National Park Service
U.S. Department of the Interior

CLIMATE *Friendly* PARKS

Lake Roosevelt National Recreation Area Action Plan

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LAKE ROOSEVELT NATIONAL RECREATION AREA BECOMES A CLIMATE FRIENDLY PARK

As a participant in the Climate Friendly Parks program, Lake Roosevelt National Recreation Area 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, Lake Roosevelt National Recreation Area provides a model for climate-friendly actions within the Park Service.

This Action Plan identifies steps that Lake Roosevelt National Recreation Area can undertake to reduce 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 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 plan further describes priorities and details to implement these actions.

Lake Roosevelt National Recreation Area intends to reduce GHG emissions from Park Operations to 40% below 2007 levels by the year 2016 by implementing emission mitigation actions identified by the park. Specifically, Lake Roosevelt National Recreation Area goals are to:

- Reduce park operations' energy use emissions to 25 percent below 2007 levels by 2016.
- Reduce park operations' transportation emissions to 25 percent below 2007 levels by 2016.
- Reduce park operations' waste emissions to 25 percent below 2007 levels by 2016 through waste diversion and reduction.

To meet these goals, Lake Roosevelt National Recreation Area 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 Lake Roosevelt National Recreation Area.

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 Lake Roosevelt National Recreation Area. 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 of

[1] Original notes from these workshops, including detailed action items not presented in the final plan have been archived by Lake Roosevelt National Recreation Area and are available upon request.

GHGs in the atmosphere—primarily carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O) —which trap heat that otherwise would be released into space.

The continued addition of CO_2 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, native animal and plant habitats, and many other features of our natural and managed environments.

At Lake Roosevelt National Recreation Area, increasing temperatures represent a very real threat to parkwide resources. Lake Roosevelt is formed by Grand Coulee Dam, one of the world's largest concrete structures, which backs up the Columbia River for over 150 miles of its length. The large reservoir is operated to maximize electrical power generation, provide downstream flood water management, supply irrigation water for the Columbia Basin Project and vital releases to protect native fisheries, and to provide recreational opportunities for over 1.3 million visitors each year. Lake levels can range from a high of 1290 feet elevation to a low of 1208 feet dependent on predicted snowmelt, power generation needs, fisheries and irrigation water releases, and when peak recreational periods. Reduced snowpacks, loss of glaciers in the Canadian and northern U.S. Rockies headwaters of the watershed, warmer winters, more intense storm events, and hotter or drier conditions will all add major management considerations to the operation of the reservoir. This in turn will greatly impact recreational activities and native habitats with widely fluctuating lake levels throughout the year. The changing precipitation patterns may further alter park ecosystems and change vegetation communities through either invasion by a host of non-native plant species that try to take advantage of the stressful climatic conditions or a possible increase in catastrophic wildfire events. This in turn reduces the habitats available for native wildlife species, affects the outdoor experiences of park visitors, and can even threaten park facilities and public safety.

[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 LAKE ROOSEVELT NATIONAL RECREATION AREA

Naturally occurring GHGs include CO_2, CH_4, N_2O, 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).

In 2007, GHG emissions within Lake Roosevelt National Recreation Area totaled 542 metric tons of carbon dioxide equivalent ($MTCO_2E$). This includes emissions from park operations, including vehicle and boat use within the park. For perspective, a typical single family home in the U.S. produces approximately 12 $MTCO_2$ 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 46 households each year.

