



CLIMATE *Friendly* PARKS

Craters of the Moon National Monument and Preserve Action Plan

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CRATERS OF THE MOON NATIONAL MONUMENT AND NATIONAL PRESERVE BECOMES A CLIMATE FRIENDLY PARK

As a participant in the Climate Friendly Parks program, Craters of the Moon National Monument and Preserve 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 an emission reduction goal, developing this Action Plan, and committing to educate park staff, visitors, and community members about climate change, Craters of the Moon National Monument and Preserve provides a model for climate-friendly actions within the National Park service.

This Action Plan identifies steps that Craters of the Moon National Monument and Preserve can undertake to reduce GHG emissions 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 North Coast & Cascade and Upper Columbia Basin Climate Friendly Parks Workshop.¹ While the plan provides a framework needed to meet the park's emission reduction, it is not intended to provide detailed instructions on how to implement each of the proposed measures. The park's Environmental Management System Manual will describe annual priorities and details to implement these actions.

Craters of the Moon National Monument and Preserve intends to:

- Reduce GHG emissions from the park to 35% below 2007 levels by the year 2016 by implementing emission mitigation actions identified by the park.
- Reduce park operations' energy use emissions to 40 percent below 2007 levels by 2016.
- Reduce park operations' transportation emissions to 40 percent below 2007 levels by 2016.
- Reduce park operations' waste emissions to 45 percent below 2007 levels by 2016 through waste diversion and reduction.

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 by the park.

Strategy 2: Increase climate change education and outreach efforts.

Strategy 3: Monitor progress with respect to reducing emissions 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 Craters of the Moon National Monument and Preserve. Scientists cannot predict with certainty the general severity of climate change nor its impacts. Average global temperatures on the Earth's surface have increased about 1.1°F since the late 19th century, and the 10 warmest years of the 20th century all occurred in the last 15 years. The single leading cause of this warming is the buildup

¹ Original notes from these workshops, including detailed action items not presented in the final plan have been archived by Craters of the Moon National Monument and National Preserve and are available upon request.

of GHGs in the atmosphere—primarily carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O) —which trap heat that otherwise would be released into space.

The continued addition of CO₂ and other GHGs to the atmosphere will raise the Earth's average temperature more rapidly in the next century; a global average warming of 4-7°F by the year 2100 is considered likely.² 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.

Across the western United States predicted climate change will have significant effects on natural ecosystems.

Climate change is having significant effects on organisms and ecosystems worldwide. Changes in the western United States have been particularly noticeable in the last century, with increases averaging 0.5–2°C (0.9–3.6°F) in mean annual temperatures, depending on elevation. Warmer winters and springs have resulted in more precipitation falling as rain instead of snow, reduced snowpack, earlier snowmelt, earlier streamflow from snowmelt, an 8 to 10 day advance in the onset of spring on average across the West, more frequent large fires, and possibly an increase in insect outbreaks and plant mortality.

From: Observed and Projected Ecological Response to Climate Change in the Rocky Mountains and Upper Columbia Basin
A Synthesis of Current Scientific Literature Natural Resource Report NPS/ROMN/NRR—2010/220.

At Craters of the Moon National Monument and Preserve, increasing temperatures, and changing precipitation patterns may alter park ecosystems, changing both vegetation communities and habitats available for wildlife, as well as the experience of park visitors. Water supplies may be affected by reduced snow fall and earlier snow melt. The normal period of dry summer weather will likely extend longer and result in more frequent wildfires.

Several highly visible and ecologically important species of plants and animals at Craters of the Moon already exist on the edge of their range and could be reduced or extirpated with rising temperatures. The American pika currently finds a refuge from high summer temperatures in the cracks and crevices among the lava flows. Winter snow cover also moderates the coldest winter temperatures. Whether this refuge will be sufficient to protect pika from hotter summer temperatures and reduced winter snow cover remains to be seen. Other species such as quaking aspen and limber pine could suffer more water stress as higher summer temperatures reduce the availability of water and increase their vulnerability to insects and disease. The wildlife that are dependent upon these plants, such as Clark's nutcracker, would be reduced if limber pine decline.

