



Climate Change Strategy and Action Plan 2011-2014

The National Park Service (NPS) is poised to play critical roles regarding the human response to understanding and responding to climate change. As protected areas, parks are uniquely positioned as learning laboratories. They illustrate the effects of the changing climate on both the natural and built environment. Park employees have unique skills to clearly communicate those changes to the visiting public.

This strategy recognizes that climate change-related issues and actions are cross-disciplinary and can be integrated into nearly every program area in the Park Service. It is a framework for action. This Strategy recognizes that there is a large and growing body of quality information that can inform local direction and decisions about climate issues. It recognizes NPS employees' expertise regarding park resources, local communities, audiences, and established cooperative relationships. It also recognizes the need to seek new partnerships to address climate change issues on a landscape scale. Northeast Region (NER) employees are charged to use judgment and creativity to apply this framework to local needs, issues, audiences, and programs.

The Region's Green Parks Plan and the Climate Change Strategy and Action Plan have been synchronized since they share some of the same mitigation objectives. The Region will use the Environmental Management System (EMS) as a tool to develop priorities, track progress and record accomplishments for the two Plans.

This Northeast Region Climate Change Strategy and Action Plan follows the principles and goals of the National Park Service's Climate Change Response Strategy (http://www.nature.nps.gov/climatechange/docs/NPS_CCRS.pdf); and like the national Strategy, this NER strategy has four integrated components:

SCIENCE

We will use the best available science to inform decision-making and communication about climate change.

ADAPTATION

We will inventory and monitor natural and cultural resources at risk and conduct vulnerability assessments in order to adapt resource management and infrastructure in a changing climate.

MITIGATION

We will reduce the NPS carbon footprint, and model and promote energy efficient practices.

COMMUNICATION

We will help staff and managers understand climate science and its issues to enable them to communicate this information to the public. While the issue of climate change is complex, key messages guide NPS strategic communications:

- Climate change is real and it affects experiences in national parks;
- Some effects of climate change can be limited if we start today; and
- Science-based solutions offer the best way to address climate change effects.

Goals

- 1.** Use the best available science to inform decision-making.
- 2.** Collaborate with partners to develop, test and apply climate change models to NPS activities.
- 3.** Inventory and monitor key attributes of the natural systems, cultural resources and visitor experiences likely to be affected by climate change.
- 4.** Use best available science to evaluate and manage greenhouse gas storage and emissions in national park system units in the NER.
- 5.** Incorporate climate change considerations and responses in all levels of NPS planning.
- 6.** Implement adaptation strategies that promote ecosystem resilience and enhance restoration, conservation and preservation of park resources. The NER will recognize there are human dimensions to ecosystems and will take into account community resiliency and adaptation.
- 7.** Develop, prioritize, and implement management strategies to preserve climate-sensitive cultural resources.
- 8.** Enhance the sustainable design, construction, and maintenance of NPS infrastructure.
- 9.** Substantially reduce the Region's parks carbon footprint from 2008 levels by 2016 through aggressive commitment to environmentally preferable operations.
- 10.** Integrate climate mitigation into NPS business practices.
- 11.** Key climate change messages will be developed for region-wide communication use.
- 12.** Increase the number of staff and partners who understand and will be able to explain the science, issues, and NPS responses to climate change.
- 13.** Communicate the effects and implications of climate change and demonstrate how the NPS is reducing impacts of climate change by interpreting sustainable practices in areas such as operations, facilities, energy conservation and technology.

Science



National Park Service responses to climate change will be based on and guided by sound science.



GOAL 1: Use the best available science to inform decision-making.

Objective 1.1: Integrate climate change considerations into science activities including research, assessments and planning, reporting and operational evaluations.

- Establish a Climate Science Board of leading academic and agency experts on climate change science to advise the NER on climate change responses.
Responsible: Science **Date:** 09/2011
- Complete a literature review and synthesis of technical literature on climate change mitigation and adaptation strategies that may be relevant for NER parks.
Responsible: Science **Date:** 10/2012

Objective 1.2: Consolidate NER information systems and data relating to climate change.

- Through the Environmental Management System (EMS) process, convene a working group of NER data managers and other disciplines to assess needs and make recommendations about mechanisms for efficient data consolidation, management, and sharing.
Responsible: GIS **Date:** 08/2011
- Develop easily accessible integrated data systems to report, consolidate, manage, and share climate change data and information within the NER, among partners, and with the public.
Responsible: GIS, Science and IT **Date:** 09/2012
- Develop an ArcGIS server to provide efficient access to natural and cultural data.
Responsible: GIS **Date:** 09/2012
- Establish and maintain a web-based archive of NER data, reports, templates, etc. that can assist with planning for climate change.
Responsible: Inside NER **Date:** 02/2011

GOAL 2: Collaborate with partners to develop, test and apply climate change models to NPS activities.

