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AUDIT REPORT

OFFICE OF AUDITS

NASA'S HANGAR ONE RE-SIDING PROJECT

OFFICE OF INSPECTOR GENERAL

National Aeronautics and
Space Administration

REPORT NO. IG-11-020 (ASSIGNMENT NO. A-11-008-00)

Final report released by:

Paul K. Martin
Inspector General

Acronyms

CoF	Construction of Facilities
FY	Fiscal Year
OIG	Office of Inspector General
OMB	Office of Management and Budget
PCB	Polychlorinated Biphenyl

OVERVIEW

NASA'S HANGAR ONE RE-SIDING PROJECT

The Issue

Hangar One – built in the 1930s to house the naval airship the USS Macon and located on Moffett Field, part of the Ames Research Center (Ames) – is one of the world's largest freestanding structures, covering approximately 8 acres. The hangar and many of the surrounding buildings are listed on the National Register of Historic Places and as such are protected by the National Historic Preservation Act (the Preservation Act).[1]

As part of its base realignment and closure process, the Navy transferred Moffett Field to NASA in July 1994. According to the memorandum of understanding governing the transfer, the Navy is responsible for "all actions related to the environmental restoration or remediation of any pollutant, contaminant or hazardous substance, including petroleum products, existing on or migrating from" Moffett Field.

Between October 2002 and July 2003, NASA discovered that polychlorinated biphenyls (PCBs) were leaking from the siding of Hangar One. To contain the PCBs and minimize the environmental hazard in the short-term, the Navy coated the hangar with an asphalt emulsion in October 2003. Thereafter, NASA and the Navy discussed possible longer-term solutions to the environmental problem, as well as which agency would be responsible for the associated costs. In August 2009, the Navy began preparing to strip away the siding and coat the exposed structural steel surfaces, but took the position that it was not responsible for re-siding the hangar. In March 2010, the Office of Management and Budget (OMB) settled the dispute between NASA and the Navy, determining that while the Navy would have to pay for the environmental cleanup, NASA was responsible for the cost of re-siding the hangar and making any additional upgrades and repairs necessary to prepare the hangar for reuse. In April 2011, the Navy began the work of removing the siding.

In February 2011, at OMB's direction, NASA included the re-siding project in the supplemental information for the President's fiscal year (FY) 2012 budget request at an estimated cost of $32.8 million. With these funds, NASA proposes to make the structure watertight by installing new but historically appropriate exterior siding, roofing, and windows.

[1] The Preservation Act, 16 U.S.C. § 470, authorizes the Secretary of the Interior to expand and maintain a National Register of Historic Places composed of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, and engineering.

For this audit, the Office of Inspector General (OIG) examined (1) whether the $32.8 million will cover the full costs of the Hangar One project (2) whether NASA has identified a NASA-related use or private tenants for the hangar; (3) the effect dedicating funds to hangar restoration may have on other NASA construction or renovation projects; and (4) whether NASA's plans to re-side the hangar comply with historical preservation requirements.

Results

The Hangar One Re-Siding Project was included in the President's FY 2012 budget request as a discrete construction project with an estimated cost of $32.8 million. However, even after the re-siding is complete, additional funding will be required – potentially tens of millions of dollars – for upgrades and repairs such as the connection of utilities, installation of lighting fixtures, and heating, cooling, and safety equipment to make the hangar fit for use. Moreover, although funds to re-side the hangar have been requested and estimates for additional work are being developed, NASA has neither identified a mission-related use for Hangar One nor identified private entities willing to commit to leasing the property. At the same time, other mission critical projects were removed from NASA's FY 2012 budget request in order to accommodate inclusion of the Hangar One Project. Finally, while Hangar One is protected by the Preservation Act, NASA is not required to re-side the hangar to comply with the Act.

In light of our findings and NASA's overall challenges related to maintaining its aging facilities, we question whether preservation of Hangar One is the best use of limited NASA funds. Even after expending more than $32 million, NASA will have a building that has no immediate or near-term prospects for reuse. Moreover, without a substantial infusion of additional funds for improvements, the building will not be available for occupancy by Agency employees or private entities, or even suitable as an aircraft hangar. In addition, expending funds on Hangar One will mean the continued deferral of other critical Agency renovation projects. In our judgment, NASA should analyze the full range of options before moving forward with the Hangar One Re-Siding Project.

Management Action

We recommended that the Associate Administrator for Mission Support consider the following alternatives for Hangar One: (1) re-side the hangar as described in the budget request and identify the annual maintenance cost assuming no use; (2) re-side the hangar and complete the upgrades and repairs necessary to allow for use as aircraft storage; (3) re-side the hangar and complete the upgrades and repairs necessary to allow for use as exhibition space or for other public assemblies; (4) demolish the hangar and carry out mitigation actions in accordance with the Preservation Act; and (5) transfer the hangar to another Government entity.

