



Foundation Document Mount Rainier National Park

Washington

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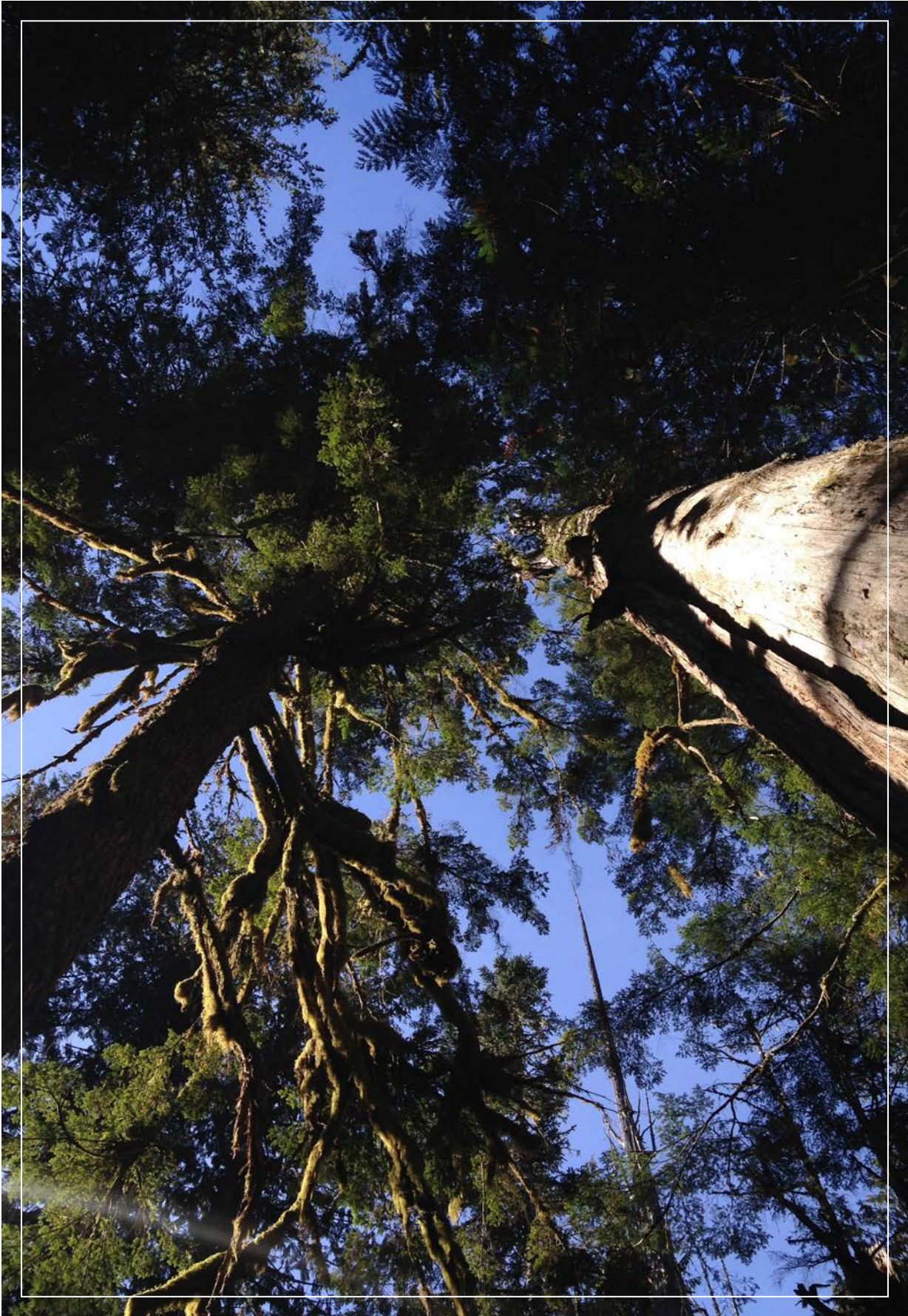
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Contents

Mission of the National Park Service	1
Introduction.	2
Part 1: Core Components	3
Brief Description of the Park.	3
Park Purpose	5
Park Significance	6
Fundamental Resources and Values	8
Other Important Resources and Values	11
Interpretive Themes	12
Part 2: Dynamic Components	16
Special Mandates and Administrative Commitments	16
Assessment of Planning and Data Needs	16
Analysis of Fundamental Resources and Values	17
Identification of Key Issues and Associated Planning and Data Needs	17
Other Important Issues	20
Planning and Data Needs	20
High Priority Planning Needs	21
High Priority Data Needs	26
Part 3: Contributors	31
Mount Rainier National Park	31
NPS Pacific West Region.	31
Other NPS Staff	31
Appendixes	32
Appendix A: Enabling Legislation for Mount Rainier National Park.	32
Appendix B: Special Mandates and Administrative Commitmentx for Mount Rainier National Park	34
Appendix C: Analysis of Fundamental Resources and Values	39





Mission of the National Park Service

The National Park Service (NPS) preserves unimpaired the natural and cultural resources and values of the national park system for the enjoyment, education, and inspiration of this and future generations. The National Park Service cooperates with partners to extend the benefits of natural and cultural resource conservation and outdoor recreation throughout this country and the world.

The NPS core values are a framework in which the National Park Service accomplishes its mission. They express the manner in which, both individually and collectively, the National Park Service pursues its mission. The NPS core values are:

- **Shared stewardship:** We share a commitment to resource stewardship with the global preservation community.
- **Excellence:** We strive continually to learn and improve so that we may achieve the highest ideals of public service.
- **Integrity:** We deal honestly and fairly with the public and one another.
- **Tradition:** We are proud of it; we learn from it; we are not bound by it.
- **Respect:** We embrace each other's differences so that we may enrich the well-being of everyone.

The National Park Service is a bureau within the Department of the Interior. While numerous national park system units were created prior to 1916, it was not until August 25, 1916, that President Woodrow Wilson signed the National Park Service Organic Act formally establishing the National Park Service.

The national park system continues to grow and as of this printing comprises more than 400 park units covering more than 84 million acres in every state, the District of Columbia, American Samoa, Guam, Puerto Rico, and the Virgin Islands. These units include, but are not limited to, national parks, monuments, battlefields, military parks, historical parks, historic sites, lakeshores, seashores, recreation areas, scenic rivers and trails, and the White House. The variety and diversity of park units throughout the nation require a strong commitment to resource stewardship and management to ensure both the protection and enjoyment of these resources for future generations.



The arrowhead was authorized as the official National Park Service emblem by the Secretary of the Interior on July 20, 1951. The sequoia tree and bison represent vegetation and wildlife, the mountains and water represent scenic and recreational values, and the arrowhead represents historical and archeological values.

Introduction

Every unit of the national park system will have a foundational document to provide basic guidance for planning and management decisions—a foundation for planning and management. The core components of a foundation document include a brief description of the park as well as the park’s purpose, significance, fundamental resources and values, other important resources and values, and interpretive themes. The foundation document also includes special mandates and administrative commitments, an assessment of planning and data needs that identifies planning issues, planning products to be developed, and the associated studies and data required for park planning. Along with the core components, the assessment provides a focus for park planning activities and establishes a baseline from which planning documents are developed.