The largest emission sector for management of Lake Roosevelt National Recreation Area is by far transportation totaling 218 $MTCO_2E$ (see Figure 1 and Table 1). The park is a very long, narrow, linear park stretched along the 150+ miles of Lake Roosevelt and so the logistics of reducing travel even for the park's workforce is daunting. The park has already made a big effort in reducing travel related emissions by dividing into two districts and stationing staff at three primary field stations (Headquarters, Fort Spokane, and Kettle Falls). With an average of 1.3 million visitors a year visiting the park from cities all over the region and nation, no attempt was made to estimate or try to reduce the emissions from either those traveling to visit the park or those using motorized watercraft (ranging from personal watercraft and small fishing boats to large speed and house boats) while on the lake. To estimate and track the fuel consumption and emissions would be a nearly impossible task. Park and regional efforts at educating the public on fuel conservation and use of fuel efficient vehicles/watercraft are felt to be the only recourse to address this issue. Implementing the actions included in the transportation and education sections of this plan are therefore key in order to meet the park's emission reduction goals.

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

FIGURE 1

Lake Roosevelt National Recreation Area 2007 Total Greenhouse Gas Emissions by Sector

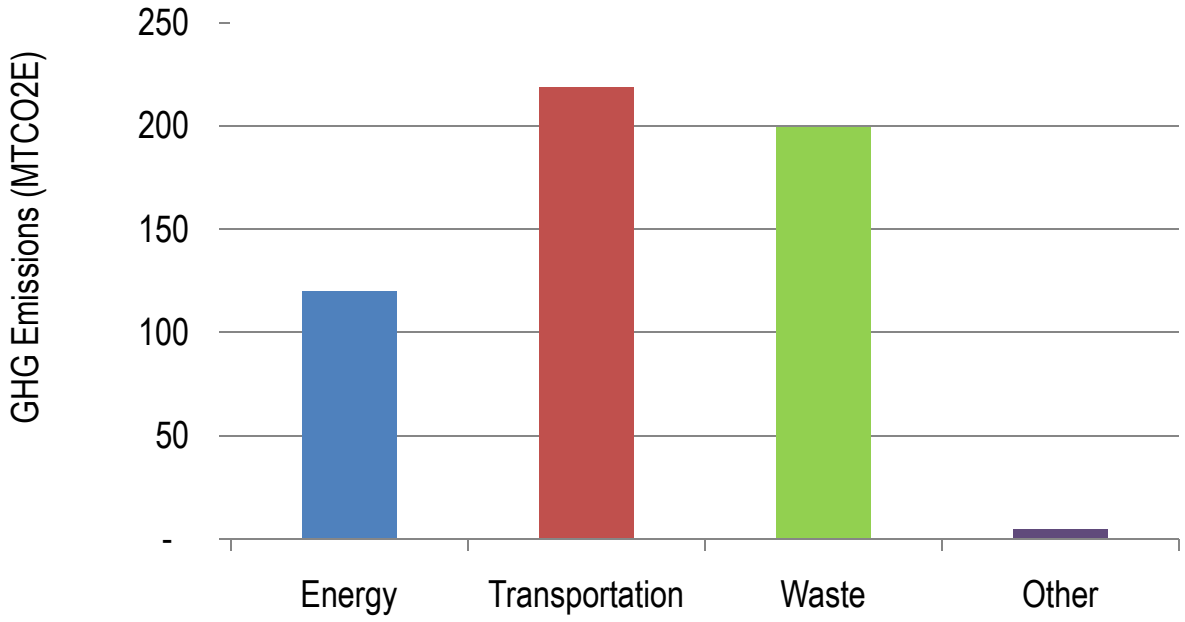

TABLE 1

Lake Roosevelt National Recreation Area 2007 Total Greenhouse Gas Emissions by Sector and Source (NPS operations only)

	MTCO2E
Energy	120
Stationary Combustion	1
Purchased Electricity	119
Transportation (does not include park visitor vehicles or boats	218
Mobile Combustion	218
Waste	199
Landfill Waste	198
Wastewater	2
Other	4
Refrigeration and Air Conditioning	4
Total	542

Note - Totals may not sum due to rounding

Not applicable data sources represented by "-"

FIGURE 2

Lake Roosevelt National Recreation Area 2007 Park Operations Emissions by Sector (NPS operations only)

