

Preserving the Past: Managing the National Park Service Historic Asset Portfolio

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WHAT DO PRESIDENT ABRAHAM LINCOLN'S BIRTHPLACE CABIN, a high school in Little Rock, Arkansas, a Cold War missile silo, and a towpath at the Chesapeake & Ohio Canal (Figure 1) all have in common? They make up a few of the more than 14,000 historic assets that the National Park Service (NPS) manages.

Figure 1. Clockwise from top left: Newly restored log cabin at Abraham Lincoln Boyhood Home at Knob Creek; Outside façade of Central High School, Little Rock; Chesapeake & Ohio Canal towpath; Minuteman II training missile at Delta-09. NPS photos.



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As stewards of some of the most historically significant assets in the United States, NPS, by its mission, must maintain these assets into perpetuity “for the enjoyment of future generations.” The Park Facility Management Division (PFMD) oversees the physical maintenance of the NPS capital asset portfolio—not an easy task when one considers the number of historic assets within the portfolio, the reduced budgets under which the service operates, a shifting workforce, a changing climate and requirements to make all assets more accessible and energy efficient.

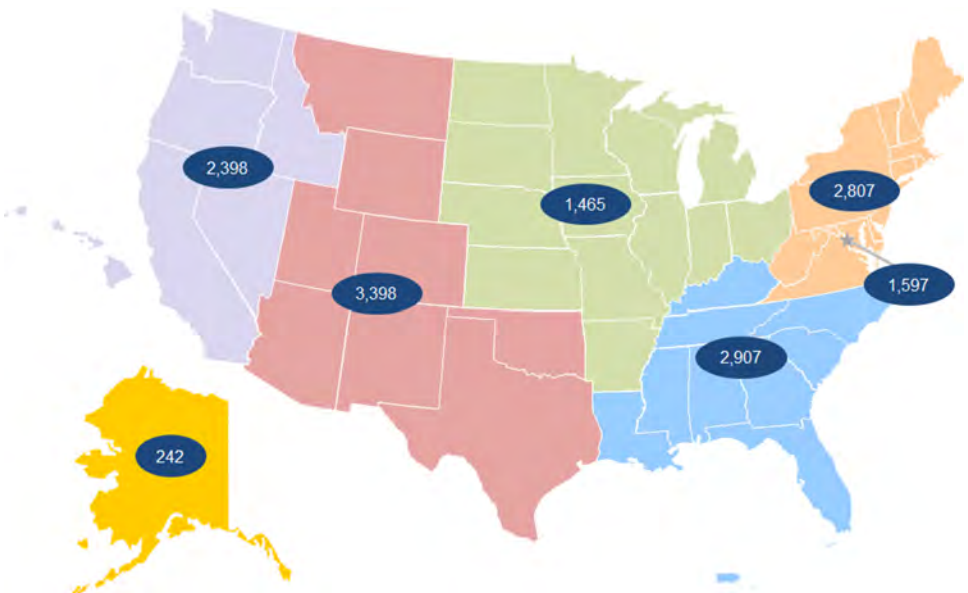
According to Randy Biallas, chief of park historic structures and the Cultural Landscapes Division and chief historical architect, park facility management staffs have a “tremendous burden.” Facility managers serve as “the front line with historic preservation. Cultural resources staff offer advice and caution, but the facility staff make the decisions about priorities and do the work. They [facility management] have the staff, equipment, and fund sources.” This article further explores the challenge of physically maintaining the NPS’s historic asset portfolio and how the service is meeting that challenge.

Number of historic assets

More than 20% of the assets the NPS manages are historic. These assets range from the monuments along the National Mall in Washington, D.C., to the archaeological ruins in the Southwest, to mining cabins in remote areas of Alaska. NPS manages historic assets in all 50 states and in the District of Columbia, Guam, the Mariana Islands, Puerto Rico, and the Virgin Islands (see Figure 2).

Buildings compose the majority (45%) of the NPS historic asset portfolio, as shown in Table 1. Because buildings quickly deteriorate when not occupied and used, one of the challenges of historic preservation is to determine the best usage option for historic buildings.

Figure 2. Number of NPS historic assets, by NPS Region, NPS data as reported to the Federal Accounting Standards Advisory Board in FY2013.