In response to a draft of our report, the Associate Administrator concurred with our recommendation and stated that NASA will evaluate the full range of alternatives no later than November 30, 2011. We consider the Associate Administrator's comments and proposed actions to be responsive to our recommendation. The recommendation is resolved and will be closed upon completion and verification of the proposed actions.

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INTRODUCTION

Background

Hangar One, located at Moffett Field in California, is part of the Ames Research Center's (Ames) NASA Research Park. Prior to its transfer to NASA in 1994, Moffett Field served as the West Coast base for the Navy's "lighter-than-air aviation program" and other military missions. Hangar One was built in 1933 and previously housed the naval airship the USS Macon.[2] The hangar is one of 22 buildings, 9 houses, and 3 monuments in the Shenandoah Plaza Historic District (see Figure 1). The structure is listed on the National Register of Historic Places (National Register), and is protected by the National Historic Preservation Act of 1966 (the Preservation Act) for its military and engineering significance.[3] (See Appendix B for more information on the Shenandoah Plaza Historic District.)

Figure 1. Example of a Building in the Spanish Colonial Style

Example of a building in the Spanish Colonial style in the Shenandoah Historic District at Ames. Hangar One is in the background.

Hangar One and its counterpart in Akron, Ohio, are the two largest structures in the United States without internal support.[4] Hangar One is 1,133 feet long by 308 feet wide

[2] The Macon was a rigid 784-foot long airship used by the Navy for scouting and as a flying aircraft carrier carrying five biplanes. The Macon was in service for less than 2 years before it was lost in a storm off the California coast in 1935.

[3] The Act, 16 U.S.C. § 470, authorizes the Secretary of the Interior to expand and maintain a National Register of Historic Places composed of districts, sites, buildings, structures, and objects significant in American history, architecture, archaeology, and engineering. The Act requires each federal agency to have a preservation program and sets forth the actions agencies must take when considering undertakings that affect a historic property. Hangar One was added to the National Register in 1992, and the larger historic district in 1994.

[4] Hangar One's sister structure, the Airdock, was built by the Goodyear Zeppelin Corporation in 1929.

and 198 feet tall with approximately 8 acres of floor space (351,000 square feet). Hangar One is distinctive not only because of its massive size, but also because of its design, known as "Streamline Moderne." The hangar's north and south walls are comprised of pairs of gigantic "orange-peel" or "clamshell" doors that run on a curved track and weigh about 500 tons each (see Figure 2).

Figure 2. Hangar One with Doors Opening

This photo of Hangar One, taken in 1992, shows the doors opening. The cars and airplanes provide a perspective of the hangar's size.

As part of the base realignment and closure process, the Navy identified Moffett Field for closure. However, NASA was using the airfield for research and development and wanted to retain access to it. In addition, local governments and Silicon Valley aerospace and research companies urged NASA to retain the airfield as a Federal joint-use facility in order to preserve the relationship between the airfield's Federal tenants and Silicon Valley industries. As a result, the Navy and NASA signed a memorandum of understanding (MOU) in 1992 to transfer Moffett Field, including Hangar One, to NASA at no cost. NASA assumed possession of Moffett Field in July 1994 and in 1998 created the NASA Research Park. Since that time, other Government agencies, academic and non-profit institutions, and industry have leased space in various buildings in the Research Park.[5]

Toxins Discovered at Hangar One. Because of environmental contamination issues, Hangar One has been vacant and closed for over 8 years. In 1997, NASA discovered

[5] These tenants include Airship Ventures, Carnegie Mellon University, E-Green Technologies, Google, and the University of California, Santa Cruz.

polychlorinated biphenyls (PCBs) in Ames's storm drain settling basin.[6] Subsequent tests by NASA identified the source of the PCBs as the metal siding and lead-based paint that coats the steel frame structure and siding of Hangar One. According to the 1992 MOU governing the transfer of Moffett Field to NASA, the Navy is responsible for "all actions related to the environmental restoration or remediation of any pollutant, contaminant or hazardous substance, including petroleum products, existing on or migrating from" Moffett Field.