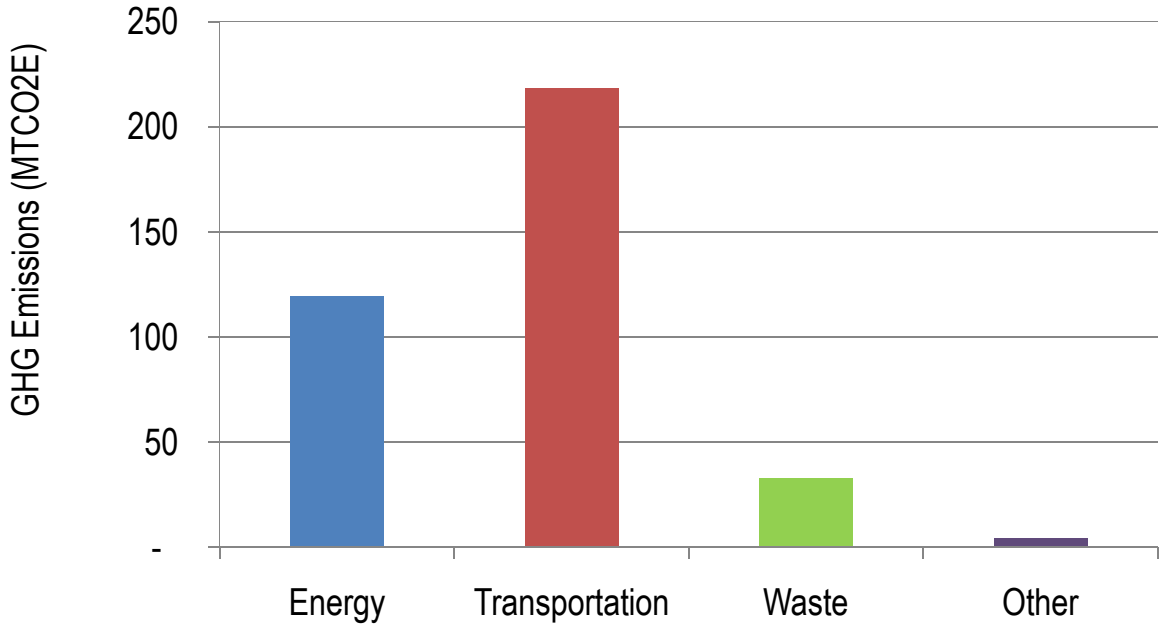

TABLE 2

Lake Roosevelt National Recreation Area 2007 Park Operations Emissions by Sector

	MTCO2E
Energy	120
Stationary Combustion	1
Purchased Electricity	119
Transportation	218
Mobile Combustion	218
Waste	33
Landfill Waste	31
Wastewater	2
Other	4
Refrigeration and Air Conditioning	4
Total	375

Note - Totals may not sum due to rounding

Not applicable data sources represented by "-"

Lake Roosevelt National Recreation Area 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, and subsequent park planning meetings in order to meet the park's climate change mitigation goals.

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

Lake Roosevelt National Recreation Area 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 Lake Roosevelt National Recreation Area 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 25 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 32 percent of the park's GHG emissions from Park Operations are from energy consumption. Consequently, Lake Roosevelt National Recreation Area 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

Heating, Ventilation, and Air-Conditioning (HVAC)

- The park has upgraded the air distribution systems at park headquarters, and has an American Recovery and Reinvestment Act (ARRA) project in to upgrade the other two administration buildings.

Alternative Energy

- The park installed a 4.25 KW grid-tied Photovoltaic (PV) system at Spring Canyon in 2008.
- The park also installed two grid-tied Photovoltaic systems through the American Recovery and Reinvestment Act (ARRA) fund source in 2010. The Headquarters system is 19.32 KW and Fort Spokane is 20.0 KW annually.
- The park installed a 4.38 KW micro-hydro system at Fort Spokane in 2010 through the American Recovery and Reinvestment Act (ARRA) fund source that is also grid-tied.

