



# Yellowstone's Vision for Sustainability



A portable solar array provides power at the Bechler Ranger Station in the summer season.

Yellowstone National Park was, established in 1872 as the world's first National Park, and now a biosphere reserve and World Heritage Site remains an example for excellence in environmental management.

Yellowstone strives to demonstrate exemplary leadership for sustainability and climate change mitigation by managing operations and adapting facilities in a sustainable manner to preserve our resources and for this and future generations.

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The Yellowstone Park Foundation funds projects which help Yellowstone achieve the ambitious greening goals identified in the Strategic Plan for Sustainability. Yellowstone Park Foundation is a nonprofit organization whose mission is to fund projects and programs that protect, preserve and enhance Yellowstone National Park.



# Commitment to Sustainability

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Trumpeter swans, seen here along the Yellowstone River in late March, are currently considered the most imperiled species in the park. (NPS / ELHARD)

Support and direction for environmental stewardship in Yellowstone is clearly embedded in both the National Park Service mission and Yellowstone's significance.

Under the Organic Act of 1916, the National Park service was established and directed to promote and regulate the use of the National Parks to conserve the scenery, the natural historic objects, and the wild life and to leave them unimpaired for the enjoyment of future generations.

Yellowstone's purpose and significance is rooted in the intent of its enabling legislation, subsequent legislation and current knowledge of its natural, cultural, and scenic resources. Yellowstone preserves geologic wonders including the world's most extraordinary collection of geysers, hot springs and abundant and diverse wildlife, in one of the largest remaining intact temperate ecosystems on earth. It preserves an 11,000 year continuum of human history, including sites, structures, and events that reflect our shared heritage, and provides for the benefit, enjoyment, education, and inspiration of this and future generations.

Commitment to sustainability is made more important with a changing climate and increasing impacts to natural resources, locally and globally. Recent executive orders and acts require the Federal Government to protect resources through sustainable operations and facility adaptation. The National Park Service Green Parks Plan provides further direction for environmental stewardship, and has led to a firm commitment and support for Yellowstone's continued leadership in Environmental Stewardship.



# Purpose of the Strategic Plan

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NPS / JAY ELHARD

The overall purpose of Yellowstone's Strategic Plan for Sustainability is to present clear direction within a simple framework by which everyone- employees, visitors, and partners-can work collaboratively toward unified goals to make Yellowstone greener.

The Strategic Plan for Sustainability sets forth goals for operational and infrastructure improvements that reduce impacts on the environment while enhancing visitor experiences and employee living and working conditions. By building upon Service wide direction, the Strategic Plan for Sustainability focuses on Yellowstone's specific challenges that call for reducing greenhouse gas emissions; energy, water and materials consumption adapting facilities and conducting operations in an environmentally-responsible manner. We plan to communicate all these efforts with transparency and a compelling message, to inspire sustainability efforts within and beyond Yellowstone.

This bold vision and road map for the next 5-10 years is a truly collaborative effort. In September 2011, representatives from corporate partners and educational institutions volunteered their time to participate in a "Greening Yellowstone Symposium". The goals and objectives presented here are derived from that symposium, evidence of the hard work and dedication by all who attended.

Andersen Windows & Doors  
The Coca-Cola Company  
Delaware North Company  
Georgia Tech Research Institute  
Herman Miller, Inc.  
Kohler  
Michelin North America  
Montana State University  
New Leaf Paper

Shaw Carpets  
Signature Carpets  
Toyota Motor Sales, U.S.A.  
Universal Textile Technologies  
University of Michigan  
United States Environmental Protection Agency  
Xanterra Parks & Resorts  
Yellowstone Association  
Yellowstone Park Foundation

# Leadership

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Permeable pavement made from recycled glass provides an environmentally friendly walking surface for visitors at Old Faithful.

