

National Aeronautics and Space Administration



Section 3 Report Executive Order 13287 Fiscal Years 2009-2011





Crowds flock to watch the last flight of the Space Shuttle Program with the launch of Atlantis on July 8, 2011.



Abbreviations for NASA Centers:

ARC	Ames Research Center
DFC	Dryden Flight Center
GDSCC	Goldstone Deep Space Communication Complex
GRC	Glen Research Center
GSFC	Goddard Space Flight Center
JPL	Jet Propulsion Laboratory
JSC	Johnson Space Center
KSC	Kennedy Space Center
LaRC	Langley Research Center
MAF	Michoud Assembly Facility
MSFC	Marshall Space Flight Center
PBS	Plum Brook Station
SSFL	Santa Susana Field Laboratory
SSC	Stennis Space Center
WFF	Wallops Flight Facility
WSTF	White Sands Test Facility



INTRODUCTION

This report is submitted to the Advisory Council on Historic Preservation (ACHP) by the National Aeronautics and Space Administration (NASA) in compliance with Executive Order (EO) 13287, Preserve America. Section 3 of EO 13287 requires NASA to submit a triennial report on its progress in identifying, protecting, and using historic properties in the Agency's ownership. This is NASA's fourth report, the second triennial report, to be submitted. The report responds to the 18 questions posed by the ACHP in its "Advisory Guidelines Implementing Executive Order 13287, Preserve America" and reports progress made by NASA toward the EO goals.

NASA continues to make strides in its stewardship responsibilities as the cultural resources management and historic preservation program matures. Over the past 3 years, our Cultural Resources Management Panel has finalized the internal NASA Procedural Requirements that will guide Agency personnel across the country in meeting NASA's cultural resource stewardship responsibilities. As outlined in this report, NASA continues to encourage the use of its historic facilities, but we recognize the challenge for all Federal Agencies to meet current and future mission needs with buildings and structures that may not be easily adapted for their technical needs.

***Submitted by NASA Headquarters
300 E Street SW
Washington, DC 20546-0001
(202) 358-0000***



Orbiters Endeavour and Discovery switch places as they are processed for museum placement.



EXECUTIVE SUMMARY

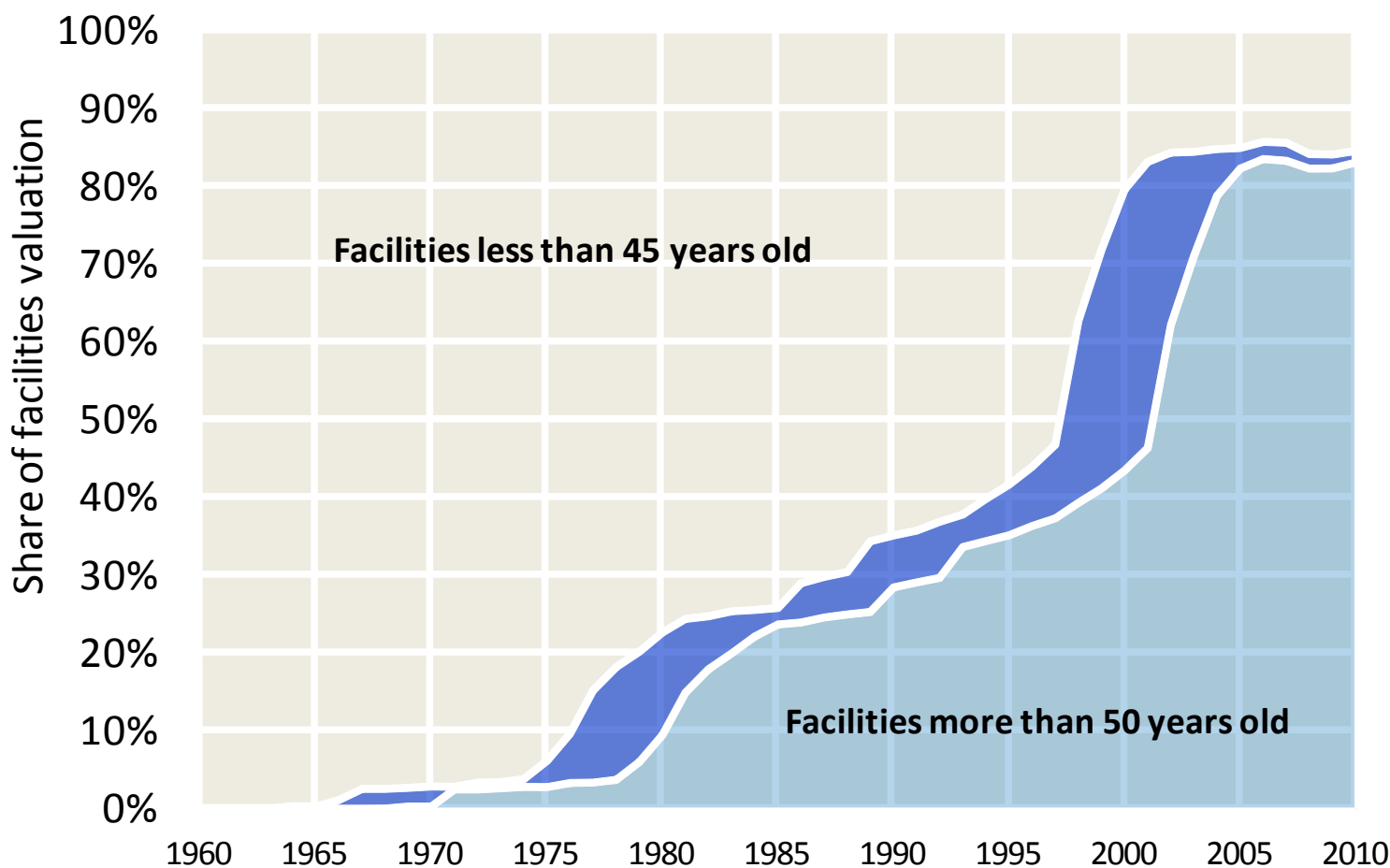
This reporting period marks a significant paradigm shift for NASA in the inventory and evaluation of historic properties. Much of NASA's infrastructure was built in the 1960s, initially for the Apollo program. Only in recent years has NASA begun to switch its focus away from the National Register of Historic Places' Criterion G, for which many of our historic properties were considered of "exceptional significance", toward Criteria A, B, C, and D. Until fairly recently, with few exceptions, the majority of NASA's properties were evaluated only for their "exceptional significance", as many were much less than 50 years of age.

While NASA will continue to evaluate properties under Criterion G, the bulk of our inventory will be reconsidered as they turn 45, and in conjunction with Master

Plan updates, to ensure that our Master Plans reflect the most up to date information about the eligibility and historic status of facilities.