² IPCC 2007. Climate Change 2007: The Physical Science Basis. Intergovernmental Panel on Climate Change, Geneva Switzerland. Available online at < <http://ipcc-wg1.ucar.edu/wg1/wg1-report.html>>

GREENHOUSE GAS EMISSION INVENTORY AT CRATERS OF THE MOON NATIONAL MONUMENT AND PRESERVE

Naturally occurring GHGs include CO₂, CH₄, N₂O, 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, 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). Transportation alternatives at Craters of the Moon National Monument and Preserve are limited given the remote setting and long driving distances to portions of the Preserve. Poor roads access the Preserve and require fuel inefficient vehicles. Park buildings at Craters of the Moon National Monument and Preserve depend primarily upon electricity for heating. The recent addition of on-site renewable energy production in the form of solar photovoltaic electricity production will provide at least 30% of the total electricity used at Craters of the Moon National Monument and Preserve.

In 2007, GHG emissions within Craters of the Moon National Monument and Preserve totaled 344 metric tons of carbon dioxide equivalent (MTCO₂E). This includes emissions from park and concessioner operations and visitor activities, including vehicle use within the park. For perspective, a typical single family home in the U.S. produces approximately 12 MTCO₂ per year.³ Thus, the combined emissions from park and concessioner operations and visitor activities within the park are roughly equivalent to the emissions from the electricity use of 29 households each year.

The largest emission sector for Craters of the Moon National Monument and Preserve is transportation, totaling 189 MTCO₂E (see Figure 1 and Table 1). As stated earlier, the remote setting of the Monument and Preserve reduces the options available to reduce emissions in this sector. However, Craters of the Moon National Monument and Preserve has recently invested in all-electric vehicles. When combined with electricity produced by the new photovoltaic solar panels, these vehicles are very close to zero emission. However, most transportation sector emissions (86%) come from sources other than park operations (mainly from visitors).

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

FIGURE 1

Craters of the Moon National Monument and Preserve 2007 Total Greenhouse Gas Emissions by Sector

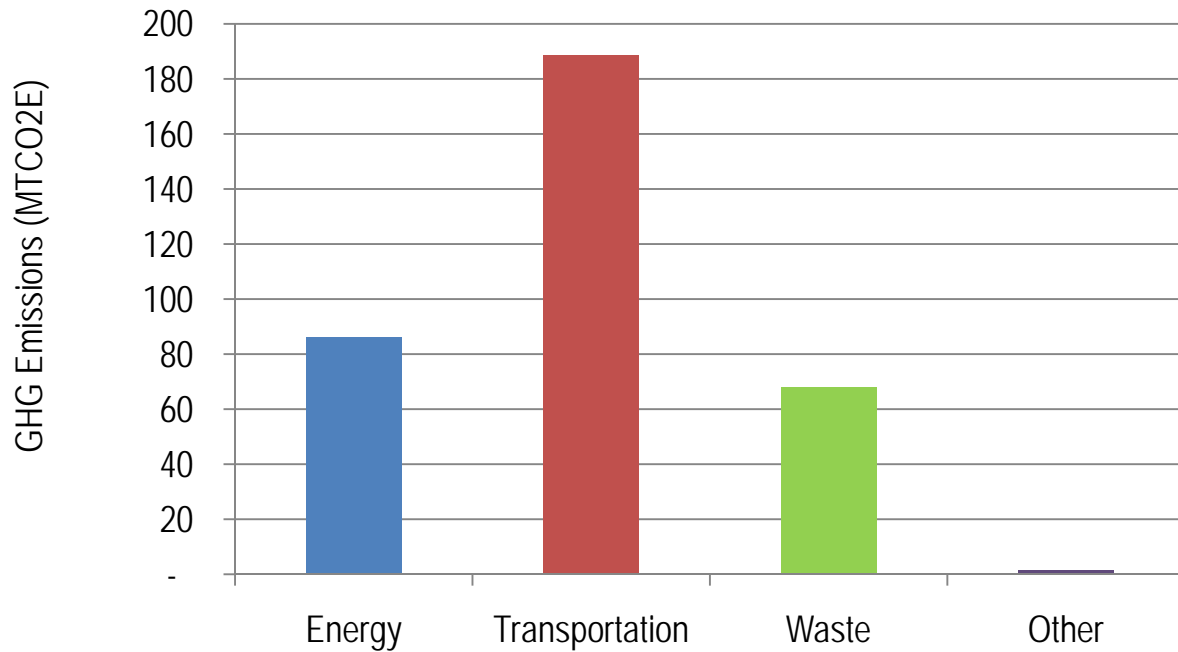


TABLE 1

Craters of the Moon National Monument and Preserve 2007 Total Greenhouse Gas Emissions by Sector and Source