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.
  - Continue to educate employees on energy conservation and how they can contribute to a more energy-efficient park operation.
  - Develop a set of best management practices for energy including office heating and cooling systems.

- Develop an energy-saving training presentation for new staff. Incorporate this presentation into the seasonal and new permanent staff orientation and practice an "Environmental Management Systems (EMS) stand-down" for permanent employees.

- Establish an Operations and Maintenance (O&M) schedule that evaluates energy use across the entire park.
  - Develop a winter work schedule for all maintenance areas, use Facility Management Software System (FMSS) (Maximo) to develop a preventive maintenance program for Heating, Ventilation, and Air Conditioning (HVAC) systems and other utility systems.

- Adjust thermostats.
  - Eliminate supplementary heating systems where the systems have been upgraded.

- Ensure all computers' power management settings follow current ENERGY STAR recommendations.
  - Work with IT staff to set defaults on CPU's for maximum efficiency (set computers and monitors to enter system standby or hibernation/sleep mode after 30 minutes of inactivity).

2 Heating, Ventilation, and Air Conditioning (HVAC)

- Develop an HVAC maintenance schedule.
  - Use FMSS to develop a Preventative Maintenance (PM) plan for the HVAC systems around the park.

- Recalibrate thermostats.
  - Develop a plan to calibrate thermostats annually. Change out all outdated thermostats to detail, programmable type thermostats.

- Upgrade air distribution systems.
  - Upgrade the air distribution/heating/cooling systems in park housing with the best available technology.

3 Upgrade lighting options

- Upgrade all light fixtures and bulbs in park to energy-efficient bulbs.
  - Inventory all lighting in administration buildings, replace all lights in all buildings that are not energy fixtures and initiate policy that prevents the return to old inefficient technology.

- Install lighting controls.
  - Continue to improve lighting controls, add timers, and install motion sensors. Make sure that a recommissioning schedule is in place to ensure appropriate use. The recommissioning schedule would include requirements to periodically check the functionality of motion sensors and to fix any non-working sensors.

- Install energy-efficient outdoor lighting.
  - Continue to upgrade outdoor lights and add timers/sensors as-needed. Audit existing light fixtures to see which ones could be upgraded.

- Use daylighting.
    - Continue to rehab seasonal buildings (ex. comfort stations that are winterized) to maximize efficiency and natural lighting where feasible.
    - Continue to use natural lighting where possible to enhance office lighting.

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.
    - Educate procurement on purchasing green products.
- Default all computers to print double-sided.
    - Work with IT to default all network printers to double sided printing.
- Install Smart Strip power strips.
    - Investigate purchasing “smart” powerstrips for all desk work stations that will reduce “vampire” energy.
- Install energy-efficient water heaters.
    - Continue to upgrade hot water tanks in housing and office units with on-demand or high efficiency hot water systems.

5 Improve building structures and envelopes

- Weatherize park buildings by adding R-values to improve insulation effectiveness.
    - Continue to add insulation where it is under the recommended R-factor.
- Replace/Upgrade old windows with new windows.
    - Continue to upgrade window shades for maximum efficiency.
    - Continue to upgrade inefficient windows throughout the park buildings.

6 Utilize alternative energy sources

- Install photovoltaic (PV) panels on park buildings, parking lots, open areas, etc.
    - Continue to explore opportunities to install PV systems that tie-back into the grid to reduce electrical demands.
- Switch to biomass and biofuel, where economically feasible, instead of conventional fuel to heat park buildings.
    - Partner with Bureau of Reclamation (BOR) to work with a local fuel station to supply bio-diesel.

7 Measure energy use throughout the park

- Incorporate energy efficiency criteria into new/existing contracts for park and concessioner contacts.
  - Work with concession specialist to add energy-efficient criteria into concession contracts.
  - Work with concession specialist to strengthen sustainable practice requirement for concession contracts.
- Conduct an energy audit for all park buildings. Partner with local utilities to conduct the audit.
  - Work with the Pacific West Regional Office to conduct an energy audit on buildings that haven't had an audit in the past.
- Review and implement the DOI Sustainable Buildings Implementation Plan.
  - Review and implement the DOI Sustainable Buildings Implementation Plan.

