



CLIMATE *Friendly* PARKS

# Devils Postpile National Monument Action Plan

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## DEVILS POSTPILE NATIONAL MONUMENT BECOMES A CLIMATE FRIENDLY PARK

As a participant in the Climate Friendly Parks (CFP) program, Devils Postpile National Monument belongs to a network of parks nationwide that are putting climate-friendly behavior at the forefront of sustainability planning. By conducting an emission inventory, setting emission reduction goals, developing this Action Plan, and committing to educate park staff, visitors, and community members about climate change, Devils Postpile National Monument provides a model for climate-friendly behavior within the park service.

Devils Postpile National Monument, as a member of the Pacific West Region, is involved in the first regional effort in the National Park Service to become carbon neutral and to have all of its parks be a member of the Climate Friendly Parks Program by the end of 2010.

This Action Plan identifies steps that Devils Postpile National Monument can undertake to reduce greenhouse gas (GHG) emissions and mitigate its impact on climate change. The plan presents the Park's emission reduction goals, and associated reduction actions to achieve the park's goals. Strategies and action plan items were developed by working groups at the San Francisco Bay Area Network Climate Friendly Parks Workshop.<sup>1</sup> While the plan provides a framework needed to meet the park's emission reduction goals, it is not intended to provide detailed instructions on how to implement each of the proposed measures. The park's Environmental Management System will describe priorities and details to implement these actions, integrating emission reduction strategies into regular park operations and activities.

Devils Postpile National Monument intends to reduce emissions produced by park operations as follows:

- Energy use emissions to 35 percent below 2008 levels by 2016.
- Waste emissions to 35 percent below 2008 levels by 2016 through waste diversion and reduction.
- Maintain transportation emission levels.

To meet these goals, the Park will implement strategies proposed in this plan that relate to the Park's current and future emission inventories. Specifically, the plan recommends three strategies:

**Strategy 1:** Identify and implement mitigation actions that the Park can independently take to reduce GHG emissions resulting from activities within and actions by the Park

**Strategy 2:** Increase climate change education and outreach efforts

**Strategy 3:** Monitor progress with respect to reducing emissions and preserving natural resources and identify areas for improvement

## THE CHALLENGE OF CLIMATE CHANGE

Climate change presents significant risks and challenges to the National Park Service and specifically to Devils Postpile National Monument. Scientists cannot predict with certainty the severity of climate change nor its effects. Average global temperatures on the Earth's surface have increased about 1.1°F since the late 19<sup>th</sup> century, and the 10 warmest years of the 20<sup>th</sup> century all occurred in the last 15 years. The single leading cause of this warming is the buildup of GHGs in the atmosphere — primarily carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) — which trap heat that would otherwise be released into space.

<sup>1</sup> Original notes from these workshops, including detailed action items not presented in the final plan have been archived by Devils Postpile National Monument and are available upon request.

The continued addition of CO<sub>2</sub> and other GHGs to the atmosphere will raise the Earth's average temperature more rapidly in the next century; a global average warming of between 4 and 7°F by the year 2100 is considered likely.<sup>2</sup> Rising global temperatures will further raise sea levels and affect all aspects of the water cycle including: snow cover, mountain glaciers, spring runoff, water temperature, and aquatic life. Climate change is also expected to affect human health, crop production, animal and plant habitats, and many other features of our natural and managed environments.

Devils Postpile National Monument, located on the western slope of the Sierra Nevada range, was established to protect and provide access to the Postpile and Rainbow Falls. The Postpile is a striking formation of columnar basalt, rising up to 60 feet in height, formed from eruption and uniform cooling of basalt lava. The San Joaquin River transforms throughout Devils Postpile, from a broad, low-gradient meander to scattered pools, fast-flowing rapids, cascades, and finally culminating at Rainbow Falls, a waterfall that stands 101 feet tall.

A relatively modest increase in temperature is expected to affect precipitation, fire regimes, and organism habitats in the local ecosystems. The most pronounced changes are likely to be seen in snowpack volume, surface water dynamics, and hydrologic processes. For example, regional average temperature increases would cause earlier snowmelt runoff, reduce summer base flow in local streams and rivers, lower snowpack volume at mid-elevations, and increase the incidence and severity of winter and spring flooding. Changes in the type and timing of precipitation are already being observed within the park and surrounding areas, as flow in many western Sierra Nevada streams has been observed to begin one to three weeks earlier than in the mid 20<sup>th</sup> century. Prolonged summer droughts have altered natural fire regimes and increased the potential for high severity wildfires.

Increasing temperature and changing precipitation patterns could also result in a shift of specific habitat to higher elevations. Local flora and fauna with specific needs and limited mobility could be locally extirpated, resulting in a decline of biodiversity. For example, high alpine habitat may shrink or even disappear, leading to an irreversible loss in species such as pika, Belding's ground squirrel, yellow bellied marmot, and Sierra Nevada bighorn sheep. The 2009 Devils Postpile Wetland Inventory and Condition Assessment revealed that 8.5% of the Monument is wetlands, which are also at risk of being impacted by changes in temperature and hydrologic regimes. Additional effects from changes in climate and precipitation patterns in Devils Postpile could include diminished integrity of meadows, seeps, springs, tributaries, and the San Joaquin River, thus compromising the vitality, diversity, and distribution of native species and habitats.