	MTCO2E
Energy	86
Stationary Combustion	0
Purchased Electricity	86
Transportation	189
Mobile Combustion	189
Waste	68
Landfilled Waste	68
Other	1
Refrigeration and Air Conditioning	1
Total	344

Note - Totals may not sum due to rounding

Not applicable data sources represented by "-"

FIGURE 2

Craters of the Moon National Monument and Preserve 2007 Park Operations Emissions by Sector

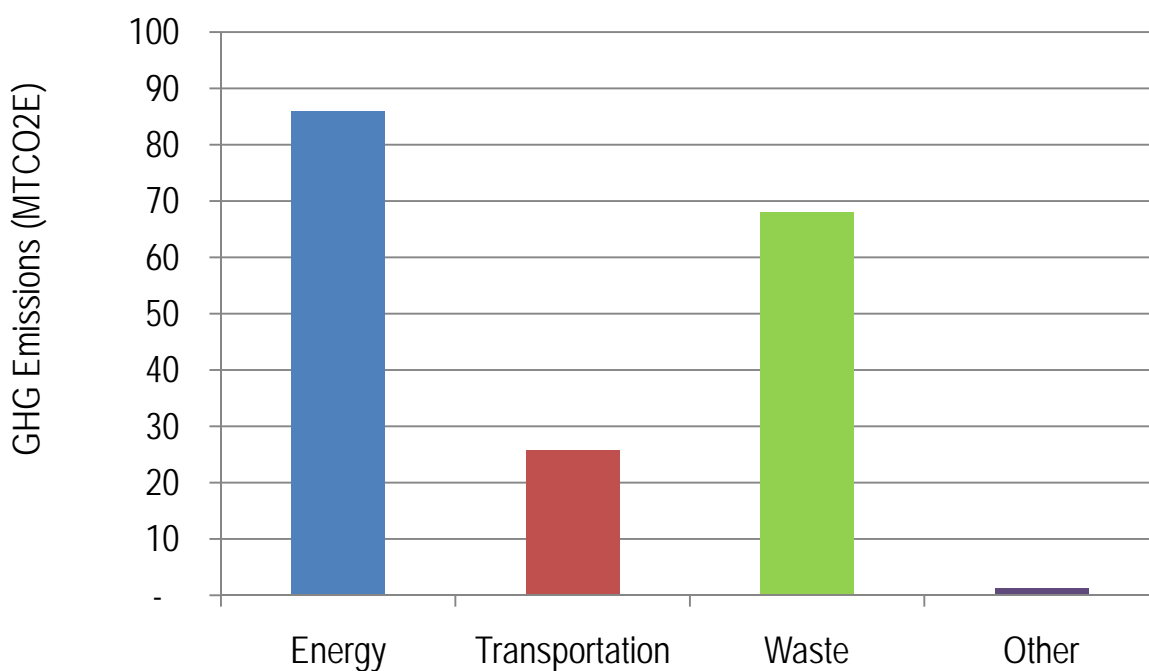


TABLE 2

Craters of the Moon National Monument and Preserve 2007 Park Operations Emissions by Sector

	MTCO2E
Energy	86
Stationary Combustion	0
Purchased Electricity	86
Transportation	26
Mobile Combustion	26
Waste	68
Landfilled Waste	68
Other	1
Refrigeration and Air Conditioning	1
Total	181

Note - Totals may not sum due to rounding
Not applicable data sources represented by "-"

Craters of the Moon National Monument and Preserve Responds to Climate Change

The following actions were developed during the North Coast & Cascade and Upper Columbia Basin Climate Friendly Parks Workshop on February 9th and 10th, 2010, in order to meet the park's climate change mitigation goals.

STRATEGY 1: REDUCE GHG EMISSIONS RESULTING FROM ACTIVITIES WITHIN AND BY THE PARK

Craters of the Moon National Monument and Preserve has developed a set of actions that the park is committed to taking in order to reduce emissions from activities within and by the park. These strategies 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 Craters of the Moon National Monument and Preserve will take have been 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 40 percent below 2007 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 48 percent of the park's GHG emissions from Park Operations are from energy consumption. Consequently, Craters of the Moon National Monument and Preserve 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

Behavioral Changes

- Develop robust cyclic maintenance program that reduces energy losses from steam, water and air leaks, un-insulated lines and maladjusted or inoperable controls.
- Implemented janitor cleaning schedules during business hours to reduce energy used to keep buildings open. .
- Establishment of park environmental "best management practices" for day-to-day energy use.