Transportation Management

Emission Reduction Goal: Reduce park operations' transportation emissions to 55 percent below 2007 levels by 2016.

Reducing vehicle miles traveled, improving vehicle efficiency, and using alternative fuels can significantly reduce Lake Roosevelt National Recreation Area's emissions. As the inventory results indicate, GHG emissions from transportation comprise 58 percent of park operations emissions and 40 percent of the park's overall emissions (including visitors, and concessioners). Accordingly, in addition to the park operations emissions reduction goal, Lake Roosevelt National Recreation Area set a goal to reduce overall transportation emissions by 25 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

- The park obtained 1 hybrid vehicle and is preparing a plan for requesting additional hybrids as current car pool vehicles need replacement and if hybrids are available through GSA.

Transportation Management – Planned Actions

1 Transportation-related behavioral changes

- Reduce idling of vehicles by staff by providing good ice scrapers in all vehicles and education on turning motors off when stationary.
  - Educate employees on idling, through safety and educational meeting and documentation.
- Encourage staff carpooling in and around the park.
  - Continue to educate staff, especially new employees on carpooling, pre- planning for efficient trips, etc.
- Reduce meeting travel.

- Continue to use webinars/conference calls to avoid excessive travel, both within and outside of the park.
- The park is going to purchase a new unit that attaches to the tel-station to better facilitate webinars, on-site training events, etc.

- Maximize tasks accomplished during boating trips on the reservoir.

2 Reduce NPS vehicle and equipment fuel consumption

- Promote efficient driving.
  - Incorporate efficient driving practices into existing training on defensive driving.
- Identify developed areas where mowing and use of chemical fertilizers could be reduced or eliminated .
  - Analyze turf areas that are not essential to park operations to reduce fuel use for mowing turf and chemical fertilizer use.
- Analyze fleet fuel-consumption patterns for efficiency improvements.
  - Conduct a study to analyze fleet efficiency and how the park could further reduce miles traveled and increase efficiency.
- Convert from diesel to biodiesel where economically and logistically feasible.
  - Work with local agencies to lobby local gas stations to make bio-fuel available for purchase.
- Replace 2-stroke engines.
  - The park will look into replacing landscape tools (blowers, weed eaters, etc.) with 2-stroke engines to a more efficient 4-stroke motor.

3 Replace NPS vehicles and equipment

- Develop a vehicle replacement plan.
  - As General Services Administration (GSA) vehicles come up for replacement, work with GSA where possible to get more efficient models as a replacement.
- Right size the vehicle fleet by the number and type.
  - Continue to work with GSA to right-size vehicles throughout the park.
- Use alternative fuel vehicles or hybrids.
  - Continue to work with GSA to get alternative fuel or hybrid vehicles throughout the park. This is especially important for car-pool vehicles.

4 Encourage appropriate vehicle maintenance practices

- Operate all fleet vehicles using re-refined oil if available.
  - The park will look into using re-refined oil with a minimum of 25% PC content.

5 Improve transportation infrastructure

- Improve parking lot designs to include local vegetation.
  - Work with local entities (Master Gardeners, Conservation Districts) to design and implement existing turf areas and landscaped areas with native plants etc.
- Use reclaimed materials for new roads and paving.
  - Work with counties, Department of Transportation (DOT), BOR, Federal Highways, etc. to use recycled asphalt on some of the park's paved roads.

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 CH_4 emissions in the United States. Reducing the amount of waste sent to landfills reduces CH_4 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.