A primary benefit of developing a foundation document is the opportunity to integrate and coordinate all kinds and levels of planning from a single, shared understanding of what is most important about the park. The process of developing a foundation document begins with gathering and integrating information about the park. Next, this information is refined and focused to determine what the most important attributes of the park are. The process of preparing a foundation document aids park managers, staff, and the public in identifying and clearly stating in one document the essential information that is necessary for park management to consider when determining future planning efforts, outlining key planning issues, and protecting resources and values that are integral to park purpose and identity.

While not included in this document, a park atlas is also part of a foundation project. The atlas is a series of maps compiled from available geographic information system (GIS) data on natural and cultural resources, visitor use patterns, facilities, and other topics. It serves as a GIS-based support tool for planning and park operations. The atlas is published as a (hard copy) paper product and as geospatial data for use in a web mapping environment. The park atlas for Mount Rainier National Park can be accessed online at: <http://insideparkatlas.nps.gov/Gallery>.



Part 1: Core Components

The core components of a foundation document include a brief description of the park, park purpose, significance statements, fundamental resources and values, other important resources and values, and interpretive themes. These components are core because they typically do not change over time. Core components are expected to be used in future planning and management efforts.

Brief Description of the Park

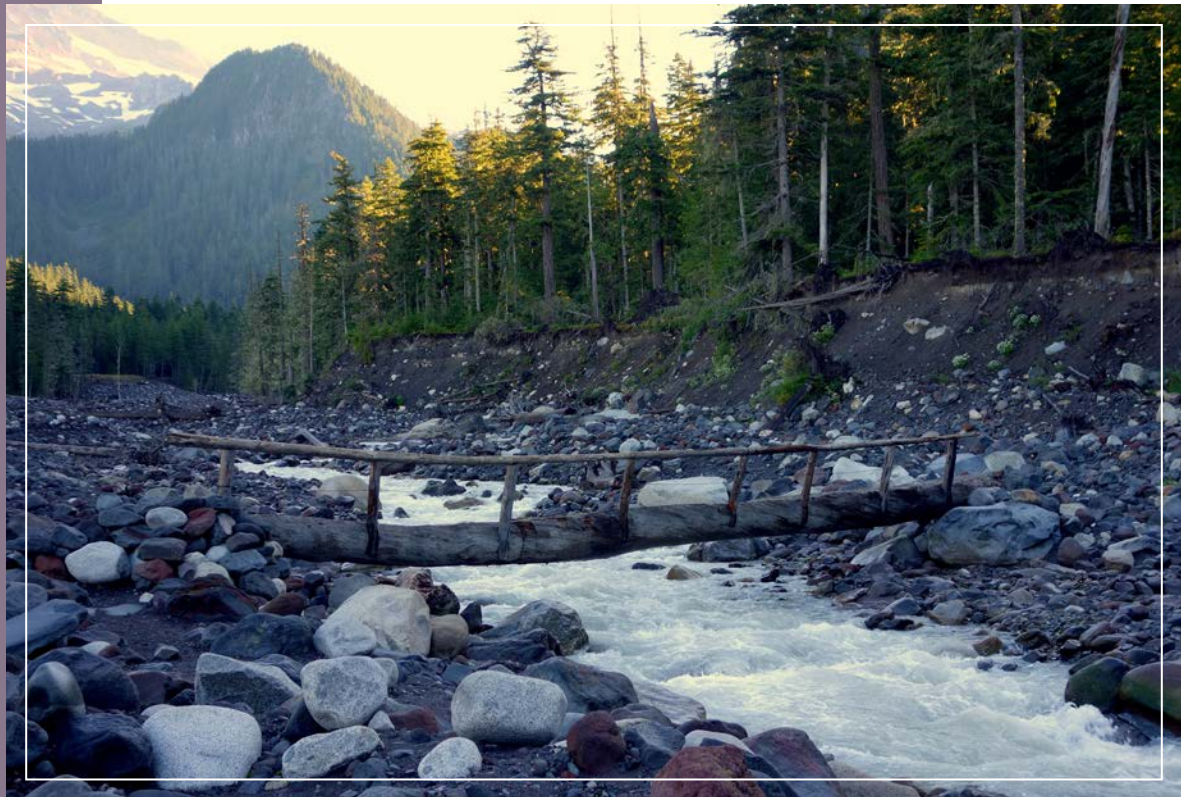
Mount Rainier National Park is located in west-central Washington, on the western slope of the Cascade Range and encompasses 236,381 acres within the authorized, legislated park boundary. An additional 140 acres lie outside the current boundary near the Carbon River entrance. The park's northern boundary is approximately 65 miles southeast of the Seattle-Tacoma metropolitan area and 65 miles west of Yakima. The elevations of the park extend from about 1,700 feet above sea level to 14,410 feet at the summit of Mount Rainier.

The focal point of the park is a towering, snow- and ice-covered volcano, which is a prominent landmark in the Pacific Northwest. The base of the volcano spreads over an area of about 100 square miles. The 26 major glaciers on the mountain cover 35 square miles, constituting the largest single-mountain glacial system in the contiguous 48 states. Mount Rainier is also the second most seismically active and the most hazardous volcano in the Cascade Range.

The park's rugged, precipitous topography consists mainly of peaks and valleys. The flanks of the mountain are drained by five major rivers and their tributaries. The mountain's summit towers 9,000 to 11,000 feet above valley floors only three to six miles away. Besides the glaciers, other water resources in the park include 470 mapped rivers and streams, 382 mapped lakes and ponds, more than 3,000 acres of wetland, numerous waterfalls, and mineral springs.

The park's vegetation is diverse, reflecting the varied climatic and environmental conditions encountered across the park's 12,800-foot elevation gradient. More than 960 vascular plant species and more than 260 nonvascular plant species have been identified in the park. Mount Rainier also provides habitat for many wildlife species, including approximately 300 species of native birds, mammals, reptiles, amphibians, and fish.





In addition to its natural wonders, the national park has a long history of human activities. The area was used by American Indians for hunting and gathering, as well as for spiritual and ceremonial purposes. In the early 1900s miners, climbers, and tourists, among others, came into the area. The establishment of the park, and subsequent planning and development for visitor use and landscape protection, constitutes an important chapter in the development of the American park idea. As a result, Mount Rainier National Park has rich and diverse cultural resources, including prehistoric and historic archeological resources, historic structures, and cultural landscapes.

Congress recognized the special nature of Mount Rainier when it established the area as a national park on March 2, 1899. It was the nation's fifth national park. In 1963, the approximately 210-acre outlying Tahoma Woods area was set aside for park and visitor support facilities. In 2004, Congress authorized an 800-acre expansion in the Carbon River area for conservation and recreation purposes. Congress also recognized the wilderness values of the park and, in 1988, designated about 97% of the park as the Mount Rainier Wilderness.

Most developed areas in the park are of national significance and are included in the comprehensive Mount Rainier National Historic Landmark District, which was designated in 1997. The Mount Rainier National Historic Landmark District sets Mount Rainier National Park apart as the best and most complete example of the conception and idea of the American national park as it was embodied and implemented through the master planning of the early 20th century.