## **...continuing a legacy in environmental protection**

Yellowstone's complex natural resources and human history can make sustainable changes to facilities, operations, habits and practices seem overwhelming. Yellowstone's managers believe strong leadership will help the park achieve its objectives and are committed to establishing a structure and process for sustainability that is collaborative and broad reaching. Leadership involves developing partnerships among employees, concessioners, visitors, universities, and innovative companies to create successful solutions.

## **Yellowstone Environmental Coordinating Committee (YECC)**

Yellowstone Green Team - National Park Service

Green Path - Delaware North Companies

Medcore

Ecologix - Xanterra Parks and Resorts

Yellowstone Association

Yellowstone Park Foundation

Yellowstone Park Service Stations



# Leadership: Goals and Objectives

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The Yellowstone Environmental Coordinating Committee (YECC) comprised of NPS and concessioners employees, directs sustainable initiatives in the Park

## **Guide Yellowstone in exemplary environmental stewardship, striving to reduce human impacts on the environment**

- Conduct annual reviews of Yellowstone's Strategic Plan for Sustainability. (Action items due: Annually)
- Foster collaborative initiatives for Yellowstone that involve the NPS, park concessioners, surrounding government agencies and communities. (Action items due: 2012)
- Develop strategies to engage with, and solicit support from, private sector organizations including corporate partners and non-profit organizations. (Action items due: 2012)
- Develop and implement a project review system that includes input from experts in sustainable practices. (Action items due: 2013)
- Identify opportunities for sustainability, and methods to reduce impacts on the environment in all planning, site design and construction proposals. (Action items due: 2013)
- Ensure that databases identify and track key sustainability metrics. (Action items due: 2013)
- Continuously explore emerging technology, and support assessment and implementation where appropriate. (Action items due: Ongoing)
- Commission an annual sustainability audit and review recommended measures. (Action items due: Annually)

## **Reduce the impact of park development and operations on global climate change**

- Reduce greenhouse gas (GHG) emissions caused by park operations from a 2008 baseline. (Baseline year and % reduction consistent with EO 13423 and NPS Green Parks Plan). (Action items due: by 2016 - 30 percent reduction; by 2020 - 50 percent reduction)
- Record, assess and minimize carbon footprint of all planning, design and facility improvement actions. (Action items due: 2013)

## **Live out a culture empowering employees to contribute to a unified vision for the "Greening of Yellowstone"**

- Identify key champions in environmental stewardship, define roles and responsibilities and provide support for them to educate others and carry out sustainability initiatives. (Action items due: Ongoing)
- Provide opportunities that inspire and motivate employees to become more involved in environmental stewardship. (Action items due: Ongoing)
- Empower the Yellowstone Environmental Coordinating Committee to foster collaborative, sustainable initiatives for NPS and concessioner operations in Yellowstone

# Education and Communication

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Interns studying Mammoth Hot Springs irrigation learn about Yellowstone's weather patterns to determine the potential for water conserva-

## **...inspiring and sharing sustainability efforts**

Yellowstone has a long tradition of teaching the importance of protecting natural resources. We recognize that improving awareness is a cornerstone of success for our sustainability program. Transparent communication through interaction with others and informing and encouraging new ways of thinking will help generate actions for positive change. We plan to use multi-media approaches, explain our projects, and share successes and challenges in a compelling manner to inspire sustainability efforts within and beyond the park.



# Education: Goals and Objectives

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Simple tools measure the potential for solar energy in different locations throughout the park.