Lake Roosevelt National Recreation Area's park operation activities emitted 33 $MTCO_2E$ 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

Waste Prevention

- The park has implemented a Tread-Lightly program to educate park staff and visitors. This is a motorized version of Leave-No-Trace and is available through one on one contacts and informational documentation.
- The park is in the process of providing pack- it-in, pack-it-out bags at boat launches.
- The park continues to add recycling containers at campgrounds and to work with the local counties to better our recycling program.

Waste Diversion (recycling and composting)

- The park purchased two new garbage trucks that meet current emission guidelines. The trucks were also the smallest trucks available through GSA Advantage.
- The park has measured and recorded the waste stream of the park through their Integrated Solid Waste Alternatives Plan (ISWAP).

Reduce Wastewater

- The park keeps storm drains clean, cleans up spills, disposes of pesticides, and tank rinseate as required, and properly disposes of hydrocarbon products, chemicals, and unused paints.
- The park reduces storm and ground water runoff as a standard matter of practice.

Other Waste Management

- The park currently incorporates the tracking and reporting of landfill data into EMS goals including tracking and reporting of recycling data (e.g., quantity and type of material).

Waste Management – Planned Actions

1 Decrease waste through behavior change

- Train staff on green procurement practices.
  - Continue to educate staff, especially those with purchasing authority on Green Procurement. Provide training to staff that do the majority of the purchases.
- Train maintenance staff on waste reduction initiatives.
  - The park will continue the training of park staff on waste reduction throughout the park through staff meetings and trainings.

2 Establish new plans and policies that promote waste reduction.

- Incorporate Waste reduction into Green Office Practices.
  - Continue to implement and improve the recycling program at all park facilities.
- Choose hand dryers over paper towels.
  - Change out the few remaining paper-towel dispensers with energy-efficient hand dryers.
- Reduce waste generated at meetings and employee functions.
  - The park will use all-employee meetings to educate employees on recycling and re-using materials.
- Encourage pack-it-in/ pack-it-out principles that reduce trash problems in the backcountry.
  - The park will continue to encourage pack-it-in/ pack-it-out principles, especially at boat launches. The park is implementing a plan to provide garbage bags at all boat launches. This will have a significant impact in reducing trash along the shoreline, but may result in additional trash being collected from the boat launch receptacles.

- Purchase products that minimize packaging.
  - Establish requirements to purchase only products with minimal packaging and packaging made of post-consumer (PC) recycled content, recyclable and/or reusable/refillable. Inform vendors of the park's packaging preference.
- Eliminate use of non-recyclable Styrofoam/food serviceware.
  - The park will explore whether the local UPS store and other shipping companies will take Styrofoam and other non-recyclable materials for reuse
- Develop a schedule for replacing existing materials.
  - Develop a Preventive maintenance (using Maximo) plan for existing materials. Continue to promote green procurement.
- Create a materials-exchange program.
  - Continue to work with the BOR on materials exchange and recycling.
  - Continue to work with local entities (senior center, etc.) to re-use materials as needed.
- Work with concessioners to reduce packaging and materials use.
  - Work with concession's specialist to explore opportunities for concession contracts to encourage packaging reductions.
- Promote the use of recycled content products and materials procurement within the NPS.
  - Continue to educate park staff, especially those with purchasing responsibilities on Green Procurement.
  - Provide training to staff that does the majority of the purchases.
- Reduce plastic water bottle use.
  - Continue to educate employees and visitors on plastic water bottle use and reuse.

3 Implement recycling and composting practices

- Continue to try and increase the amount of recycling of waste material at the park.
  - Continue to work with and encourage counties to develop recycling programs and to provide recycling receptacles at campgrounds and boat launches
  - Work with Federal Highways to develop contract language that promotes reused or recycled materials in road projects.
- Compost yard waste.
  - Investigate partnering with cooperating agencies to develop compost yards at the primary maintenance yards.

- Look into purchasing a chipper in order to reduce yard waste and woody debris that is currently burnt or disposed of.
- Chip and deliver any waste piles of large woody debris that typically would be burned by the park to the local power generating plant to optimize air quality controls and best uses of the waste products.