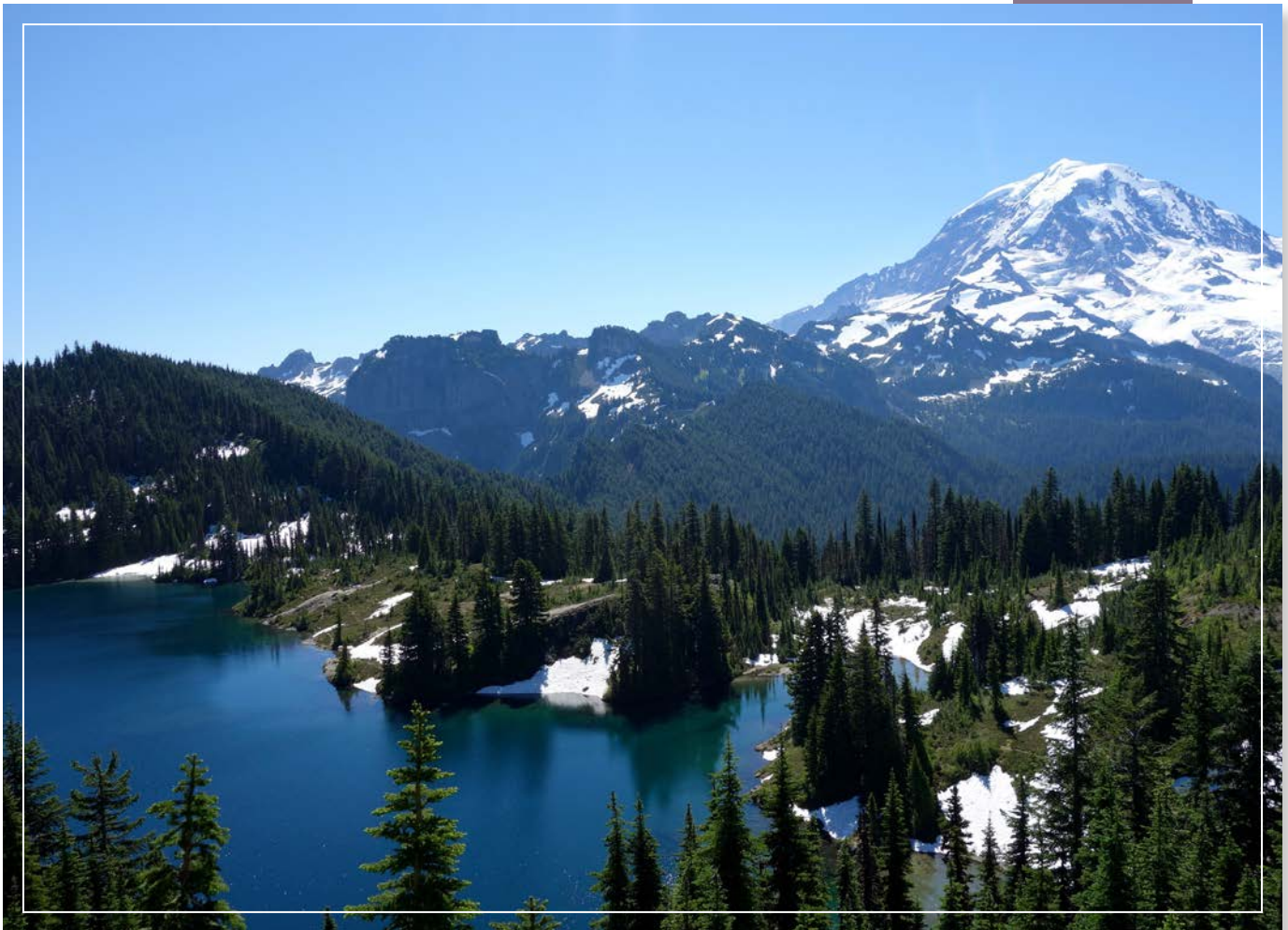
Volunteers and partnerships with public, private, and nonprofit groups for education, scientific research, and stewardship of park resources are integral to achieving the purpose of Mount Rainier National Park. The park maintains a wide variety of partnerships in support of its purpose and mission and cultivates new partnerships when appropriate and feasible.

As a large protected area that has served as a local, national, and international destination for more than 100 years, Mount Rainier National Park is integral to the economic and environmental health of the surrounding communities and the region.

Park Purpose

The purpose statement identifies the specific reason(s) for establishment of a particular park. The purpose statement for Mount Rainier National Park was drafted through a careful analysis of its enabling legislation and the legislative history that influenced its development. The park was established when the enabling legislation adopted by Congress was signed into law on March 2, 1899 (Public Law 55-377). The purpose statement lays the foundation for understanding what is most important about the park.

The purpose of MOUNT RAINIER NATIONAL PARK is to protect and preserve unimpaired the majestic icon of Mount Rainier, a glaciated volcano, along with its natural and cultural resources, values, and dynamic processes. The park provides opportunities for people to experience, understand, and care for the park environment, and also provides for wilderness experiences and sustains wilderness values.



Park Significance

Significance statements express why a park's resources and values are important enough to merit designation as a unit of the national park system. These statements are linked to the purpose of Mount Rainier National Park, and are supported by data, research, and consensus. Statements of significance describe the distinctive nature of the park and why an area is important within a global, national, regional, and systemwide context. They focus on the most important resources and values that will assist in park planning and management.

The following significance statements have been identified for Mount Rainier National Park. (Please note that the sequence of the statements does not reflect the level of significance.)

The resources of Mount Rainier National Park are nationally significant for the following reasons:

1. At a height of 14,410 feet, Mount Rainier is the highest volcanic peak in the contiguous United States, has the largest alpine glacial system in the contiguous 48 states, and the world's largest volcanic glacier cave system. Visible throughout the region, Mount Rainier shapes the physical environment, inspires the human experience, and defines the identity of the Pacific Northwest.
2. As part of the Pacific Ring of Fire, Mount Rainier is an outstanding example of Cascade volcanism. Mount Rainier's eruptions and mudflows continue to shape the area and are a continuing threat to park visitors, employees, infrastructure, and surrounding lowland communities.
3. Mount Rainier protects the headwaters of five major watersheds that originate in the park's glaciers and are an important source of water for the Puget Sound region. It reaches up into the atmosphere to disturb great tides of eastward moving Pacific maritime air, resulting in spectacular cloud formations, prodigious amounts of rain, and record-setting snowfalls.
4. Mount Rainier National Park is a vital remnant of the once widespread primeval Cascade ecosystem and provides habitat for many species representative of the region's flora and fauna. The park preserves a diverse mosaic of mid- to high-elevation ecological communities and contains outstanding examples of diverse vegetation communities and dependent organisms, ranging from old-growth forest to subalpine meadows and ancient heather.





5. Mount Rainier National Park protects more than 97% of its area as federally designated wilderness. Particularly as urban and rural development expands, the park increases in importance to the region, the nation, and the world as a large island of protected open space where ecosystem processes dominate and opportunities for wilderness recreation, including solitude, are available to a growing and diverse population.
6. Mount Rainier National Park contains an extensive archeological record demonstrating more than 9,000 years of human connection to the mountain. The resources of the park continue to provide material, spiritual, and cultural sustenance to contemporary descendent tribes, including the Muckleshoot Indian Tribe, the Puyallup Tribe of Indians, the Nisqually Indian Tribe, the Cowlitz Indian Tribe, the Squaxin Island Tribe, and the Confederated Tribes and Bands of the Yakama Nation.
7. The developed areas of Mount Rainier contain some of the nation's best examples of intact National Park Service Rustic style architecture and naturalistic landscape architecture of the 1920s and 1930s. The Mount Rainier National Historic Landmark District is considered to be the most complete and best preserved example of NPS master planning in the first half of the 20th century.
8. Mount Rainier is a living laboratory that offers opportunities for scientists and students to study and develop a deeper understanding of, as well as foster an appreciation for, the park, its resources, processes, and meanings. Because of its great elevational range and extensive glacial systems, Mount Rainier's geology, hydrology, ecological communities, and historic infrastructure are acutely sensitive to climate change impacts, offering an exceptional opportunity to observe and understand the effects of climate change and demonstrate climate change response in the national park system.
9. Mount Rainier offers recreational and educational opportunities in a wide range of scenic settings, including wildflower meadows, glaciers, and old growth forests, all in a relatively compact area that is easily accessed by a large urban population. The park's terrain and weather conditions offer world-class climbing opportunities that have tested the skills of climbers for more than a century.