Objective 2.1: Identify and characterize the climate attributes and variables that are most important to park resources, infrastructure, and visitor experience.

- Identify and evaluate the attributes that are known or hypothesized to enhance ecological sustainability and resilience at a systems-scale (e.g., marshes, oak forest, and vernal wetlands) in three selected parks.
Responsible: Science **Date:** 06/2011
- Identify natural resource processes and drivers that play key roles in protecting or threatening park cultural resources and infrastructure.
Responsible: Science and CESU **Date:** 02/2012

Objective 2.2: Characterize the locations and severity of change expected for key climate attributes.

- Identify parks or ecosystem types most vulnerable to relatively rapid or severe climatic changes by charting spatial distribution of projected changes in key climate variables.
Responsible: Science and CESU **Date:** 06/2012

Objective 2.3: Develop models that can be used by managers to plan for and adapt to climate change impacts.

- Develop conceptual models describing the response of systems affected by climate change (e.g., sediment budgets, hydrology, species interactions, primary and secondary production, others) for two NER parks.
Responsible: Science **Date:** 08/2012

GOAL 3: Inventory and monitor key attributes of the natural systems, cultural resources and visitor experiences likely to be affected by climate change.

Objective 3.1: Evaluate and enhance existing cultural and natural inventory and monitoring programs to address climate change and establish new programs.

- Review the network vital signs monitoring programs to identify existing monitoring attributes that can inform climate change related decision and actions.
Responsible: I&M **Date:** 11/2011
- Complete basic inventories of natural and cultural resources and infrastructure known or thought to be sensitive to climate changes.
Responsible: I&M **Date:** 08/2012

Objective 3.2: Monitor, evaluate, and report the status and trends of park resources to facilitate adaptation planning.

- Review NER park natural resource condition assessments to relate the recorded resource conditions to climate change stressors and potential adaptation opportunities.
Responsible: Science **Date:** 10/2012

GOAL 4: Use best available science to evaluate and manage greenhouse gas storage and emissions in national park system units in the NER.

Objective 4.1: Develop and apply a scientifically valid, standardized approach for reducing the NER carbon footprint.

- Collaborate with the NPS Washington Office and other NPS Regions to establish carbon reduction benchmarks for NPS units. (Executive Order based Goals).
Responsible: Science and Facility Mgt **Date:** 04/2012



Adaptation



Adaptation is “an adjustment in natural or human systems in response to actual or expected climatic change stimuli or their effects, which moderates harm or exploits beneficial opportunities.” (Intergovernmental Panel on Climate Change, 2007). Adaptation includes an array of responses to climate change stemming from projected changes in society, the economy, and ecological conditions.

GOAL 5: Incorporate climate change considerations and responses in all levels of NPS planning.

Objective 5.1: Using WASO and interim regional guidance, incorporate climate change as a factor in all regional planning products.

- Develop guidance to address climate change in planning and compliance documents in the NER.
Responsible: Resource Planning and Compliance **Date:** 09/2011
- For a pilot set of parks, develop a strategic climate change adaptation plan or review existing plans for completeness and usefulness.
Responsible: Science, Planning and cooperating parks **Date:** 09/2013

Objective 5.2: Incorporate the DOI adaptive management framework into routine planning to facilitate flexible responses to climate changes as new information arises.

- Develop guidelines for using vulnerability assessments to set funding priorities for natural resource and cultural resource adaptation projects.
Responsible: Science and Planning **Date:** 10/2012

Objective 5.3: Conduct scenario planning to explore the range of potential conditions that parks may experience and the possible consequences associated with particular actions.

- Conduct scenario planning and other exercises at two NER parks (could be with clusters of close-by or similar parks).
Responsible: Planning **Date:** 06/2012

GOAL 6: Implement adaptation strategies that promote ecosystem resilience and enhance restoration, conservation and preservation of park resources. The NER will recognize there are human dimensions to ecosystems and will take into account community resiliency and adaptation.

Objective 6.1: Collaborate with federal, state and local partners and programs to acquire, evaluate and develop tools, such as vulnerability assessments and scenario planning, to inform the development of adaptation plans at appropriate scales.