Lighting

- Switched all light fixtures to compact florescent, installed motion sensor automatic switches in restrooms and on all exterior lights, completed a "lighting assessment & Inventory report" in 2009. One three-bedroom seasonal house has been converted to all LED lighting in 2010 as a prototype.
- Installed automatic (motion and light detection) exterior lighting on offices, residences and campground restrooms.

Heating, Ventilation and Air Conditioning

- Installed energy-efficient window AC unit in entrance station fee office.
- Developed an annual schedule for changing filters and servicing HVAC systems.
- Developed and implemented spring and fall maintenance transition schedules that close dampers in Visitor Center ceiling to prevent cold air drainage.

- Developed and implemented a schedule to winterize apartments and dorm housing.

Energy Efficient Electronics and Devices

- Installed a “Kill-o-watt” meter.
- Installed smart power strips on desktop computers in Resources and interpretation offices.

Improve Building Envelope

- Insulated maintenance offices, workshop, and housing garages.
- Replaced Visitor Center windows with double paned models in 2005 expansion/remodel. Front side apartment windows have been replaced with ENERGY STAR double pane windows.
- Installed removal framed interior films on all windows in Visitor Center, duplex offices, and residences; have installed during winter for added insulation.
- Installed white “cool” membrane roofs on Visitor Center and maintenance buildings in 2004 and 2005.

Alternative Energy

- Solar photovoltaic system currently powers a water well and the park radio repeater.
- Installation of 50Kw solar photovoltaic array in 2010.

Other Energy Management Actions

- Installed individual electric meters on each building to allow tracking of use by building.
- Conducted three energy audits BPA, INL and Scott Spence (lighting) in the past ten years.
- Worked with the park’s Cooperating Association to install new ENERGY STAR vending machines in 2009.
- Replace appliances with Energy Star models.
- Installed timers on water heaters 3. Installed on demand water heater in maintenance building

Energy Use Management – Planned Actions

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

- Develop a mandatory energy-saving training program.



- Develop mandatory environmental Best Management Practices (BMP); present at seasonal orientation training and have supervisors provide division-specific training to employees.
- Adjust thermostats.
 - Develop and implement standards for heating and cooling (maximum temperature settings for heating season and vice versa for cooling in Visitor Center), appoint an enforcer, and include these in a park-wide Environmental Management Systems (EMS)/BMP.
- Ensure all computers' power management settings follow current ENERGY STAR recommendations.
 - Work with computer network specialist to set default power saving settings on all computers, present the information at seasonal orientation, and implement process through supervisors.

2 Upgrade lighting options

- Upgrade all light fixtures and bulbs in park to energy-efficient bulbs.
 - Install LED's in Visitor Center exhibit area. Project funding being sought to convert to LED light by 2015.
- Install energy-efficient outdoor lighting.
 - Install motion detecting LED lighting fixtures on path leading to campground amphitheater.
- Install lighting controls.
 - Install low lighting motion detecting LED fixtures at park housing units.
- Use daylighting.
 - Design new Bone Yard storage shed with day lighting.

3 Heating, Ventilation, and Air Conditioning (HVAC)

- Upgrade air distribution systems.
 - Remove housing (unit 20) window AC unit.

4 Switch to more efficient electronics and devices

- Establish and implement a green procurement policy that sets minimum energy performance standards for all electronic equipment.
 - Develop a list Best Management Practices for "green" procurement.
 - Eliminate redundant appliances in offices (i.e., refrigerators, microwaves, coffee pots).
- Default all computers to print double-sided.
 - Have computer specialist ensure all computer/printers are set to default to print double-sided.
- Install Smart Strip power strips.

- Acquire and install additional smart power strips.
- Install energy-efficient water heaters.
 - Research options for solar, on demand, point of use or heat pump hot water heating on housing units. Investigate point of use or heat pump hot water alternatives for Resources and Ranger offices.