Fundamental Resources and Values

Fundamental resources and values (FRVs) are those features, systems, processes, experiences, stories, scenes, sounds, smells, or other attributes determined to warrant primary consideration during planning and management processes because they are essential to achieving the purpose of the park and maintaining its significance. Fundamental resources and values are closely related to a park's legislative purpose and are more specific than significance statements.

Fundamental resources and values help focus planning and management efforts on what is truly significant about the park. One of the most important responsibilities of NPS managers is to ensure the conservation and public enjoyment of those qualities that are essential (fundamental) to achieving the purpose of the park and maintaining its significance. If fundamental resources and values are allowed to deteriorate, the park purpose and/or significance could be jeopardized.

The following fundamental resources and values have been identified for Mount Rainier National Park. (Please note that the sequence in this list does not reflect the level or order of importance.)

- Mount Rainier and its associated geologic and glacial features** – As the largest volcano in the contiguous 48 states, Mount Rainier is a towering landmark in the Pacific Northwest and contains world-class examples of glacial, volcanic, and thermal features (including horns, cirques, glacial valleys, moraines, arêtes, ice caves, fumaroles, and many others). Mount Rainier has the largest glacial system in the contiguous 48 states with 26 named glaciers. Carbon Glacier is the largest glacier by volume in the contiguous 48 states, while Emmons Glacier covers the largest area of any glacier in the contiguous 48 states. The mountain's rugged, precipitous topography consists mainly of peaks and valleys and contains approximately 470 mapped rivers and streams, about 382 mapped lakes and ponds, more than 3,000 acres of wetland, numerous waterfalls, and mineral springs.
- Dynamic landscape-scale processes** – The landscapes and features of Mount Rainier National Park are shaped by a dynamic physical environment that provides the freedom for natural processes—such as lava flows, ash eruptions, avalanches, floods, debris or mudflows, and wildland fire—to occur unimpeded while offering opportunities to observe their effects first-hand.
- Biological diversity that contributes to the integrity of the Cascade ecosystem** – Spanning three major ecological zones across a 12,800-foot elevation gradient, the park is home to a diverse assemblage of native flora and fauna—including rare, threatened, and endangered species—that reflects the varied climatic and environmental conditions encountered. The park protects relatively pristine ecosystems and supports native species, including approximately 170 species of birds, 60 mammals, 4 reptiles, 14 amphibians, and 14 fish; more than 960 vascular plant species; and more than 260 nonvascular plant species. Some of these species, such as elk and salmon, migrate across park boundaries, while others, such as the Cascade red fox and the mountain goat, use the mountain as a virtual habitat island, confined to the mid- and upper elevations of the lone volcano jutting up from the neighboring lowlands. Although biologically diverse, some species are still missing, providing opportunities for restoration and heightening the integrity of the Cascade ecosystem.
- Mount Rainier Wilderness values and experiences** – The Mount Rainier Wilderness is a functioning natural ecosystem on a large geographic scale with relatively minimal development, and it is essentially unhindered by modern human control or manipulation. Opportunities exist for visitors to experience solitude and engage in a range of remote and challenging experiences that are compatible with the values of wilderness. Tangible cultural resources in the wilderness, such as historic trails, patrol cabins, trail shelters, fire lookouts, and archeological and ethnographic resources, promote the understanding of the human use and management of wild lands prior to wilderness designation, provide for ongoing access to and support management of the Mount Rainier Wilderness, and contribute to the overall historic character of the park.



- Year-round access to a range of high-quality recreational experiences from the wild and challenging to the indoor and refined** – Mount Rainier provides year-round recreational opportunities for visitors to build connections with, understand, and care for park resources. High-quality recreational experiences range from camping, hiking, skiing/snowshoeing, wildflower viewing, stargazing, and mountaineering, to scenic driving, overnight accommodations, and dining in a grand historic park lodge, the Paradise Inn. The Wonderland Trail, Camp Muir, and the network of trails and camps associated with the upper mountain continue to support world-class climbing and mountaineering. By providing recreational opportunities in each season, the park continues to be a source of excitement, physical challenge, and spiritual renewal for visitors as well as a powerful socioeconomic presence in the surrounding communities.
- Natural sounds and dark night skies** – Natural sounds predominate in many areas of the park: they support a healthy naturally functioning ecosystem and are essential to wilderness experiences. The general absence of artificial light ensures preservation of a dark nighttime lightscape that is vital for any species and a high-quality park experience.
- Mount Rainier National Historic Landmark District** – Considered the most complete and best-preserved example of park planning and design from the early years of the National Park Service, the Mount Rainier National Historic Landmark District was established in 1997 and encompasses almost all of the roads, historic trails, historic developed areas, and backcountry structures in the park. The district includes the historic developed areas at Nisqually, Longmire, Paradise, Camp Muir, White River, and Sunrise and the roads that connect these areas. It includes features such as stone guardwalls, the Nisqually Entrance Arch, and the Christine and Narada Falls overlooks. Eleven backcountry cabins and shelters, four fire lookouts, the Wonderland Trail, and the Paradise trail network are also included. Five of the 95 historic buildings within the district are also individually listed as national historic landmarks as particularly outstanding examples of National Park Service Rustic architecture. These include the Paradise Inn, the Longmire Administration Building, Community Building and Gas Station, and the Sunrise Stockade Group. Preservation and maintenance of these features under the National Historic Preservation Act continues to support and enhance visitor enjoyment of the park.

- **Archeological record that documents more than 9,000 years of human connection with the land and sustains a living connection to the park for contemporary descendant tribes** – For thousands of years, Mount Rainier has been a symbolic landmark and an important place for Pacific Northwest Indian cultures. The park’s archeological sites, artifacts, and resources such as rock shelters, lithic scatters, hunting camps, mining sites, and cabin remains, many of which are eligible for inclusion in the National Register of Historic Places, preserve evidence of the occupation and use of the landscape spanning prehistoric and historic times. Archeological evidence extends from the lower elevation stream and river courses to subalpine and alpine settings. Ethnographic resources such as landscapes, sites, structures, objects, or natural resource features continue to foster human connections to and traditional uses of Mount Rainier for six contemporary descendant American Indian tribes, including the Muckleshoot Indian Tribe, the Puyallup Tribe of Indians, the Nisqually Indian Tribe, the Cowlitz Indian Tribe, the Squaxin Island Tribe, and the Confederated Tribes and Bands of the Yakama Nation.
- **Clean air, scenic vistas, and viewsheds** – As a Class I airshed under the Clean Air Act, unimpaired clean air allows for enjoyment of the park’s spectacular views and supports healthy ecosystems. Majestic mountain scenery and spectacular vistas are abundant within and outside the park. The visual landscape and its components provide a look and feel that is relatively unchanged from the park’s early years and contribute to an emotional connection for visitors along with the timelessness of Mount Rainier as a traditional national park.
- **Opportunities to understand Mount Rainier’s resources and heritage** – The park provides a diverse array of opportunities to understand the stories of Mount Rainier and its surrounding landscapes. Interpretive and educational facilities, exhibits, and programs, as well as the park’s collections, convey important information and stories about the park’s natural and cultural heritage. These resources allow visitors to understand and feel the significance of Mount Rainier and contribute to the continued relevance of the park and other units of the national park system within national and international contexts.