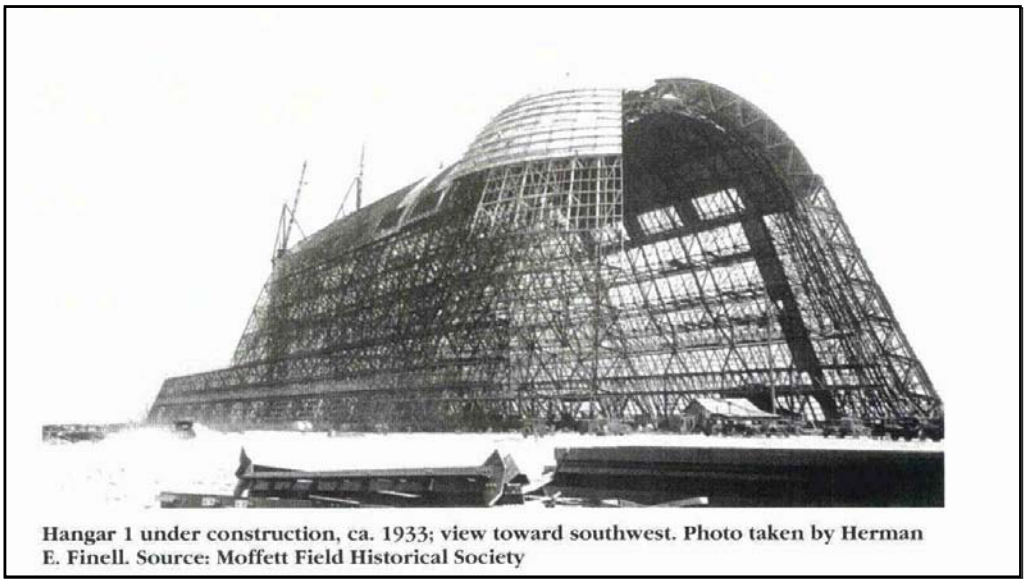
The Navy's Environmental Remediation Plans and Community Resistance. To quickly contain the PCBs leaking from Hangar One's siding and minimize the environmental hazard in the short-term, in October 2003 the Navy pressure washed and coated the siding with an asphalt emulsion. Thereafter, the Navy began to explore longer-term remediation options. In 2006, the Navy proposed demolishing Hangar One. However, to comply with the Preservation Act, the Navy was required to consult with the California State Historic Preservation Officer, the Advisory Council on Historic Preservation, and the public.[7] These consultations generated a significant amount of public and local congressional resistance to the proposed demolition, and in 2008 the Navy abandoned its plan to demolish the hangar. Instead, the Navy recommended stripping away the siding and interiors to eliminate the source of the contamination, thereby leaving the building's steel structure (see Figure 3). Under this plan, the Navy would not re-side the hangar. As discussed below, NASA did not agree with the Navy's remediation plan because it would leave the hangar uncovered and not suited for use. Nevertheless, in August 2009 the Navy awarded a $22.4 million contract to remove the siding and interior of Hangar One.

NASA's Hangar One Responsibilities. NASA officials took the position that as part of its remediation responsibilities, the Navy should pay to re-side Hangar One. Ultimately, the dispute between the agencies was resolved by the Office of Management and Budget (OMB). In March 2010, OMB decided that although the Navy was responsible for environmental cleanup, this did not include the cost of re-siding the hangar. Accordingly, NASA would be responsible for the costs associated with re-siding and preparing the hangar for reuse.

[6] According to the Environmental Protection Agency, PCBs have been demonstrated to cause cancer as well as a variety of other adverse health effects on the immune system, reproductive system, nervous system, and endocrine system.

[7] Among the responsibilities of the State Historic Preservation Officer are to consult with the appropriate Federal agencies on Federal undertakings that may affect historic properties. The Advisory Council on Historic Preservation is an independent agency of the U.S. Government established by the Preservation Act with responsibility to advise the President and the Congress on matters relating to historic preservation and recommend measures to coordinate activities of Federal, state, and local agencies and private institutions and individuals relating to historic preservation.

Figure 3. Hangar One under Construction in 1933



This photograph shows the steel frame structure of Hangar One, which is essentially what will remain when the Navy's contractor completes removal of the siding.

Community Interest in Preserving Hangar One. In 1995, the Navy created a Restoration Advisory Board (RAB) to provide a forum for public input regarding the restoration of facilities on Moffett Field including Hangar One. In addition to the RAB, concerned citizens formed the "Save Hangar One Committee" in 2005. "Save Hangar One" is an informal, ad hoc community group organized to raise awareness of the benefits of preserving Hangar One. According to a Committee official (who is also a member of the RAB), Hangar One is an important part of the local community and key to the area's emphasis on scientific research and innovation. In the view of this official, the hangar would be an ideal location for an air and space museum or as a global hub for science, technology, engineering, and mathematics education. This official believes that the preservation of Hangar One is consistent with NASA's mission to promote education and that private entities are likely to invest in the hangar given the tax incentives associated with reusing protected historic properties.

Objectives

The OIG reviewed NASA's Hangar One Re-Siding Project to examine (1) whether the Agency's cost estimates for the Project are complete and realistic; (2) whether NASA has identified an Agency use or potential private entities to rent Hangar One; (3) whether funds for the Project have been diverted from other Construction of Facilities (CoF) projects and the impact on those projects; and (4) if NASA's re-siding plans comply with historical preservation requirements. We also reviewed internal controls as they relate to the overall objective. See Appendix A for details of the audit's scope and methodology, our review of internal controls, and a list of prior coverage.