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<sup>2</sup> IPCC 2007. Climate Change 2007: The Physical Science Basis. Intergovernmental Panel on Climate Change, Geneva Switzerland. Available online at [http://www.ipcc.ch/publications\\_and\\_data/ar4/wg1/en/contents.html](http://www.ipcc.ch/publications_and_data/ar4/wg1/en/contents.html)

## GREENHOUSE GAS EMISSION INVENTORY AT DEVILS POSTPILE NATIONAL MONUMENT

Naturally occurring GHGs include CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, and water vapor. Human activities (e.g., fuel combustion and waste generation) lead to increased concentrations of these gases (except water vapor) in the atmosphere.

### Greenhouse Gas Emissions

GHG emissions result from the combustion of fossil fuels for transportation and energy (e.g., boilers and electricity generation), the decomposition of waste and other organic matter, and the volatilization or release of gases from various other sources (e.g., fertilizers and refrigerants). At Devils Postpile National Monument, the main sources of energy are propane and wood for heating buildings, purchased electricity, gasoline for the vehicle fleet and for gas-powered equipment.

In 2008, GHG emissions within Devils Postpile National Monument totaled 46 metric tons of carbon dioxide equivalent (MTCO<sub>2</sub>E). This includes emissions from park and cooperating association operations and visitor activities, including vehicle use within the park. For perspective, a typical single family home in the U.S. produces approximately 12MTCO<sub>2</sub> per year.<sup>3</sup> Thus, the combined emissions from park, its cooperating association, and visitor activities within the park are roughly equivalent to the emissions produced by four U.S. households each year.

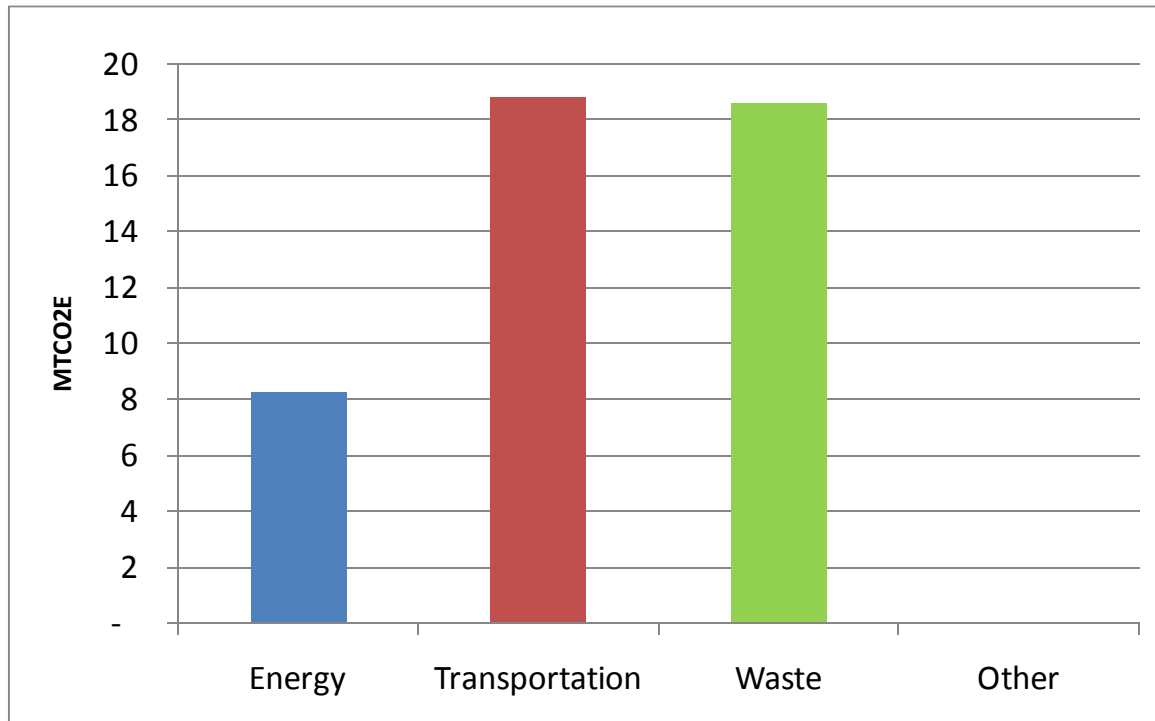
The largest emission sectors for Devils Postpile National Monument are transportation and waste, each totaling 19 MTCO<sub>2</sub>E (Fig 1 and Table 1). The transportation sector is the combined emissions from park operations and visitor vehicles. All visitors, with some exceptions, are required to ride the shuttle bus, which significantly reduces emissions from visitor vehicles. It is estimated that the required use of the shuttle bus reduced vehicle miles traveled (VMT) into the monument by 437,779 miles in the 2009 season; this reduction in VMT decreased the CO<sub>2</sub> emissions of our visitors by approximately 118 MTCO<sub>2</sub>E.