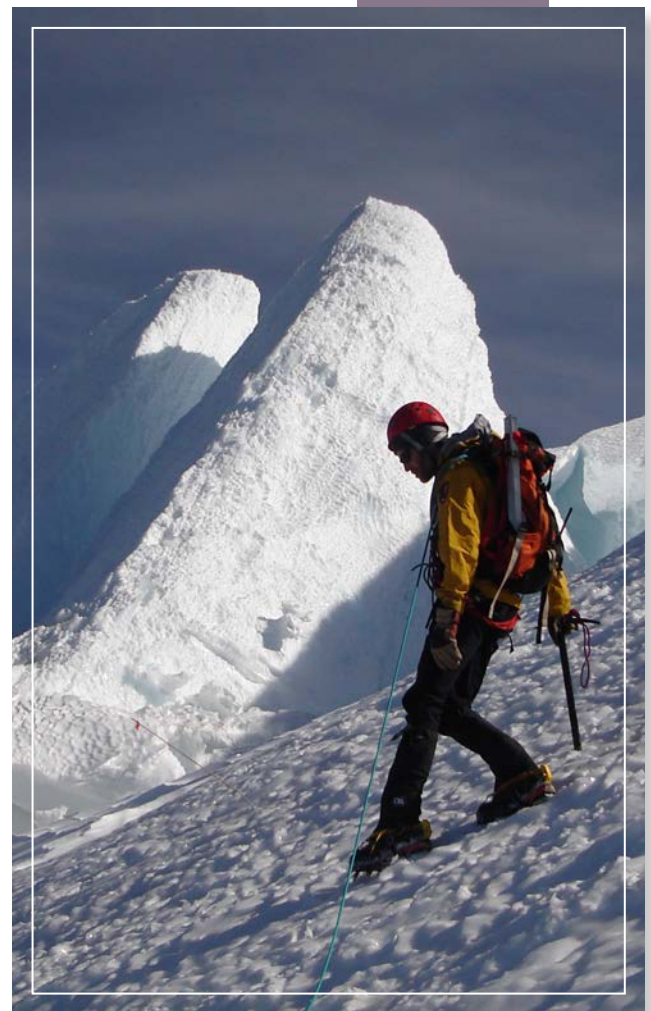
- **Opportunities for first-hand observation, scientific research, and learning** – Mount Rainier is an ideal laboratory to study how biological communities and humans have adapted to changing conditions. The Butter Creek Research Natural Area, set aside and managed exclusively for approved nonmanipulative research, and the Mount Rainier Wilderness offer innumerable opportunities for ecological research on the communities, plants, and animals of subalpine regions in the Cascade Range. The size of the research natural area makes it suitable for many types of research activities not possible in smaller tracts.
- **Curatorial collections** – The park’s museum and archival collections include biological and geological specimens, prehistoric and historic artifacts, historic images, and archival materials. Access to these materials enhances our body of knowledge and understanding of change in a dynamic environment.

Other Important Resources and Values

Mount Rainier National Park contains other resources and values that are not fundamental to the purpose of the park and may be unrelated to its significance, but are important to consider in planning processes. These are referred to as “other important resources and values” (OIRV). These resources and values have been selected because they are important in the operation and management of the park and warrant special consideration in park planning.

The following other important resources and values have been identified for Mount Rainier National Park:

- **Heritage of climbing and mountaineering on Mount Rainier** – The challenge of Mount Rainier and its extensive glacial system continues to make it a signature destination for mountaineers throughout the world and supports a legacy of climbing and mountaineering. Its steep, unstable rock and heavily crevassed glaciers, coupled with sudden devastating storms, demand that climbers be conditioned and well equipped and know mountain travel and survival techniques. Guiding services have historically enabled access to the mountain for thousands of visitors every year, and in continuing to teach valuable mountaineering skills, they create new generations of climbers and mountaineers.
- **Mount Rainier’s place in the development and legacy of the national park system** – As the fifth national park in the United States, and a park that predates the existence of the National Park Service as an agency, Mount Rainier is among a small handful of sites where one can witness the entire history of the National Park Service. The development decisions made at Mount Rainier represent specific intentions in park planning and the resulting infrastructure and designed experience allows visitors to connect to the significance of Mount Rainier in the history and development of the national park system.
- **Opportunities to understand the effects of climate change** – The park provides compelling opportunities for first-hand observation and understanding of the effects of climate change on natural and cultural resources and park infrastructure.



Interpretive Themes

Interpretive themes are often described as the key stories or concepts that visitors should understand after visiting a park—they define the most important ideas or concepts communicated to visitors about a park unit. Themes are derived from, and should reflect, park purpose, significance, resources, and values. The set of interpretive themes is complete when it provides the structure necessary for park staff to develop opportunities for visitors to explore and relate to all park significance statements and fundamental and other important resources and values.

Interpretive themes are an organizational tool that reveal and clarify meaning, concepts, contexts, and values represented by park resources. Sound themes are accurate and reflect current scholarship and science. They encourage exploration of the context in which events or natural processes occurred and the effects of those events and processes. Interpretive themes go beyond a mere description of the event or process to foster multiple opportunities to experience and consider the park and its resources. These themes help explain why a park story is relevant to people who may otherwise be unaware of connections they have to an event, time, or place associated with the park.

The following interpretive themes have been identified for Mount Rainier National Park:

- **Primacy of the Mountain:** Whether visible or shrouded in clouds, Mount Rainier is there, a powerful natural and spiritual force influencing natural processes as well as all forms of life on and below its snow-covered summit.

Subthemes

- Mount Rainier is the obvious and undeniable center of the park’s story. Whether focused on superlatives of size, beauty, and iconic impact, or on the details of wildflower blossoms, delicate snowflakes, tiny animals, or ancient arrow points, interpretation begins with stories of the mountain. As the park’s significance statements demonstrate, the story of the mountain is multifaceted and rich with detail, yet connected and interrelated.



