



# Green Parks Plan: Third Edition

Advancing the National Park Service  
Mission Through Sustainable Operations





*On the Cover: (top) Sunlight between giant sequoias — credit: NPS, James Hayne; (photo strip, left to right) Orange and white cliffs with Lake Powell winding in between them — credit: NPS; Solar panels at the Visitor Center on the South Rim of Grand Canyon National Park — credit: NPS, Michael Quinn; A recycling bin filled with single use propane canisters outside the Kohm Yah-mah-nee Visitor Center — credit: NPS, Amanda Sweeney; The Electric Driverless Demonstration in Yellowstone (TEDDY) 1 and 2 in front of Moran Lodge. Credit: NPS, Jacob W. Frank; Ranger enjoying Old Faithful Geysir. Credit: NPS, Neal Herbert*



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Visitors use the shuttle at Apgar Visitor Center, Glacier National Park. Credit: NPS, Jacob W. Frank

## By the Numbers

### Infrastructure<sup>1</sup>

**425**

National Parks<sup>2</sup>

**25,163**

Buildings operated and maintained by the National Park Service (NPS)

**47,201,230**

Square feet of building space, such as visitor centers and historic structures

**2,563,488**

Acres of maintained landscapes such as campgrounds, urban parks, and battlefields

**289,676,595**

Annual visits to national parks and opportunities to demonstrate sustainable operations<sup>3</sup>

**3,934**

Water, electricity, and sewage utility systems maintained by the NPS

**10,224**

Vehicles in the NPS fleet

**14,281**

Miles of roads maintained by the NPS

**19,355**

Miles of trails



*Water bottle filling station in Glacier National Park. Credit: NPS*

## By the Numbers

### Environmental Impact<sup>4</sup>

**179,000**

Metric tons of carbon dioxide equivalent (CO<sub>2</sub>e) generated from direct NPS emissions (Scope 1) and purchased electricity (Scope 2). The CO<sub>2</sub>e equates to nearly 40 thousand gasoline-powered passenger vehicles driven for one year<sup>5</sup>

**3,900,000**

Gallons of fuel consumed in NPS fleet vehicles, equivalent to filling 141 fuel tanker rail cars

**80,000,000**

Pounds of municipal solid waste generated in parks

**183,000,000**

Kilowatt-hours of electricity consumed by NPS buildings, equivalent to the annual consumption of 25,435 U.S. homes

**1,800,000,000**

Gallons of water consumed in NPS buildings, equivalent to 3,458 Olympic-sized swimming pools filled with water



## Message from the Director

### Net-Zero Parks



The world is in a climate crisis, and the NPS is front and center in viewing climate impacts.<sup>6</sup> As such, the NPS is renewing its operational sustainability goals with a bold vision to attain net-zero status in its parks. A net-zero park:

- Reduces greenhouse gas emissions as close to zero as possible and balances remaining emissions with an equivalent amount of renewable energy;<sup>7</sup>
- Consumes only as much energy as produced;
- Achieves a sustainable balance between water availability and demand; and
- Eliminates waste sent to landfills.<sup>8</sup>

Now more than ever, mitigating climate impacts is a priority for NPS leadership. We hold ourselves accountable for what we consume and emit and commit to minimizing the impact of facility operations on the environment.

This revised Green Parks Plan (GPP) sets forth steps toward net-zero parks. As we work towards our net-zero vision, we also strive to enhance and demonstrate the critical role our parks play in mental, physical, and spiritual health; environmental justice; and equity. NPS facilities, operations, and designed spaces will align with park values and promote health and social wellbeing. The NPS will continue to preserve our country's great natural and cultural landscapes to meet both current needs and those of future generations.

Charles F. Sams III  
*National Park Service Director*



## Introduction



### VISION

The NPS preserves park resources unimpaired for the enjoyment of current and future generations by reducing environmental impacts through sustainable operations, designs, decisions, and management at every level of the organization.

Since its inception in 1916, the NPS has been a global leader in the protection of both natural and cultural resources. The NPS has preserved many of the country's greatest treasures and, in the process, has become a model for resource management. This resource management and stewardship reaches beyond the service's iconic park boundaries and contributes to the preservation and protection of regional, national, and global resources.