5 Improve building structures and envelopes

- Weatherize park buildings by adding R-values to improve insulation effectiveness.
 - Insulate brick walls between apartment utility room and apartments.
 - Continue to seek ways to improve R-value of ceiling spaces in all residences.
- Replace old windows with new windows.
 - Replace windows in apartment and maintenance buildings with ENERGY STAR double pane windows.
- Install "arctic entrance" at Visitor Center backdoor.
 - Install arctic "air lock" entrance at back entrance to the Visitor Center.

6 Utilize alternative energy sources

- Purchase electricity from a renewable energy provider.
 - Purchase renewable energy credits as needed to meet requirements of E.O. 13514 or NPS policy goals that cannot be met through hydroelectric sources purchased from Lost River Electric CO-OP.
- Install photovoltaic panels on park buildings, parking lots, open areas, etc.
 - In 2010 a 50kW solar photovoltaic system, designed to provide at least 20% of park's electrical power, is scheduled to be installed behind housing area.
 - Investigate installation of additional PV solar panels.

7 Measure energy use throughout the park

- Modify concessioner contractual language to include sustainable practice requirement.
 - Review cooperating association's concession contract at next renewal and include a sustainable practice and energy efficiency criteria/requirement.
- Review and implement the DOI Sustainable Buildings Implementation Plan.
 - Review and follow DOI Sustainable Buildings Implementation Plan.
- Grow efficiently.
 - Adhere to E.O. 13514 when expanding any existing structure (e.g., maintenance buildings) or building new structures.

Transportation Management

Emission Reduction Goal: Reduce park operations' transportation emissions to 40 percent below 2007 levels by 2016.

Reducing vehicle miles traveled, improving vehicle efficiency, and using alternative fuels can significantly reduce Craters of the Moon National Monument and Preserve's emissions. As the inventory results indicate, GHG emissions from transportation comprise 14 percent of park operations emissions and 55 percent of the park's overall emissions (including visitors, and concessioners). Accordingly, in addition to the park operations emissions reduction goal, Craters of the Moon National Monument and Preserve set a goal to reduce overall transportation emissions by 30 percent below 2007 levels by 2016. 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

Behavioral Changes

- The park uses webinars/conference calls to avoid excessive travel, both within and outside of the park including providing local access to TELNET satellite training.
- Purchased two bicycles for the employees to use for traveling within the park.

Visitor Vehicle Travel

- Close the seven-mile loop in the winter and groom it for cross-country skiing and snowshoeing.
- Made Devils Orchard and Snow Cone trails ADA accessible. Completed an ADA accessible trail from the campground to Visitor Center to encourage walking rather than driving.
- Encourage carpooling for special tours and teacher programs to access the tour stops on the loop road.

Vehicle and Equipment Fuel Consumption

- Track and analyze fuel use of GSA and Interior-owned vehicles for efficiency improvements.
- Replaced most 2-stroke engines (only exceptions are chainsaws and Pojar). All snowmobiles, ATV, UTV are 4-stroke engines.
- Replaced gas powered riding lawn mower with a non-motorized mechanical push mower for the small remaining lawn at Visitor Center.
- Converted 86% of lawns that existed in 1990 to native plants which require no mowing.
- Replaced two gas powered vehicles with electric vehicles for loop road use.



Transportation Infrastructure

- Reuse old pavement onsite on all paving projects.

Transportation Management – Planned Actions

1 Transportation-related behavioral changes

- Discourage visitor vehicle idling.
 - Investigate installing new signage that requires visitors and bus drivers to minimize vehicle idling in the visitor center and loop road parking lots.
- Encourage staff carpooling.
 - Develop incentives for staff that carpool (e.g., preferred parking spaces, etc.). Incorporate carpooling as a BMP into seasonal orientation.
 - Provide incentives to employees using alternative modes of travel in park. Provide a format for staff to communicate travel plans that might provide opportunities to share rides and combining trips to town.
 - Promote winter season work from home options for staff to reduce commutes.
- Reduce staff idling.
 - Minimize idling of government vehicles by incorporating standards into park-wide mandatory BMP.
- Reduce meeting travel.
 - Work with the Bureau of Land Management (BLM) and other partners to reduce the amount of travel required for face-to-face meetings. Combine local trainings with other federal agencies (BLM, Forest Service).
- Allow free entrance for human-powered entry.
 - Request changes to national entrance fee policy to provide incentives for human-powered (walking or bicycling) visitors by eliminating or reducing entrance fees.

