



Highlights of [GAO-08-786](#), a report to congressional requesters

Why GAO Did This Study

In September 2007, after 9 years of evaluation and a cost of over \$53 million, the Federal Aviation Administration (FAA) announced it would begin implementing a new airspace structure for the New York/New Jersey/Philadelphia metropolitan area. According to FAA, this redesign of routes leading to and from commercial airports will fully integrate the airspace in the region, produce \$300 million annual savings, and reduce delay by 20 percent once fully implemented. Critics disagree and cite potential increases in aircraft noise and other adverse environmental impacts. GAO was asked to examine: (1) the extent to which FAA followed legal requirements for its environmental review, (2) the extent to which FAA's methodology in assessing operational and noise impacts was reasonable, and (3) the likelihood FAA will meet its projected time frames and costs of implementation. GAO's legal analysis covered applicable federal laws, regulations, court decisions, and FAA orders. GAO's analysis of FAA's methodology was based on criteria established through review of federal policy, FAA's guidance, prior GAO reports, and standards from the aviation and analytical community. With the assistance of the National Academy of Sciences, GAO identified experts in the fields of environmental policies and procedures, airspace operations, and aircraft noise measurement and obtained their views on relevant aspects of FAA's methodology.

FAA AIRSPACE REDESIGN

An Analysis of the New York/New Jersey/Philadelphia Project

What GAO Found

GAO evaluated FAA's compliance with the National Environmental Policy Act (NEPA) and environmental justice directives in conducting the New York/New Jersey/Philadelphia Airspace Redesign project. In assessing compliance, GAO used established court precedent applying these requirements, as well as the standard of review for agency actions established by the Administrative Procedure Act (APA), which is deferential to agency decision making. Courts interpret the APA standard—whether an agency's actions were “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law”—as mandating that an agency act reasonably in carrying out NEPA's requirements and that the agency's ultimate decisions be reasonable and not arbitrary and capricious. GAO reviewed FAA's compliance with respect to five key issues: the statement of the project's purpose and need, the evaluation of alternatives, consideration of the project's environmental effects, public participation, and environmental justice matters. GAO selected these issues based on public concerns raised during and after the NEPA process, congressional interest, the views of experts we interviewed, and GAO's evaluation of the range of concerns presented.

Applying these legal requirements and the APA's reasonableness standard, GAO concluded that FAA complied with applicable NEPA requirements and related environmental justice directives. First, the statement of the project's purpose and need—which defines the objective of the project and which, in this case, was to increase the efficiency and reliability of the airspace while enhancing safety and reducing delays—was reasonable. The statement was reasonable in scope, as it was not defined too narrowly or too broadly, and it reasonably excluded noise reduction. Second, FAA developed a reasonable range of alternatives to the redesign and appropriately evaluated these alternatives. As required, FAA included a no-action alternative to serve as a baseline, as well as alternatives that would achieve the project's purpose and need. FAA also discussed options eliminated from detailed analysis, and explored and objectively evaluated the remaining alternatives. Third, FAA acted reasonably in not analyzing the indirect environmental effects of potential growth resulting from the redesign. Because FAA found the redesign in itself would not increase traffic demand and flight operations, it did not consider the potential environmental impacts of these system improvements. In the aviation context, courts have uniformly upheld similar decisions by FAA where, as in this case, the purpose of the project was not to induce growth and the project did not include capacity-enhancing construction, such as the addition of a runway. Fourth, FAA reasonably involved the public throughout the environmental review process. It took actions required to ensure public outreach including conducting an early and open process, providing notice of and holding public meetings, and soliciting and responding to public comments. Fifth, FAA satisfied environmental justice directives in Executive Order 12898 and related guidance and Orders. FAA prepared an analysis that identified minority and low-income populations significantly

What GAO Recommends

GAO recommends that FAA develop and follow a detailed implementation plan for the New York/New Jersey/Philadelphia Airspace Redesign that includes a time and cost schedule and follow a post implementation evaluation plan that includes an adaptive management strategy. In addition, GAO recommends that for future airspace redesign projects, FAA conduct an uncertainty analysis of key assumptions and inputs to provide information on the level of confidence of the estimated impacts and conduct a benefit-cost analysis for the purpose of evaluating redesign alternatives.

A draft was provided to DOT and FAA. While DOT said it does not agree with everything in the draft, due to pending litigation, DOT declined to specify its areas of agreement or disagreement. DOT provided technical comments that we incorporated as appropriate.

To view the full product, including the scope and methodology, click on [GAO-08-786](#). For more information, contact Susan Fleming, 202-512-2834, flemings@gao.gov or Susan Sawtelle, 202-512-6417, sawtelles@gao.gov.

What GAO Found (continued)

impacted by the proposed redesign, and determined whether the impact on these populations was disproportionate. FAA also involved these individuals throughout the environmental review process. In addition, FAA mitigated these significant impacts by altering arrival procedures and departure headings, raising arrival altitudes, and other related measures.

FAA's methodology to assess operational and noise impacts was reasonable, based on FAA's guidance for conducting airspace redesigns, standards from the aviation and analytical community, and the opinion of independent aviation operational and noise experts. FAA's guidance suggests activities for conducting a redesign's operational analysis and establishes specific guidelines for conducting a noise analysis. FAA generally adhered to this guidance in conducting the redesign, in that FAA generally followed its process for conducting operational analyses and used the noise modeling tool and metric specified in its guidance. In addition, according to experts, FAA used experienced contractors, the best available modeling tools, and appropriate data. For example, according to FAA and experts we interviewed, the data sources, such as FAA radar flight track data, U.S. Geological Survey terrain data, and U.S. Census Bureau data, are industry standard and generally recognized as providing reliable information. However, GAO and experts also identified some ways in which the methodology could be improved for future redesign projects. For example, when evaluating the alternatives, FAA did not analyze various economic impacts, such as implementation costs. GAO identified two types of analyses—an uncertainty analysis and a benefit-cost analysis—that could have benefited decision makers and the public in future redesign efforts. An uncertainty analysis would provide more information about the level of uncertainty associated with conducting the operational analysis, while a benefit-cost analysis would provide more information about the impacts of various alternatives.

FAA has not developed a detailed implementation plan for the New York/New Jersey/Philadelphia Airspace Redesign with a schedule, and therefore GAO was unable to determine whether FAA would meet its projected timetable. In addition, the final project configuration and costs are unknown since FAA has not determined the type of equipment and software that will be needed and FAA is currently reviewing whether to house operations for the redesigned airspace in existing FAA facilities, a new facility, or a consolidated facility. Given that the redesign represents a complex and comprehensive change to the region's airspace, GAO believes it is important to conduct evaluations of the redesign after each implementation step to ensure proper implementation. A potential strategy that could be used by FAA is an adaptive management strategy, which is a process that promotes flexible decision making as outcomes from management actions become understood.