NASA has routinely evaluated very young buildings, structures, and objects for their significance as associated with advancement in science and technology. An example would be the Space Transportation System's orbiters, more commonly referred to by the public as "space shuttles". The three remaining "structures," Discovery, Atlantis, and Endeavour were constructed in the 80s and early 90s, and were evaluated for their exceptional significance as related to man's achievements in space and near-earth orbit. As a result of the Shuttle program's retirement, multiple properties less than 50 years of age were evaluated in accordance with

Table 1: Percent of NASA facilities over 45 years of age by value



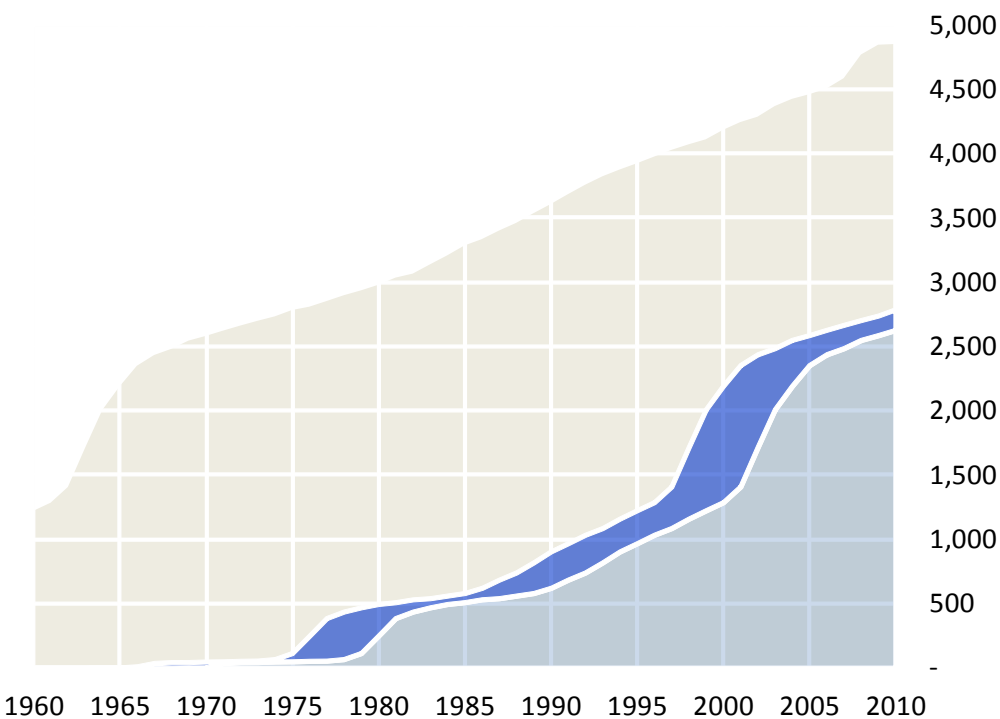
Percentage of valuation of NASA properties that are either less than 45 or 50 years old



Section 110 (S110) of the National Historic Preservation Act (NHPA) in anticipation of their possible demolition or adaptation to meet future space program missions.

As many of NASA's structures edge toward 50 years of age, we are confronted with several issues for our aging inventory. As an agency that works with quickly evolving technology and programs, building obsolescence is a likely scenario for a large percentage of laboratories and technical facilities. Until now, NASA has been able to fund and assign missions to these facilities because of the constant demand for room for the Shuttle program, but it is likely that a new space transportation system based on technologies of the day will seek more flexible facilities to accommodate technologies that have advanced exponentially since the 70s and 80s.

Table 2: Facilities over 45 years of age



Additionally, as government agencies' budgets shrink, including NASA's, the funds available to maintain underutilized facilities will diminish, adding pressure to the desire to abandon or demolish facilities that have little or no use for existing or expected future missions.



Simulators as seen on tour of Johnson Space Center

However a shining star in NASA's stewardship efforts has consistently been our public outreach and heritage tourism. Where practical, NASA has provided access to the public to view significant places in the nation's space program's history. Kennedy Space Center Visitors' Center continues to draw more than 1.5 million annual visitors with the majority taking tours that enter the Center and drive by many of KSC's most historic sites including Launch Pad 39A, the Vehicle Assembly Building, and the Mobile Launch Platforms. Visitors are drawn to the experience that allows them to see the actual facilities, which are historic and yet still continue to contribute to history in the making.

Heritage tourism at the Johnson Space Center is managed by the nonprofit Space Center Houston, providing museum and tour opportunities for the public. High-

lights of the tour of Johnson Space Center are the historic Mission Control Center from the Apollo era and other working historic properties housing significant shuttle artifacts and functioning simulators.

Goddard Space Flight Center (GSFC), Wallops Flight Facility (WFF) Marshall Space Flight Center (MSFC) and Stennis Space Center (SSC) have visitors' centers and the majority of other Centers have displays or museums with exhibits demonstrating much of the history of each location and the accomplishments they have made.

This reporting period also marked the 40th anniversary of the Apollo moon landing. Celebrations were held across the country, most notably the Moonfest at Ames, which brought in 4,000 visitors over a one week period. The week included appearances by astronauts, displays of moon rocks, and working robot demonstrations. The KSC Visitor Complex marked the anniversary with a new exhibit, a panel of speakers, and

fireworks. They also held their family day for the anniversary, which drew more than 28,000 visitors in one day to see historic facilities associated with launching and processing shuttles.

Also during the reporting period, numerous Centers held organized tours for specific groups and Center open houses. Langley conducted tours of the major wind tunnels with representatives from the National Air and Space Museum (NASM) in anticipation of the wind tunnels' demolitions.

NASA maintains a long term agreement to display its artifacts at NASM, thereby providing for the long

term care and protection of many items associated with NASA's unique history.

For students, educators and people who can't visit our Centers, NASA has a broad spectrum of Web sites and publications that include virtual tours, histories, and photographs of our historic properties and the events they were part of.

NASA actively uses Web sites for educational purposes and for sharing information. Throughout this report links are provided to multiple sites that NASA has developed to share our story of preservation efforts and our history. We encourage the readers of this report to visit the Web sites to get a better insight into NASA's efforts.



Astronauts John Grunsfeld (left) and Scott Altman signed autographs and pose for pictures with visitors at Goddard Space Flight Center open huose on May 14, 2011

Section 1: Identification

Question 1: Building upon previous Section 3 reports, please explain how many historic properties have been identified and evaluated by your agency in the past three years? Has your inventory improved? Please explain.

NASA continues to complete surveys to identify and evaluate historic properties both to meet its National Historic Preservation Act Section 110 obligations but also for projects that trigger Section 106. Our NASA-wide survey and evaluation of historic facilities associated with the U.S. Space Shuttle program was finalized just after our previous Section 3 report was submitted. This nation-wide survey examined 335 facilities across 13 NASA Centers and component facilities. As a result of the survey and evaluation, 70 NASA-owned historic properties were determined eligible for listing on the National Register of Historic Places. Included among these properties were the three orbiters from the Shuttle program, *Discovery*, *Atlantis*, and *Endeavour*.

During the reporting period, full Center Section 110 surveys were completed at Langley Research Center in Virginia, as well as each of the Jet Propulsion Laboratory's campuses, which include the Goldstone Deep Space Communications Complex, the Oak Grove campus, and Table Mountain, all in California.