- Practice environmentally responsible deconstruction.
  - Separate construction/deconstruction waste materials to maximize reuse.
- Recycle or donate all old computers and electronics.
  - The park will continue to identify sources for the recycling of old computers and electronics and deliver all items that cannot be donated to these sources.
- Send used florescent bulbs, alkaline and lithium batteries to reclaim/recycle center.
  - Continue to use the BOR for the recycling of florescent bulbs and alkaline, and lithium batteries form the park.
- Collect and deliver all oils and coolants to recycling centers and use recycled oil and recycled coolant and other fluids where available in the auto shop.
  - The park will look for locating a local supplier and the feasibility of using recycled oil and coolant in the auto shop.
- Co-locate trash and recycling bins.
  - Continue to add recycling containers at major campgrounds, where appropriate, to increase visitor recycling and reduce trash collected.

4 Reduce waste through green procurement

- Encourage contractors to practice green procurement practices.
  - Encourage contractors to include environmental considerations in their purchasing by ensuring that contracts adhere to Federal Acquisition Regulation for environmental purchasing.
- Continually increase the recycled content of purchased materials.
  - Develop a process to document and track the recycled content of purchased materials.
- Adapt a list of pre-purchase questions for the park.
  - Implement the Pacific West Region's green procurement specifications check-list for park employees that have purchase authority.
- Develop a Green Procurement Plan.
  - Determine a green procurement plan for Lake Roosevelt National Recreation Area.

5 Reduce and reuse wastewater

- Install low-flow faucets.
  - Install low-flow water faucets in all bathrooms and rest areas in the park.
- Replace toilets with low-flow models.
  - Install water efficient technology for toilets, e.g. composting toilets and waterless urinals.
- Conserve water used in ground maintenance.
  - Continue to add automatic sprinkler systems in turf areas to reduce water demands. The park also addressed this in turf area reduction and replacing non-native plants with native species.
- Monitor, manage and reduce point source wastewater.
  - The park has two Project Management Information System (PMIS) projects in the system to add vehicle wash stations at headquarters and Fort Spokane.
- Reduce storm and groundwater runoff.
  - Look at areas where the park can improve drainage and "208-type" systems.

6 Other waste-related actions

- Manage solid waste and recycling by developing an ISWAP plan.
  - Update the park's ISWAP plan (last update was in 1997) to emphasize recycling and waste reduction thought the park.

STRATEGY 2: INCREASE CLIMATE CHANGE EDUCATION AND OUTREACH

Climate change is a complex and easily misunderstood issue. Lake Roosevelt National Recreation Area 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. Lake Roosevelt National Recreation Area 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 Lake Roosevelt National Recreation Area takes to address climate change serve as opportunities for increasing the public's awareness of climate change.

Age appropriate levels of climate change information and potential impacts are included in a number of educational presentations offered to area schools in both classroom and outdoor settings. Interpretive materials and presentations are also prepared and available for visitors at the campgrounds and visitor centers. Articles on climate change impacts appear in park newsletters and newspapers periodically as well as in informational bulletins to park partners such as the Lake Roosevelt Forum. Portions of this information is also available on the park website and future plans include a specific topic section on climate change. Climate change threats are considered in environmental planning documents where appropriate and in

planning documents related to the fire management program and invasive weed control planning. It was also addressed in the LARO Vegetation Mapping project which should soon be released.