2 Reduce visitor vehicle fuel consumption

- Promote accessible front-country trails.
 - Construct a paved ADA trail on the existing North Crater Trail (scheduled for 2012).
- Improve tracking of visitor transit data.
 - Implement system to collect better visitor transit data at the entrance station. Incorporate transit questions into Visitor Survey Project in 2014.

3 Reduce NPS vehicle and equipment fuel consumption

- Promote efficient driving.
 - Incorporate fuel-efficient driving practices into park-wide BMP.
- Reduce number of deliveries.
 - Research alternative drop-off in town locations for UPS & FedEx deliveries to reduce frequent 36-mile round trips by UPS and FedEx to Headquarters.

4 Replace NPS vehicles and equipment

- Increase fleet fuel efficiency through replacement.
 - Acquire additional electric vehicles for loop road and campground use.
- 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.

5 Implement appropriate vehicle maintenance procedures

- Develop and maintain a vehicle maintenance schedule.
 - Establish park vehicle maintenance standards for Interior owned vehicles and frequent vehicle inspections (including tire pressure checks) for all vehicles.

6 Improve transportation infrastructure

- Improve parking lot design to include local vegetation.
 - Improve natural landscaping including native shrubs and lava rock in remaining Visitor Center parking lot island (east parking area).

Waste Management

Emission Reduction Goal: Reduce park operations' waste emissions to 45 percent below 2007 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 human-generated source of CH₄ emissions in the United States. Reducing the amount of waste sent to landfills reduces CH₄ 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.

Craters of the Moon National Monument and Preserve's park operation activities emitted 68 MTCO₂E from waste management in 2007. 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 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 will pursue.

Progress to Date

Behavioral Changes

- Requiring employees to take the Office of the Federal Environmental Executive's online green purchasing training in order to be issued purchase cards.
- Ensuring that maintenance staff and outside contractors are aware of their role and responsibilities to reduce waste. Park is continually informing maintenance crews about recycling and composting policies at the park and conducting periodic trainings.

Waste Prevention

- Replaced paper towel dispenser with high efficiency hand driers in public and staff restrooms at the Visitor Center.
- Implemented a park-wide recycling program for paper, tin, plastics, aluminum and glass in 2009.
- Natural History Association sells reusable Nalgene water bottles in the Visitor Center.

Waste Diversion (Recycling and Composting)

- Implemented a new recycling program in 2009. This program is partnership with the regional solid waste management district. This program provides one very large container used by visitors and staff. Mixed paper, tin and aluminum cans, #1&2 plastic, glass are collected.
- Recycle or donate old computers and electronics.
- Send used florescent bulbs to reclaim/recycled service center.
- Use recycled oil and recycled coolant and other fluids in auto shop.
- Recycle old asphalt pavement for use in ongoing road projects.
- Instituted alkaline, lithium battery recycling.
- Grass clippings are left in place as grass is mowed.

Green Procurement

- Developed a list of preferred cleaning products, paints, etc.
- Established purchasing requirements for low/no-VOC insulation materials, carpets, paints, adhesives, etc.
- Use carpets with high recycled content for any building projects.
- Inventoried and substituted all cleaning supplies with non-toxic products.

Reduce Wastewater

- Replace conventional urinals with water-less models in the public Visitor Center restroom and campground restroom.
- Installed low flow faucets in the Visitor Center and campground public restrooms.

Other Waste Management Actions

- Removed trash containers at over a dozen locations around the loop road to improve efficiency.
- Developed an ISWAP for employees and visitors.

Waste Management – Planned Actions

1 Decrease waste through behavior change

- Catalog reductions.
 - Start central bin for un-needed catalogs and coordinate catalog receipts to reduce mailings.

2 Establish new plans and policies that promote waste reduction.

- Incorporate waste reduction into Green Office Practices.
 - Set all computers to default to double-sided printing and make it a mandatory BMP.
- Reduce waste generated at meetings and employee functions.
 - Minimize or even eliminate hard copy printed handouts whenever possible at internal and external meetings and education programs.
 - Provide washable dishes at park pot-lucks and picnics.
- Purchase products that minimize packaging.
 - Establish requirements to purchase only products with minimal packaging and packaging made of post-consumer (PC) recycled contents, recycled and/or reusable/refillable. Inform vendors of the park's packaging preferences.
- Create a materials exchange program.
 - Develop a system (e-mails, bulletin board, etc.) to communicate when excess equipment or materials are available for reuse.
- Promote the use of recycled content products and materials procurement within the NPS.