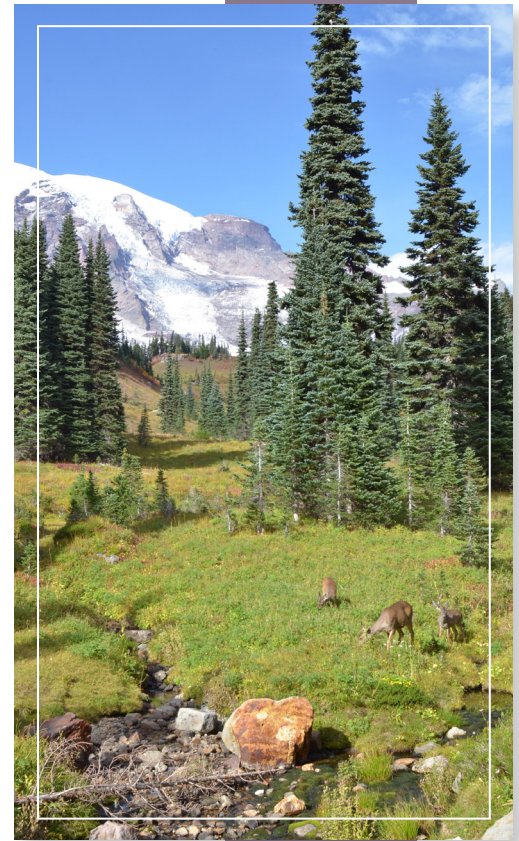
- **Physical Processes:** Mount Rainier is created by volcanism and transformed by water and ice in dynamic processes that may impact individual organisms or whole ecosystems.

Subthemes

- Mount Rainier is an active volcano that shapes the landscape and influences processes both within and beyond the park boundary. Mount Rainier is a product of past and continuing volcanic forces. The mountain's constructive and destructive forces pose significant hazards to human and natural communities and cultural resources in and around the park.
 - Water is one of the primary forces of change at Mount Rainier. The abundance of surface water and loose rock debris makes Mount Rainier an ideal setting for the initiation of lahars and debris flows. Numerous large floods and debris flows have occurred on the slopes of Mount Rainier throughout its history. Hydrological disturbances are a perpetual force of change to Mount Rainier's ecosystems.
 - Mount Rainier distinguishes itself from other Cascade volcanoes by its immense size and extensive glacial system. Mount Rainier's glaciers are dynamic forces of change to the mountain's form and appearance. The unique attributes of glacier-fed rivers produce distinctive landscapes and ecosystems. Glaciers are continuous sources of water for downstream communities and ecosystems. Changes in glacier size can demonstrate dramatic and discernible responses to significant climate variations.
 - Mount Rainier influences the climate of landscapes and ecosystems within and beyond the park boundary. Mount Rainier is an impediment to eastbound weather systems, and forces moisture to rise, cool, and fall as precipitation. Mount Rainier's presence increases precipitation in some localities and blocks it in others, causing distinctive microclimates and ecosystems. Long-term climate change can cause continual transformation of Mount Rainier's structure, glaciers, rivers, and other ecosystem components.
- **Ecosystems:** Mount Rainier creates and supports a diverse ecosystem that ranges from snowfields and glaciers to alpine tundra and low elevation forest.

Subthemes

- Although vulnerable to human-caused damage, the plants and animals in alpine and subalpine communities are well adapted to meet the challenges posed by harsh environmental conditions.
- Mount Rainier's old-growth forests support a rich diversity of flora and fauna, comprising one of the densest biomasses on Earth. The prime stands of old-growth forests on Mount Rainier's lower slopes are a valuable remnant of those once occupying much of the Pacific Northwest.
- National parks in the Pacific Northwest have become islands of essential habitat for myriad species.
- External influences such as atmospheric, light, and noise pollution; global climate change; land management practices and invasive nonnative plant species respect no boundaries, and directly affect park resources and values.
- Called by some American Indian groups "the place where rivers begin," Mount Rainier's watersheds nourish plant and animal communities in the park, extend to the valleys below, and support regional populations.



- **Human Cultures:** There is a long and varied history of human interaction with the mountain. Mount Rainier has always shaped the lives and character of the area's human inhabitants.

Subthemes

- For thousands of years, Mount Rainier has been symbolic and an important place for Pacific Northwest Indian cultures. Ethnographic resources such as landscapes, sites, structures, objects, or natural resource features continue to foster human connections to and traditional uses of Mount Rainier for six contemporary descendant American Indian tribes, including the Muckleshoot Indian Tribe, the Puyallup Tribe of Indians, the Nisqually Indian Tribe, the Cowlitz Indian Tribe, the Squaxin Island Tribe, and the Confederated Tribes and Bands of the Yakama Nation.
- As European American explorers, pioneers, and settlers moved into the surrounding region, many were drawn by the beauty, challenges, and opportunities the mountain afforded. Concern for the mountain's future ultimately led to the establishment of Mount Rainier as a national park.
- Throughout its history, the mountain has provided hiking, skiing, climbing, and sightseeing opportunities.
- Visible throughout the region, Mount Rainier is a prominent icon that shapes the physical environment and human experience in the Pacific Northwest. It provides boundless opportunities for awe, inspiration, contemplation, exploration, challenge, and solitude.



- **Stewardship:** The mountain inspires stewardship. People have contributed to the protection of its natural and cultural resources in a variety of ways, from advocating for its legal protection to volunteerism.

Subthemes

- Mount Rainier's natural and cultural resources have been protected through an array of legislation over time. The diverse designations demonstrate the importance of both government and individual actions in resource stewardship.
- Mount Rainier's pristine wilderness has ecological, social, scientific, educational, recreational, and cultural value. That value increases exponentially as areas outside the park are developed and open space is lost. By law, Mount Rainier Wilderness is managed to retain its primeval character. The park's management of natural resources over the past century mirrors American society's changing understanding and appreciation of wilderness values. The survival of the park's wilderness depends on individual and societal commitment to the idea of wilderness, a stewardship ethic, and appropriate visitor behavior in wilderness areas.
- Using local materials and designs to harmonize with the natural setting, some of Mount Rainier National Park's architecture exemplifies the best of the National Park Service Rustic style. Park buildings, along with roads, trails, and bridges, now comprise the Mount Rainier National Historic Landmark District, which represents the best of early national park planning.
- Preservation and study of Mount Rainier's ecosystems lead to public understanding of natural forces affecting the Pacific Northwest, the nation, and the world. Mount Rainier, with its mantle of glaciers, subalpine meadows, and alpine communities is an ideal laboratory to study the effects of climate change. The mountain can serve as an icon to impart an understanding of the dimensions of this issue and inspire people to take action to address it.
- Mount Rainier provides innumerable ways for people to build connections and discover personal meanings, thereby creating an engaged community of potential stewards.
- Volunteering in the park fosters rich personal connections with the park and strengthens the public's understanding of and support for the National Park Service mission.



Part 2: Dynamic Components

The dynamic components of a foundation document include special mandates and administrative commitments and an assessment of planning and data needs. These components are dynamic because they will change over time. New special mandates can be established and new administrative commitments made. As conditions and trends of fundamental resources and values change over time, the analysis of planning and data needs will need to be revisited and revised, along with key issues. Therefore, this part of the foundation document will be updated accordingly.

Special Mandates and Administrative Commitments

Many management decisions for a park unit are directed or influenced by special mandates and administrative commitments with other federal agencies, state and local governments, utility companies, partnering organizations, and other entities. Special mandates are requirements specific to a park that must be fulfilled. Mandates can be expressed in enabling legislation, in separate legislation following the establishment of the park, or through a judicial process. They may expand on park purpose or introduce elements unrelated to the purpose of the park. Administrative commitments are, in general, agreements that have been reached through formal, documented processes, often through memorandums of agreement. Examples include easements, rights-of-way, arrangements for emergency service responses, etc. Special mandates and administrative commitments can support, in many cases, a network of partnerships that help fulfill the objectives of the park and facilitate working relationships with other organizations. They are an essential component of managing and planning for Mount Rainier National Park. For more information about existing special mandates and administrative commitments for Mount Rainier National Park, please see appendix B.