Park Staff

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, Lake Roosevelt National Recreation Area 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 management directive specific to Lake Roosevelt National Recreation Area.
  - Create and distribute the climate change management directive during the next all-employee meeting and as a handout at new employee training.
- Keep staff members that are part of the Green Team informed about climate-related issues.
  - Reestablish the EMS Green Team and define a meeting schedule, goals, roles, and responsibilities.
- Incorporate climate change issues into the employee handbook.
  - Include climate change materials in employee orientation to inform employees of the issue, of the park's efforts to reduce its' contribution to this threat, and of the climate change impacts that are occurring both worldwide and locally.
- Include the science and impacts of climate change in park educational tools.
  - Continue the Tread Lightly program and include it in the seasonal orientation.
  - Continue to integrate climate change materials into The River Mile program and educational programs provided to area schools..
- Contribute park success stories to green voice biannual publication.
  - Continue to contribute park success stories to the Green Voice biannual publication.
- Communicate the park's waste policy or ISWAP to staff and concessioners.
  - Make ISWAP information available and explain it to park staff as appropriate.

Visitor Outreach

Understanding climate change and its consequences is essential to initiating individual behavioral change. Lake Roosevelt National Recreation Area 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, Lake Roosevelt National Recreation Area can play an important role in educating the public about climate change.

Lake Roosevelt National Recreation Area 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 actions to reach these various audiences effectively. These actions include:

- Integrate climate change themes into interpretive programs.
  - Integrate Climate Friendly Park program with school programs using educational kits, waysides exhibits, poster, etc. Look for opportunities to educate with resources like the Climate Change Wildlife and Wildlands Toolkit, for more information, visit: http://www.globalchnage.gov/resources/educators/toolkit
- Create signs promoting the park's efforts to curb emissions.
  - Write a press release letting the area communities know what steps the park is taking to become a Climate Friendly Park.
- Incorporate climate change information into existing park brochures and on the park website.
  - Incorporate climate change information into existing and new park brochures, waysides, on the park website, and in outreach material.
- Incorporate climate-friendly information into interpretive programs and talks.
  - Incorporate climate-friendly information into interpreter programs and talks where applicable.
- Educate visitors about their recycling options at the park and at home.
  - Provide clear signage to identify recycling locations and information on materials that can be recycled. Also note why recycling is important.
- 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!.
- Include climate change messaging in the Junior Ranger Program.
  - Look for opportunities to include climate change topics in messaging for the junior ranger program.
- Create demonstration projects and exhibits to convey park sustainability messages to visitors.
  - Create demonstration projects and exhibits to convey park sustainability messages to visitors.

Local Community Outreach

The gateway communities, agencies, vendors, and volunteers surrounding Lake Roosevelt National Recreation Area 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:

- Work with the surrounding community to address climate change.
  - The park will work with local organizations and agencies as appropriate to develop sustainable projects and educate park staff and visitors about climate change.

- Work with counties to develop recycling programs
    - Contact counties along Lake Roosevelt to see if recycling programs are available and if recycling centers can be located at major campgrounds and boat launches.

STRATEGY 3: EVALUATE PROGRESS AND IDENTIFY AREAS FOR IMPROVEMENT

By taking the actions established in strategies 1 and 2 above, Lake Roosevelt National Recreation Area 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 revaluation of goals. As part of this strategy, Lake Roosevelt National Recreation Area 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

Lake Roosevelt National Recreation Area has a unique opportunity to serve as a model for numerous small local communities and over 1.3 million 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, Lake Roosevelt National Recreation Area will help mitigate climate change far beyond the park's boundaries.

Many of the units in the National Park Service face an uncertain future due to the possible effects of climate change. However, by seriously addressing climate change impacts and reducing emissions in the immediate future, Lake Roosevelt National Recreation Area will reduce its contribution to the problem while educating and setting an example for its neighboring communities and many visitors. The strategies presented in this Action Plan represent an impressive first step towards moving Lake Roosevelt National Recreation Area to the forefront of Climate Friendly Parks.

[4] Lake Roosevelt National Recreation Area: Park Statistics. Available online at: http://www.nature.nps.gov/stats/viewReport.cfm

APPENDIX A: LIST OF WORK GROUP PARTICIPANTS

Debbie Bird, Superintendent

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Dan Zlateff, EMS Specialist (retired)

Marty Huseman, Chief Ranger

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