Building Innovation 2017

Celebrating “Park Architecture” and Beyond: Building for Resilience and Stewardship

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Todays Goals

• Understand the history and trends of the architecture in National Parks over the past 100 years, known commonly as "Parkitecture".

• Identify the challenges of climate change and rising visitation in national park building design and construction.
The Challenge

• While celebrating 100 years of the National Park Service, the impacts of CC is evident.

• And the much loved parks present significant challenges for design and operation. Are the parks being loved to death?

• These challenges have influenced a call for infrastructure that includes sustainable design, operation and maintenance.
NPS Brief History

- Since 1872 the United States NPS has grown from a single, public “Reservation” called Yellowstone to embrace over 400 areas throughout the United States, its territories, and island possessions.

- These areas include a diverse variety of park types including: National Parks, National Monuments, National Memorials, National Military Parks, National Historic Sites, National Parkways, National Recreation Areas, National Seashores, National Scenic Riverways, National Scenic Trails, and others.

- The “National Park” idea has been credited to the artist George Catlin in 1832. Concerned about the destruction of Native American civilization, wildlife, and wilderness as eastern settlements spread westward.
Brief History cont.

• George Catlin was an American painter, author, and traveler who specialized in portraits of Native Americans in the Old West. Travelling to the American West five times during the 1830s, Catlin was the first white man to depict Plains Indians in their native territory.

• 1864 – Yosemite valley transferred to State protection.
• 1872 – Yellowstone was established, followed by a number of National Monuments, Mineral Spring Parks, Military Parks and National Cemeteries.

• An early ally in promoting parks was the Northern Pacific Railroad Company. They were seeking major destinations for their route through Montana.

• Forty-four years after the establishment of Yellowstone, President Woodrow Wilson created the “National Park System” on August 25, 1916.
Brief History cont.

Today, the NPS is a steward of over 400 park units.

- More than 84 million acres of land.
- More than 380 million visitors.
- Across every state, DC, American Samoa, Guam, Puerto Rico, and the Virgin Islands.
- We oversee 70,000 “built” assets/sites of cultural significance.
- We operate the infrastructure (buildings, roads, utilities such as wastewater treatment plants) that enable access and enjoyment of parks.
Touring
More Touring

![Rock Formation](image1)

![Horses Grazing](image2)

![Lighthouse](image3)

EXPERIENCE YOUR AMERICA™
Our Building History- The Rustic Era

• National Park Service Rustic — sometimes called Parkitecture - is a style of architecture that developed in the early and middle 20th century.

• Purpose was to design and build visitor facilities without visually interrupting the natural or historic surroundings. The early results were characterized by intensive use of hand labor.

• Examples of the style can be found in numerous types of NPS structures, including entrance gateways, hotels and lodges, park roads and bridges, visitor centers, trail shelters, informational kiosks, and even mundane maintenance and support facilities.
Examples of Parkitecture
Examples of Parkitecture
Our Building History - Mission 66

• The explosion in prosperity following WW II brought a tide of automobile-borne tourists that the parks were ill-equipped to receive. By the mid-1950s it was apparent that massive investment in park infrastructure was required.

• **Mission 66** was a ten-year program that was intended to dramatically expand Park Service visitor services by 1966, in time for the 50th anniversary of the establishment of the Park Service.

• Mission 66 involved a variety of infrastructure projects such as roads, utilities and employee housing, but the most visible components were the interpretive facilities, or **Visitor Centers**.
Our Building History - Mission 66

- With the development of the visitor center concept, the VC was to be the main point of contact between the Park and visitors, providing orientation, education, toilets, concessions, public safety and administrative services in one location.

- The Rustic style that had previously been popular was suitable for the 1930s, when labor was cheap and plentiful (CCC) but was not practical on a large scale in a time of full employment.

- A conscious decision to employ a more streamlined modern style of design for Mission 66 facilities. The simpler, cleaner design philosophy was faster and less expensive to implement, and its public image fitted with the idea of a "new era" in park services.
Examples of Mission 66
Architecture
More Examples of Mission 66 Architecture
Our Building History – Sustainable Buildings

• We start with the premise that “Historic Preservation” is inherently a sustainable practice.

• Traditional materials are generally durable, and the continued maintenance of historic buildings and features relies on local craftsmen rather than replacement parts.

• The NPS has developed guidance and technical information about how historic properties can incorporate sustainable practices to reduce energy consumption, while maintaining those characteristics that make historic properties significant.
Our Building History – Sustainable Buildings

• 1991 Summit (75th anniversary) Produced “Guiding Principles”.

• A basis for achieving sustainability in planning, design, operations and maintenance.

• Topic areas; natural resources, cultural resources, site and building design, water, energy, waste, O/M and Interpretation.

• Make the values of sustainability apparent.
Our Building History – Sustainable Buildings

• 2000 Report focused on the purpose and prospects of the NPS for the next 25 years.

• Emphasized the need to adopt sustainability policies, create partnerships, train the workforce and teach sustainability.

• Monitor and interpret the ecological footprint of park development.
Sustainable Buildings - Grand Canyon
Sustainable Buildings - Zion
Sustainable Buildings - Denali
Climate Change and Sustainability

- In 2012, the GPP codified ambitious goals for sustainability;

Reduce energy and water consumption.

Reduce GHG emissions.

Reduce waste disposal.

Adapt to a changing climate.
Climate Change and Sustainable Buildings

- It is estimated that over $40 Billion in assets are at risk from only 1 meter in sea level rise.

- Recent study that shows that climate change brings more visitation (stay-cations) to parks.

- We must adapt our buildings and roads for severe climate, but how do we protect what is changing and prioritize investment $$ while recognizing that we can’t protect all assets.

- We must educate and inform visitors about these choices.
Climate Change and Sustainability
Visual Changes

• Image of Sandy Hook – pre/post Hurricane Sandy

• Key roads and bridges that provided access were lost

• Note loss of parking lots
Climate Change and Sustainability
Visual Changes

- Image of Fort Pickens, Gulf Islands
- Note elevation of fort walls
- Access to fort is routinely disrupted by coastal storms
Climate Change and Sustainability – Next Steps

The NPS is conducting CC vulnerability assessments and scoring adaptive capacity of our assets at coastal parks.

Resilience and adaptation for existing infrastructure may vary considerably, from minor to major efforts. These might include:

- Net Zero energy and water use
- Asset relocation or replacement
- Asset hardening
- Accelerated preventive and cyclic maint.
- Disposal
- Abandonment
Final thoughts

• The greenest building might be the one that’s already built. This is the relationship between NPS preservation and sustainability.

• We must incorporate climate change considerations and responses in all levels of NPS planning, design and operations.

• Lastly, as the NPS embarks on a massive wave of investment, we need to ensure that 21st century infrastructure is not designed for 20th century climate.