



February 11, 2021

Secretary Peter Buttigieg
United States Department of Transportation
1200 New Jersey Ave, SE
Washington, DC 20590

Dear Secretary Buttigieg,

The Ground-Based Aviation Infrastructure Coalition is a broad based group of industry leaders focused on ensuring the safety, resiliency and operational efficiency of the National Airspace System (NAS). On behalf of the Coalition and our member companies, congratulations on your confirmation as Secretary of the U.S. Department of Transportation. We look forward to working with you and your team as you prepare to tackle one of the President's most pressing objectives: rebuilding our nation's aging transportation infrastructure.

As you begin your tenure at the DOT, we thought it would be helpful to provide some background on the often unseen yet safety critical ground-based aviation infrastructure, why there is an urgent need to modernize, and the significant benefits that will accrue. The information provided also serves as a framework for some high-level recommendations that we respectfully submit for consideration.

Background

Our nation's aviation system - an essential component of our transportation infrastructure - is a major foundation of our economy and affects the daily lives of nearly every citizen. The backbone of the aviation infrastructure is a network of safety critical ground-based facilities and systems that guide every aircraft in the sky. Much like many of our bridges and water transport systems, this critical infrastructure is very old and in dire need of replacement.

For the last 20 years, the FAA has been systematically dedicated to the implementation of NextGen to enable more efficient flight operations in the NAS. During this period, investment has shifted away from legacy ground-based Air Traffic Control (ATC) infrastructure. To put this in perspective, the FAA now operates and maintains one of the *oldest collections of safety critical aviation infrastructure in the world*.

With Covid-19 having fundamentally disrupted both the aviation industry and the economy, now is the time to reassess the FAA's longstanding investment priorities. While aviation traffic is at historically low levels, a unique and serendipitous opportunity exists to accelerate the long overdue cycle of aviation infrastructure modernization, create thousands of jobs to stimulate the economy, restore our domestic industrial base, reduce emissions, and address critical safety issues.

Evolving Investment Priorities

NextGen is a collection of systems and capabilities that leverage technological advancements in software, satellites, and data communications networks to increase capacity, reduce flight delays and improve aviation safety. As originally conceived, FAA's NextGen architecture would not only improve the efficiency of aviation, but would pay for itself by enabling the elimination of some legacy ground based Communications, Navigation and Surveillance (CNS) infrastructure.

While NextGen has been a technological success, it has taken decades to roll out and the price has been steep – consuming a large portion of FAA's F&E spending over the past 20 years. Over this same timeframe, the evolving geo-political realities of the world have upended the vision of NextGen as an all-encompassing solution. Satellite navigation (e.g. GPS) is highly vulnerable to spoofing and jamming (both nefarious and celestial), rendering it fundamentally unsafe for aviation to rely upon as the sole means of navigation. The events of September 11, 2001 painfully illustrated the indispensable need for non-cooperative, primary radar surveillance. Accordingly, the FAA has now acknowledged that legacy ground-based ATC infrastructure will remain as safety critical systems in the NAS for the foreseeable future (at least through 2045).

Due in part to this lack of re-investment, the legacy ground-based ATC systems are now operating well beyond their planned life expectancy. This includes the FAA's network of over 2,700 navigation and landing systems located at over 1500 sites in all 50 states, and over 600 primary and secondary radar systems, again located in all 50 states. Most of these systems were installed in the 1980's, and are now well past their intended service life.

The implications of this policy of neglect are apparent in FAA enacted budgets over this time period. Consistent with broader trends across all US Transportation Infrastructure, capital expenditures have remained flat while the operations and maintenance costs have steadily increased. This is an alarming and unsustainable trend.

What is Required and Why is it Urgent?

At present, the FAA has no comprehensive plan in place to rapidly modernize this aging infrastructure. SENSAR, which was originally envisioned to replace the legacy surveillance assets with proceeds from a 2024 spectrum auction, has been de-scoped and will, at best, only replace some of the FAA's Long Range radars. This leaves all of FAA's legacy terminal radars in limbo, with no plans to address emerging needs such as the surveillance of drones, advanced air mobility vehicles, and upper atmospheric supersonic aircraft.

DVT Sustainment, which is intended to modernize the aging enroute navigation aids, is beset by chronic delays and FAA's funding constraints. The most recent announcement contemplates a program that will achieving end-state "modernization" in **2062!** By that time, legacy navigation systems will be approaching **100 years old!** These systems are already operating into senescence, and it is important to understand that old electronic equipment is not sustainable indefinitely. Accelerating rates of component failures combined with parts obsolescence creates the risk of a cascade of field failures that will endanger aviation safety and the flying public.