- Working with partners, conduct three vulnerability assessments to identify resources, places, or ecosystem types most at risk from climate change impacts.
Responsible: Science and CESU **Date:** 09/2013

Objective 6.2: Develop methods to prioritize resources that are threatened by climate change using scientific assessments, policy, management capacity, and information from stakeholders.

- Evaluate and report on implications of habitat loss and fragmentation on resource resilience in two selected parks in the NER.
Responsible: Science **Date:** 10/2012
- Develop a priority list of actions that would maintain or increase resilience of natural resources in NER parks.
Responsible: NR **Date:** 06/2012
- Test methods and approaches to vulnerability assessments (species, site, community, ecosystem, and landscape scales) at two pilot NER parks.
Responsible: Science **Date:** 10/2012

Objective 6.3: Collaborate to develop cross-jurisdictional conservation plans to protect and restore connectivity and other landscape scale components of resilience.

- Identify key information gaps needed to enhance resilience in 3 selected NER pilot parks and enhance local, regional, national and international strategic partnerships to leverage existing data to fill those gaps.
Responsible: NR, CR and Science **Date:** 08/2011
- Identify landscapes in the NER with a high potential to contribute to species migration or other aspects of enhancing resilience.
Responsible: RTCA lead, NR, Science and CR **Date:** 06/2012
- Develop a landscape-level plan with partners to maintain or restore resilience in one critical landscape in the NE Region.
Responsible: RTCA lead, CR, NR and Science **Date:** 06/2012



GOAL 7: Develop, prioritize, and implement management strategies to preserve climate-sensitive cultural resources.

Objective 7.1: Use science to develop and apply a process to prioritize cultural resource adaptation projects that combine established management tools with newer methods, such as vulnerability assessments.

- Develop a priority list of actions that would maintain or increase resilience of cultural resources in NER parks.
Responsible: CR **Date:** 06/2011

Objective 7.2: Increase the capacity and utility for the NER Museum Program to preserve and protect resources.

- Implement the Service wide Storage Plan to consolidate museum collections in repositories located away from coastlines and other areas of known risk.
Responsible: CR **Date:** 06/2012

Objective 7.3: Strengthen partnerships with traditionally associated peoples through consultation and civic engagement to ensure the preservation of ethnographically significant resources and continued access to these resources.

- The NER will develop a shared understanding, through anthropological research, consultation and partnerships, of the boundaries and significance of cultural resources for different stakeholders. A report describing the Region's key park-associated communities and groups will be written describing the best means of effective communication strategies, climate change response strategies and connections across disciplines and organizations.
Responsible: CR **Date:** 06/2012

Objective 7.4: Expand NPS capacity to conduct inventory and monitoring of archeological sites in anticipation of climate change impacts and support curation of artifacts and associated documentation.

- Develop a priority list of coastal parks with known or likely significant archeological resources.
Responsible: Archeology **Date:** 09/2011
- Document archeological resources impacted by climate change using innovative technology in two NER parks. One park will be in a coastal area and one in a terrestrial area.
Responsible: Archeology **Date:** 09/2012

GOAL 8: Enhance the sustainable design, construction, and maintenance of NPS infrastructure.

Objective 8.1: Consider climate change vulnerability assessments and scenarios in decision processes for project approval and funding.

- Formulate methodology for assessing projects that should be subjected to climate change vulnerability assessments.
Responsible: Construction Facility Mgt **Date:** 11/2011
- Assist two NER Parks in a national effort to field test and validate programmatic Environmental Leadership and Sustainability metrics and data capture for future service wide implementation.
Responsible: Construction Facility Mgt **Date:** 12/2011



Objective 8.2: Collaborate with federal, state, and local partners and programs to identify sustainability and adaptation designs for planning, design and construction documents.

- Ensure access, guidance and use of NPS Sustainability Checklist on all NER Projects.
Responsible: Construction Facility Mgt **Date:** 10/2011

Objective 8.3: Inventory high-risk facilities, assets, infrastructure, and utilities; determine priorities for protection and adaptation; and implement actions.

- In collaboration with NER Science and CESUs identify the geographic areas that have a high risk to flooding. Inventory assets and resources at risk within those areas.
Responsible: Construction Facility Mgt **Date:** 12/2011

Objective 8.4: Incorporate sustainable design in new construction, restoration, and rehabilitation of facilities.