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<sup>3</sup> U.S. EPA, Greenhouse Gases Equivalencies Calculators – Calculations and References, Retrieved; Website: <http://www.epa.gov/RDEE/energy-resources/calculator.html>

## FIGURE 1

*Devils Postpile National Monument 2008 Total Greenhouse Gas Emissions by Sector*



## TABLE 1

*Devils Postpile National Monument 2008 Total Greenhouse Gas Emissions by Sector and Source*

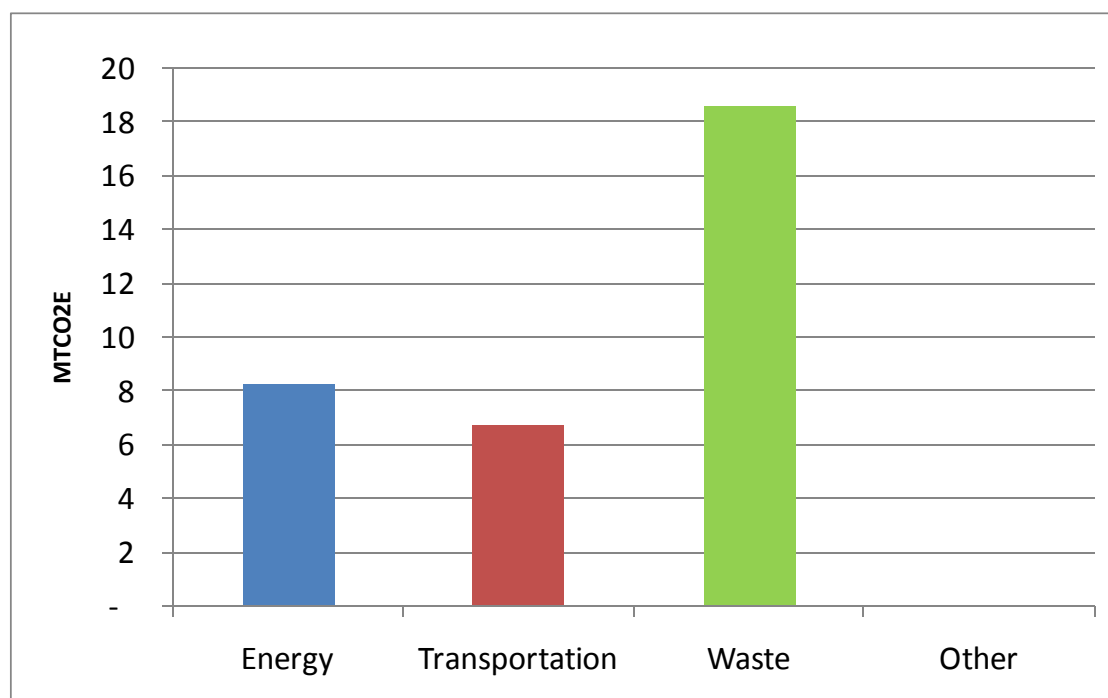
<b>Energy</b>	<b>8</b>
Stationary Combustion	1
Purchased Electricity	8
<b>Transportation</b>	<b>19</b>
Mobile Combustion	19
<b>Waste</b>	<b>19</b>
Landfilled Waste	19
Wastewater	-
<b>Other</b>	<b>-</b>
<b>Total</b>	<b>46</b>

Note - Totals may not sum due to rounding

Not applicable data sources represented by "-"

## FIGURE 2

*Devils Postpile National Monument 2008 Park Operations Emissions by Sector*



## TABLE 2

*Devils Postpile National Monument 2008 Park Operations Emissions by Sector*

<b>Energy</b>	<b>8</b>
Stationary Combustion	1
Purchased Electricity	8
<b>Transportation</b>	<b>7</b>
Mobile Combustion	7
<b>Waste</b>	<b>19</b>
Landfilled Waste	19
Wastewater	-
<b>Other</b>	<b>-</b>
<b>Total</b>	<b>34</b>

Note - Totals may not sum due to rounding

Not applicable data sources represented by "-"

# Devils Postpile National Monument Responds to Climate Change

*The following actions were developed during the CFP workshop hosted by San Francisco Maritime National Historical Park on October 27 and 28, 2009 in order to meet the Park's climate change mitigation goals.*



## STRATEGY 1: REDUCE GREENHOUSE GAS EMISSIONS RESULTING FROM PARK ACTIVITIES

Devils Postpile National Monument has developed a set of actions that the park will implement in order to reduce emissions from activities within the park. These actions have been prioritized based on a qualitative assessment of a set of criteria including: emission reduction potential, cost-effectiveness, feasibility, co-benefits, regional impact, and ability to rapidly implement. Actions that Devils Postpile National Monument will take are presented below in order from highest to lowest priority within each sub-category.