COSTLY RE-SIDING PROJECT PLANNED FOR FACILITY WITH NO IDENTIFIED USE

OMB directed NASA to include in the President's fiscal year (FY) 2012 budget request $32.8 million to pay for the re-siding of Hangar One. However, this funding will not be sufficient to make the facility usable as a hangar or for office space. In addition, NASA has not identified a mission-related use for Hangar One or any outside entity willing to commit to leasing the property. Moreover, requests to repair other mission critical projects were removed from NASA's FY 2012 budget request to accommodate the Hangar One Project. Although Hangar One is protected by the Preservation Act, the Act does not require that NASA re-side and continue to maintain the hangar. In light of NASA's costly infrastructure challenges, we question whether spending approximately $33 million to re-side a facility that has no identified NASA -related use, no immediate prospect for use by other tenants, and that would require the expenditure of a substantial amount of additional funds to make usable is the best use of NASA's limited resources.

Additional Funding Beyond the FY 2012 Budget Request Will Be Required to Make Hangar One Usable

The Hangar One Re-Siding Project was included in the President's FY 2012 budget request as a discrete CoF project for $32.8 million. As proposed, the Project consists of installing new but historically appropriate exterior siding, roofing, and windows. However, while this work will produce a watertight building, because items such as connecting utilities or installing lighting fixtures, heating, cooling, fire alarms, sprinklers, or other safety equipment are not included, the resulting structure will be neither habitable nor fit for other uses including as an aircraft hangar.[8] While the cost to make the building fully useable cannot be precisely determined until potential tenants and their requirements are identified, it is likely that an additional investment of tens of millions of dollars would be required. In addition, the cost estimate used to justify the $32.8 million for the re-siding project did not identify the cost of maintaining the hangar after it is completed. Consequently, the annual maintenance costs of the hangar after the re-siding project is completed are unknown.

NASA Has Not Identified a Use for Hangar One

According to NASA officials, the Agency does not have a mission-related use for Hangar One and no NASA program offices have shown interest in occupying the hangar.

[8] The Hangar One project is planned to adhere to Secretary of the Interior rehabilitation guidance for historic properties.

Ames Research Center officials told us that they expect to recoup the cost of the re-siding project by leasing the hangar to outside organizations, and that these tenants will bear the cost of additional upgrades needed to make the facility fit for their needs. However, to date no external entity has committed to leasing the hangar or paying for the necessary upgrades. Although Ames officials told us they have received preliminary inquiries from external organizations regarding leasing all or part of the hangar, as of May 2011 no formal agreements have been executed. In addition, under 51 U.S.C. 20145, when leasing non-excess real property, NASA does not have the authority to allow tenants to receive in-kind payment to make repair, upgrades, or capital improvements to NASA property. [9] Consequently, any potential lessee for Hangar One would be required to pay for improvements to Hangar One as well as paying the Agency fair market value in cash. Accordingly, it remains unclear whether a tenant or tenants will lease the space much less assume all of the costs needed to upgrade the facility.

Adding to our doubts regarding the likelihood that Hangar One will be leased is the significant amount of existing space in two other historic hangars available for lease at Moffett Field that would not require significant investment from prospective tenants. These hangars are shown in Figure 4 below.

Figure 4. Hangar Two and Hangar Three

Hangars Two and Three are approximately 1,100 feet long by 300 feet wide and 170 feet tall, and each has approximately 240,000 square feet of floor space. These hangars are also part of the Shenandoah Plaza Historic District.

According to Ames personnel, NASA is currently leasing only 31 percent (132,349 square feet) of the available floor space (approximately 427,000 square feet) in these

[9] Under 51 U.S.C. 20145, the Agency may lease non-excess real property at fair market value for cash consideration. In-kind consideration is not authorized under 51 U.S.C. 20145.

hangars.[10] In our judgment, this fact casts significant doubt that NASA's plan to solicit a tenant or tenants for Hangar One will come to fruition.

If the re-siding project is completed and the Center does not find a lessee for Hangar One as planned, Ames officials believe that the Hangar could be used for other purposes without further investment. However, in our judgment, these alternatives fail to recoup or justify the $32 million re-siding costs. For example, Ames officials indicated that the facility could be used for storage of non-combustible equipment or it could be used to hold short duration public events if the south "clam shell" doors were left opened.[11] However, Ames officials have not identified a need for additional storage space and have not used the hangar to hold public events in over 8 years due to the environmental contamination.[12]

Other Mission Critical Projects Will Be Delayed to Fund Hangar One Re-siding

Including the Hangar One Re-siding Project in NASA's FY 2012 budget request means repairs to other important NASA facilities will be delayed. According to NASA officials, the Hangar One Re-Siding Project is not critical to NASA's mission and would not have been included in NASA's Budget Request absent explicit direction from OMB. In order to accommodate the Hangar One Project, NASA removed other planned construction projects from its budget submission. Specifically, one major renovation project costing $11 million, three minor renovation projects estimated at $6.1 million, and $15.7 million in facility planning and design funds were removed from NASA's FY 2012 budget request to offset the cost of the Hangar One Project.