- Ensure access, guidance and use of NPS Sustainability Checklist on all NER Projects.
Responsible: Construction Facility Mgt **Date:** 10/2011
- Guidelines on modifying the design process to enhance sustainable design will be developed.
Responsible: Construction Facility Mgt **Date:** 06/2012
- Provide a broad range of technical support to assist in the identification of opportunities, and application of “appropriate technologies” to reduce the greenhouse gas production of the NER built environment.
Responsible: Construction Facility Mgt **Date:** 01/2012

Objective 8.5: Incorporate sustainability and climate change adaptation into the maintenance and operations of existing facilities and programs.

- Develop guidance on sustainable maintenance practices in parks.
Responsible: Construction Facility Mgt **Date:** 06/2012

Objective 8.6: The NER will work with the Development Advisory Board (DAB) to revise guidelines to require LEED (Leadership in Energy and Environmental Design) certification on all NPS projects for NEW facilities.

- Develop draft guidelines with the NPS Development Advisory Board (DAB) to require LEED Certification on all NPS projects and new facilities.
Responsible: Construction Facility Mgt **Date:** 02/2012



3. Mitigation



Mitigation efforts are aimed at reducing carbon footprints and promoting energy efficiency. The National Park Service seeks to become a model of sustainability. This will be accomplished through combining two programs: the “Climate Friendly Parks” program that assesses and tracks energy and water use and needs and the “Green Park Plan” that is a comprehensive means to achieve water, waste stream and energy conservation actions. The NER will develop a NE Region Green Park Plan and form a Green Team to help with these efforts.

Goal 9: Substantially reduce the Region's parks carbon footprint from 2008 levels by 2016 through aggressive commitment to environmentally preferable operations.

Objective 9.1: Develop Climate Friendly Action Plans so that every park, park concession, and administrative office promotes energy and water conservation; supports alternative transportation, infrastructure, programs and policies, and eliminates waste.

- Provide three Climate Friendly Parks Program trainings for sub-clusters.
Responsible: Construction Facility Mgt and NR **Date:** 01/2012
- Create NER "Green Team", a multi-disciplined Advisory Group to provide guidance and support to NER initiative to achieve energy, water, waste stream reductions in accordance with Federal Executive Order (FEO) "Federal Leadership in Environmental, energy and Economic Performance."
Responsible: Construction Facility Mgt and NR **Date:** 08/2011
- Formulate "Means and Methods" to assist NER Parks in achieving FEO Mandated Goals:
 - Reduce energy intensity of existing facilities by 40% from 2003 Levels;
 - Reduce Water Consumption of existing facilities by 30% from 2007 levels;
 - Divert 60% of solid waste from 2010 levels, from landfills;
 - Engage youth in sustainability projects in NER Parks.**Responsible:** Construction Facility Mgt and NR **Date:** 11/2011
- Provide NER support from the Architectural, Preservation, Engineering and Maintenance (APEM) Electrical Engineer to NER Green Team.
Responsible: Construction Facility Mgt and NR **Date:** 11/2011

Objective 9.2: Support the development and application of renewable energy and the use of renewable energy technology.

- Complete energy audits in all NER parks to identify high priority energy conservation measures.
Responsible: Construction Facility Mgt **Date:** 10/2011
- Collaborate with the NPS SMAC, WASO PFMD and WASO Office of Environmental Leadership and Sustainability to develop NPS conservation and sustainability specific metrics and weighting criteria to uniformly prioritize energy efficient projects in the fiscal 2012 and future program years.
Responsible: Construction Facility Mgt **Date:** 09/2011
- Provide incentives, reward and recognize employees, Divisions or parks for innovative ideas that save energy.
Responsible: Construction Facility Mgt **Date:** 11/2012

Goal 10: Integrate climate mitigation into NPS business practices.

Objective 10.1: Identify and evaluate greenhouse gas reduction options in general management plans and other planning and environmental compliance documents and processes.

- Evaluate and incorporate industry standard best practices and sustainable performance metrics in NER Long Range Transportation Plan version 1 for all Alternative Transportation Systems.
Responsible: Construction Facility Mgt **Date:** 10/2011
- Develop one multi-park area-wide Utility Contract to meet cost, energy or greenhouse emission savings goals.
Responsible: Construction Facility Mgt and Acquisition **Date:** 11/2011
- Train MABO staff on how to incorporate these existing GSA contracts in NER projects.
Responsible: Construction Facility Mgt and Acquisition **Date:** 09/2011
- Conduct energy audits for concession properties.
Responsible: Construction Facility Mgt and Business Services **Date:** 12/2013

Objective 10.2: Require integration of greenhouse gas reduction strategies into current operational practices (new construction, renovations, rehabilitations) when it can be accomplished in conformance with the Secretary of Interior’s Standards for the Treatment of Historic Properties.