Inventories and evaluations completed for S106 purposes across NASA include multiple small architectural surveys at various Centers and archeological surveys at Kennedy Space Center and Langley Research Center. Some of our Centers comprise only several hundred acres, and comprehensive archeological surveys were completed for Centers such as Ames Research Center and Dryden Flight Center. During this reporting period, 259 historic buildings and structures were determined eligible and were logged into our NASA Environmental Tracking System (NETS), which contains our cultural resources database. This information is then uploaded into NASA's Real Property database, updating

Table 3: Inventory of Historic Properties

CENTER	NRHP-listed or eligible buildings*	Additions since last reporting period	Archeological sites determined listed or eligible	Archeological sites inventoried	National Historic Landmarks (NHLs)
ARC	34	1	10	10	1
DSFC	2	2	0	5	0
GRC	72	5	0	1	1
PBS	11	9	0	7	1
GSFC	1	1	0	2	1
WFF	3	2	1	8	0
JPL	10	10	0	0	2
GDSCC	2	2	0	0	1
JSC	13	13	0	0	2
WSTF	1	1	3	94	0
KSC	110	33	31	280	1
LaRC	165	162	12	22	5
MSFC	37	5	7	22	4
MAF	6	4	0	3	0
SSFL	14	14	1	2	0
SSC	4	0	2	33	1

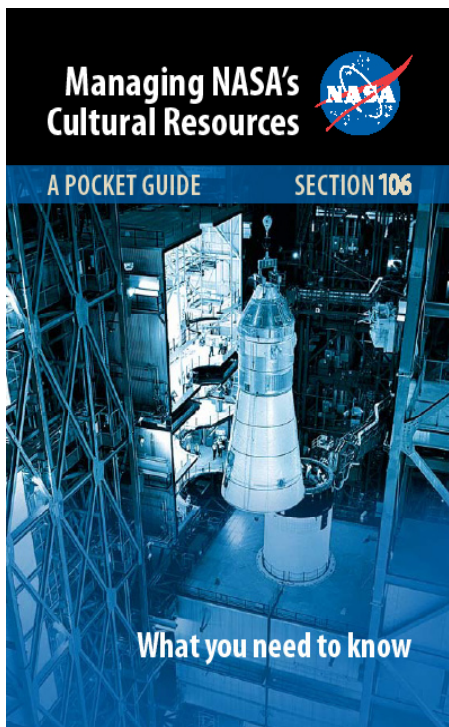
* includes component building or structures of NHLs and information in NASA's NETS database



the historic status code for Real Property reporting in accordance with EO 13327. As a result of these efforts, we have increased our historic property inventory by over 100 percent during this three year period.

Also during fiscal years FY08 through FY10, NASA conducted 23 archeological inventories over 3,820 acres. Due to the nature of the reporting periods (required prior to end of year rollup reports) we are including these years because at the time of printing this report we will not have conducted our FY11 rollup data call, which occurs at the end of the fiscal year.

NASA reports only its National Historic Landmarks (NHLs) as real property heritage assets for compliance with Statements of Federal Financial Accounting Standard # 29. The number of NHLs has not changed during any given year of the reporting period, except for clerical corrections in our financial records. Other heritage assets fluctuate with acquisitions of artwork and classification of space artifacts for exhibition purposes.



Question 2: Describe your agency policies that promote and/or influence the identification and evaluation of historic properties.

NASA's policy works much like a tree or root system with a primary NASA Policy Directive (NPD) that is then elaborated upon through policy memos or requirements known as NASA Procedural Requirements (NPR). These then branch out further to handbooks that provide detail about processes and practices. The NASA Policy Directive for environmental management (which includes historic preservation) is NPD 8500.1. In 2009 we issued a NASA Interim Directive (NM 8500-80, also known as a NID) specifically to cover cultural resources management. The NID is being replaced by a Cultural Resources

NPR, which is in its final coordination stage. The Interim Directive designated the Historic Preservation Officer (HPO) at each of our Centers as the primary person for implementing the policy and complying with Section 110 and Section 106.

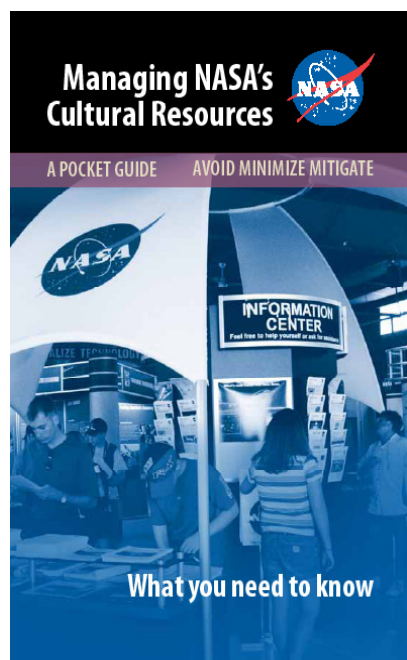
The draft NPR was written with extensive input from Centers and program managers across NASA. It will be the key document elaborating on essential responsibilities of the Senior Policy Official, the Federal Preservation Officer (FPO), HPOs at the Centers,

and numerous other personnel across NASA at Centers and at Headquarters. To complement the NPR, NASA is developing a handbook or guidance document that details "how to" manage cultural resources, and agency best practices will likely follow 18 months later. The handbook will include template documents and other tools for Center HPOs. NASA has also developed several pocket guides including one explaining regulations.

Each of these policy and procedural documents states

that compliance with the National Historic Preservation Act (NHPA) is required, and the draft NPR specifically identifies Section 110 objectives. Additionally under the both the NID and the draft NPR, all Centers are required to develop Integrated Cultural Resource Management Plans (ICRMPs) as the key internal tool for the Center's cultural resource management, including processes to ensure Section 106 and 110 compliance.

As reported in previous Section 3 reports, individual NASA Centers utilize their ICRMPs to identify priorities for inventorying and evaluating historic properties including the use of modeling to identify high and low probability areas for archeological sites.



Seven out of ten Centers have completed ICRMPs at the time of this report, and one more will be completed at the end of this calendar year. Dryden has so far identified only two historic

buildings in its inventory and no known archeological sites, and will develop an ICRMP of appropriate scale. Finally, Goddard Space Flight Center (GSFC), which was constructed mostly between 1962 and 1967, plans to develop its ICRMP upon the completion of its first "gate-to-gate" survey over the next reporting period.

In accordance with these policies, NASA Centers have routinely conducted inventories, thus identifying a total of 259 new buildings and structures that were determined eligible for listing on the National Register and identifying 192 archeological sites.

Question 3: How has your agency established goals for the identification and evaluation of historic properties including whether they have been met?

NASA identified in our 2005 report a goal to complete historic building and archeological surveys at NASA Centers. NASA made significant strides towards this goal through its 2008 Agency wide inventory and evaluation of Space Shuttle era properties which covered a the majority of facilities constructed between the late 1960s up to 2000s. Centers with fewer shuttle related facilities like JPL have had to complete separate gate to gate surveys. With the arrival of our new FPO in January 2011, NASA is developing metrics to reflect the paradigm shift in evaluations noted previously. Our handbook will outline the metrics and time lines for achieving these goals.

