



Equipping Aircraft Will Create Jobs and Achieve Environmental & Safety Benefits Now

NextGen (Next Generation Air Transportation System) is the FAA's plan for the complete transformation of today's antiquated ground-based air traffic system to a more efficient system based on advanced technologies that enable air traffic control to utilize shared precision information between controllers and pilots. Unfortunately, the FAA's current plan doesn't achieve significant investment return for the aviation transportation system until 2025. This is due, in large part, to the challenge of aligning investments in air and ground infrastructure and across the stakeholders – the “chicken and egg” syndrome. An infusion of stimulus funding would jumpstart this process, dramatically advancing the schedule and resulting in job creation, a reduction in carbon emissions, and an air transportation system supporting economic growth. Significant benefits that FAA and Congress believe will be realized over the next 17 years could actually happen in President-elect Obama's first term.

Justification

Benefits: Combining FAA's infrastructure modernization with enhanced aircraft equipage and new procedures offers significant benefits:

- job creation
- improved airline environmental performance and reduced CO2
- enhanced safety and security capabilities
- enhanced system capacity/operational performance, leading to reduced delays for consumers
- reduced FAA operating costs
- establish all-weather access to general aviation airports

Approximate Economic and Employment Impacts: Using the FAA methodology for calculating jobs created, it is estimated that an infusion of \$4 billion in funding for NextGen would generate 77,000 jobs. The methodology referenced is a multiplier system developed by FAA’s Aviation Policy, Plans and Environment Office, based on Bureau of Labor Statistics figures, which estimates the number of jobs that would be created for each \$1 million invested in NextGen:

- Aircraft Equipage: 24 jobs per million invested
- Construction: 21 jobs per million invested
- Research & Development: ranges from 32-36 jobs per million invested

In September 2008, passenger airline employment fell to 397,400, marking the first plunge below 400,000 since the Bureau of Transportation Statistics began maintaining these figures in 2003. It also marked a decline of 22,400 jobs from December 2007 and 68,300 jobs since 2003. The jobs created will be high paying jobs - both manufacturing jobs and jobs created by the installation and maintenance of the equipage. A viable aviation sector enhances economic activity in a wide number of industries outside aviation including, among many others, travel and tourism and industries that rely on just in time global inventories and shipping capability.

Global Competitiveness: ATC modernization is a global issue with plans and developments occurring in Europe and other rapidly growing regions. In addition to the significant domestic benefits, early investment in NextGen will increase demand for U.S.-developed ATM solutions in international markets, further strengthening the contribution of aerospace to the U.S. balance of trade and creating additional jobs.

Environmental Impact: According to FAA, the full implementation of NextGen could reduce greenhouse gas emissions from aircraft by up to 12 percent by 2025. This reduction in CO2 production is roughly equivalent to taking 2.2 million cars off the road for one year. As recently as May, 2008, the Government Accountability Office (GAO) recommended that NextGen technologies and procedures be deployed “as soon as practicable” to realize these environmental benefits. The GAO concluded that NextGen will allow for more direct routing, which will improve fuel efficiency and reduce carbon dioxide emissions, as well as the emission of other air pollutants such as carbon monoxide, sulfur oxides, particulate matter, nitrogen oxides, unburned hydrocarbons, hazardous air pollutants, and ozone.¹

Key pieces of NextGen include “Automated Dependent Surveillance – Broadcast” Out/In (ADS-B Out/In). ADS-B Out/In components would provide controllers with much more precise aircraft position information, which safely enables closer separation standards and more efficient use of airspace, improving the passenger experience and economics, while also reducing emissions. Other critical components are performance-based navigation capabilities known as RNAV and RNP (Area Navigation and Required Navigational Performance) that are based on precise satellite navigation, which complements ADS-B benefits. One additional component, the

¹ “NextGen and Research and Development Are Keys to Reducing Emissions and Their Impact on Health and Climate,” GAO Report GAO-08-706T, May 6, 2008.

Electronic Flight Bag (EFB), provides an information management platform designed to significantly reduce the likelihood of runway incursions while also providing pilots access to navigation charts and airport displays.

ADS-B, in conjunction with Continuous Descent Arrivals and RNP/RNAV approaches, has the ability to reduce the fuel burn of every arrival by up to 2000 lbs. It can change the way oceanic traffic operates – reducing a trans-Atlantic flight by 45 minutes and dramatically reducing fuel burn and CO2 production. The environmental improvement from these direct routes and their reduced fuel burn are significant. But, aircraft must be appropriately equipped to use these technologies.

Cost: Experts estimate total NextGen implementation costs at \$40 billion: \$20 billion for FAA program development, research and development, deployment, and technology acquisition, and \$20 billion for operators for avionics equipment, training and related costs. In fact, we anticipate that the FAA will be requesting stimulus funding to accelerate their NextGen infrastructure needs as well as funds to accelerate the needed standards, procedures and criteria which will be required in order for aircraft to take advantage of the full benefits from equipment. Thus, our proposal for stimulus funding should dovetail well with FAA's NextGen request.