- Develop incentives for parks and the regional office to reduce energy use, reduce the waste stream, and increase recycling by 5%, over 2011 baseline.
Responsible: Construction Facility Mgt **Date:** 11/2012

Objective 10.3: Integrate greenhouse gas reduction into Environmental Management Systems (EMS), procurement, design and construction contracts, and new commercial services contracts and agreements.

- Coordinate inclusion of data from different systems such as the Sustainable Practices database, in the Climate Friendly Park “CLIP” tool.
Responsible: Construction Facility Mgt and EMS Coordinator **Date:** 11/2011
- Environmental Management Systems objectives for parks shall incorporate NPS benchmark reporting and annual analysis to target weak and low performing units in order to provide assistance and improve accomplishment of expected performance measures.
Responsible: POPS Environmental Mgt **Date:** 01/2012
- NPS Park Asset Management Plan Execution (PAMP AWP) will incorporate recommended standardized work activities to identify performance efforts in accomplishing NPS Sustainability, Waste reduction and Green House Gas reduction measures.
Responsible: Construction Facility Mgt **Date:** 01/2012

Objective 10.4: Promote use of flexible schedule and telecommuting arrangements to save energy and improve productivity without compromising public service.

- Promote and expand flexible schedule and telecommuting through emails and Supervisory training opportunities.
Responsible: All NER Directorates **Date:** Ongoing

4. COMMUNICATION >>

Communications, public affairs, interpretation, education, and others will use key messages, target specific audiences, and use local examples to illustrate climate change and energy efficiency. Communication includes training and leading by example.



Goal 11: Key climate change messages will be developed for region-wide communication use.

Objective 11.1: Convey NPS climate change messages.

- Incorporate the following messages into communications and programming by the end of 2011. Messages will also be adapted for use by park concession operators, volunteers, friends groups and others.
 - Climate change is happening here, now;
 - Climate change is changing things that you care about;
 - Climate change can be limited by particular actions, but we need to start now so we can succeed;
 - Science-based solutions offer the best way to understand, respond to and adapt to climate change effects.

Responsible: Communications

Date: 12/2011

Goal 12: Increase the number of staff and partners who understand and will be able to explain the science, issues, and NPS responses to climate change.

Objective 12.1: Train, inform and engage park managers, staff, concessioners, cooperating associations, and other partners about the specific and projected effects of climate change on resources and ways to mitigate greenhouse gas emissions.

- Sponsor an Interagency Climate Change Adaptation Workshop in cooperation with other DOI bureaus, for federal, state and local land managers in the Mid-Atlantic region.

Responsible: NR **Date:** Accomplished
- Collaborate with preservation partners to create and disseminate technical guidance to incorporate appropriate, cost-effective strategies/technologies for historic structures to adapt to climate change.

Responsible: CR **Date:** 12/2013

Objective: 12.2: Provide employees of all disciplines with useful, clear science-based information (for example, one-page briefs that synthesize science and inform about potential management options).

- Publicize (on InsideNPS or InsideNER) six examples of successful (or unsuccessful) actions to address climate change in the region.

Responsible: Inside NER **Date:** 12/2010
- Develop six Ocean Stewardship Wikis (Wiki is a piece of server software that allows users to freely create and edit Web page content using any Web browser. Wiki supports hyperlinks and has simple text syntax for creating new pages and cross links between internal pages on the fly.).

Responsible: Interpretation **Date:** 10/2012

Goal 13: Communicate the effects and implications of climate change and demonstrate how the NPS is reducing impacts of climate change by interpreting sustainable practices in areas such as operations, facilities, energy conservation and technology.

Objective 13.1: Provide specific, local examples to media, communities, and park audiences about how climate change affects/is projected to affect park resources. Share information with the public on park sustainable practices via websites and other means.

- Incorporate climate change information in existing programming and/or create interpretive products/programs that educate general audiences about the impacts of climate change and climate friendly technologies and practices.
Responsible: Park Superintendents **Date:** 9/2011
- Work with preservation partners, communities, education institutions, and local, state, and federal governments to develop locally-relevant content and distribute information on climate friendly practices such as: actions that conserve energy and preserve the integrity of historic structures and cultural landscapes, reduce energy, promote non-destructive weatherization techniques and ecological restoration.
Responsible: Construction Facility Mgt and CR **Date:** 04/2011
- Create a program(s) that employs youth in mitigation/communication projects (e.g., the NER Youth Energy Conservation Corps).
Responsible: Interpretation **Date:** 10/2012



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