### Energy Use Management

*Emission Reduction Goal: Reduce park operations energy use emissions to 35 percent below 2008 levels by 2016.*

Improving energy efficiency and implementing alternative energy sources reduces park-based fuel use, lowers GHG emissions, decreases electricity consumption, and offers monetary benefits for the park. Emissions inventory results indicate that 24 percent of the park's GHG emissions from park operations are from energy consumption. Consequently, Devils Postpile National Monument identified actions it will take to reduce energy-related emissions. Presented below are the actions that are currently under way and which comprise the park's progress to date, as well as those actions the park will pursue.

#### Progress to Date

- Engaged partners to aid in energy use reduction.
  - Partnered with local utility companies on energy efficiency studies, audits and building audits (i.e., leverage local resources beyond utility companies). Transitioning to energy efficient electronics.
  - Performed a phased replacement of all residential unit appliances to upgrade to energy efficient models. Working with the General Services Administration at the management level to ensure that these products are available.

### Energy Use Management – Planned Actions

#### 1 Promote energy efficiency and energy conservation in the park through behavioral change

- Encourage energy conservation in all park activities.
  - Increase energy efficiency in all park buildings and housing by encouraging conservation and efficiency behaviors.
  - Identify "vampire energy users": electronic appliances that consume power while switched off or in standby mode. Individual devices may not use much, but over time the sum of all of wasted standby power throughout the park becomes significant.
  - Add conservation to closedown checkout process.

- Develop a mandatory energy-saving training program.
  - Instruct staff how to turn off equipment when it is not in use and enable energy-saving settings for computers and monitors.
  - Incorporate conservation into training and tailgate sessions.
  - Incorporate an energy performance reward system.
- Establish an Operations and Maintenance (O&M) schedule that evaluates energy use across the entire park.
  - Conduct an energy audit of all maintenance activities.
  - Use in-depth project and purchase planning to reduce VMT, specifically the number of trips out of into and out of the Monument.
- Ensure all computers' power management settings follow current ENERGY STAR recommendations.
  - Set computers to enter system standby or hibernation mode after 30 minutes of inactivity and monitors to enter sleep mode after 15 minutes of inactivity.

## 2 Upgrade lighting options

- Upgrade all light fixtures and bulbs to energy efficient bulbs.
  - Use High Intensity Discharge (HID) lamps and/or fluorescent lights (T-8s or T-5s with electronic ballasts) in all fixtures used for more than three hours per day.
  - Replace incandescent light bulbs with compact fluorescent light bulbs (CFLs) where appropriate.
- Install lighting controls to reduce electricity use.
  - Install bi-level lighting and dimmable ballasts.
  - Pair lighting with photo sensors.
  - Use ambient light and take advantage of day lighting opportunities.
  - Use motion sensors and make sure that a recommissioning schedule is in place to ensure appropriate use.

## 3 Switch to more efficient electronics and devices

- Establish and implement a green procurement policy that sets minimum energy performance standards for all electronic equipment.
  - Ensure that all new electronic/office equipment is ENERGY STAR qualified.
  - Rather than purchasing individual copy, fax, print, and scanning equipment, consider a multi-function device.
- Default all computers to print double-sided.
- Install Smart Strip power strips.

- Purchase only energy-efficient electronics.
  - Refer to the Federal Energy Management Program guidelines for purchasing energy efficient appliances in accordance with federal procurement procedures.
- Install energy meters to measure energy use and identify big consumers.

#### 4 Improve building structures and envelopes

- Weatherize park buildings by adding R-values to improve insulation effectiveness.
- Replace old windows with new ones that provide better insulation and solar selectivity.
  - Look for spectrally selective glass, double-glazed, low-e systems, gas filled windows, and electrochromic windows that provide better insulation and solar selectivity.

#### 5 Utilize alternative energy sources

- Purchase electricity from a renewable energy provider.
  - Research renewable electricity options through the local utility to reduce electricity-related GHG emissions.
- Switch to biomass and biofuel instead of conventional fuel to heat park buildings.

#### 6 Measure energy use throughout the park

- Incorporate energy-efficiency criteria into new contracts for park construction.
- Install building-level utility meters in existing buildings and in new major construction and renovation projects to track and continuously optimize performance.
  - Transfer all metered building data directly in web-based system and drop data directly in ENERGY STAR Portfolio Manager and Visible Energy.
- Review and implement the DOI Sustainable Buildings Implementation Plan.

## Transportation Management

*Emission Reduction Goal: Maintain transportation emissions at 2008 levels through 2016.*

Reducing vehicle miles traveled, improving vehicle efficiency, and using alternative fuels can significantly reduce Devils Postpile National Monument's emissions. As the inventory results indicate, GHG emissions from transportation comprise 21 percent of park operations emissions and 41 percent of the park's overall emissions (including visitors and partners). Accordingly, in addition to the park operations emissions reduction goal, Devils Postpile National Monument set a goal to increase overall transportation efficiency. Presented below are the actions that are currently under way and which comprise the park's progress to date, as well as those actions that the park will pursue.