NASA Headquarters encourages Center/component facilities to take responsibility for developing their own facility-specific goals for the identification and evaluation of historic properties. The Center Programmatic Agreements at KSC, LARC, MSFC and JSC, help set the tone and requirement for identification and evaluation. Additionally recent training to Center HPOs noted the evaluations criteria paradigm shift of 45 years as the benchmark for evaluating under Criteria A through D instead of 50 years.



*Volunteers helping identify archeological sites, Ches-
terville Plantation site at Langley Research Center*



Question 4: Describe any internal reporting requirements your agency may have for the identification and evaluation of historic properties, including collections (museum and archeological)?

Several NASA Centers are located in places historically used by its predecessor, the National Advisory Committee for Aeronautics (NACA), the Department of Defense, and others. However, NASA's founding in 1958 means that assets constructed during the early days of its mission began to meet the 50 year age requirement in 2008. By FY 2020, more than 80 percent of our assets could be at least 50 years of age. As NASA's inventory of real assets ages, the Agency's CRM team will be conducting ongoing identification and evaluation of historic property eligibility to meet the requirements of Section 110. In order to manage this crucial regulatory requirement more efficiently, the CRM database set up under NETS can produce reports for Center HPOs as properties near 45 years of age.

Furthermore, NASA's Real Property database, NETS, and Property Plant and Equipment (PP&E) systems maintain asset visibility of historical assets and generate reports when requested. A unique NASA identifier is assigned to each asset, which is the basis for data management throughout the Agency. NETS enables NASA Headquarters to issue data calls to HPOs to track historic property inventories, condition assessments, and activities associated with complying with NHPA.

Each of the Centers develops internal reporting methods such as environmental checklists associated with major maintenance projects, renovations, or new construction. Some Centers' such as Langley Research Center, have internal reporting requirements included in their Center-wide Programmatic Agreement (PA).

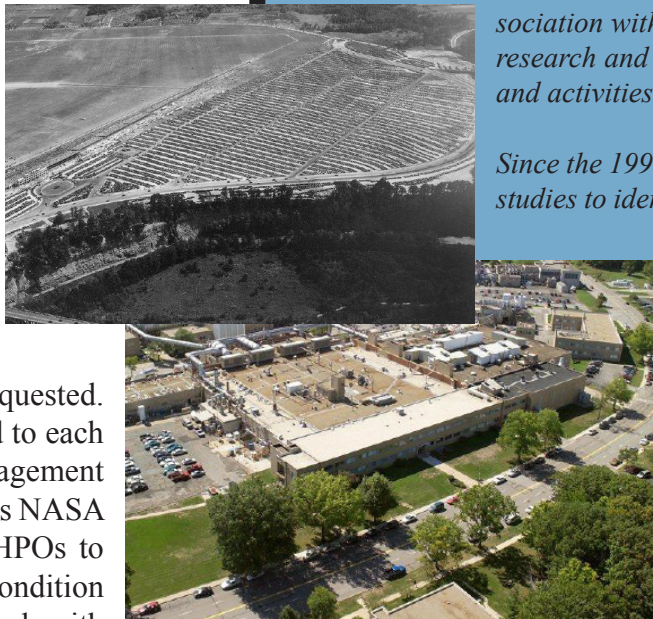
Identifying Historic Districts

The John H. Glenn Research Center at Lewis Field (GRC) originated as an aircraft research laboratory operated by NASA's predecessor, NACA, and was the site of early air races in the 1930s. The Center's sixty plus years of history are reflected in its historic campus-like appearance of administrative and office buildings dating from the 1940s amidst a landscaped setting. This historic setting also features significant engineering structures, including the Icing Research Tunnel, built at the end of World War II in 1944, the 10-Foot by 10-Foot Supersonic Wind Tunnel (1956), and the Altitude Wind Tunnel (early 1940s), among other test facilities from later periods.

Test facilities comprise approximately half of the buildings and structures at GRC; for the most part, these resources are significant for their association with historically important research and development programs and activities.

Since the 1990s, GRC has conducted studies to identify its historic properties, first completing a cultural resources reconnaissance survey of Lewis Field using a comprehensive "gate-to-gate" approach to identify which components of the complex were historic and which were not later followed by a re-evaluation in 2002 that

identified a NRHP eligible historic district representing the period from 1940 to 1970. The central area of the district contains the largest concentration of buildings at Lewis Field, including administrative buildings, wind tunnels, and laboratories which collectively reflect the original 1940s conception of the center as a landscaped industrial campus.



Question 5 Explain how your agency has employed the use of partnerships to assist in the identification and evaluation of historic properties.

NASA primarily uses partnerships to help maintain utilization of historic properties. However, there have also been opportunities to partner with non-NASA organizations and outside volunteers through archeological projects on our Centers, such as actions at Stennis Space Center (SSC) and LARC.

SSC partnered with the Hancock County Historic Society to assist in the study, excavation, evaluation, and reporting of historic archeology at their local site. Information regarding archeology efforts at SSC can be found at <http://www.nasa.gov/centers/stennis/news/newsreleases/2006/STS-06-023.html>.

During the fall of 2010 LARC held two one-week archeological field schools, open to NASA families and the interested public. More than 170 shovel tests were completed with the help of 80 volunteers, including representatives from the Fairfield Foundation, a group of archaeologists who share the process of discovery with the public through volunteer opportunities. More details about this innovative identification project can be found on our NASA Web sites http://www.nasa.gov/centers/langley/news/researchernews/rn_field_school.html and http://crgis.ndc.nasa.gov/historic/Field_School.



Question 6: Provide specific examples of major challenges, successes, and /or opportunities your agency has experienced in identifying historic properties over the past three years.

As discussed in the Executive Summary, NASA has routinely conducted inventories of its facilities in an effort to identify historic properties; however, Criterion G was a major evaluation criterion during many of our inventories. While some Centers have evaluated properties over 50 years old, under Criteria A through D, it is still a major paradigm shift for managers (and contractors) to move away from “exceptional significance” as the sole or main criterion for evaluation.

The major NASA-wide survey associated with the retirement of the Space Shuttle Program was a laudable Agency success story, increasing significantly the number of properties that are considered eligible for the NRHP. It also was successful in identifying and evaluating items other than buildings, such as ships, orbiters, and the like.

One of the key challenges for any agency is developing a process to identify and protect personal property that may be identified as historic property. Fortunately, NASA has a mature program that allows museums and education facilities to acquire excess property that no longer meets NASA’s mission. This program allows for items to be transferred to such recipients with caveats that should they no longer want the items, they will be offered back to NASA to redistribute. This allows for both small and large objects to be protected by safeguarding their future with museums or universities. Over the next reporting period NASA intends to develop a programmatic agreement that will help identify these types of objects and provide for their long-term care through this placement system.



Section 2: Protection

Question 7: Explain how your agency has protected historic properties.