## **Engage stakeholders in Yellowstone's sustainability journey energy management**

- Develop an annual progress report on sustainable actions allowing park staff and partners to learn from both successes and challenges. (Action items due: Annual)
- Solicit input on strategies and actions for sustainability from employees at all levels. (Action items due: Ongoing)
- Regularly communicate sustainability initiatives, ideas and issues using a variety of methods to reach a wide audience of internal and external contacts. (Action items due: Ongoing)
- Implement a communication strategy to share information among: park management, other NPS and concessions staff involved in the Environmental Management Program and organizations working on sustainability in the Greater Yellowstone Area. (Action items due: 2012)

## **Tell a compelling story that powerfully communicates our vision and goals and inspires sustainability efforts within and beyond Yellowstone**

- Identify key messages for sustainability and environmental stewardship. (Action items due: 2012)
- Incorporate sustainability messages into appropriate plans, publications and media, educational programs and communication with visitors. (Action items due: 2013)
- Ensure that messages are unified and consistent across the NPS and its concessioners. (Action items due: 2013)
- Engage the general public and publicize progress and successes on sustainable actions. Highest success stories and lessons learned. (Action items due: 2013)
- Educate and engage youth, incorporating sustainability into youth programs, and providing opportunities for youth to work on sustainability projects. (Action items due: Ongoing)

# Energy

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Solar panels provide power at the Lewis Lake Contact Station.

## **...building a low carbon, low energy footprint**

Yellowstone National Park is the largest consumer of energy in the National Park Service with many villages and a vast and varied assortment of aging buildings, many of which are significant to our past contributing to Historic Districts and National Historic Landmarks. Most buildings need energy efficiency improvements including updates to old and inefficient heating systems. Yellowstone strives to inspire energy conscious behaviors, make facilities more energy efficient, reduce the use of fossil fuels for all infrastructure systems, and assessing opportunities for renewable energy.



# Energy: Goals and Objectives

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Lamar Buffalo Ranch's electricity comes from photovoltaic panels.

## **Set a high standard in energy performance improvements and meet or exceed NPS goals for energy management.**

- Reduce the park's overall energy consumption from a 2003 baseline. (Baseline year and percentage reductions consistent with EO 13423 and NPS Green Parks Plan). (Action items due: by 2016 - 35 percent reduction; by 2020 - 40 percent reduction)
- Conduct comprehensive energy audits every four years. (Action items due: Ongoing)
- Comply with energy mandates from the Energy Independence and Security Act, Executive Order 13423, and the Guiding Principles (High performance and Sustainable Buildings Guidance). (Action items due: Ongoing)
- Develop and implement an Energy Monitoring Plan to track and report energy use (including electric, propane, hot water and steam) for high use buildings and those over 5,000 square feet. (Action items due: 2012)
- Prioritize and implement retrofits and updates to energy inefficient systems such as generators, boilers, indoor and outdoor lighting, appliances and equipment. (Action items due: 2012)
- Design new buildings to be at least 30 percent more efficient than required by national energy standards (Guiding Principles). (Action items due: 2012)
- Design major renovations to reduce the building's energy consumption by at least 20 percent below a 2003 baseline (Guiding Principles). Historic buildings comply with the maximum extent practical. (Action items due: 2012)
- Increase the use of energy from sources that are renewable and sustainable. (Action items due: by 2016 - 20 percent; by 2020 - 30 percent)
- Investigate opportunities to generate renewable energy within Yellowstone and determine the potential for water, wind, and solar energy production. (Action items due: Ongoing)

## **Impress upon park employees and visitors best practices for energy conservation to inspire them to conserve energy in Yellowstone and at home.**

- Share best practices in energy conservation and communicate energy reduction projects in Yellowstone with employees and visitors. (Action items due: Ongoing)
- Emphasize visitor service facilities in energy reduction strategies. (Action items due: 2013)

# Water

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Two visitors explore the shoreline along Yellowstone Lake (NPS / ELHARD)

## **...sustaining our natural water systems**

The Park's unique geothermal and hydrological features are one of the main reasons why Yellowstone became the world's first National Park. In addition Yellowstone is at the headwaters of the Yellowstone River itself an important natural resource contributing to major waterways like the Columbia and Missouri Rivers. Climate change is expected to cause drier conditions in the Rocky Mountain West. With a changing and drier climate it is critical that we conserve water and ensure that our facilities and operations have minimal impact on water resources. Yellowstone is working to reduce its use of potable water by inspiring behaviors to conserve water and using water smart technology, and integrating design changes that minimize impacts of park structures on natural water systems.