Moreover, NASA did not subject the Hangar One Project to the Agency's normal review and prioritization process for institutional construction projects. The intent of this process is to ensure that construction requests from all the Centers are reviewed and that only the highest priority projects are funded. According to NASA officials, if the Hangar One Re-Siding Project had been subjected to this process it would not have been included in the budget submission because there were many higher priority projects that could pose a risk to NASA's mission success if left unaddressed. As our recent Audit of

[10] A portion of the hangars are unleasable fixed space (mechanical rooms and fire lanes). In addition, some of the available lease space is for offices that would need either to be refurbished or demolished before it could be occupied. Furthermore, while some of the space is being used by NASA for storage, this space was considered leasable because NASA could relocate the items to other locations or dispose of them if a lessee was identified.

[11] According to the Ames Fire Marshal, because the facility would not have the required safety measures such as a fire alarm system, storage would be limited to items that would not contain combustible liquids such as fuels, oils, and hydraulics. Additionally, because egress is a concern for public events, the south doors would be required to remain open to allow for quick evacuation in case of emergencies.

[12] According to Ames personnel, the storage contained in Hangars 2 and 3 could be moved to Hangar One after the re-siding project is completed to free up additional space to lease in those hangars. However, Hangars 2 and 3 already have available space that is not leased. As such, we do not believe Ames has a need to free up additional space for the foreseeable future.

NASA's Facilities Maintenance showed, many of NASA's facilities are in degraded condition and the Agency's maintenance backlog has grown from $1.9 billion in FY 2005 to $2.55 billion in FY 2010.[13] Continued deferral of facility renovation projects could result in unsafe working conditions, higher annual maintenance costs, and increased risks to mission success.

Important Utility Renovation Project Delayed. To accommodate the Hangar One Project, NASA removed from its budget request $11 million intended for restoration of Ames Research Center's electrical distribution system. This project would have upgraded the failing high-voltage electrical distribution system at the Center.

According to the justification for the power upgrade project:

> Typical service life for electrical distribution equipment is 20-30 years. Much of the electrical equipment at ARC [Ames Research Center] was built during the 1940s and 50s and is well past average service life. This project will reduce the risk and frequency of high voltage electrical distribution system failures. The increase of maintenance requirements for existing facilities due to the age of equipment has adversely impacted safety and reliability at the Center. Existing equipment continuously requires significant manpower to repair, maintain, and replace components for which spare parts are not always available. Unplanned outages due to equipment failures have and will continue to cause lengthy downtimes and delays for projects, and significantly increase costs to those projects that will be interrupted. Outages could affect any or all buildings including research facilities such as wind tunnels, arc heaters, and vertical motion simulators. Approximately 90 buildings are impacted by a complete outage of both transmission lines, both main breakers, and both main buses at the main substation.

Other Renovation Projects Delayed. Three renovation projects totaling $6.1 million were also removed from the FY 2012 budget request to accommodate the Hangar One Project. Two of these projects would have replaced roofs and upgraded energy conservation efforts at Ames, while the third would have replaced roofs at Goddard Space Flight Center.

The roofs on five buildings at Ames and five buildings at Goddard have re-occurring leaks that the Agency has only been able to patch temporarily due to the poor condition of the roof membranes. Most of the buildings house critical mission programs and expensive equipment.

- One of the Ames buildings contains a high-pressure air compressor that was refurbished in 2008 at a cost of over $2.6 million. According to project justification records, a tarp is being used to shield the compressor from water leaking from the roof. Another building contains Ames's central computer

[13] NASA OIG. "Audit of NASA's Facilities Maintenance" (IG-11-015, March 2, 2011).

facility that supports the campus local area network hub and all of its related services.[14]

- At Goddard, one of the buildings contains newly renovated labs and a high bay that holds flight hardware prior to entering the clean room. Other buildings contain office space to support Center administration, the Center's gymnasium, and the Research Aircraft and Operations Science Lab.

The justifications for these roof repairs also noted that rapid deterioration of building support beams, ceilings, walls, floors, and finished trim as well as mold growth routinely result when roofing degrades to the point of failure.

The project to upgrade energy conservation efforts at Ames would have increased the effectiveness of the Facilities Management Control System that monitors and controls energy use.[15] For approximately $2.9 million in improvements, Ames estimated it could save approximately $3.7 million over 10 years in utility costs by better monitoring and managing Center environmental controls.

Facility Planning and Design Funds. In addition to removing funds from the projects described above, inclusion of the Hangar One Project in NASA's FY 2012 budget request also reduced planning and design funds for future CoF projects from $55.7 million to $40 million. While this amount represents an increase from the 2011 funding level of $27.7 million, the reduction will negatively affect Centers' planning and design efforts.

