



Highlights of [GAO-08-384](#), a report to congressional committees

## Why GAO Did This Study

Reducing aviation noise is important to the efficient operation and expansion of the National Airspace System because community opposition to aviation noise is a major obstacle to airport and runway development. Such development is needed to help address congestion and meet the nation's rapidly growing demand for air travel. The Federal Aviation Administration (FAA) and the National Aeronautics and Space Administration (NASA) have the primary federal responsibility for research and development (R&D) on aviation noise. FAA focuses on the impacts of aviation noise on communities, while NASA focuses on noise at its source—aircraft engines and airframes. Both FAA and NASA have set noise reduction goals.

This congressionally requested report on aviation noise addresses (1) FAA's and NASA's R&D plans for addressing aviation noise and the extent to which they are aligned and (2) FAA's and NASA's noise reduction goals and the likelihood that these goals will be achieved.

To conduct its work, GAO reviewed FAA's and NASA's R&D planning documents, coordinating mechanisms, and research plans and interviewed agency officials. In addition, aviation industry representatives reviewed and commented on a draft of this report. A draft was provided to FAA and NASA. Both agencies had no comment.

To view the full product, including the scope and methodology, click on [GAO-08-384](#). For more information, contact Gerald L. Dillingham at (202) 512-2834 or [dillingham@gao.gov](mailto:dillingham@gao.gov).

## AVIATION AND THE ENVIRONMENT

### FAA's and NASA's Research and Development Plans for Noise Reduction Are Aligned, but the Prospects of Achieving Noise Reduction Goals Are Uncertain

#### What GAO Found

FAA's and NASA's R&D plans include a wide range of projects for addressing aviation noise, and these plans are aligned through partnerships and planning and coordinating mechanisms. FAA sponsors aviation noise R&D in areas such as aviation noise measurement, aviation noise effects, aviation noise and emissions interrelationships, and flight procedures and technologies to mitigate the impact of noise on communities. FAA sponsors much of this research through partnerships with universities; other federal agencies, including NASA; and industry. NASA conducts R&D that can eventually lead to new technologies for making substantially quieter aircraft provided that the technologies are further developed by industry and integrated into production-ready aircraft designs. FAA and NASA have aligned their aviation noise R&D activities by working with interagency planning and coordinating groups to establish objectives for the nation's aeronautical research and for specific research on the environmental impacts of next generation aviation technologies. Both agencies also serve on the same aviation research advisory groups, and the alignment of their aviation noise R&D activities is reflected in strategic plans for the National Airspace System that indicates how each agency's R&D efforts will contribute to meeting goals for reducing noise and thereby help reduce community opposition to increasing aviation system capacity.

FAA's and NASA's noise reduction goals are designed, together, to reduce people's exposure to aviation noise primarily by reducing such noise at its source, but the likelihood of achieving these goals is uncertain. Under FAA's targets, the number of people exposed to significant aviation noise—estimated at 500,000 nationwide—would be reduced by 4 percent a year through fiscal year 2012. NASA's targets, established for the next three generations of aircraft, would lead to the entry into service of successively quieter aircraft by 2015, 2020-2025, and 2030-2035, respectively. The likelihood of meeting these targets depends on a number of uncertainties. First, federal funding will be needed not only for NASA's research but also for later-stage R&D, which NASA expects others to perform. The administration has proposed a 10-year program to support later-stage R&D to demonstrate technologies for industry acceptance. But even if funded, the development of noise reduction technologies may be limited by concerns about global warming, since advances in these technologies could make it more difficult to also achieve reductions in aircraft emissions of greenhouse gases. Also uncertain is the extent to which manufacturers will integrate newly developed technologies into aircraft and engine designs. Finally, it is uncertain whether airlines will purchase new aircraft or retrofit existing aircraft with the new technologies in sufficient numbers to achieve targeted reductions in exposure to aviation noise. Failure to achieve FAA's and NASA's noise reduction goals could constrain efforts to expand the National Airspace System's capacity and reduce congestion.