# Water: Goals and Objectives

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Smart controllers, installed in 2012, measure weather and soil moisture to reduce the amount of water used to irrigate Mammoth Hot Springs' historic lawns.

## Protect watersheds and preserve natural hydrological and geothermal systems

- Develop a water source management plan to identify vulnerabilities and recommend mitigation for impacts to Yellowstone's natural hydrological and geothermal systems. (Action items due: 2013)
- Minimize the impact of paved surfaces on natural resources through design techniques, like the reduction of paved surfaces, increased use of permeable pavement and materials that are recycled, bio based or inert. (Action items due: 2012)
- Integrate best practices for storm water mitigation into construction projects and to prevent excess storm water runoff. (Action items due: 2012)
- Identify opportunities for to reduce irrigated areas. (Action items due: 2016)

## Decrease potable water use in Yellowstone

- Reduce the park's overall potable water consumption from a 2007 baseline. (Baseline year and percentage reductions consistent with EO 13423 and NPS Green Parks Plan). (Action items due: by 2016 - 20 percent; by 2020 - 30 percent )
- Establish a water metering plan to measure water consumption, establish baseline water use and measure effects of water conservation strategies. (Action items due: 2013)
- Conduct water infrastructure assessments to identify water loss. (Action items due: 2014)
- Implement strategies and technologies to reduce potable water for facilities, operations and residences. (Action items due: Ongoing)
- Develop a comprehensive program for landscape irrigation to minimize water use. (Action items due: by 2016 - 50 percent reduction)
- Assess the feasibility of rainwater harvesting and gray water reuse for lawn and native plant irrigation. (Action items due: 2016)

## Impress upon park employees and visitors the importance of water conservation to inspire them to conserve water in Yellowstone and at home

- Share water conservation strategies and communicate water reduction projects and programs in Yellowstone with employees and visitors (Action items due: Ongoing)
- Provide water filling stations with messaging that promotes drinking of Yellowstone tap water and the environmental benefits of refilling water bottles. (Action items due: 2013)

# Fleet and Transportation

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Yellowstone is replacing its fleet with efficient, advanced-technology vehicles where possible.

**...creating opportunities to reduce fossil fuel use in our vehicles.**

Yellowstone National Park has 310 miles of paved road and our developed areas are an average of 30 miles apart. Just getting around Yellowstone takes considerable time, adding challenges to daily operations, and the creation of greenhouse gas emissions through burning of fossil fuels. Yellowstone plans to use more fuel efficient vehicles, and choose the right vehicles for the job. Using the best technology available will help provide opportunities that enable and encourage greener transportation.



# Transportation: Goals and Objectives



The 2000 Clean Snowmobile Challenge led the way for cleaner, quieter snowmobiles in Yellowstone. The park requires 4-stroke engines for all snowmobiles.

## **Minimize environmental impacts from operational vehicle use**

- Reduce fossil fuel consumption for the use of fleet vehicles from a 2003 baseline. (Baseline year and % reductions consistent with EO 13423 and NPS Green Parks Plan) (Action items due: by 2016 - 18 percent reduction; by 2020 - 30 percent reduction)
- Implement a preventive maintenance program focused on operational techniques, including engine and tire pressure maintenance. (Action items due: 2012)
- Ensure best fuel efficiency technologies are used for all fleet improvements and upgrades, including watercraft and over-snow vehicles. (Action items due: 2012)
- Provide opportunities and incentives for fuel-efficient travel to work and travel at work practices. (Action items due: 2012)
- Establish number of vehicles needed to optimize fleet and carry out daily work needs. (Action items due: 2016)