Structure Type	Count	% of Total	Current Replacement Value
Building	6,678	45.08%	\$11,429,763,993
Maintained Archeological Sites	1,397	9.43%	\$1,687,378,515
Road	1,287	8.69%	\$6,962,429,482
Trail	930	6.28%	\$1,440,341,032
Maintained Landscape	881	5.95%	\$5,536,766,499
Road Bridge	840	5.67%	\$2,051,992,351
Parking Area	823	5.56%	\$472,258,698
Monuments/Memorials	558	3.77%	\$2,244,588,362
Constructed Waterway	477	3.22%	\$1,640,465,547
Fortifications	350	2.36%	\$64,694,132,046
Dam/Levee/Dike	104	0.70%	\$1,168,712,770
Other*	489	3.30%	\$3,491,731,303
Total	14,814		\$102,820,560,599

*Other includes trail bridges, railroad bridges, water system, road tunnels, marina/waterfront systems, towers/missile silos, and ships

Table 1. Number and current replacement value of the NPS historic asset portfolio, by structure type, NPS data as reported to the Federal Accounting Standards Advisory Board in FY2013. NPS photo.

Many buildings continue to function with the same original purpose, such as visitor lodges or employee housing. Others have been adapted to serve as visitor centers or museums. Yet, as more and more buildings age and become eligible for listing on the National Register of Historic Places, the PFMD must work with the NPS Cultural Resources Program and others to determine the best use for a greater number of historic buildings. This work sometimes involves adaptive repurposing of these structures.

Some parks have had success in leasing historic structures to private or public organizations. At Golden Gate National Recreation Area, developers renovated 13 historic lodging buildings and 7 historic common buildings at Fort Baker as part of a luxury hotel and convention center. Not only did the developers improve the physical accessibility of these historic structures, they also obtained Leadership in Energy and Environmental Design (LEED) accreditation. Klondike Gold Rush National Historical Park worked with local businesses and organizations to restore and rehabilitate 25 historic buildings in its Skagway National Historic District. Currently, 7 of these 25 buildings are leased to local commercial retail businesses. In 2009, the American Planning Association recognized the main street in Skagway, Broadway Street, as one of “America’s Best Places.” Additionally, compliance is underway on a project to adaptively reuse a historic aircraft hangar building on Floyd Bennett Field, which Gateway National Recreation Area manages, as a natural gas transfer station. Under the pending lease agreement, the natural gas company would restore and maintain several abandoned aircraft hangars. The hangars would house a metering and regulating facility. Partnerships like these provide a means to restore and maintain historic structures.

Reduced budgets

Ask any facility manager working on US public lands today, and you will hear that one of the

top challenges facing historic preservation is shrinking budgets. Deferred maintenance on NPS assets reached \$11.3 billion by the end of fiscal year 2013 while the president's budget requested \$82 million for the NPS construction budget.

Notably, repair and rehabilitation of historic assets are typically more expensive than similar work performed on nonhistoric assets for the following reasons:

- **Availability of skilled craftsmen trained in historic preservation:** There is a lack of available, skilled tradesmen. Additionally, salaries and contract costs for these tradesmen are generally higher.
- **Historically accurate material:** Obtaining materials that match assets' historic fabric usually requires special orders or hand tooling. Oftentimes, maintaining historic fabric involves matching materials that may no longer be readily available. To obtain historically accurate material, historic preservationists often rely on businesses that salvage building materials, such as bricks, stones, windows, glass and timber, which carry a higher cost.
- **Time associated with historic preservation:** Proper preservation is time consuming, which alone leads to higher labor costs. For example, preservationists test samples to match original and existing mortar color to ensure consistency when repairing walls and masonry. Also, the care needed to perform such work without damaging the original resources requires additional time. Preservationists must devote a great deal of attention to detail—even replicating the tool marks made on the original structure by using the original tools versus the tools and technology of today.
- **Research and documentation:** All historic asset work must first be researched to ensure that the result will be historically accurate and compliant with regulations. Additionally, the work must be fully documented for compliance, record-keeping, and future reference.

To ensure that limited available funding is used most efficiently for all NPS assets, including those that are historic in nature, the PFMD has implemented the NPS capital investment strategy. This deliberate strategy of prioritization focuses operations and maintenance and associated project dollars on the most important facilities—facilities that the NPS can commit to maintaining at defined service levels.