## Progress to Date

- Currently require visitors to use a shuttle bus service during the high season.
  - Visitors to Devils Postpile National Monument must ride a shuttle bus into the Monument from mid-June to early September.
  - During the 2009 season the shuttle buses ran on a blended biodiesel.
  - The mandatory use of the shuttle buses reduced VMT by an estimated 437,779 miles in the 2009 operating season; this reduction in VMT equals a savings of approximately 118 MTCO<sub>2</sub>E in emissions.

## Transportation Management – Planned Actions

### 1 Reduce transportation-related GHG emissions through behavioral change

- Discourage visitor vehicle idling.
  - Post signs and information with park idling rules.
- Encourage staff carpooling.
  - Develop carpooling information and support services for staff.
  - Schedule staff with carpooling in mind to ensure the least amount of travel.
- Reduce staff idling.
  - Prohibit staff vehicle idling of more than one minute, unless required for vehicle maintenance.
  - Create dashboard idling guidelines to post in NPS vehicles.
- Reduce meeting travel.
  - Use webinars or conference calls to avoid excessive travel, both within and outside of the park. Purchase necessary equipment for teleconferencing and videoconferencing.

### 2 Reduce visitor vehicle fuel consumption

- Partner with surrounding state and local communities on alternative transportation opportunities for visitors.
  - Link in-park transportation systems to public transportation whenever feasible, through cooperation with public transportation agencies and gateway communities.
- Provide alternative modes of visitor travel.
  - Increase the use of alternative fuel buses (using biobased fuels) to areas of heavy use and traffic.
- Improve tracking of visitor transit data.



- Explore opportunities to collect data on visitor transportation patterns, vehicle occupancy, and ridership.

### 3 Reduce NPS vehicle and equipment fuel consumption

- Exceed federal fleet performance requirements set by Energy Policy Act (EP Act), Executive Order 13423, and the Energy Independence and Security Act (EISA).
  - Look into purchasing more efficient vehicles, especially trucks.
- Analyze fleet fuel consumption patterns for efficiency improvements.
  - Use Federal Automotive Statistics Tool (FAST) to track fuel use and analyze fleet needs with efficiency improvements.
  - Utilize vehicle logs to track patterns of use in order to identify and eliminate inefficient vehicle use.
- Promote efficient driving.
  - Conduct driver training that emphasizes fuel efficiency and trip planning.

### 4 Replace NPS vehicles and equipment

- “Right size” the vehicle fleet by the number and type.
  - Use a Vehicle Allocation Methodology (VAM) to achieve a fleet that is the right size and type.
- Develop a vehicle replacement plan.
  - Evaluate alternative fuel vehicle (AFV) options: hybrid electric vehicles (HEVs), electric vehicles, compressed natural gas (CNG), and biodiesel.
  - As older vehicles come up for replacement, order alternative fuel vehicles.
- Incorporate alternative fuel guidelines into fleet specifications.
  - Work with U.S. General Services Administration (GSA) to catalogue available AFVs and set minimum AFV goals

## Waste Management

*Emission Reduction Goal: Reduce park operations waste emissions to 35 percent below 2008 levels by 2016 through waste diversion and reduction.*

The connection between waste and GHG emissions may not be obvious. However, waste management — in the form of source and solid waste reduction — can dramatically reduce GHG emissions. Landfills are the largest anthropogenic source of CH<sub>4</sub> emissions in the United States. Reducing the amount of waste sent to landfills reduces CH<sub>4</sub> emissions caused by decomposition as well as the GHGs emitted from the transportation of waste. The less the park and its visitors consume in terms of products and packaging, the less energy is used and fewer GHGs are emitted.

Devils Postpile National Monument's park operation activities emitted 19 MTCO<sub>2</sub>E from waste management in 2008. Diverting or reducing the Park's waste stream through increased recycling efforts and waste management will reduce the amount of waste sent to landfills and the resulting emissions. Presented below are the actions that are currently under way and which comprise the park's progress to date, as well as those actions that the park plans to pursue.

### Progress to Date

- Recorded waste management data in an Environmental Management System (EMS) or a spreadsheet tracking system, as of 2009.
- Engaged staff and visitors in recycling program by encouraging proper disposal of waste.
  - Employees and visitors to Devils Postpile National Monument are able to recycle appropriate materials in bins located around the park, on trails, and at the Ranger Station.

## Waste Management – Planned Actions

### 1 Decrease waste through behavior change

- Require that construction contractors reuse or recycle materials used during building renovations and new site construction/remodeling projects.
- Engage staff to reduce and manage waste at work.
  - Encourage park staff to be responsible at work by making it easy to recycle and compost waste; make sure containers fit environment (e.g., animal-proof, rust-proof, moisture resistant, and proper size).
  - Make ceramic plates, bowls, mugs, and silverware available for employee use in lieu of disposable products.
  - Institute paperless office practices. Establish standards for double-sided printing and copying, office supply reuse, electronic correspondence procedures, electronic file storage, elimination of colored paper, etc.
  - Take into account the amount of packaging when making purchases.
- Train park staff and contractors on waste reduction responsibilities.