Fundamentally, this is not just a funding problem. Over the past five years, industry and Congress have been urging FAA to address the modernization of these aging systems, and have added funding to several of these nascent sustainment programs, above the President's Budget request. Acquisition delays and an overall lack of urgency have exacerbated the problem. What is required now is a **fundamental reset of investment priorities**. Covid-19 has dramatically impacted the amount of aviation traffic globally. Air traffic volumes are not expected to recover until 2024, at the earliest. While the demands on the system are at unprecedentedly low levels, FAA needs to seize this unique opportunity to rapidly modernize the safety critical legacy ATC infrastructure.

What are the Benefits?

- **Jobs** - This modernization program **will create thousands of full and part-time jobs** in all 50 states and U.S. territories. These jobs will include civil construction, manufacturing, electrical technicians, aerospace and electrical engineers, and program managers. The positive job impacts will be broad-based.
- **Increase aviation safety and reliability** - The availability of many of these 35+ year-old ATC systems is well below the required performance levels, and lack of investment will lead to further performance reductions and increased failures. Modernizing these systems will reverse this trend and **provide a reliable and safe system for pilots and the flying public for years to come.**
- **Restoration of the National Security Aerospace Industrial Base** – As the FAA’s acquisitions for ground based aviation infrastructure have dried up, the critical skills, know-how and industrial base have moved overseas. There is not a single domestic supplier of ATC radars remaining in the United States! Rapid modernization of these systems with an accelerated cycle of tech refresh would result in an immediate Build Back of these capabilities to serve the large US aviation market.
- **Lower federal operating costs** - The aging ground based infrastructure is increasingly expensive to maintain. A network of modern, efficient, and highly reliable ground-based navigation systems will be much more cost effective, significantly reducing on-going operations and maintenance (O&M) cost. A rapid modernization of the aging navaid infrastructure alone would cut the cost of O&M by more than 50%, **saving US taxpayers more than \$3.5 billion over the next 20 years.**
- **Lower Carbon Footprint** - Modern electronics systems are smaller and require fewer components; fewer components draw less power; less power consumption creates less heat; less heat reduces facility air conditioning requirements, further reducing power consumption, and CO2 emissions. There has been a lot of focus on the need for aircraft to reduce their carbon footprint – the aviation industry must address similar opportunities on the ground.

Recommendations

The aviation industry remains a critical component of both our economy and our transportation infrastructure. The time has come to reset priorities, generate a sense of urgency, accelerate the acquisition process and rapidly modernize safety critical aviation infrastructure. Industry is ready and willing to support. We respectfully submit for your consideration the following recommendations:

1. The FAA Administrator should immediately establish a comprehensive **Infrastructure Modernization Plan**. The goal of the Modernization Plan should be to reduce the Average Service Age of its entire network of safety critical ATC systems below their respective design service life, by 2030.
2. The FAA Administrator should appoint an Infrastructure Modernization Czar, to focus exclusively on aviation infrastructure modernization. The Infrastructure Czar should have budget and execution authority to oversee the acquisition, planning, scheduling and implementation of modern, field proven, ICAO certified, “non-developmental” ATC systems, which are readily available on the market from multiple qualified vendors.

3. The FAA Administrator should establish a formal policy (along with a set of public facing metrics) that ensures that the Average Service Age of safety critical aviation infrastructure remains below its planned service life while operating in the NAS. Such metrics are well aligned with existing FAA Strategic Goals on infrastructure and safety, and are consistent with the **Infrastructure Modernization Plan** outlined above.
4. The FAA Office of Environment and Energy should establish a policy (along with a set of public facing metrics) that ensures a significant reduction in power consumption by ground based aviation infrastructure (from both facilities and equipment) over the next 10 years. Target power consumption savings should be commensurate with the overall efficiency improvements in the electronics industry since 1980.

As part of the House passed FY21 T-HUD bill (H.R 7616), \$500 million was provided for FAA Facilities and Equipment, for the purpose of "...replacing air route traffic control centers, air traffic control towers, terminal radar approach control facilities, and navigation and landing equipment." We supported this measure as a first step, and we recommend a similar initiative for FY22.

Finally, as you develop recommendations for a comprehensive Infrastructure Bill, we remain at your disposal to provide assistance, subject matter experts, and answer questions as they arise. We welcome the opportunity to meet with you at your convenience to discuss how industry and government can work together to advance, strengthen, and ensure the long-term safety of United States aviation system.

Respectfully,

The Ground-Based Aviation Infrastructure Coalition

- Thales USA, Inc., Overland Park, KS
- Parsons Corporation, Centerville, VA
- Selex ES Inc., a Leonardo Company, Overland Park, KS
- Moog, Inc., Buffalo, NY
- New Bedford Panoramex, Inc., Claremont, CA
- Antenna Products, Inc., Mineral Wells, TX
- dB Systems, Inc., Hurricane, UT

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