Assessment of Planning and Data Needs

Once the core components of part 1 of the foundation document have been identified, it is important to gather and evaluate existing information about the park's fundamental and other important resources and values, and develop a full assessment of the park's planning and data needs. The assessment of planning and data needs section presents planning issues, the planning projects that will address these issues, and the associated information requirements for planning, such as resource inventories and data collection, including GIS data.

There are three sections in the assessment of planning and data needs:

1. analysis of fundamental and other important resources and values (see appendix C)
2. identification of key issues and associated planning and data needs
3. identification of planning and data needs (including spatial mapping activities or GIS maps)

The analysis of fundamental and other important resources and values and identification of key issues leads up to and supports the identification of planning and data collection needs.

Analysis of Fundamental Resources and Values

The fundamental resource or value analysis table includes current conditions, potential threats and opportunities, planning and data needs, and selected laws and NPS policies related to management of the identified resource or value. Please see appendix C for the analysis of fundamental resources and values.

Identification of Key Issues and Associated Planning and Data Needs

This section considers key issues to be addressed in planning and management and therefore takes a broader view over the primary focus of part 1. A key issue focuses on a question that is important for a park. Key issues often raise questions regarding park purpose and significance and fundamental and other important resources and values. For example, a key issue may pertain to the potential for a fundamental or other important resource or value in a park to be detrimentally affected by discretionary management decisions. A key issue may also address crucial questions that are not directly related to purpose and significance, but which still affect them indirectly. Usually, a key issue is one that a future planning effort or data collection needs to address and requires a decision by NPS managers.

The following are key issues for Mount Rainier National Park and the associated planning and data needs to address them:

- **Strategic Priority Setting**– Mount Rainier is challenged to provide for resource protection and visitor enjoyment at the same levels it has historically sustained due to diminishing financial and human resource capacities. Park management needs to prioritize strategies and funding allocations in this constrained financial environment for park operation, the protection and monitoring of resources, visitor services, facility maintenance, employee support, and the development of needed programs for youth, education, and stewardship. Although the park has conducted a number of planning efforts, no one plan at the park provides a comprehensive approach for setting strategic priorities across programs for the immediate future. Several plans exist for managing resources, but these can conflict with other guidance, resulting in a lack of clear direction. Some park plans are outdated and need evaluation to determine if new guidance is necessary. At this time, management priorities do not reflect current or projected funding and staffing levels or partnership opportunities.

Associated plans and/or data needs include:

- Strategic operations plan
- Park asset management plan
- **Public Safety and Emergency Response** – Employees and visitors face many risks at Mount Rainier that can result in serious injury or death. The remote and rugged nature of Mount Rainier’s environment, its relatively close proximity to a large urban population, and the diversity and complexity of work performed by employees combine to exacerbate risk factors. Geohazards and floods are potential threats to people and infrastructure. Cell phone coverage is unavailable in most of the park, and other radio, information technology, and phone communication systems are out of date and subject to power outages, making it difficult for visitors or responders to communicate during emergencies. Budget pressures and changing program requirements impact staffing and emergency response capabilities. A recent accomplishment under this key issue is the completion of a Mount Rainier search and rescue plan.

Associated plans and/or data needs include:

- Strategic operations plan
- Emergency response plan and/or continuity of operations plan
- Telecommunication infrastructure plan
- Updated structure fire plan

- **Vulnerability and Maintenance of Infrastructure** – Mount Rainier’s infrastructure is aging and is increasingly vulnerable to flooding and other environmental hazards. Extreme weather and snowfall conditions, geohazards, and aggrading stream beds—all of which are exacerbated by the effects of global climate change—present challenges to sustain operations, access, and services. A number of roads, bridges, and facilities at the park are closed because of and/or are susceptible to flood events, affecting overall access to the park, including closure of both of the park’s year-round campgrounds.

Substantial funding is required to maintain park infrastructure. Historic park structures are in need of rehabilitation but funding is inadequate to meet the need, resulting in a significant maintenance backlog and a risk to the park’s entire historic infrastructure.

Associated plans and/or data needs include:

- Strategic operations plan
- Park asset management plan

- **Site-Specific Management Guidance** – The park manages numerous development “zones” spread over a large geographic area, and these areas face differing issues that require implementation-level guidance and management direction. In some areas, existing facility design does not reflect current visitor uses or operational needs. Additionally, the park recently acquired approximately 800 acres of new lands along the Carbon River within the authorized boundary expansion, and there is currently no guidance in place to direct management of this area.

Associated plans and/or data needs include:

- Strategic operations plan
- Development concept plans for Carbon River boundary expansion and Mowich Lake
- Westside Road access management plan
- Development concept plan for Paradise and Cougar Rock picnic areas
- Paradise/Nisqually corridor visitor experience planning

- **Transportation and Congestion** – Vehicle congestion during peak visitation persists, particularly at Paradise and Sunrise on weekends between mid-July and mid-September. Congestion adversely affects specific areas while influencing circulation parkwide and it is closely tied to visitor capacity and resource impact issues. Transportation strategies that meet the needs of different areas of the park, yet consider congestion parkwide, are needed.

Associated plans and/or data needs include:

- Paradise/Nisqually Corridor visitor experience planning
- Westside Road access management plan
- Development concept plan for Paradise and Cougar Rock picnic areas

- **Winter Recreation Management** – Managing winter recreation and access, particularly sustaining winter operations at Paradise, is difficult and costly, especially in light of current fiscal conditions. The 2001 general management plan (GMP) supports continuation of a managed sledding site at Paradise, referred to as the Snow Play, but the GMP recommendation may not align now with financial projections for the near future. Maintaining this historical use at the same level as previous years may not be the best use of funding, given present allocations. Additionally, concerns exist about adverse impacts on resources caused by snow play at its current level.

Associated plans and/or data needs include:

- Strategic operations plan
- Paradise/Nisqually Corridor visitor experience planning