By implementing the Green Parks Plan (GPP), the NPS is extending that leadership to the sustainable management of facilities and operations to fully carry out its mission of environmental stewardship. The NPS recognizes the importance of reducing its environmental impact through climate change mitigation strategies, as well as adapting to a changing climate.

This GPP is one of the plans that comprises the NPS response to climate change. The NPS Climate Change Response Strategy (CCRS) is the in-depth strategic plan for how the NPS will mitigate, adapt to, and communicate about climate change, while the GPP provides direction, including goals and measurable objectives, for how to reduce the service's contributions to the climate crisis.<sup>9</sup> These plans complement other efforts including the Healthy Parks Healthy People Strategic Action Plan which considers the service's role in people's wellbeing.

### Background and Scope

In April 2012, the NPS released the first version of the GPP which established ambitious goals to improve servicewide performance in sustainability. The GPP was updated in 2016 to keep pace with evolving priorities and legislative requirements. This 2023 GPP update continues to define a collective vision while outlining goals and objectives to sustainably manage NPS operations.

Leaders and visionaries from across the NPS collaborated on the 2023 GPP and encouraged the NPS to "be bold" in setting ambitious objectives. The NPS heard the call to "be bold" and outlined goals and objectives within the 2023 GPP to transition parks to net-zero status.



*Solar panels at Furnace Creek in Death Valley National Park. Credit: NPS*

## 2016 Progress Update

The 2016 GPP established six measurable objectives to be accomplished by 2025. The NPS made considerable progress towards achieving the objectives. As of 2022, the NPS:

- Reduced servicewide building energy use per square foot (energy intensity) by 25 percent from the 2015 baseline.
- Reduced potable water use intensity by 36 percent from the 2007 baseline.
- Reduced Scope 3 greenhouse gas (GHG) emissions associated with NPS operations by 23 percent from the 2008 baseline.<sup>10</sup>

The NPS was also on track to:

- Reduce Scope 1 and 2 GHG emissions associated with NPS operations by 36 percent from the 2008 baseline.
- Reduce the fleet-wide average GHG emissions per mile traveled by vehicles in the NPS fleet by 30 percent from the 2014 baseline.

The NPS continues to make strides towards annually diverting at least 50 percent of solid waste from landfills.

## Changes for 2023

The 2023 GPP accounts for progress made since 2016 while aligning with evolving requirements, the climate crisis, and the unique NPS mission. This updated plan streamlines and consolidates goal areas from 10 goals to 5 and ensures the goals are supported by outcome-based and strategic objectives.

The NPS will annually evaluate and report progress towards achieving each objective within the plan. The objectives no longer reflected in the GPP are addressed in complementary natural and cultural resource planning documents.

As with previous GPP editions, NPS staff, partners, stakeholders, visitors, and gateway communities will continue to work together to achieve the goals outlined within the GPP.





## Green Parks Plan Goals

### 2023 GREEN PARKS PLAN GOALS

The GPP outlines strategic goals that focus on facilities and operational impacts on the environment and human wellbeing. Each goal is supported by performance objectives.



#### **Be Climate Friendly and Climate Ready**

Combat the climate crisis by achieving net-zero GHG emissions



#### **Be Energy Smart and Water Wise**

Achieve net-zero water use and net-zero energy for facilities and operations



#### **Buy Green and Reduce, Reuse, Recycle**

Achieve net-zero waste and sustainable procurement



#### **Green Our Rides**

Adopt and support zero-emissions transportation methods



#### **Foster a Sustainability Ethic**

Engage the NPS workforce, partners, visitors, stakeholders, and communities to support and participate in sustainability, climate resilience, and environmental justice



*Ranger-led hike in Cedar Ridge, Grand Canyon National Park. Credit: NPS, Paul Stolen*

## **Crosscutting Enablers:** A Commitment from NPS Leadership

Effective climate change and sustainability solutions rely on collective action. NPS leadership commits to the GPP goal areas and to combat the climate crisis. The NPS challenges all employees, partners, and communities to envision, test, implement, and share state-of-the-art sustainable practices. The NPS aims to support and enable all contributions and fully align the organization to achieve the GPP goals. Investment decisions, organizational culture, programmatic functions, and organizational policies enable and support these goals by adhering to the following:

1. Continue and expand sustainability programs, including environmental management systems and other tools, to reduce the service's environmental footprint.
2. Include sustainability, environmental justice, and universal access in all relevant actions and decisions, including facility investment decisions.
3. Undertake a policy review to validate that no existing policies hinder or obstruct achievement of the GPP goals.
4. Continue to invest in, and adopt, advanced analytical tools to comprehensively collect and report facility data that enables decision-making and ongoing measurement of NPS sustainability performance.
5. Maintain adequate staff resources at all levels of the organization to implement the GPP.
6. Develop a climate- and sustainability-focused NPS workforce through training, education, and integration of sustainability principles into position descriptions and employee performance appraisal plans.
7. Encourage and challenge concessioners and partners to meet or exceed the GPP goals.



*The Cottonwood Cove Marina, located in Lake Mead National Recreation Area (on Lake Mohave), is the first floating LEED Gold building in the world. Credit: NPS, Andrew S. Muñoz*



## **Be Climate Friendly and Climate Ready**

Combat the climate crisis by achieving net-zero GHG emissions

The GPP focuses primarily on reducing the NPS GHG footprint. Reductions in GHG emissions can reduce projected temperature increases across the globe. As such, the NPS seeks to combat the climate crisis by achieving net-zero emissions across its building portfolio.

The NPS will also adapt to climate change by preparing facilities, infrastructure, and operations for the impacts of a changing climate. More information on NPS climate change adaptation, science, and communication goals are presented in the CCRS.

### **Objectives:**

1. Reduce Scope 1 and 2 GHG emissions from NPS operations by 65 percent by 2030 from a FY 2008 baseline.<sup>11,12</sup>
2. Reduce emissions across the NPS portfolio of buildings, campuses, and installations by 50 percent by 2032 from a FY 2008 baseline, and achieve net-zero emissions by 2045.<sup>13</sup>
3. Maintain or increase net carbon storage through constructed or maintained asset rehabilitation and natural restoration projects.
4. Increase resiliency of NPS operations and constructed or maintained assets.<sup>14</sup>



## Be Energy Smart and Water Wise

Achieve net-zero water use and net-zero energy for facilities and operations

Grid-distributed electricity and on-site fuel combustion to operate and occupy buildings and facilities are the largest sources of NPS GHG emissions. Emissions from electricity generation also contribute to air pollution locally and globally. The NPS closely tracks and benchmarks facility-energy use, identifies opportunities to conserve energy, and implements renewable and alternative energy projects.

With a changing climate creating extreme weather, where dry areas become drier and wet areas become wetter, clean water availability is a major issue in many areas. The NPS will minimize operational water use and implement sustainable water supply and conservation best practices.



*Alcatraz Island uses a rainwater catchment system to capture water for landscaping the historic gardens on the island. Credit: NPS*

### Objectives:

1. Reduce overall NPS facility energy use intensity, measured in energy consumption per gross square foot (GSF) of building space.<sup>15</sup>
2. Create healthy, efficient spaces by applying the Guiding Principles for Sustainable Federal Buildings in all new construction and modernization projects greater than 25,000 GSF.<sup>16</sup>
3. Reduce overall NPS facility water use intensity, measured in water consumption per GSF of building space and water consumption per visitor.<sup>17</sup>
4. Achieve net-zero energy and net-zero water at exclusively metered buildings within covered facilities.<sup>18</sup>
5. Convert direct fossil fuel use to electrical power so that 100 percent of facility energy use is carbon-free by 2030.<sup>19</sup>
6. Maintain the Secretary of the Interior Standards for the Treatment of Historic Properties while implementing sustainability and energy conservation measures.
7. Confirm all outdoor lighting projects are energy efficient and dark sky compliant.
8. Enhance and maintain native landscapes in and near the built environment to reduce water consumption.



New, universal, Recycle Across America labels on Grand Teton's recycling bins make recycling easier than ever. Credit: NPS



## Buy Green and Reduce, Reuse, and Recycle

Achieve net-zero waste and sustainable procurement

Sustainable material management in NPS operations, from using locally sourced and environmentally friendly construction materials to diverting solid waste from landfills, significantly benefits the environment. Material production, transportation, and disposal results in broad environmental impacts.

The NPS, together with its partners, will strive to reduce its impact on the environment, human health, and the waste-stream across the product lifecycle by adhering to sustainable procurement practices and principles while pursuing waste generation and reduction opportunities in national parks.

