

GAO Highlights

Highlights of [GAO-19-78](#), a report to congressional committees

Why GAO Did This Study

The Smithsonian's National Air and Space Museum is home to the world's largest collection of historic aircraft and spacecraft, attracting millions of visitors annually (see fig.). Since the museum on the National Mall opened in 1976, substantial degradation of the building's mechanical systems and exterior façade has occurred, posing risks to the museum's collections, staff, and visitors. To address these and other issues, the Smithsonian is undertaking a federally funded whole-building revitalization project, with construction planned for late 2018 through mid-2024. The Smithsonian estimated the total project costs at \$666 million but committed to identifying cost savings to cap the budget at \$650 million.

The Explanatory Statement accompanying the Consolidated Appropriations Act, 2017, included a provision for GAO to review and analyze these cost estimates. This report: (1) describes the status of the National Air and Space Museum revitalization project and (2) examines the extent to which the Smithsonian's estimate has the characteristics of a reliable cost estimate.

GAO analyzed project documents; interviewed Smithsonian officials, contractors, and consultants; and compared the Smithsonian's methodologies for developing its December 2017 cost estimate for the National Air and Space Museum revitalization, which was based on the project's fully developed design, with best practices identified in GAO's *Cost Estimating and Assessment Guide*.

View [GAO-19-78](#). For more information, contact Heather Krause at (202) 512-2834 or krauseh@gao.gov.

October 2018

NATIONAL AIR AND SPACE MUSEUM

Smithsonian's Efforts to Improve Reliability of Its Revitalization Project's Cost Estimate Are Ongoing

What GAO Found

The Smithsonian Institution (Smithsonian) has completed planning and design work for its National Air and Space Museum revitalization project and started the first of two construction phases in October 2018. This phased approach should allow the building to remain open to the public during construction. In August 2018, the Smithsonian finalized a "guaranteed maximum price" (GMP) contract, which generally sets the maximum amount that the Smithsonian is to pay for construction services. In preparation for construction, Smithsonian also awarded a contract for demounting and transporting the museum's artifacts to off-site storage. To date, the Smithsonian has used or allotted \$250 million of its prior-year appropriations for the project's planning, design, and initial construction. The Smithsonian plans to request \$400 million in total from fiscal years 2019 through 2022 to fund construction and other project-related activities.

National Air and Space Museum on the National Mall



Source: Smithsonian Institution - National Air and Space Museum. | GAO-19-78

GAO found that the Smithsonian's December 2017 cost estimate substantially met three of the four best practices outlined in GAO's *Cost Estimating and Assessment Guide* and that the Smithsonian is taking steps to institute practices to enhance the estimate's credibility. GAO's best practices help ensure reliable cost estimates that are comprehensive, well documented, accurate, and credible. The Smithsonian's cost estimate substantially met comprehensive, well-documented, and accurate characteristics because, among other attributes, it included ground rules and assumptions, documented steps to calculate cost components, and was adjusted for inflation. The Smithsonian's cost estimate only partially met best practices for the credible characteristic. Specifically, while the Smithsonian had completed a risk analysis and a sensitivity analysis when the project design was 35 percent complete, it postponed updating the analyses when the design was completed because it determined that the analyses could benefit from project schedule information that was concurrently being developed. By postponing the update, the Smithsonian did not have current information available to inform its GMP contract negotiations and was therefore not able to consider how existing risks may have changed or to ensure that the cost of the GMP contract appropriately reflected new risks. However, in May 2018 the Smithsonian contracted to have these analyses updated based on the revised estimate that incorporates the negotiated GMP cost. By updating the analyses, the Smithsonian will be better able to make decisions and mitigate risks as construction progresses. Further, updating these analyses will improve the credibility of the cost estimate and better position the Smithsonian to make well-informed budget requests to Congress for remaining project costs.