NASA's overall CRM program promotes protection and rehabilitation of historic properties whenever it is feasible and consistent with the Agency's mission. Information is key to the protection of historic properties and NASA's real property database, NETS, and Geospatial Information System (GIS) clearly identify known archeological sites and historic properties. Centers establish routine procedures to ensure that new projects determine if a historic property is present so that the Historic Preservation Officer may be involved in the planning and design phases. NASA has included in its sustainability goals and draft NPR the requirement to look at adaptive reuse for existing historic buildings and structures. At the same time, NASA is a dynamic agency, constantly adapting its existing resources to new missions and uses. Buildings that were originally built as laboratories for one use or mission are adapted for new missions whenever feasible.

Like many agencies, NASA's main mission is supported by the personnel and facilities it has at its disposal. Many of its facilities serve the same technical purpose for which they were built, such as the NHL 25 ft Space Simulator at JPL and the Unitary Plan Wind Tunnel at Ames.

For the 25 ft Simulator's original toggle switch control panel, NASA engineers hooked up the control board to computers and digital monitors which are hidden behind the original toggle board thereby preserving the original control board components and appearance.

Other facilities, like the Redstone Test Site, are no longer used and are maintained simply because of their historic status. A special few were saved from demolition in order to become tourist attractions, such as the original

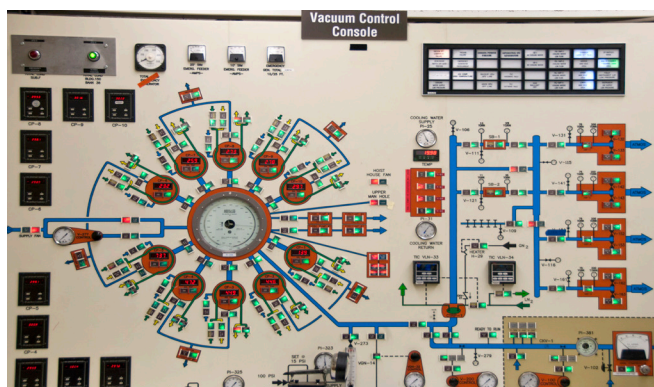
Mission Control building at the Johnson Space Center. At the same time, NASA is not normally funded to maintain obsolete buildings or structures that cannot be repurposed.



Unitary Plan Wind Tunnel

In many cases, objects can be offered to museums or universities through our artifact

screening program. However, structures that have costly maintenance requirements or become hazardous or burdensome to the Center, result in the Centers initiating Section 106 consultations to identify options for either reuse or preservation.



25ft Space Simulator Control Panel

NASA has taken advantage of Section 111 to help in the reuse of excess NASA properties that are historic. The Ames Research Center (ARC) lease program described later on in the report is a good example of partnerships and leases working to reutilize several historic buildings that predate NASA's history in the San Francisco Bay area.

NASA actively protects some of its highly sensitive archeological sites. While archeological sites on NASA land are generally not open to the public, NASA employs active security measures to prevent unauthorized access and vandalism of some of its most sensitive sites. Limited authorized access is provided to Tribes and others upon request. While we do afford visitation access for ceremonies such as summer solstice, we limit the number of visitors to prevent deterioration of the site.



8: Describe the programs and procedures your agency has established to ensure the protection of historic properties, including compliance with Sections 106, 110 and 111 of NHPA.

NASA's NPD expressly identifies compliance with NHPA. The current NID specifically indicates compliance with Sections 106 and 110, and, finally, the draft NPR identifies all of the above and potential for adaptive reuse and leasing opportunities associated with Section 111. NASA's Strategic Sustainability Performance Plan (SSPP) encourages adaptive reuse, noting the following sustainable design/green buildings goal: *"Conserve, rehabilitate, and reuse historic Federal properties, using current best practices and technology."*

Day to day compliance with NHPA is delegated to the Historic Preservation Officer at the Center level. All HPOs are required to have S106 training. This year, NASA worked with the ACHP to bring specialized advanced S106 training to the HPOs at their annual training workshop. HPOs work with their facility and real property officers to identify projects that might affect historic properties. This year NASA is completing its NPR for Master Planning, which directs Master Planners to align their Center Master Plans with Section 106 and 110 considerations, as well as emphasizes reutilization of eligible facilities.

Over the reporting period Langley Research Center, Johnson Space Center, Ames Research Center, and Kennedy Space Center implemented programmatic solutions for compliance through Programmatic Agreements to formalize their internal and external procedures into a streamlined process. NASA's Ames Research Center further developed its own procedural requirements that are comprehensive for the engineering and civil service community, <http://historicproperties.arc.nasa.gov/procreq.html>. Kennedy developed specific internal procedures known as "Review of Potential Effects to Historic Properties" as a flow process to reflect the consultation required in the PA.

GDSCC, JPL, and MAF completed Integrated Cultural Resource Management Plans to ensure proper procedures are followed in dealing with any possible cultural resources or historic properties on site. SSC developed new procedures for their Dig Permit process to strengthen the responsibility of project managers planning to dig in the Gainesville Historic District.

To prevent inadvertent compliance errors, NASA uses a Space Act Agreement Maker e-routing process that was developed to provide different program managers at HQ an opportunity to review and ensure that they concur with proposed construction or demolition projects. This system provides for the safeguard of historic properties through checks and balances to ensure Section 106 is complete for projects before funding is approved. This process has been employed several times to identify projects that still need to complete their



Section 106 process before funding could be approved.

NASA also encourages routine training for its Historic Preservation Officers, master planners, and other staff who have a keen role in cultural resource management within NASA. Most of our HPOs are assigned as "additional duties", and are either environmental or planning professionals. Each year NASA Headquarters provides relevant training to its HPOs, and the HPOs are encouraged to attend external training, such as advanced S106 training provided by ACHP. As an example, staff at KSC attended the Historical and Archeological Training program offered by Florida Historic Resources Department in 2009. HPOs are also encouraged to provide training to other NASA personnel at their site. An example is a training exercise offered by ARC's HPO for 50 stakeholders at ARC. Other times Center HPOs

9: Describe your agency policies that promote and/or influence the protection of historic properties.

In addition to the environmental NPD and NPR, NASA also has an NPR for Facilities, NPR 8820.22F, which is utilized by the facilities management and real property communities across NASA Headquarters and the Centers as their key requirements document. The NPR reflects NASA's Asset Management plan, which can be found at <http://www.hq.nasa.gov/office/codej/codejx/Assets/Docs/3-14-08AssetManagementPlanJtdJanuary2008.pdf>.

NASA's mission: "to pioneer the future in space exploration, scientific discovery, and aeronautics research," is supported by individual strategic goals (see NASA's 2008 Asset Management Plan) that reflect the goals of advancing science and technology to achieve the mission for exploration, research, and scientific discovery. These strategic goals are then supported by real property management goals:

- ◆ **Real Property Management Goal 1:** NASA will identify and address real property requirements as an integral part of Agency, Mission Directorate, program, and project planning.
- ◆ **Real Property Management Goal 2:** NASA will construct and operate new real property to meet mission requirements only when existing capabilities cannot be effectively used or modified.
- ◆ **Real Property Management Goal 3:** NASA will continually evaluate its real property assets to ensure alignment with the NASA Mission.
- ◆ **Real Property Management Goal 4:** NASA will leverage its real property to its maximum potential.
- ◆ **Real Property Management Goal 5:** NASA will sustain, revitalize, and modernize its real property required by the NASA Mission.