This strategy is based on life-cycle asset management principles: that every asset has a life cycle and will deteriorate over time. The key to extending the useful life of an asset—especially historic assets—is to direct preventive maintenance funds to those assets to prevent deterioration and then to direct recapitalization funds to those assets before repairs become prohibitively expensive or ineffectual. By directing investment dollars to the highest priority, mission-critical assets before the onset of major deterioration, NPS is best able to preserve those assets and retain the historic fabric of its many heritage assets.

The capital investment strategy's focus on preventive maintenance aligns with historic preservation best practices. Chris Robinson, superintendent of the NPS Historic Preservation Training Center (HPTC), uses the example of a historic barn to show this alignment. The best preservation practice would be to replace the board on one side of the barn when the siding reaches the end of its life cycle. This practice ensures that the historic fabric of the structure remains intact. However, when funding is not available for such preventive main-

tenance, a facility manager is more likely to wait until all the siding on a barn needs to be replaced so that the bundled work might better compete for limited project funding. This reactive approach to maintenance allows the siding on the barn to deteriorate, which risks added water and structural damage. In such cases, instead of only replacing the siding on the barn, a park would have to fund additional repairs to correct the deterioration that occurred because of the deferred maintenance. In contrast, by focusing on preventive maintenance, the capital investment strategy better protects the service's important historic assets and more effectively applies its limited funding.

A shifting workforce

According to the federal personnel and payroll system, in 2009 the facility management career field encompassed 5,945 employees in 86 classification series, which translated to more than 27% of the total NPS workforce. Over 49% of these employees are eligible for retirement by 2015. Looking at the career field's leadership across the NPS, 60% of supervisory facility managers were scheduled to be eligible for retirement by 2015. These telling statistics reveal a growing need to facilitate and expand the transfer of the knowledge and organizational wisdom of retiring employees to the next generation. Much of the expertise within the maintenance trades is related to years of on-the-job training, firsthand experience, and never-ending experimentation and adaptation. However, because of budget constraints, many of these existing positions are not being replaced when an incumbent retires or leaves NPS.

In addition to a shrinking workforce, facility employees' roles are changing. According to Robinson at the HPTC, "the PFMD has shifted from facility workers to facility management specialists—those who can perform maintenance but also handle data issues and manage limited budgets." Sarah Polzin, human resource specialist with the HPTC, agrees: "Computers have become such a big part of our lives in the last 10 years. It is a skill [computer skills] that even trade workers need to be the best employee possible. It is something that a lot of them [maintenance workers] don't have any interest in learning, especially the older workers. But the ability to find the information that you need when you need it is an important skill these days." Maintenance and trade workers can no longer be solely craft-focused.

Along with PFMD staffs, NPS training programs are adjusting to the new roles that maintenance employees have assumed. The HPTC is currently planning to conduct a needs assessment to determine the best method for professionally developing facility and crafts workers. NPS recognizes the importance of training and sponsors several options for employees to learn new skills or improve existing ones (Figures 3 and 4).

In addition to offering training to existing employees, NPS also aims to advance historic preservation skills and techniques among today's youth. In 2013, the Stephen T. Mather Buildings Arts & Craftsmanship High School accepted its first class of students. A partnership between the New York City school system and NPS, this high school is training a new generation of craftspeople in carpentry, landscape management, decorative finishes, masonry, and plastering.

A changing climate

Before the US House of Representatives' Subcommittee on National Parks, Forests, and Public Lands, NPS Director Jonathan B. Jarvis described climate change as "potentially the most

- *Historic Preservation Training Center*: In-house training center that uses historic preservation projects as the main vehicle for teaching preservation philosophy, building crafts, building technology, and project management skills.
- *National Center for Preservation Technology and Training*: In-house center that advances the application of science and technology to historic preservation through training, education, research, technology transfer, and partnerships.
- *Western Center for Historic Preservation*: An NPS preservation and education center in the NPS Intermountain Region dedicated to the preservation and maintenance of cultural resources in the western United States.
- *Vanishing Treasures*: An NPS program that focuses on archaeological sites, spans two NPS regions (the Intermountain and Pacific West regions) and encompasses 45 park units. The program aims to document the rate of deterioration, identify repair structures in imminent danger and train a new generation of craftspersons.

