

FAA NextGen

MODERNIZING OUR NATION'S SKIES



WHAT IS NEXTGEN

The Next Generation Air Transportation System, or NextGen, is modernizing the national airspace from a ground-based radar system to a satellite-based navigation system, from voice to digital communication, and from point-to-point data to a fully integrated information management system—changing how we see, navigate, and communicate in our nation's skies.

The U.S. air traffic control (ATC) system is moving from only knowing where an aircraft is right now, to predicting where an aircraft is going to be at critical times along its flight path. Such “trajectory-based operations” increase predictability and efficiency throughout the national airspace. NextGen is already improving safety, capacity, and efficiency on runways and in our skies while reducing fuel burn, carbon emissions, and noise.

WHY NEXTGEN

2.3 million passengers on 50,000 flights move daily through the National Airspace System (NAS)—and that could increase by 50 percent by 2027. According to a UC Berkeley study, air transportation delays and congestion in 2007 cost the U.S. economy \$32.9 billion. To keep pace with increased demand while minimizing the potential for delays, the way air traffic services are provided needs to change. Modernization of the NAS comprises multiple technologies, policies, and procedures that transform how aircraft fly from airport gate to airport gate; it will increase safety, efficiency, use of available capacity, access, flexibility, predictability, and resilience of the NAS while reducing environmental impacts. Also, new commercial space and unmanned aircraft system users require unique solutions for safe integration into the NAS.

IMPLEMENTATION

Recent major NextGen milestones include:

- › Deployment of En Route Automation Modernization (ERAM) at 20 control centers. ERAM covers most of the nation's more than 3.2 million square miles and enables air traffic controllers to handle more than 30 million flights annually.
- › Completed installation of Automatic Dependent Surveillance-Broadcast (ADS-B) networked sensors in April 2014. Air traffic control facilities currently use ADS-B, allowing aircraft to determine and broadcast position via satellite navigation—which enables tracking by ATC ground stations and other aircraft. The aviation industry was required to be fully equipped with ADS-B technology starting in 2020.
- › Testing of a new digital communication system called DataComm at Newark and Memphis airports. DataComm provides a digital link between ground automation and flight deck avionics for safety-of-flight ATC clearances and instructions.
- › Outdated automated ATC systems are being replaced and modern technologies have been added for communications, navigation, surveillance, traffic flow management, information sharing, and weather forecasting. Most of this infrastructure is complete, and the FAA plans on finishing and integrating all major components by 2025.
- › The FAA is providing rebates and other incentives to help operators equip their aircraft to take advantage of the new capabilities—a partnership critical to NextGen success.

REALIZED BENEFITS

- › The FAA has measured \$4.7 billion in benefits from 2010 to 2017 to airlines and the traveling public from NextGen capabilities already in place. Over the next 15 years NextGen should produce an additional \$11.4 billion in benefits.
- › Hartsfield–Jackson Atlanta International Airport reports that flights are 48 percent faster from the gate to departure and into en route airspace.
- › Airlines will burn at least 2.5 million fewer gallons of fuel each year in the skies above Washington, DC, while emitting at least 25,000 fewer metric tons of carbon dioxide (equivalent to 5,263 passenger vehicles or 8,961 tons of waste taken to landfills).
- › Delta Air Lines reports saving up to two minutes of outbound taxi time per flight and saving \$13–\$18 million in operating costs annually.
- › Efficiency and use of available capacity increased with improved multiple runway operations, separation management, and improved approaches and low-visibility operations.



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