The Real Property Management plan then elaborates that NASA managers will: "Ensure that historic properties are managed in a manner that promotes the long-term preservation and use of those properties as Federal assets and, where appropriate and consistent with NASA's mission, that contributes to the local community and its economy." The combined policies of the environmental management program and the real property management programs across NASA serve as the lynch pin for consideration of historic properties for utilization, revitalization, and stewardship.



10: Explain how your agency has employed use of partnerships to assist in the protection of historic properties.

NASA works continually with the both private and public entities in the aeronautics and space industries through partnerships using Cooperative Agreements and Space Act Agreements to ensure progress of scientific investigations and invention as well as exhibits for educational purposes. NASA has a partnership with the Virginia Air and Space Museum to display and interpret Langley Research Center's (LaRC) history. The museum hosts the visitors center for both the Air Force and NASA, provides tours and devotes dedicated space to exhibits about the history of NASA's LaRC and its artifacts.

NASA considers the continued use of its facilities as the best management strategy for the protection of our historic buildings. NASA works alongside multiple private section companies who regularly use our facilities for testing commercial products under development. Much of the aeronautics history behind NASA is due to the partnerships between NASA and the commercial sector. The symbiotic relationship of NASA facilities and the commercial aeronautics industry has existed since the birth of NASA and through today. NASA relies on the flow of information from these relationships to help with research and development and to efficiently manage its facilities. An example of one of these partnerships is the ongoing lease of our NHL B-1 test stand at Stennis, where Boeing uses it for its development of new commercial engine systems.

As part of our encouragement of outreach and education programs, NASA also works with community schools and other organizations to share artifacts and displays. Schools and museums can request exhibits such as moon rocks and other displays. Stennis has partnered with a new historic transportation museum in Picayune to display NASA's artifacts and photographs related to river travel in the 19th and 20th centuries.



11: Provide specific examples of major challenges, successes, and opportunities your agency has encountered in protecting historic properties over the past three years.

One of NASA's challenges has been both the promotion and protection of a significant archeological site at Santa Susana Field Laboratory (SSFL). NASA has declared the property at Santa Susana as excess. The larger SSFL site comprises properties owned or managed by multiple organizations, including Boeing, the Department of Energy, and NASA.

Portions of the land are contaminated, and a large cleanup effort is required prior to the eventual disposition of NASA's and other parties' properties. The NASA site includes three historic districts associated with rocket testing at SSFL since 1959, as well as a large archeological site comprising multiple significant elements. As environmental interest by the community has increased due to the contamination on the site, so has interest in the historical resources that were once unknown to the public. NASA now has to balance the interest to keep historic test stands as evidence of California's role in rocket development with interest by the community in cleanup actions which may degrade historic or cultural properties.

Additionally, the archeological site at SSFL has drawn much attention from Tribes and the public, because there are significant pictograph caves on NASA's property that could be inadvertently or intentionally damaged by visitors. NASA does allow escorted visits to the site on a limited basis, and has employed protection systems to discourage trespassing. In addition to fencing and access control, active measures are employed to prevent unsupervised access to this and other sensitive sites. As NASA embarks on an Environmental Impact Statement to analyze the potential impacts of the cleanup alternatives on the site, we will be listening to the competing interests of human health and safety and historic preservation and stewardship.

NASA considers its approach to the retirement of the Space Transportation System (shuttle) as a commendable success story at an Agency level. NASA established a Shuttle Transition and Retirement (T&R) office with the shuttle program to oversee the logistics of retiring the program across multiple Centers. The announcement by President Bush of the retirement of the shuttle program eventually triggered the inventory and evaluation of shuttle-related properties across all NASA Centers. The inventory identified each of the orbiters, the ships used to retrieve the solid rocket boosters, and multiple buildings and structures as eligible for the NRHP. This study supported the shuttle program in obtaining significant funding for the mitigation and disposition of historic properties across NASA.



More than 78 recordation projects will have been completed by the time the shuttle program is defunct. The shuttle program assigned one person to track all recordation projects across the Agency. To achieve the recordation goals, NASA and its contractors have worked hand in hand with the National Park Service, engaging their teams in complex recordation efforts such as 3-D modeling of the test stands at SSFL and measured drawings of the orbiter *Discovery*. NASA is very proud of these efforts and believes that the images and products that will be produced through these efforts will be some

of the most inspiring documentation for students of spaceflight history for years to come.

Another successful outcome from the shuttle T&R efforts was the development of two programmatic agreements. One PA covers the historic buildings at Johnson Space Center, predominantly those buildings and contents associated with the shuttle program. The second PA, which was developed with significant consultation with the ACHP and the SHPOs of Alabama, California, Florida, and Texas, covers the orbiters themselves and the components of the stack or the full assembly at lift-off. This latter PA includes multiple documentation efforts, such as a public Web site and comprehensive oral and written histories, as well as the protection of the orbiters through their placement with museums across the country. Each of the orbiters will be displayed in a purpose-built facility, allowing thousands of visitors to see them daily: *Discovery* will be placed at the Smithsonian's National Air and Space Museum near Dulles airport; *Endeavour* will be placed with the California Science Center in Los Angeles; and *Atlantis* will be housed at the Kennedy Space Center's visitor center.

Section 3: Use

12: Explain how your agency has used historic properties.

NASA's inventory of historic properties is approximately 9 percent of our total inventory of more than 5,000 buildings and structures. However, only 223 of the 443 historic properties in NASA's inventory are 50 years old or older. Similar to other agencies whose mission is to advance technologies, NASA continues to use the majority of our buildings and structures to meet our mission needs. Less than 0.5 percent (or 28 buildings) of our inventory are historic buildings that are not utilized. Of those 28, nine are at Santa Susana and are being considered for demolition as part of the Environmental Impact Statement for the cleanup of this closed facility.

NASA consistently uses its facilities that can be utilized over and over again to meet mission needs. Only those properties that can no longer meet mission needs are considered for demolition. Adaptive reuse is carefully considered, but in the cases of structures such as test stands, which are often purpose-built for the size of the engines to be tested, some structures are not easily adapted for future use. 94 percent of our historic properties are currently in use, and many of our historic buildings are still being used for their original purpose. As the shuttle program wraps up, NASA will evaluate the potential usefulness of its historic shuttle properties in anticipation of future programs such as the 21st Century Launch Complex at KSC. This effort will breathe new life into many of the facilities there, as well as the Heavy Lift Launch Vehicle and Multi-purpose Crew Vehicle programs. NASA plans to reuse components of the Shuttle Program such as the recovery ships MV Liberty Star and MV Freedom Star (both determined eligible for NRHP) for other programs.