- Ensure that staff and contractors are aware of their roles and responsibilities to reduce waste. Conduct periodic trainings to inform maintenance crews about recycling and composting policies at the park.
- Require an annual training on waste reduction and green procurement.
- Make reusable and recyclable materials available for staff to use (e.g., plates, cups, silverware, etc.).
- Integrate metrics on these responsibilities into performance evaluations.
- Train maintenance staff on waste reduction initiatives.
  - Continually inform maintenance crews about recycling and composting policies at the park; conduct periodic trainings.
- Train custodial staff in most efficient use of cleaning products and encourage use of environmentally friendly products.

## 2 Establish new plans and policies that promote waste reduction

- Incorporate waste reduction into green office practices.
  - Reduce purchases when possible and avoid duplicate purchases.
  - Purchase EPA's Comprehensive Procurement Guideline (CPG) office supplies with maximum recycled content, avoiding PVC (Polyvinyl Chloride) supplies.
  - Purchase durable, reusable supplies and always print double sided, reusing office supplies when possible.
- Choose hand dryers over paper towels.
  - Install energy efficient hand dryers throughout park facilities to minimize paper waste
- Communicate the park's waste policy or Integrated Solid Waste Management Program (ISWAP) to staff, volunteers, and cooperating association employees.
  - Create an orientation packet and provide information on policies and practices for recycling, green procurement, and other aspects of the park's waste management policy.
  - Conduct brown bag lunches and training seminars for all park personnel on topics related to waste reduction.
  - Include information on park sustainability, green procurement, and recycling policy in new employee orientations.
- Measure baseline solid waste generation (tons).
- Measure, track, and report waste stream data (include landfill waste and recycled waste) to monitor reductions and successes in diverting waste from the landfill.
  - Record waste management data in an EMS or a spreadsheet tracking system.
- Manage solid waste with an ISWAP.
  - Incorporate the investigation of large-scale composting opportunities into the ISWAP.
- Create a materials exchange program.

- Materials that can be repurposed should be either catalogued and stored or exchanged (e.g., brick and wood waste). Old equipment that cannot be repurposed can be donated or recycled.
- Reduce waste generated at meetings and employee functions.
  - Establish guidelines for waste minimization: use durable, reusable utensils and mugs, buy in bulk, use items with reduced packaging, and provide recycling receptacles in central locations.

### 3 Implement recycling and composting practices

- Continually increase the amount of waste material at the park that can be recycled.
  - Recycle cardboard, aluminum, scrap metal, glass, white paper, and no. 1 PET and 2 HDPE plastics.
  - Add mixed paper, tin, other plastics (including film), and pallets.
  - Find reuse opportunity or donate unwanted items. Look into cooperative waste disposal or recycling to increase volume and reduce costs/traffic.
- Start a comprehensive recycling outreach campaign aimed at park visitors.
  - Include waste prevention/recycling messages in park talks.
  - Provide recycling messages in brochures, trail guides, maps, and posters.
  - Use recycling messaging at waysides, campground display boards, and kiosks.
- Assign at least one full time person to act as a park recycling leader/manager.
  - Primary responsibility of the park recycling leader/manager will be to assess and continually improve recycling activities.
- Install easy-to-use recycling containers throughout park facilities.
  - Purchase containers with recycled content. Place trash and recycling containers next to each other.
  - Evaluate signage and use graphics.
- Recycle or donate old computers and electronics.
  - Recycle unusable computers and electronics.
  - Donate old equipment to schools, senior centers, etc.
  - Practice cradle-to-grave recycling to ensure toxic components are properly managed. Purchase electronics with less toxic components.
- Implement a Construction Waste Management Plan and Job Site Recycling Policy.
  - Require a Construction Waste Management or Recycling Plan; track quantities of recyclables.
  - Make sure contract language addresses waste plan/recycling. Check on "take-back" policies (e.g., ceiling tiles, cardboard, carpet, and drywall).



- Reuse construction waste on-site, reuse elsewhere, or sell for recycling materials of value including lumber/wood, drywall, metal, rubble, cardboard, fixtures, hardware, and wiring.
- Require drywall contractors to recycle waste.
- Work with haulers to prevent contamination of waste sorting.
- Ensure no illegal dumping occurs offsite.
- Practice Environmentally Responsible Deconstruction.
  - Old building materials will be reduced, reused, or salvaged, in that order.
  - Inefficient materials or components will not be salvaged; ensure that the reuse of vintage items represents an environmental gain.
- Send used florescent bulbs to reclaim/recycle service center.
- Institute alkaline, lithium battery recycling locations in every office building.