## **Minimize environmental impacts from visitor transportation**

- Implement where feasible, shuttles and transit systems to popular destinations throughout Yellowstone, surrounding communities, and local airports. (Action items due: 2020)
- Design and implement pedestrian-friendly transit-oriented improvements in developed areas. (Action items due: Ongoing)
- Identify and apply best practices in sustainability for road design, construction and maintenance. (Action items due: 2013)
- Work with surrounding communities and agencies to implement strategies and programs for sustainable roads and trails within and beyond park boundaries. (Action items due: Ongoing)

## **Communicate the importance of fuel conservation to inspire visitors and employees to reduce greenhouse gas emissions caused by vehicle use**

- Adopt fuel-efficient vehicle operation practices including "no idling" and "minimal rapid acceleration." Implement programs with education and guidelines. (Action items due: 2012)
- Share fuel conservation strategies and educate employees and visitors about greenhouse gas emissions associated with travel and transport. (Action items due: Ongoing)
- Offer incentives to visitors that use environmentally preferable means of transportation including public transit and alternative fuel vehicles. (Action items due: 2016)

# Environmental Purchasing and Waste Reduction

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Two visitors explore the shoreline along Yellowstone Lake (NPS / ELHARD)

## **...reducing the impacts of the products we buy and supply.**

TYellowstone has demonstrated a long commitment to waste reduction through composting and recycling efforts. We plan to minimize the overall amount of waste accumulated by purchasing environmentally preferred items. These include those with minimal packaging, biodegradable or recyclable materials, and without toxic components as well as those requiring minimal energy to produce and transport. By buying green and diverting waste from the landfill Yellowstone will minimize the impact of its purchases and waste on the environment.



# Purchasing & Reduction: Goals and Objectives



Used bear spray canisters are collected around the Yellowstone Area, where they are then crushed and recycled.

## **Purchase environmentally friendly products and minimize the lifecycle impacts of purchased materials**

- Follow with EPA's recommendations for environmentally preferable purchasing of products and services and comply with standards and guidelines where applicable. (Action items due: by 2016 - 50 percent; by 2020 - 100 percent)
- Monitor/track purchasing streams to establish accountability for environmental purchasing. (Action items due: 2013)
- Implement purchasing policies and requirements for commonly purchased goods and increase central supply items that meet environmentally preferred minimum standards. (Action items due: 2013)
- Purchase locally and regionally produced sustainable commodities. (Action items due: Ongoing)
- Purchase of commodities with little packaging, recyclable or biodegradable materials, non-toxic components and low embodied energy from manufacturing and transportation. (Action items due: Ongoing)
- Offer visitors environmentally responsible, choices and minimize disposable products such as plastic water bottles. (Action items due: 2013)
- Include sustainability requirements and environmental performance assessments in evaluation criteria for all contracts involving the purchase of products and/or services. (Action items due: 2016)

## **Ensure the most sustainable use of waste products**

- Divert municipal solid waste from landfills. (Action items due: by 2016 - 75 percent diversion; by 2020 - 90 percent diversion)
- Monitor/track diversion rates for recycling efforts. (Action items due: 2013)
- Collaborate with partners and local communities to ensure efficient, low impact collection, separation, transportation, and disposal/reuse of waste. (Action items due: 2014)
- Ensure end source markets for waste recycling and disposal are environmentally sound and respect human health and safety. (Action items due: 2016)
- Implement standards and strategies for recycling and reusing construction and demolition waste to divert building and infrastructure materials from landfills. (Action items due: by 2016 - 75 percent diversion; by 2020 - 90 percent diversion)

## **Educate employees and visitors on the importance of purchasing and waste reduction, to inspire them to buy green and reduce waste in Yellowstone and at home**

- Educate staff on standards and policies for environmental purchasing and waste reduction (Action items due: Ongoing)
- Provide consistent information on Yellowstone's environmental purchasing and waste reduction efforts to employees and visitors (Action items due: 2013)
- Inform visitors of the environmental impacts of their purchases and opportunities to minimize waste associated with their visit (Action items due: 2016)