13: Explain the overall condition of the historic properties within your agency's control.

NASA's inventory of archeological properties continues to be considered in "very good" condition. Our archeological sites are protected from public access, and our most vulnerable sites have been protected with fencing and other security measures to prevent access leading to deterioration. Additionally, we limit the knowledge of the location of sites to a relatively small number of staff.



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For our buildings and structures NASA uses an annual condition assessment of all NASA buildings and other structures to determine a "Facility Condition Index" (FCI). The FCI is on a five-point scale, where "5" is a facility in excellent condition and "1" is a facility in very poor condition. NASA's historic properties average 3.5, while a compilation of all NASA properties averages 3.3. However, those historic properties that are in "mothball" status or not utilized slip to a score of 3 on average.

14: Describe your agency policies that promote and/or influence the use of its historic properties.

NASA does not have distinct policies that distinguish between identification, evaluation, protection, and use of historic properties. The same policies identified through NASA's NPD, NID, draft NPR, and ICRMPs support the use of NASA's historic properties. As identified in question 8, NASA's SSPP also promotes the conservation and adaptive reuse of historic properties.

15: Explain how your agency has used Section 111 (16 U.S.C. § 470h-3) of NHPA in the protection of historic properties.

NASA uses Section 111 for the lease of several buildings at Ames Research Center in Sunnyvale, CA. Section 111 is a useful tool in encouraging use of historic buildings when NASA no longer has a mission for particular buildings that cannot be easily excessed or severed from our Center properties. Section 111 allows for capital investment in historic properties; thus, Carnegie Mellon University (CMU) renovated Ames' historic Building 23 (for \$10 million) while maintaining the historic integrity of the U.S. Naval Air Station National Historic District. CMU has a long history of developing educational structures for the purpose of technologically savvy education purposes. The CMU Lease is currently until 2018.

E-Green Technologies is located at historic Hangar 2 deck area (24,000 ft²). Their mission is to develop and manufacture advanced design and performance of low, mid, and high-altitude airships scalable to a broad range of markets that include military, government, and private sectors. Their lease is until 2015.



Purdue Research Foundation (PRF) is located in the historic Building 19, rooms 2021 and 2023. For the past 75 years, Purdue Research Foundation's sole purpose has been to "advance the mission of Purdue University." PRF's long-time responsibilities include accepting gifts, administering trusts, funding research scholarships and grants, acquiring property, and negotiating research contracts on behalf of Purdue. PRF's presence in the NASA Research Park historic district of Shenandoah Plaza allows for the potential to collaborate with Ames and other academic, nonprofit, and industry partners. The PRF Lease is dated from May 1, 2010 through April 30, 2012 with a one-year option to extend.



16: Explain how your agency has employed the use of partnerships to assist in the use of historic properties.

Partnerships have benefited Ames by reducing some of the cost burden of maintaining historic properties and providing collaboration with the Center. Since its opening, Carnegie Mellon at ARC has completed an adaptive reuse of the previously underutilized building while maintaining the historic integrity of the U.S. Naval Air Station, Sunnyvale. With its long history of developing educational structures for the purpose of technologically savvy education, Carnegie Mellon has invested in the redevelopment of Building 23 and has developed the building into a vibrant academic center with interactive classrooms, office spaces that encourage collaboration and community, and graduate student workspaces ideal for team-based work and individual research. With more than 160 current students, 400 alumni, and 60 faculty and staff, the campus has become a center for software engineering and management education, as well as research in the areas of robotics, software mobility, networking, and security. The campus has also recently launched initiatives in disaster management, smart grid technology, and numerous other areas.

In order to fully utilize and operate at the NASA Ames Research Center, Carnegie Mellon has undertaken phased renovations to Building 23, which were completed in January 2010. The first major renovation phase was a large-scale renovation project that included fully abating the building of hazardous materials (such as lead and asbestos) and bringing the building up to modern life-safety, accessibility, seismic, and mechanical/electrical/plumbing codes. All of these necessary goals were achieved without compromising the historic character of the building. Exterior renovations, including roof rehabilitation and stucco preservation, preserved the historic nature of the Historic District buildings and ensured the longevity of the building for years to come. Approximately \$7.5M was spent on the

first phase of renovations, which enabled the University to commence operations. The renovations created basic office, teaching, and research space while restoring many of the original partitions and openings.

After assessing the University's mission at the Ames Research Center, they decided to expand the academic curriculum at Building 23 and to comprehensively link the facility to the main campus in Pittsburgh. Therefore, the second major phase of renovations upgraded the information technology in the building and created space for additional students, faculty, and researchers. In order to support the expanded and growing academic and research activities at the site, the University installed a 40-seat Distributed Learning Classroom (DEC). The DEC enables students at Silicon Valley to participate in classes taught at similar facilities in Pittsburgh (and vice versa) in a studio-quality, real-time manner. This function not only creates the ability to educate at multiple sites concurrently without the need to travel, but also creates an important psychological link between the University's Silicon Valley and Pittsburgh campuses. Nearly \$2M was spent on this second phase of upgrades, all while maintaining historic integrity, bringing the total investment by the University in Building 23 to nearly \$10M.



Overall, Carnegie Mellon and its partner, the NASA Ames Research Center, have achieved the ultimate goal: Creating a state-of-the-art educational and research facility in an important historic building. The renovations and upgrades not only are in accordance with the Secretary of the

Interior Standards for Rehabilitation of historic properties, but also are at the cutting edge of technology and innovation, effectively bringing together the best of the past with the dreams of the future.

NASA considers the reuse and partnership agreements with several organizations at Ames Research Center as both an excellent example of protecting historic properties and giving them new life through continued use.



17: Provide specific examples of major challenges, successes, and/or opportunities your agency has encountered in using historic properties over the past three years.

Among the underutilized facilities at NASA are a few National Historic Landmarks that no longer meet mission needs, have become obsolete, and are currently in mothball or inactive status. In some cases NASA has worked with SHPOs and stakeholders to preserve obsolete buildings such as the Mission Control Center at Johnson Space Center and converted them to tourist attractions. However, structures such as test stands that have not been used since the 1970s during the Apollo era are no longer the appropriate size and are expensive to maintain. This is the underlying challenge NASA faces. It does not differ significantly from the early 1990s when the Advisory Council on Historic Preservation issued its report “Balancing Historic Preservation Needs with the Operation of Highly Technical or Scientific Facilities.” The report indicates that agencies in similar situations are consistently faced with resource decisions that are aimed at immediate mission needs and not long-term preservation goals.