Flexibilities for Compliance with National Historic Preservation Act

Because of Hangar One's historical significance, any actions NASA takes regarding the hangar must comply with the Preservation Act.[16] Going forward, NASA is developing a Condition Assessment and Rehabilitation Plan for the hangar that lists several alternatives for re-siding and repairing the hangar. The options under consideration by NASA include:

- basic re-siding and determination of annual maintenance costs assuming no use;
- basic re-siding with upgrades and repairs that would allow the facility to be used as a hangar;

[14] The other three Ames buildings are used by the Biosphere Science Branch and Thermal Protection Materials and Systems Branch.

[15] This project also included upgrading 69 laboratory fume hoods to more energy efficient models.

[16] Up to this point, NASA has been active in historic mitigation efforts with the Navy, assisting in preparation of the Historic American Engineering Record for Hangar One. In addition, the Agency has requested consultation with the California State Preservation Officer on the planned new facade for Hangar One. NASA's planned rehabilitation of the roof and siding is for replacement with in-kind materials in accordance with the Secretary of the Interior's standards for rehabilitation guidance for preservation of historic properties listed on the National Register.

- basic re-siding with upgrades and repairs that would allow the facility to be used for public assemblies such as exhibitions or other public events.

However, there are other less costly options for complying with the Preservation Act that we believe NASA should also consider.

After the Navy completes its environmental remediation work in early 2012, NASA could take one of the following actions in lieu of re-siding the hangar:

Transfer Hangar One to State or Local Governments. Under the National Park Service's Historic Surplus Property Program, Federal property listed on the National Register may be transferred at no cost to state and local governments. Recipients of historic surplus properties are responsible for preserving and maintaining the property. The Historic Surplus Property Program would allow NASA to transfer ownership of Hangar One to state or local governments in the communities that have been active in trying to preserve the hangar.

Demolish Hangar One. The Preservation Act does not require preservation of historic properties when preservation is not economically feasible or when the properties will not serve agency requirements.[17] Under the Act, Federal agencies may alter or demolish historic properties provided they consult with the State Historic Preservation Officer and other interested parties and take steps to mitigate the effect of such an action. For example, an agency may make records of the property for future use and reference.[18] Although we understand that there would be significant community and local congressional resistance to demolishing the hangar, given all of the factors discussed above we believe NASA should at least consider this option.

In our judgment, only by carefully considering and documenting its analysis of all possible options for Hangar One can NASA demonstrate that it has made an informed decision regarding the future of the facility. Any decision on the fate of Hangar One should be made in a timely manner as safety issues could arise after the Navy finishes removing the contaminated siding and the steel structure is left exposed.[19]

[17] Section 110 of the Preservation Act (16 U.S.C. § 470) and "The Secretary of the Interior's Standards and Guidelines for Federal Agency Historic Preservation Programs Pursuant to the National Historic Preservation Act."

[18] For example, in 2006 when the Navy was planning to demolish Hangar One, the Navy and NASA jointly prepared a Historic American Engineering Record for Hangar One. The Navy estimated total costs for historic mitigation at the cost of approximately $350,000. NASA paid approximately $53,000 of this cost.

[19] These safety issues include the rusting or deterioration of structural joints from weather exposure and the increase risk of bird strikes to aircraft due to nesting in the exposed structure.

Conclusion

While we do not dispute that historic preservation is a worthy consideration, we question whether expending more than $32 million to re-side a hangar that has no prospects for reuse for the foreseeable future and would require substantial additional investment to make it habitable is the best use of NASA's limited construction resources. Moreover, dedicating funds to Hangar One means that other critical renovation and repair projects will be delayed, which could result in unsafe working conditions, higher annual maintenance costs, and damage to Agency equipment. Given these risks, we believe NASA should analyze the full range of options before taking further action regarding Hangar One.

Recommendation, Management's Response, and Evaluation of Management's Response

The Associate Administrator for Mission Support should include the following alternatives in the Condition Assessment and Rehabilitation Plan for Hangar One:

- Re-side Hangar One as described in the Budget Request and determine the annual maintenance cost assuming no intended use;
- Re-side Hangar One and make the necessary upgrades and repairs to enable use as a hangar;
- Re-side Hangar One and make the necessary upgrades and repairs to enable public assemblies;
- Demolish Hangar One and carry out historic preservation mitigation actions; and
- Transfer Hangar One to another government entity under the Historic Surplus Property Program.

Management's Response. The Associate Administrator for Mission Support concurred and stated that NASA is in the process of contracting for developing a Condition Assessment and Rehabilitation Plan to identify structural or other improvements to Hangar One that may be required to meet the needs of potential users. Based on our draft report, NASA has modified the statement of work to include alternatives equivalent to the first three items listed in the OIG Recommendation. According to the Associate Administrator, the fourth and fifth alternates will be evaluated by NASA staff. The final Condition Assessment and Rehabilitation Plan will include the first three alternatives, plus the government evaluations of the fourth and fifth as addenda. The final plan will be completed no later than November 30, 2011.

Evaluation of Management's Response. Management's proposed actions are responsive to the intent of the recommendation; therefore, the recommendation is resolved and will be closed upon completion and verification of the proposed actions.