Key Enabling Technologies: Representative operational/navigational measures that reduce fuel burn/greenhouse gas emissions from aircraft

- Area Navigation (RNAV) – enables aircraft to fly on any path within coverage of ground or space-based navigation aids, permitting more access and flexibility for point-to-point operations
- Required Navigation Performance (RNP) procedures (higher performance RNAV) – monitors aircraft performance, enables closer en route spacing without intervention by air traffic control and permits more precise and consistent departures/arrivals. Another immediate infrastructure improvement is available with investments in precision satellite-based instrument approaches, called Localizer Performance with Vertical (LPV) approaches. LPV approach procedures improve safety and provide all weather access at thousands of general aviation airports.
- Automatic Dependent Surveillance-Broadcast (ADS-B) – ADS-B is a critical component for advancing a next-generation air transportation system. By relying upon satellite and additional technology, ADS-B enables an aircraft to constantly broadcast its current position simultaneously to air traffic controllers and other aircraft. Tremendous safety, security, capacity and environmental improvements are realized.

Unlike ground radars, ADS-B offers much more precise data on an aircraft's position in the sky or on the runway, including altitude, category of aircraft, airspeed and identification. ADS-B has two components. ADS-B "Out" and "In". ADS-B "Out" continuously transmits an aircraft's position, altitude and intent to controllers. ADS-B "In" is the reception of the transmitted data by other aircraft which allows pilots to have a complete picture of their aircraft in relation to other traffic.

ADS-B has the potential to reduce delays, reduce fuel burn through more efficient routings, and increase capacity – all while improving safety. But, this can only be achieved if the current and future fleet of commercial and general aviation aircraft have the on board equipment to use this technology. In today's difficult economic environment, the cost for these critical avionics components is prohibitive – especially the difficult and expensive process of retrofitting the current fleet.

- Ground-Based Augmentation System (GBAS) – GBAS is the next generation technology to support precision landings. It provides additional information to aircraft to allow GPS to be used for landings in low visibility conditions. This minimizes schedule disruptions due to weather and also enables more environmentally-friendly procedures and increased safety during ground operations.

Government funded equipment purchases for industry – especially for ADS-B and its related components – is not unprecedented. Congress authorized and funded grants for Alaska's CAPSTONE project and the Ohio River Valley project for which United Parcel Service was the test carrier for ADS-B demonstrations at Louisville airport.

To solve these critical aviation transportation issues and stimulate the economy, it is critically important that we begin equipping aircraft today.

Components of Request

(Total Request - \$4.048 billion)

- ADS-B (\$2.2 billion);
- RNP Equipage (\$500 million)
- FAA RNAV/RNP Procedure Development (\$20 million);
- FAA LPV Procedures Development (\$500 million);
- Electronic Display Upgrades (including EFBs), (\$458 million)
- GBAS, (\$370 million)

As the Congress continues to consider a stimulus package focused on job creation, investment in critical infrastructure, and pursuit of clean energy technology, one viable approach is to invest in accelerating the modernization of the nation's aviation infrastructure. Congress recently estimated the cost of air traffic control (ATC) system delays economy-wide at over \$40 billion. Systemic delays in the air traffic system can be significantly reduced by accelerating deployment of Next Generation Air Traffic Management (NextGen) tools and procedures described above.

This request is made on behalf of the commercial and general aviation communities. Although \$4 billion is only a fraction of the estimated total of \$20 billion in required equipage costs, it will provide a sufficient jump start to significantly accelerate these programs and their benefits.

NextGen Stimulus Proposal/Proposed Language:

FEDERAL AVIATION ADMINISTRATION

NEXTGEN AIR TRAFFIC SYSTEM ACCELERATED DEPLOYMENT GRANTS

To make grants for the direct costs of purchasing and installing NextGen equipment to retrofit general aviation or commercial aircraft that is registered under section 44103 of title 49, United States Code, \$4,000,000,000, to remain available until expended: *Provided*, That amounts made available under this heading may be used to reimburse the actual expenses incurred by an owner or operator of aircraft for purchasing and installing NextGen equipment after the enactment of this Act: *Provided further*, That NextGen equipment shall include, but is not limited to, on-board avionics, electronic flight bags, cockpit displays, surface moving maps, and software upgrades: *Provided further*, That none of the funds under this heading may be expended to install equipment on an aircraft at a facility located outside of the United States: *Provided further*, That the Administrator may use amounts made available under this heading for activities, including establishing procedures and criteria, to ensure that the benefits of the NextGen equipment purchased and installed under this heading are realized: *Provided further*, That the Federal share of the costs for which a grant is made under this heading shall be 100 percent: *Provided further*, That not later than 30 days after enactment of this Act, the Administrator shall establish a process for applying, reviewing, and awarding a grant: *Provided further*, That the application for a grant must be in the form and contain the information the Administrator requires.