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Highlights

Highlights of [GAO-05-34](#), a report to the Subcommittee on VA/HUD-Independent Agencies, Committee on Appropriations, U.S. Senate

Why GAO Did This Study

Hubble's continued operation has been dependent on manned servicing missions using the National Aeronautics and Space Administration's (NASA) shuttle fleet. The fleet was grounded in early 2003 following the loss of the Space Shuttle Columbia, as NASA focused its efforts on responding to recommendations made by the Columbia Accident Investigation Board (CAIB). In January 2004, NASA announced its decision to cancel the final planned Hubble servicing mission, primarily because of safety concerns. Without some type of servicing mission, NASA anticipates that Hubble will cease to support scientific investigations by the end of the decade.

NASA's decision not to service the Hubble prompted debate about potential alternatives to prolong Hubble's mission and the respective costs of these alternatives. This report addresses the basis of NASA's cost estimates to (1) service Hubble using the shuttle and (2) implement recommendations made by the CAIB. GAO is continuing its work on the Subcommittee's request that GAO examine the potential cost of a robotic servicing mission to the Hubble Telescope.

What GAO Recommends

GAO is not making recommendations in this report.

www.gao.gov/cgi-bin/getrpt?GAO-05-34.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Allen Li at (202) 512-4841 or lia@gao.gov.

SPACE SHUTTLE

Costs for Hubble Servicing Mission and Implementation of Safety Recommendations Not Yet Definitive

What GAO Found

Although a shuttle servicing mission is one of the options for servicing the Hubble Space Telescope, to date, NASA does not have a definitive estimate of the potential cost. At our request, NASA prepared an estimate of the funding needed for a shuttle servicing mission to the Hubble. NASA estimates the cost at between \$1.7 billion to \$2.4 billion. However, documentary support for portions of the estimate is insufficient. For example, NASA officials told us that the Hubble project's sustaining engineering costs run \$9 to 10 million per month, but they were unable to produce a calculation or documents to support the estimate because they do not track these costs by servicing mission. Additionally, the agency has acknowledged that many uncertainties, such as the lack of a design solution for autonomous inspection and repair of the shuttle, could change the estimate.

At the same time, NASA has yet to develop a definitive cost estimate for implementing all of the CAIB's recommendations but has developed a budget estimate for safely returning the shuttle to flight—a subset of activities recommended by the CAIB as needed to return the shuttle to full operations. NASA currently estimates return to flight costs will exceed \$2 billion, but that estimate will likely be refined as the agency continues to define technical concepts. NASA provided support for portions of the estimate, but we found the support to be insufficient—either because key documents were missing or the estimates lacked sufficient detail. Further, NASA cautions that return to flight costs will remain uncertain until the first return to flight shuttle mission, which is scheduled to go to the International Space Station in spring 2005.

Hubble Space Telescope



Source: NASA.