Figure 3. A sampling of historic preservation training opportunities for NPS employees.

far-reaching and consequential challenge to our mission than any previously encountered in the entire history of the NPS” (Jarvis 2009). The potential impacts of climate change on historic structures are particularly staggering.

In a case study appearing in the forthcoming NPS handbook on climate change, *Climate Change and Cultural Resources: Impact Assessments and Case Studies*, the NPS National Center for Preservation Technology and Training’s Caitlin Smith explores the potential impacts of climate change at Gettysburg National Military Park. Higher maximum temperatures, drier temperatures, and more extreme precipitation may compound the weathering effects on historic assets, including monuments, wooden fences, and iron cannon. The warmer climates may encourage invasive species, including additional species of termites, to expand their habitat northward, threatening structures that were not constructed to handle an increased number of the wood-eating insects. A warmer, drier climate is also expected to accelerate the process of vegetation change, which, according to the case study, may lead to an alteration in cultural landscapes such as battlefields (Tworek-Hofstetter 2013).

Climate change will lead to different impacts on historic assets depending on their geographic location. For example, the melting permafrost in Alaska is showing signs of threat to the foundations of some historic buildings (Larsen 2008). Moreover, the increase in the intensity and length of the wildfire season has already endangered many historic assets in the western United States, including some in the iconic Yosemite National Park in 2013. Climate change is said to be making the glaciers at Mount Rainier recede, which in turn is leading to effects in the waterways alongside the park’s historic roads (NPS 2014b).

Some of the most immediate and obvious effects of climate change may be observed in higher storm surges and rising sea levels. Many believe that the astounding size and power of Hurricane Sandy can, in part, be attributed to these effects (Gillis 2012). In 2012, Hurricane Sandy roared up the eastern coast of the United States before making landfall on October 29 in southern New Jersey. Nearly 70 national parks sustained damage, with Gateway National Recreation Area, a vast park crossing two states and three New York City boroughs, being one of the parks hardest hit by the hurricane. At the Sandy Hook Unit, a record surge covered

Figure 4. NPS maintenance mechanic learning trowel skills and how to lay brick. NPS photo.



most of the site, flooding basements, eroding the beach, and rupturing the multiuse path.

Marilou Ehrler, a historical architect at Gateway National Recreation Area, admits that her job “became much bigger after Hurricane Sandy.” According to Ehrler, the park has “about 600 historic structures, not including archeological sites and curatorial collections.” The park’s efforts during the first year of the recovery focused on cleaning up, stabilizing, and reopening. It was not until recently that they began searching for answers to the difficult questions of historic preservation that Hurricane Sandy raised:

- Should we continue to use and maintain historic structures that are now located in a flood zone?
- Should historic structures, such as the bath house at Riis Park, be restored to the exact details as before the storm or should modifications be made to minimize future damage (Figure 5)?
- And because higher storm surges are expected in the future, what can be done to protect the infrastructure while maintaining the natural setting?

Although no one was prepared for a storm like Hurricane Sandy, NPS is developing tools and resources to help Gateway and other parks answer these questions and mitigate the potential future risks of climate change. The NPS Climate Change Program uses a four-pronged approach: (1) using science to help manage the impacts, (2) remaining flexible in adaptation, (3) reducing the carbon footprint, and (4) educating others about climate change (NPS 2014c). This program has produced valuable tools, including a high-level risk-screening tool for historic structures in coastal parks to characterize vulnerability and identify parks with assets most at risk; targeted research in climatic tolerances of historic materials; and a cultural resources climate change impacts handbook illustrated with case studies and photos.

Improved accessibility and energy efficiency

Improving accessibility and energy efficiency in historic structures often comes in the form of a trade-off. Should a 200-year-old door that is only 29 inches wide be replaced to make a structure physically accessible if it also means that visitors will not be able to touch the same



Figure 5. Aerial view of the bath house at Riis Park, Gateway National Recreation Area. NPS photo.

door that Benjamin Franklin did? Should drafty original windows be replaced to achieve energy savings? The accessibility and energy efficiency of historic structures forces NPS to make decisions about what is more important: the story, the access, or the cost. Should we maintain the historic fabric of an asset *at all costs* or make alterations to reduce the carbon footprint? Facility managers, with support from cultural resources and management, often face these difficult decisions.