### Objectives:

1. Comply with federal sustainable acquisition regulations and demonstrate annual improvement in the percentage of sustainable contract actions.
2. Include sustainable procurement requirements in 100 percent of applicable construction and service contracts.
3. Divert 50 percent of municipal solid waste including construction and demolition debris by 2025 and 75 percent by 2030.<sup>20</sup>
4. Reduce waste generation annually on a per-visitor basis.
5. Phase out single-use plastic products by the end of 2032.<sup>21</sup>



The Electric Driverless Demonstration in Yellowstone (TEDDY) 1 and 2 in front of Moran Lodge. Credit: NPS, Jacob W. Frank



## Green Our Rides

Adopt and support zero-emissions transportation methods

Transitioning to a zero-emission NPS fleet is critical to achieving net-zero status at parks. The NPS is transforming its fleet into a new generation of zero-emission vehicles (ZEVs) and will continue to expand its focus to include non-highway vehicles and equipment. The NPS is evaluating new technologies for transit vehicles and leveraging its purchasing power to drive innovation. Transitioning to carbon-free electricity is even more imperative with an electric fleet. New and existing partnerships are also key to the electric vehicle supply equipment networks that will fuel the future.

### Objectives:

1. Transition 100 percent of eligible federal fleet to ZEVs.<sup>22</sup>
2. Transition 100 percent of non-highway vehicles and equipment purchases to electric and zero-emission fuels.
3. Transition 100 percent of visitor transit vehicle purchases to ZEVs.<sup>23</sup>
4. Assess, right-size, and install infrastructure to support electric and alternative fuel vehicles for the NPS fleet, employees, and visitors.



*Martin Luther King Jr. Memorial site interpretation — credit: Live It Learn It*



## **Foster a Sustainability Ethic**

Engage the NPS workforce, partners, visitors, stakeholders, and communities to support and participate in sustainability, climate resilience, and environmental justice

With over 400 national parks, more than 18,000 employees, and nearly 328 million annual visitors, the NPS has an unparalleled opportunity to engage across communities to support an environmental ethic. The NPS will focus on its workforce to promote sustainability across the organization and use the NPS platform to increase awareness among visitors.

The NPS will partner with communities to engage the next generation of stewards and visitors to support sound choices at home and within parks. The NPS will also invest in resources and opportunities to reach underserved and marginalized communities.

### **Objectives:**

1. Use the service's mission and visibility as environmental stewards to increase awareness of sustainability and climate change among visitors.
2. Develop and foster partnerships that promote sustainability, climate resilience, indigenous knowledge, and environmental justice.
3. Increase efforts to engage youth on issues related to sustainability and climate change at parks.
4. Activate campaigns and communications in parks to advance sustainability as part of the NPS experience.



## Looking Ahead to Net-Zero

Combatting the climate crisis requires collective action. The NPS is committed to driving regional, national, and global change through local progress across the nation.

The NPS will advance sustainability by boldly demonstrating the net-zero future of park facilities, operations, and landscapes. The NPS will engage a wide variety of stakeholders — visitors, concessioners, donors, gateway communities, government partners, educational institutions, and cooperating associations — to foster a sustainability ethic and create change beyond park boundaries.

NPS leadership is committed to aligning the organization to the GPP and empowering staff members to be change agents in this effort. Together, parks will serve as models of conservation and preservation through their commitment to sustainability and environmental stewardship.







## Notes

- 1 Information obtained January 2023 from Fiscal Year 2022 Year-End NPS Real Property Inventory and IRMA.nps.gov Recreational Visits from Fiscal Year 2021.
- 2 The NPS manages 425 individual units. While there are at least 19 naming designations, these units are referred to as “parks” throughout this document.
- 3 Recreational Visits Information obtained January 2023 from the Integrated Resource Management Applications at IRMA.nps.gov for Fiscal Year 2021.
- 4 Environmental performance statistics derived from FY 2021 NPS Year-End Solid Waste Report and Energy Management Data Report.
- 5 Scope 1 emissions are direct greenhouse (GHG) emissions that occur from sources that are controlled or owned by an organization (e.g., emissions associated with fuel combustion in boilers, furnaces, vehicles). Scope 2 emissions are indirect GHG emissions associated with the purchase of electricity, steam, heat, or cooling (US EPA, 2022).
- 6 This document refers to government operations, unless otherwise stated.
- 7 “Renewable energy” means marine energy (as defined in [42 U.S.C. 17211]), or electric energy produced from solar, wind, biomass, landfill gas, geothermal, municipal solid waste, or new hydroelectric generation capacity achieved from increased efficiency or added capacity at an existing hydroelectric project (42 U.S.C. 15852(b)(2)).
- 8 Net-zero emissions” means reducing greenhouse gas emissions to as close to zero as possible and balancing remaining emissions with an equivalent amount of emission removal, through natural carbon sinks, carbon capture and storage, direct air capture, or other methods (Sec. VII of M-22-06). The NPS includes all emissions sources from facility operations in these efforts.

