July 2022

NATIONAL SCIENCE FOUNDATION

Continued Cost and Schedule Increases for Major Facilities Projects in Construction

GAO Highlights

Highlights of GAO-22-105550, a report to congressional committees

Why GAO Did This Study

NSF supports the design, construction, and operations of science and engineering research infrastructure such as telescopes and research vessels. These projects include major facilities that cost over $100 million to construct and mid-scale projects. As the COVID-19 pandemic is ongoing, NSF is continuing to respond to the pandemic's effects on cost and schedule performance to further the construction and design of these projects. Prior GAO reports reviewed NSF's oversight of these projects and cost estimating and schedule policies.

Congress included provisions in several congressional reports for GAO to review projects funded from NSF's Major Research Equipment and Facilities Construction account. This report, the fifth, (1) examines the cost and schedule performance of NSF's ongoing research infrastructure projects, (2) evaluates the extent to which NSF followed its guidance to respond to pandemic-related risks for major facilities projects in construction, and (3) describes the extent to which NSF has implemented prior GAO recommendations.

GAO reviewed NSF and award recipient documents, examined policies and procedures to manage and oversee projects, and interviewed NSF officials for clarifying information.

What GAO Recommends

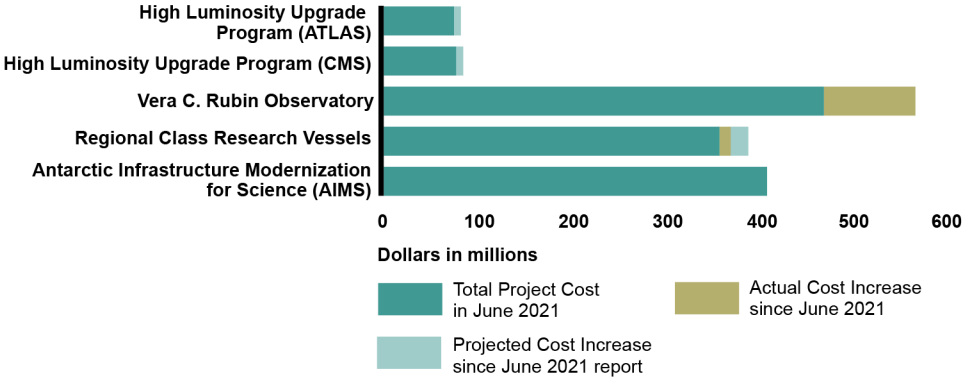
NSF agreed with and has taken steps to address the remaining recommendation from GAO's prior report to improve the project management skills of its staff.

View GAO-22-105550. For more information, contact Candice N. Wright at (202) 512-6888 or WrightC@gao.gov.

What GAO Found

Since GAO's June 2021 report on the status of the National Science Foundation's (NSF) major facilities and mid-scale research infrastructure projects, NSF completed construction of the Daniel K. Inouye Solar Telescope. However, NSF continues to face cost increases, schedule delays, or both for the major facilities projects still in construction because of the pandemic and other factors. All major facilities projects in construction will be completely re-baselined by adjusting cost, schedule and scope beyond the original authorized award amounts. For example, NSF approved a re-baseline for the Vera C. Rubin Observatory that resulted in a cost increase of $98 million, which included approximately $8.5 million to address new data security requirements. NSF has projected cost increases for four of the remaining projects in construction and chosen to restructure the fifth project, the Antarctic Infrastructure Modernization for Science project. The effects of the pandemic on this project resulted in the decision not to fund certain portions of the project and instead, NSF will consider integrating these portions into a new program.

Projected and Actual Cost Increases of NSF Major Facilities Projects in Construction, as of March 2022



Source: GAO analysis of National Science Foundation (NSF) information. | GAO-22-105550

NSF developed new guidance for how award recipients should respond to cost and schedule increases caused by the pandemic. Specifically, the guidance instructs award recipients to refrain from using contingency funds reserved for foreseen risks identified during the design of a project or de-scoping a project to respond to pandemic-related risks. Instead, award recipients should request NSF-held management reserve, re-plan (adjust cost, schedule, or scope without impacting award amounts), or re-baseline their projects. NSF followed its guidance to respond to the pandemic, such as by using management reserves for the three projects that are farthest along.

NSF has implemented two of the three prior GAO recommendations, including revising policies for developing schedules for major facilities projects and establishing criteria to assess project management expertise of award recipients. NSF took steps to address but has not fully implemented the remaining recommendation to identify and address project management competency gaps of NSF's oversight workforce.