- Improve compliance with Executive Order (EO) by finding paper products which use a minimum 30% post consumer waste while minimizing maintenance issues with printers per existing EO. Work aggressively towards products with highest post-consumer recycled contents.
- Reduce plastic water bottle use.
 - Investigate installing a water bottle refill station at the Visitor Center.

3 Implement recycling and composting practices

- Co-locate trash and recycling bins.
 - Replace all remaining collection dumpsters with animal proof designed models in 2010.
- Assign one person to act as a park recycling leader/manager.
 - Recruit a permanent staff member to serve as the park recycling coordinator and to lead the development of an outreach campaign designed to increase park waste diversion rates.
 - Investigate hiring an Student Conservation Association (SCA) intern to work on recycling and sustainability outreach programs.

4 Reduce waste through green procurement

- Use post-consumer recycled paper in all park publications.
 - Request 100% post consumer content processed chlorine-free (PCF) paper for printing of park publications.
- Adapt a list of pre-purchase questions for the park.
 - Develop a pre-purchase question list that would prompt purchasers to consider a number of environmental factors before finalizing purchases.
- Use low/no-VOC insulation, carpets, paints, and adhesives.
 - Use no-VOC paint for Interior use.
- Establish purchasing requirements for computers, fax machines, printers, scanners, and other office electronic equipment.
 - Ensure that ENERGY STAR qualified equipment are purchased when replacing equipment.

5 Reduce and reuse wastewater

- Install low-flow faucets.
 - Install low flow shower heads in all quarters and duplex offices.
- Replace toilets with low-flow models.
 - Replace existing water using urinal in campground brick restroom with water-less model.

6 Other waste-related actions

- Track and report landfill data to monitor reductions and success in diverting waste from the landfill.
 - Implement routine weighting of all outgoing waste in order to better understand the park's waste stream and how to reduce it.

STRATEGY 2: INCREASE CLIMATE CHANGE EDUCATION AND OUTREACH

Climate change is a complex and easily misunderstood issue. Craters of the Moon National Monument and Preserve can play an integral role in communicating about 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. Craters of the Moon National Monument and Preserve 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 Craters of the Moon National Monument and Preserve takes to address climate change serve as opportunities for increasing the public's awareness of climate change. Presented the actions that are currently under way and which comprise the park's progress to date, and those actions that the park will pursue.

Progress to Date

Climate Friendly Parks Team

- Installed signs/stickers at all waste disposal stations encouraging recycling and pack-in pack-out policy.
- Installed "Save Our Air – No Idling" stickers on NPS vehicles to encourage energy conservation.

Other Education and Outreach Actions

- Maintaining a listing of approved green cleaning products to be used for operations.

Park Staff

Incorporate climate change into park staff training, events, and performance plans

Developing a climate change education program for park 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, Craters of the Moon National Monument and Preserve 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 in the park and in their own communities. Potential actions include:

- Create a park Climate Change Policy Memo specific to Craters of the Moon National Monument and Preserve.
 - Prepare memo from Superintendent to all staff referencing the park-wide climate-friendly BMP as being park-wide policy.



- Hold internal Climate Friendly Park discussions and workshops.
 - Review progress annually as part of CFP and EMS.
- Keep staff members that are part of the Green Team/Environmental Management Team informed about climate-related issues.
 - Initiate periodic green “tips” information emails to all employees.
- Include the science and impacts of climate change into park education tools.
 - Include CFP best practices in the annual seasonal orientation.
 - Feature the park’s climate-friendly efforts at Visitor Center breezeway “changing” exhibit.
- Incorporate sessions on climate change into new staff training.
 - Include climate change information in seasonal staff training helps to keep new staff informed of the park’s position on climate change.
- Create visual reminders for park employees with climate change information and tips on how employees can help reduce emissions.
 - Explore ways to remind staff to turn off vehicles, lights and other power use when rooms aren’t occupied or devices are not in use.
- Create personal incentives for staff to reduce GHG emissions in park and at home.
 - Investigate creative incentives to reward employees for active participation in energy conservation and reducing waste.
- Develop intranet pages to inform staff about climate-friendly actions.
 - Develop and update intranet pages to encourage staff to achieve more greenhouse gas emissions reductions, and advise them on new ways to reduce GHG emissions.
- Advise staff on monthly webinars hosted by the climate change steering committee.
 - Ensure park staff is informed as these are scheduled.
- Contribute park success stories to green voice biannual publication.
 - Prepare an article on the park’s climate-friendly efforts for inclusion in the Green Voice newsletter by end of 2011.