APPENDIX A

Scope and Methodology

We performed this audit from January through June 2011 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

We performed work at NASA Headquarters and Ames Research Center. We interviewed officials at NASA Headquarters and at the Ames Research Center and also reviewed Federal regulations, NASA guidance, and documentation pertaining to the Hangar One Project, planning for CoF projects, historical preservation, leasing, environmental remediation, and cost estimating. We analyzed FY 2012 budget submissions, CoF planning documents, and other documentation to determine whether funds to be used for the Hangar One project will come from other planned CoF projects and the impact of postponing those projects. We interviewed officials from Ames Research Center's Center Operations Directorate to determine the efforts NASA is making to identify potential uses for Hangar One, including potential reimbursable tenants. We examined the independent cost estimate to determine if the cost estimate developed for the project is complete and realistic. We reviewed 1992 and 2008 memorandums of understanding between the Department of the Navy and NASA, associated correspondence, and Office of Management and Budget directions to determine if all NASA environmental liability and clean-up costs related to the facility were properly accounted for. We interviewed historical preservation officials and examined planning documentation to determine if NASA will be re-siding the Hangar in a manner in which the historical preservation requirements are met and if the hangar could be used by NASA programs or reimbursable tenants.

Use of Computer-Processed Data. We did not use computer-processed data to perform this audit.

Review of Internal Controls

We reviewed and evaluated the internal controls associated with the Hangar One project, including identifying the decision process used to assess whether the project should be funded, reviewing cost estimates, and determining the impact on NASA missions. Our review included an evaluation of the actions planned and taken by NASA Headquarters,

Facilities Engineering and Real Property Division for the Ames Research Center on this project. We found deficiencies in these areas, as discussed in this report.

Prior Coverage

During the last 5 years, the NASA Office of Inspector General (OIG) and the Government Accountability Office (GAO) have issued six reports of particular relevance to the subject of this report. Unrestricted reports can be accessed over the Internet at http://oig.nasa.gov/audits/reports/FY11 (NASA OIG) and http://www.gao.gov (GAO).

NASA Office of Inspector General

"Audit of NASA's Facilities Maintenance" (IG-11-015, March 2, 2011)

Government Accountability Office

"Federal Real Property: Progress Made on Planning and Data, but Unneeded Owned and Leased Facilities Remain" (GAO-11-520T, April 6, 2011)

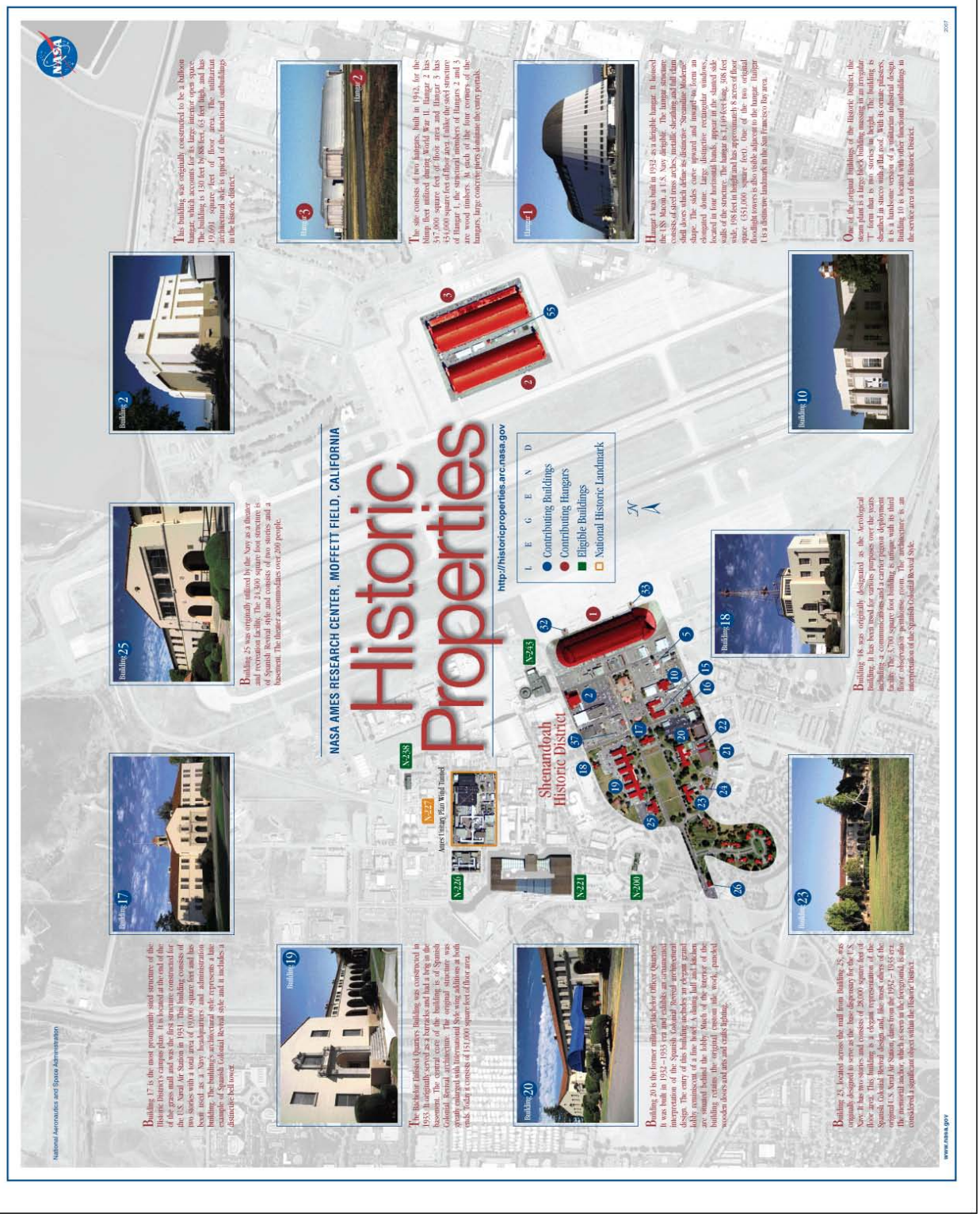
"Opportunities to Reduce Potential Duplication in Government Programs, Save Tax Dollars, and Enhance Revenue" (GAO-11-318SP, March 2011)