#### 4 Reduce waste through green procurement

- Evaluate current purchases and reduce redundant products.
- Reduce amount of packaging used in products sold and used in the park.
  - Let vendors know the park's packaging preferences.
  - Coordinate with Sequoia Natural History Association.
- Use post-consumer recycled paper in all park publications.
  - Use 100% post-consumer (PC) content, processed chlorine-free (PCF) copy paper. Consider alternative fibers (e.g., non-wood) and water-based or vegetable-based ink.
  - Target paper reduction.
- Train staff on green procurement practices.
  - Require procurement staff to take the Office of the Federal Environmental Executive (OFEE) online green purchasing training.
- Coordinate procurement practices so that surplus materials in one unit may be used by another unit.
  - Repurpose rather than discard surplus materials.
  - Establish an exchange process so different departments can source surplus materials internally.
- Continually increase the recycled content of purchased materials.
  - Focus on office supplies, bookstore items, building supplies, furniture, and maintenance equipment: hoses, mulch, edging, timbers, posts, and compost with recycled content.

- Adhere to Federal, NPS, and Pacific West Region Guidance for Procurement.
- Develop a schedule for replacing existing materials.
  - Consider replacing equipment with recycled equipment or new equipment that will enhance reuse and recycling efforts, (e.g., copiers that can make two-sided copies). Consider environmental impacts across each product's entire life cycle including production, use cycle, and retirement.
- Inventory and substitute all cleaning supplies with non-toxic products.
  - Conduct an inventory and review of all cleaning supplies. Substitute products containing hazardous/toxic chemicals, including Simple Green, with non-toxic products.
  - Look for Green Seal Certified products and other green attributes when procuring cleaning and maintenance equipment.
- Implement petroleum product substitution program.
- Use low/no volatile organic compound (VOC) insulation, carpets, paints, and adhesives.
- Increase the use of biobased products.
  - Audit the biobased products in use and look for opportunities to incorporate new products.
- Promote the use of recycled content products and materials procurement within the NPS.
- Manage waste associated with computers and fax/printers.
  - Purchase liquid crystal display (LCD) monitors, which use less toxic substances, instead of cathode ray tube (CRT) monitors.
  - Reduce the printer-to-employee ratio by maximizing shared network printers.

## 5 Reduce and reuse wastewater

- Install low-flow faucets.
- Develop an employee education program on the importance of water conservation.
- Replace toilets with low-flow models.
  - Install water efficient technology (e.g., composting toilets and waterless urinals).
  - Research composting toilets for park comfort stations.
- Manage non-point wastewater.
  - Prevent pollution and keep storm drains clean. Clean up spills, but do not hose into streets.
  - Dispose of pesticides and tank rinsate properly. Check state and local requirements.

## 6 Other

- Purchase equipment to reduce volume of waste and recyclables.
  - Use shredders for plastic and crushers for aluminum.

## STRATEGY 2: INCREASE CLIMATE CHANGE EDUCATION AND OUTREACH

Climate change is a complex and commonly misunderstood issue. Devils Postpile National Monument can play an integral role in communicating the importance of climate change to a vast audience. A better understanding of the challenges and benefits of reducing GHG emissions can motivate staff, visitors, and community members to incorporate climate friendly actions into their own lives. Devils Postpile National Monument recognizes that the greatest potential impact the park can have on mitigating climate change is through public education. Thus, the park sees public education as an end goal of any climate initiative. From increasing the efficiency of public transportation to developing a green purchasing program, the actions Devils Postpile National Monument takes in order to address climate change will serve as opportunities for increasing the public's awareness of climate change. Presented below are the actions that are currently under way and which comprise the park's progress to date, as well as actions that the Park intends to pursue.

### Progress to Date

- Connecting with community and park partners on Climate Friendly Park efforts.
  - Devils Postpile National Monument is building relationships with park cooperating association, Friends Groups, local environmental groups, representatives from the local tourism/community business board, representatives from the state environment/energy departments, teachers, representatives from the regional transportation authority, and local university partners.

### Park Staff

Developing a climate change education program for the park's staff is vital to increasing awareness about climate change among park visitors and fostering a sense of collective responsibility among staff to help reduce park emissions. By incorporating climate change education into staff development programs, Devils Postpile National Monument will enable its staff to demonstrate their commitment through leading by example and providing visitors with the tools and resources they need to reduce GHG emissions both in the park and in their own communities. The park has developed a number of actions to raise awareness among staff. These actions include:

- Create a Park Climate Change Policy Memo specific to Devils Postpile National Monument.
- Hold internal Climate Friendly Park discussions and workshops.
  - Devise new strategies to continually reduce greenhouse gas emissions.
  - Distribute resources and tools to staff and acknowledge success of current strategies, including giving awards to climate leaders.
- Keep staff members that are part of the Green Team/Environmental Management Team informed about climate-related issues.

- Use materials, publications, and tools available from the U.S. Environmental Protection Agency (EPA) and other agencies and organizations to mentor fellow staff members about climate change.
- Incorporate climate change issues into the employee handbook.
  - Include climate materials in employee orientation packets.
- Include the science and impacts of climate change into park education tools.
  - Tailor seasonal staff handbook to include Climate Friendly Parks information.
  - Include Climate Friendly Parks language in kiosks and other educational materials.
- Incorporate sessions on climate change into new staff training.
- Develop a brown bag series for park staff including partners, volunteers, and occasionally visitors to educate about current climate change science, the park's efforts, and what they can do.
- Create visual reminders for park employees with climate change information and tips on how employees can help reduce emissions.
- Create personal incentives for staff to reduce GHG emissions in park and at home.
- Develop and leverage relationships with other agencies and entities to create opportunities for workshops on climate friendly activities.
- Disseminate information about climate friendly actions the Park is taking at conferences, meetings, and regional workshops.