Visitor Outreach

Understanding climate change and its consequences is essential to initiating individual behavioral change. Craters of the Moon National Monument and Preserve 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 about climate change, and encouraging visitors to reduce emissions, Craters of the Moon National Monument and Preserve can play an important role in educating the public about climate change.



Craters of the Moon National Monument and Preserve staff recognize the many different audiences that 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, local tribes, and external audiences. Reaching these various audiences with climate change information and engaging them in the park’s efforts requires appropriately focused messaging. The park has developed a number of strategies to reach these various audiences effectively. These strategies include:

- Create signs promoting the park’s efforts to curb emissions.
 - Develop new wayside exhibits that feature climate change messaging for placement along the new paved walkway between Visitor Center and campground.
- Incorporate climate change information into existing park brochures and web site.
 - Make the PWR climate change brochure available at the Visitor Center’s 2010 changing exhibit and include a link on the park’s website. Expand information on park sustainability initiatives in the web site.
- Communicate with local communities, park visitors, and local media about actions they can take to reduce GHG emissions.
 - Investigate participating in the new NPS Green Tag sticker program with the Bonneville Environmental Foundation.
- Develop and distribute Do Your Part! Materials.
 - Link from the park’s Website to the “Do Your Part!” website.
- Develop a Do Your Part! kiosk in the Visitors Center.
 - Feature “Do Your Part!” on the changing Visitor Center climate change exhibit in 2010.
- Consider hosting a climate change traveling exhibit.
 - Arrange to get the NPS Arrange for Change traveling exhibit to the park in 2011.
- Include climate change messaging in Junior Ranger program.
 - Feature the Pika in the online GEO Junior Ranger program.
- Create demonstration projects and exhibits to convey park sustainability message to visitors.
 - Use the Pika as the park’s “poster” climate change symbol and incorporate into all climate change messages

Local Community Outreach

The gateway communities, agencies, vendors, and volunteers surrounding Craters of the Moon National Monument and Preserve 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 find partners to promote climate change education at those events, and engage with surrounding agencies to coordinate effective outreach and education efforts. Potential actions include:



- Consider the local economy in procurement and other areas.
 - When products are locally available use suppliers in Arco and Carey to reduce shipping costs.

STRATEGY 3: EVALUATE PROGRESS AND IDENTIFY AREAS FOR IMPROVEMENT

By taking the actions established in strategies 1 and 2 above, Craters of the Moon National Monument and Preserve 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 reevaluation of goals. As part of this strategy, Craters of the Moon National Monument and Preserve 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.
- Craters of the Moon National Monument and Preserve will track climate-friendly actions through the environmental management system.

CONCLUSION

Craters of the Moon National Monument and Preserve has a unique opportunity to serve as a model for over 190,000 recreational visitors annually.⁴ This report summarizes the operational actions the park commits to undertake to address climate change. Specifically, the park realizes its ability to educate the public and serve as a valuable model for citizens. By seriously addressing GHG emissions within the park and sharing its successes with visitors, Craters of the Moon National Monument and Preserve 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 seriously addressing climate change impacts and reducing emissions, Craters of the Moon National Monument and Preserve will reduce its contribution to the problem while setting an example for its visitors. The strategies presented in this Action Plan present an aggressive first step toward moving Craters of the Moon National Monument and Preserve to the forefront of Climate Friendly Parks.

⁴ Craters of the Moon National Monument and National Preserve: Park Statistics. Available online at: <http://www.nature.nps.gov/stats/viewReport.cfm>

APPENDIX A: LIST OF WORK GROUP PARTICIPANTS

- Doug Neighbor
- Dwayne Moates
- Ted Stout
- Steven Bekedam
- Marci Garrison
- John Apel
- Rhonda Morris
- Lennie Ramacher
- Doug Owen
- Dave Durbin