2016.

<sup>13</sup> <https://www.donaldjtrump.com/policies/an-americas-infrastructure-first-plan>