## Visitor Outreach

Understanding climate change and its consequences is essential to initiating individual behavioral change. Devils Postpile National Monument realizes that it has a unique opportunity to educate the public in a setting free from many of the distractions of daily life. By using existing materials, developing park-specific materials, highlighting what the park is currently doing to mitigate climate change, and encouraging visitors to reduce emissions, Devils Postpile National Monument can play an important role in educating the public about climate change.

Devils Postpile National Monument staff recognize that many different audiences visit the park, including recreational and non-recreational park visitors, "virtual visitors" who visit the park online, school-aged visitors, local and out-of-town visitors, and local tribes. Informing these various audiences on climate change and engaging them in the park's efforts requires appropriately focused messaging. The park has developed a number of strategies to reach these different audiences effectively. These actions include:

- Educate visitors about climate change.
- Create and distribute previously produced information on climate change and its effects on National Parks in general and on Devils Postpile National Monument in particular.
- Develop a plan for interpretation on shuttle buses.



- Link climate change and National Parks preservation with actions like using mass transit and alternative forms of transportation.
- Integrate climate change themes into interpretive programs.
  - Integrate Climate Friendly Parks program with school programs using educational kits, wayside exhibits, posters, etc.
- Create signs promoting the park's efforts to curb emissions.
  - Develop consistent messaging for recycling, idling, and emission reduction posters.
- Host distance learning events on climate change.
- Incorporate climate change information into existing park brochures.
  - Create/utilize bilingual brochures that talk about the success of the CFP program in terms of resource and economic savings where appropriate. Include information and illustrations on *Do Your Part!*
- Incorporate climate friendly information into interpretive programs and talks.
- Educate visitors about their recycling options at the park and at home.
  - Create signs and displays about the park's recycling activities.
- Communicate with local communities, park visitors, and local media about actions they can take to reduce GHG emissions.
  - Encourage internal and external stakeholders to reduce their carbon footprints using tools like *Do Your Part!*
- Develop and distribute *Do Your Part!* materials.
- Develop a *Do Your Part!* kiosk near the visitor's center.
- Create demonstration projects and exhibits to convey park sustainability message.

## Local Community Outreach

The gateway communities, agencies, vendors, and volunteers surrounding Devils Postpile National Monument can play a significant role in supporting the park's climate change mitigation goals. As such, when appropriate, park staff will assist local communities with incorporating climate change messages into community events and will find partners to promote climate change education at those events, while engaging with surrounding agencies to coordinate effective outreach and education efforts. Potential actions include:

- Partner with the surrounding community to address climate change.
- Consider the local economy in procurement and other areas.
- Engage community members in climate change discussions.
- Host climate change education workshops.
  - Focus presentations on climate change priorities and talk about success stories.



- Educate local community about what the park is doing to manage waste and emissions.
- Set up a *Do Your Part!* table at local events.

## STRATEGY 3: EVALUATE PROGRESS AND IDENTIFY AREAS FOR IMPROVEMENT

By taking the actions established in strategies 1 and 2 above, Devils Postpile National Monument plans to reduce its emissions to the specified goals. Achieving these goals will require an ongoing commitment by the park, which may include subsequent emission inventories, additional mitigation actions, and re-evaluation of goals. As part of this strategy, Devils Postpile National Monument will:

- Monitor progress with respect to reducing emissions. This will include subsequent emission inventories to evaluate progress toward goals stated in this action plan.
- Develop additional emission mitigation actions beyond those listed in this plan.
- Periodically review and update this plan.
- The park will track climate-friendly actions through the environmental management system.

## CONCLUSION

Devils Postpile National Monument has a unique opportunity to serve as a model for over 100,000 recreational visitors annually.<sup>4</sup> This report summarizes the operational actions the park commits to undertake to address climate change. Specifically, the park realizes its responsibility to educate the public and serve as a valuable model for citizens. By proactively addressing GHG emissions within the park and sharing its successes with visitors, Devils Postpile National Monument will help mitigate climate change far beyond the park's boundaries.

The National Park Service faces an uncertain future due to the possible effects of climate change. However, by dedicating its resources to address climate change impacts and reducing emissions, Devils Postpile National Monument will minimize its contribution to the problem while setting an example for its visitors. The strategies presented in this Action Plan present an aggressive first step towards moving Devils Postpile National Monument to the forefront of Climate Friendly Parks.

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<sup>4</sup> Devils Postpile National Monument: Park Statistics. Available online at: <http://www.nature.nps.gov/stats/viewReport.cfm>

## APPENDIX A: LIST OF WORK GROUP PARTICIPANTS

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