"Federal Real Property: The Government Faces Challenges to Disposing of Unneeded Buildings" (GAO-11-370T, February 10, 2011)

"High-Risk Series: An Update" (GAO-11-278, February 2011)

"Federal Real Property: An Update on High Risk Issues" (GAO-09-801T, July 15, 2009)

SHENANDOAH HISTORIC DISTRICT PROPERTIES



MANAGEMENT COMMENTS

National Aeronautics and Space Administration
Headquarters
Washington, DC 20546-0001

June 17, 2011

Reply to Attn of: Mission Support Directorate

TO: Assistant Inspector General for Audits

FROM: Associate Administrator for Mission Support

SUBJECT: OIG Draft Report, "NASA's Hangar One Re-Siding Project" (Assignment No. A-11-008-00)

The Mission Support Directorate appreciates the opportunity to review and provide comments on the OIG draft report entitled, "NASA's Hangar One Re-Siding Project" (Assignment No. A-11-008-00) dated May 26, 2011. In the draft report, the Office of Inspector General (OIG) makes one recommendation directed to the Mission Support Directorate. NASA's response to the OIG's recommendation, including a projected completion date is as follows:

Recommendation 1: The Associate Administrator for Mission Support should include the following alternatives in the Condition Assessment and Rehabilitation Plan for Hangar One:

- Re-side Hangar One as described in the Budget Request and determine the annual maintenance cost assuming no intended use;
- Re-side Hangar One and make the necessary upgrades and repairs to enable use as aircraft storage;
- Re-side Hangar One and make the necessary upgrades and repairs to enable public assemblies;
- Demolish Hangar One and carry out historic preservation mitigation actions; and
- Transfer Hangar One to another government entity under the Historic Surplus Property Program.

Management's Response: Concur. The Condition Assessment and Rehabilitation Plan (CARP) is conducted by an engineering firm under contract to NASA and is intended to identify structural or other improvements that may be required to meet code for various potential uses. Based on the draft report, NASA has modified the statement of work (SOW) to include alternatives equivalent to the first three items listed in the OIG Recommendation

The fourth and fifth items listed by the OIG refer to carrying out historic preservation mitigation actions with regard to demolishing Hangar One or transferring it out of Federal ownership. The National Historic Preservation Act (NHPA) requires NASA to evaluate mitigation actions for leaving the structure unsided, its demolition, or possible transfer out of

Federal ownership and will be evaluated by NASA staff, as this is not within the purview of the engineering firm conducting the CARP.

Thus, the final CARP will include three alternatives, plus the government evaluations for the fourth and fifth as addenda as required by NHPA. The final CARP will be completed no later than November 30, 2011.

Other Matters

In addition to the above response to the recommendation outlined in the draft report, we have also provided technical comments to the draft report, including proposed revisions and/or corrections of factual inaccuracies, etc. Our technical comments to the draft report were provided to the OIG via e-mail on May 24, 2011, in order to facilitate the OIG's technical correction process.

Again, we appreciate the opportunity to provide a written response to the subject draft audit report, as well as the courtesies extended to the Mission Support Directorate and the Office of Strategic Infrastructure by the OIG during the course of the audit. If any additional information regarding our response is required, please contact Fatima Johnson at 202-358-1631 or Rita Svarcas at 202-358-0464.

Sincerely,

for Woodrow Whitlow, Jr.

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JUNE 22, 2011

REPORT No. IG-11-020

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