“Net-zero emissions building” means a building that is designed and operated so that, when connected to a regional electrical grid fully serviced by carbon-pollution-free electricity, the Scope 1 and 2 GHG emissions from all operational end uses are zero on an annual basis (Sec. VII of M-22-06). The NPS includes all NPS-operated buildings in these efforts.

“Net-zero energy” means producing, from renewable resources, as much energy as is used over the course of a year (EPA.gov). The NPS includes its electricity and fuel use for all operations.

“Net-zero waste building” means a building that is operated to reduce, reuse, recycle, compost, or recover solid waste streams (except for hazardous and medical waste), thereby resulting in zero waste disposal (Sec. VII of M-22-06). The NPS includes municipal solid waste, and construction and demolition waste streams in these efforts.

“Net-zero water building” means a building that is designed, constructed or renovated, and operated to greatly reduce total water consumption, use non-potable sources as much as possible, and recycle and reuse water to return the equivalent amount of water as was withdrawn from all sources, including municipal supply, without compromising groundwater and surface water quantity or quality (Sec. VII of M-22-06). The NPS includes potable and non-potable uses across all operations in these efforts.
- 9 “Mitigation” in the climate change context means a human intervention to reduce the sources or enhance the sinks of greenhouse gases (IPCC 2014).

“Climate change adaptation” means an intentional management response to observed climate changes or plausible future changes that involves identifying, preparing for (e.g., developing strategy and specific actions), and responding to (e.g., implementing actions) those changes. The desired outcome from the management response is to retain current conditions, recover from climate variations (perhaps to an altered state), or adjust to changing conditions that may include major transformation in practices or state. Adaptation may seek to “moderate harm or exploit beneficial opportunities” (IPCC 2014).
- 10 Scope 3 emissions were last measured in 2017. New federal tools to measure Scope 3 emissions will be released in FY 2023.
- 11 At the time of publication, federal tools, guidance, and targets for Scope 3 GHG emissions are forthcoming. The NPS commits to reducing Scope 3 emissions and will publish targets in accordance with the release of the federal guidance.
- 12 EO 14057: Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability, Sec. 102. December 8, 2021.
- 13 Ibid.
- 14 Policy Memorandum (PM) 15-01 and the Climate Change Response Strategy.
- 15 Targets for energy intensity are being developed at the Departmental level as mandated by EO 14057. Targets will be available in FY 2023 and will be updated accordingly in this plan.
- 16 EO 14057: Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability, Sec. 205. December 8, 2021.
- 17 Targets for water intensity are being developed at the Departmental level as mandated by EO 14057. Targets will be available in FY 2023 and will be updated accordingly in this plan.
- 18 Covered facilities are those that together constitute at least 75 percent of total NPS facility energy use (Energy Independence and Security Act, Section 432). The NPS defines covered facilities at the park level and not the individual building level.
- 19 EO 14057: Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability, Sec. 102. December 8, 2021.
- 20 EO 14057: Catalyzing Clean Energy Industries and Jobs Through Federal Sustainability, Sec. 207. December 8, 2021.
- 21 In accordance with Secretary’s Order 3407 and associated implementation plans.
- 22 100 percent of light-duty vehicle acquisitions will be ZEVs by 2027, and 100 percent of medium-duty and heavy-duty vehicle acquisitions by 2035.
- 23 Visitor transport vehicles and non-highway vehicles and equipment will be transitioned in accordance with replacement schedules, market availability, and site appropriateness.



**National Park Service**  
U.S. Department of the Interior