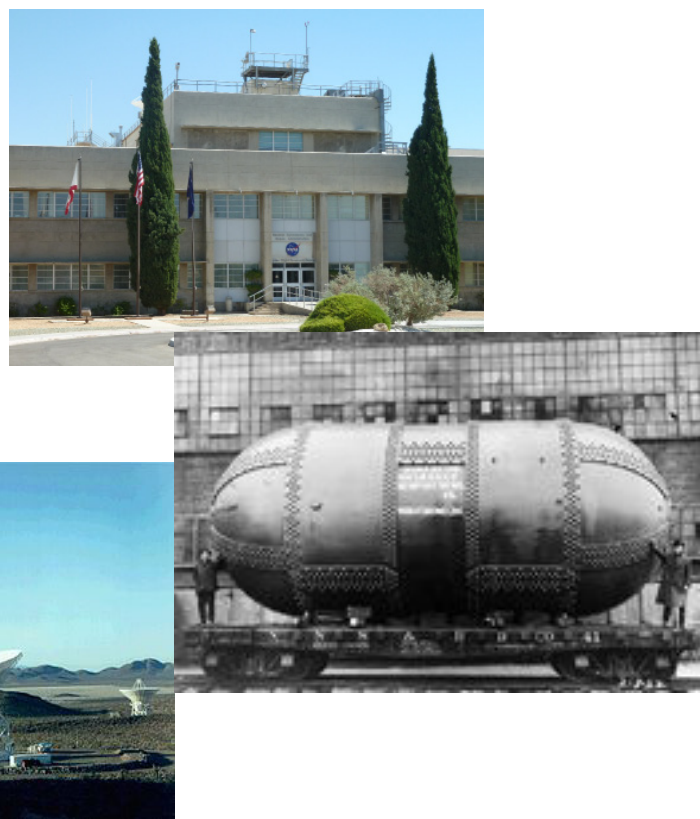
With fiscal belt tightening across Federal agencies, NASA has competing and under resourced interests, with human exploration and scientific missions competing against sustainment of existing infrastructure to support these missions. It is anticipated that as NASA’s Space Shuttle Program concludes in 2012 and many of its facilities lack a new mission, they will be identified for mothballing or demolition. Many facilities will be repurposed for follow-on programs, but not all will find a new mission to fill their space. Johnson and Kennedy Space Centers are actively seeking tenants for their existing buildings and successfully setting up individual leases for buildings that are seen to adapt well to future commercial endeavors, but inevitably NASA’s inventory will shrink in the near term. Fortunately, our Enhanced Use Lease program and Section 111 leases at Ames have proven to be successful examples of the opportunity to breathe new life into historic buildings that have contributed significantly to the local history and development of Sunnyvale, CA and the region.

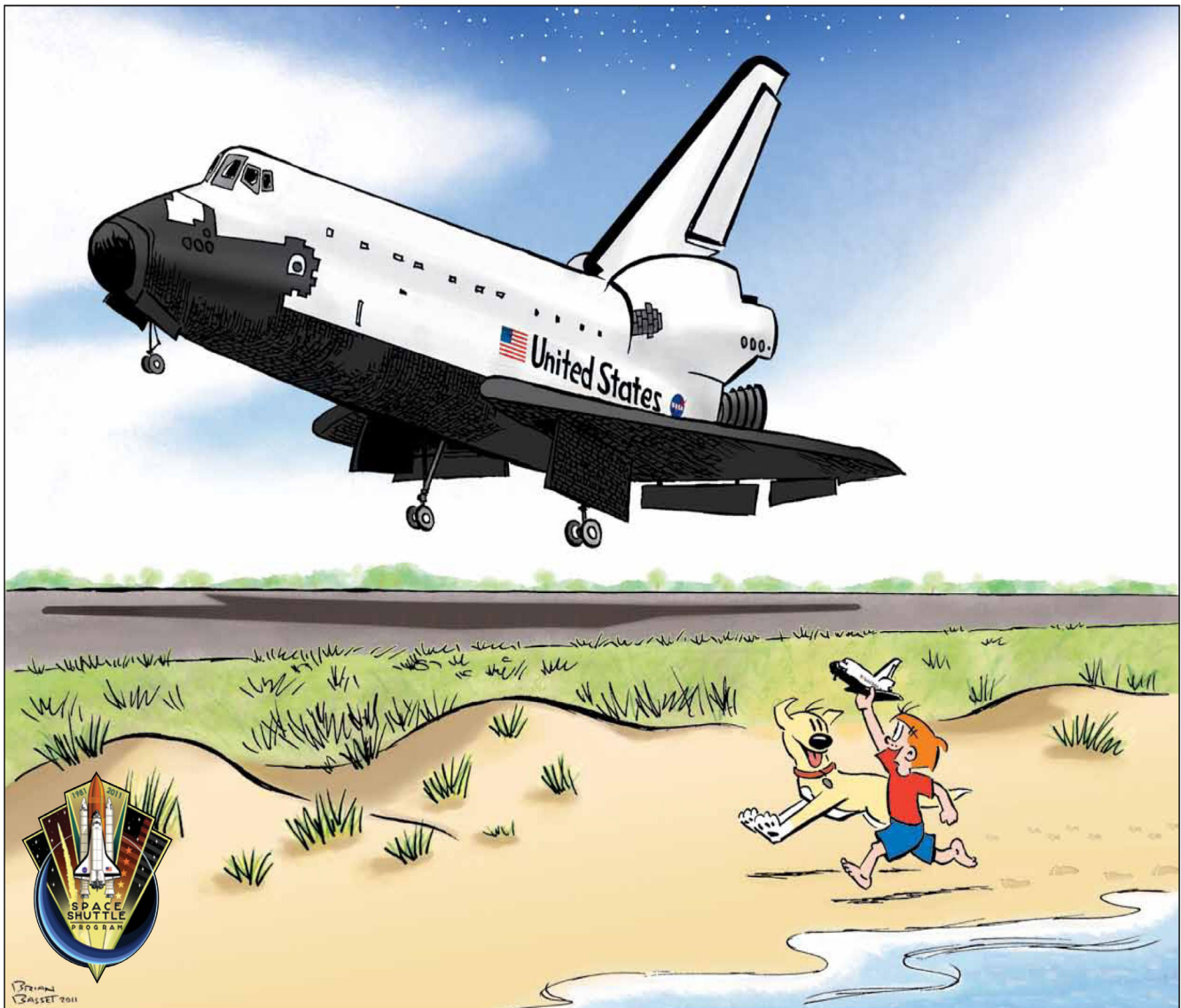
18: Describe your agency’s sustainability goals in accordance with EO 13514 and how these goals are being met, taking stewardship of historic properties into account.

As described previously, The SSPP specifically identifies NASA’s goal to “conserve, rehabilitate and adaptively reuse NASA’s historic structures. NASA’s SSPP can be found at our Web site: <http://www.nasa.gov/agency/sustainability/index.html>.

The SSPP describes the creation of our internal Cultural Resources Management Panel and the integration of cultural resources into our Environmental Management System. NASA also has a Sustainable Policy Handbook for Facilities, which identifies the need to include historic preservation within an integrated design approach throughout all stages of project planning and delivery, as well as mentions the use of salvaged materials and their contribution to historical significance.

The SSPP’s goals are implemented through NPR 8820.2, “Facilities Project Requirements”, which requires that work carried out on facilities of historic significance must be carried out in accordance with Section 106 and its implementing regulations, 35 CFR 800.





What a Ride it's Been!
by Brian Bassett