NPS “is committed to making all practicable efforts to make NPS facilities, programs, services, information, employment, and meaningful work opportunities accessible and usable by all people” (NPS 2014a). With careful planning, consultation, and universal design, independent physical accessibility at historic properties can be achieved without significant damage to the historic fabric of the asset.

For example, the first floor of Independence Hall, the building where the Continental Congress signed the Declaration of Independence and the US Constitution, is accessible for people with mobility, hearing, and visual disabilities. Ray Bloomer, director of education and technical assistance at the National Center on Accessibility, remembers a time when the building was not permanently accessible. According to Bloomer, who served as a park ranger at the time, park staff used to set up a wooden plywood ramp on the steps and physically help people up the landing. This ramp has since been replaced with a more permanent structure located in the back of the building. Because the ramp cannot be seen from the front of Independence Hall, its historic view has been protected. Additionally, the ramp was constructed in such a way that allows for easy removal, if necessary.

Although NPS always strives for full accessibility, at times it is not possible. Decisions about making a historic asset accessible must balance providing access with preserving histo-

ry. Such decisions should involve both preservation and accessibility specialists. According to Bloomer, it is important to “make as much of the historic structure accessible relative to the program that visitors experience.” Although the first floor of Independence Hall is fully accessible, NPS has not been able to provide access to the second floor to people with mobility disabilities. However, having the ability to visit the first floor allows people with mobility disabilities to touch the interior walls, see the decorative and architectural details, such as crown molding, and gain a sense of what it would be like to gather in the Assembly Room during the time of the Continental Congress.

For structures that cannot be made accessible, NPS has had success using tactical models to share information and experiences. For Independence Hall, photographic and text albums that describe the second floor are available for those that cannot access it physically. Similarly, exhibits at the Statue of Liberty National Monument include a seven-foot cutaway to share the experience of what it is like to be inside the statue. Tactical models provide a tangible experience for people who would not otherwise be able to see or feel a historic asset.

Similar to its commitment to accessibility, NPS aims to improve the energy efficiency of constructed assets, including historic ones. For example, the Furnace Creek Visitor Center at Death Valley National Park reopened to the public in February 2012 after an 18-month rehabilitation. The rehabilitation, which included replacing the windows and the heating and cooling system and adding insulation and solar panels, saves the park an estimated \$14,000 in energy costs each year. Special care was taken to preserve the interior and exterior character so that the historic nature of the building would not be affected. Such preservation proved challenging because the project insulated a building that had never previously been insulated. In addition to energy savings, the park is benefiting from reduced water and propane use and an improved view of the night sky.

To assist with projects like these, NPS’s Technical Preservation Services Division released *The Secretary of the Interior’s Standards for Rehabilitation & Illustrated Guidelines on Sustainability for Rehabilitating Historic Buildings* in 2011. These guidelines direct facility managers and others in making changes to improve energy efficiency and preserve the character of historic buildings. Additionally, the PFMD and the NPS Cultural Resource Program are working together to hold a charette (stakeholder meeting) during which staffs will analyze 20 representative NPS buildings that have challenges in improving their sustainability while maintaining their historic integrity. The best practices gathered from this effort will be shared so that they can be incorporated into other projects and guiding principles and sustainable standards can be developed.

Conclusion

Returning to the question that opened this article, the answer is far greater than that the named assets are simply historic assets entrusted to NPS care. The broader answer, which is significantly more important, is that these assets tell the story of the United States. They are physical proof of the humble beginnings of a great president, of the courage shown by nine students in the desegregation of public schools in the United States at Little Rock Central High School, of the reminder of how close the world came to a nuclear war, and of the ingenuity of early transport that enabled westward expansion. These assets provide a tangible—yet irreplaceable—link to our past and remind us of whom we are.

With this deeper story in mind, effective maintenance of these historic assets remains complex. Limited resources and changing environments are challenging the methods and decisions of the NPS facility management community. Yet NPS, with the support of public and private partnerships, continues to develop policy and tools to overcome these challenges to historic preservation so that its 14,000 (and growing) historic assets may be truly preserved into perpetuity for future generations to enjoy and remember.

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