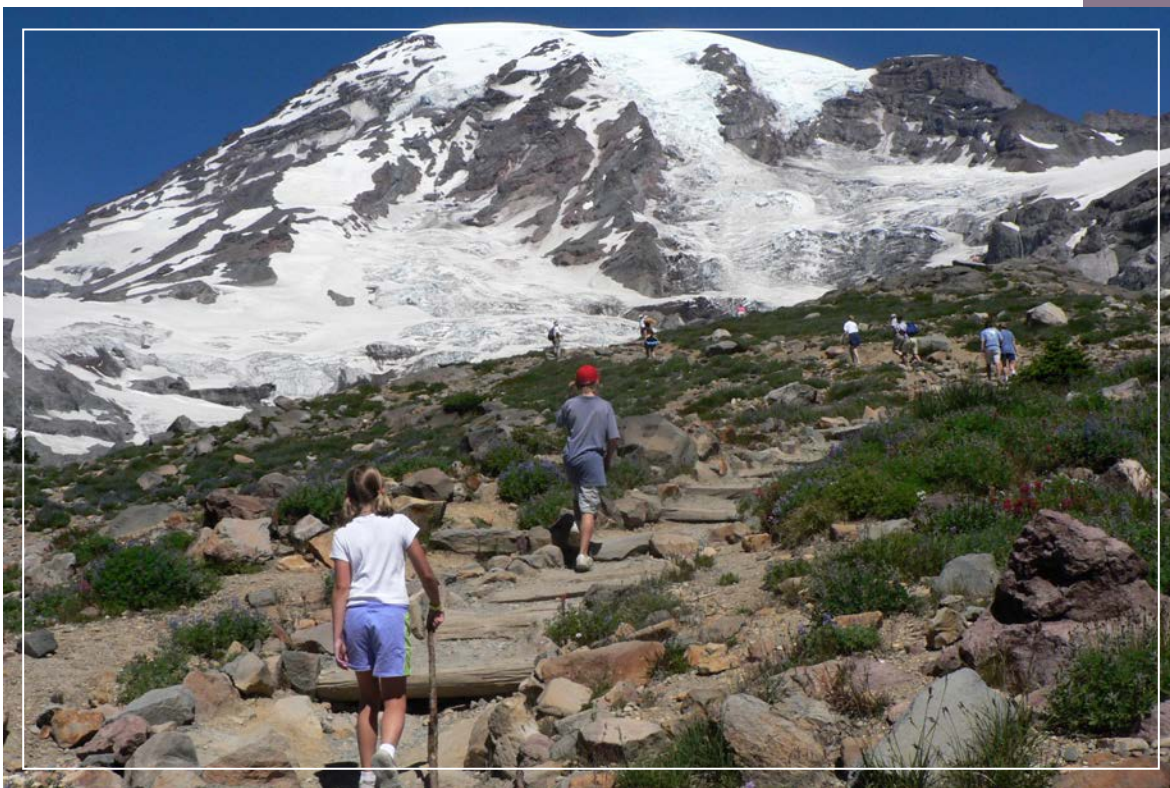
- **Wilderness Management Guidance** – The Mount Rainier Wilderness includes more than 97% of the total park acreage. Since the last wilderness management plan was completed in 1992, visitation and demand for recreation from the general public, groups, and commercial entities have increased. New and expanded development adjacent and in close proximity to the Mount Rainier Wilderness brings increased recreation pressure and new potential threats to qualities of wilderness character. The park’s wilderness guidance does not address some of these current management challenges for the Mount Rainier Wilderness. As climbing and other recreation on the mountain increase in popularity, there is a need to look at a range of visitor management issues, including backcountry access and carrying capacity on the mountain, address administrative uses in a consistent manner, and evaluate potential threats from external sources.

Associated plans and/or data needs include:

- Wilderness stewardship plan
- **Climate Change** – Changing climate portends profound changes to natural cycles and systems, with related impacts on natural and cultural resources, access, historic infrastructure, and environmental conditions. Resources such as fish, amphibians, wetlands, small ponds and lakes, headwater streams, glaciers, vegetation, and wildland fire are all impacted by climate change, as are natural processes and functioning ecosystems. The park does not have a complete understanding of potential climate change effects on vulnerable natural resources and processes and has not developed a prioritized set of proposals to fill data gaps or a set of strategies to address potential impacts on the park’s natural and cultural resources, including historic park infrastructure.

Associated plans and/or data needs include:

- Research and monitoring plan
- Resource stewardship strategy



Other Important Issues

In addition to the key issues described above, several other important park issues were identified:

- **Cultural Resource Protection**– Meeting the needs for documentation and management of cultural resources with existing funding and staffing levels is a continuing challenge. The park needs to develop a plan to manage park collections consistent with NPS standards and guidance in existing plans.
- **Historic Vista Restoration**– Historic vistas in the park have become overgrown, obscuring key viewsheds and affecting contributing features of the park’s cultural landscape. Restoration of vistas preserves the historic managed landscape, enhances visitor enjoyment, and serves an interpretive function in demonstrating park history.
- **Rehabilitation of Paradise Inn Annex**– The Paradise Inn Annex is in need of rehabilitation. Most of the park’s overnight lodging is contained within the annex, thus future plans for the facility will have an impact on the visitor experience, and the viability of the continued concession contract for lodging services. Plans are currently in place to rehabilitate the annex and the work is programmed for 2019–2020.
- **Reduce Energy Use of Historic Buildings**– Historic buildings in the park are often inefficient energy consumers and rely significantly on outside power sources. Energy-efficient upgrades could combine reduced energy use with renewable energy systems when feasible.
- **Upgrades to Water and Wastewater Systems**– The facilities for water and wastewater management are outdated and over-taxed. Mount Rainier National Park has 10 different water systems that treat surface water, and there is a desire to convert 4 systems from a “blue” status to a higher quality “green” status permit, but capital improvements are needed to do so. The park’s wastewater systems are also in need of upgrades and improvements in technology.
- **Document Best Management Practices for Maintenance of Park Infrastructure**– Documentation of environmental impacts of maintenance activities are either outdated or in modern plans intended for discrete projects or contracts. The park needs to update documentation and adopt standards consistent with other agencies that will improve protection of resources including water quality, fisheries, sensitive roadside resources, and historic and nonhistoric infrastructure, and that adapts to changing conditions within a dynamic environment.

Planning and Data Needs

To maintain connection to the core elements of the foundation and the importance of these core foundation elements, the planning and data needs listed here are directly related to protecting fundamental resources and values, park significance, and park purpose, as well as addressing key issues. To successfully undertake a planning effort, information from sources such as inventories, studies, research activities, and analyses may be required to provide adequate knowledge of park resources and visitor information. Such information sources have been identified as data needs. Geospatial mapping tasks and products are included in data needs.

Items considered of the utmost importance were identified as high priority, and other items identified, but not rising to the level of high priority, were listed as either medium- or low-priority needs. These priorities inform park management efforts to secure funding and support for planning projects.

Criteria and Considerations for Prioritization

The following criteria were used to evaluate the priority of each planning or data need:

- Greatest utility to park management.
- Ability to address multiple issues; many issues are interrelated. For example, many visitor capacity issues are interrelated with resource protection issues.
- Emergency/urgency of the issue.
- Prevent resource degradation.
- Plans that consider protection of the fundamental resources and values.
- Result in a significant benefit for visitors.
- Feasibility of completing the plan or study, including staffing support and funding availability.
- Opportunities, including interagency partnership or assistance.

High Priority Planning Needs

Strategic Operations Plan

Rationale — The park needs to define operational goals and priorities to provide direction for allocating funding and resources to the best effect given the projected financial climate for approximately the next three to five years. Fiscal projections show that there are insufficient resources to staff and operate the park, protect and monitor resources, serve visitors, maintain facilities, support employees, and develop needed programs for youth, education, and stewardship at the same levels maintained in the past. The plan would provide the park with a consistent decision-making framework to share with both internal and external audiences.

Scope — Although a variety of strategic planning efforts are currently being explored, Mount Rainier National Park would like to see the following elements included in the strategic operations plan:

- An introduction articulating long-term goals for the park and illustrating Mount Rainier’s fundamental commitment to the NPS mission, even though the park may be limited in achieving all these goals in the immediate future.
- Definition of broader strategic goals and parameters for visitor use and resource stewardship that would help guide operations from year to year over the next three to five years.
- Area action plans that identify key goals for each geographic quadrant or development “zone” the park is managing and can be accomplished in the next three to five years, providing direction for the core work and priorities for each division in each geographic area.
- Consideration of winter operations versus summer operations in each geographic area.
- Other issues and opportunities, such as outreach outside the park to engage new audiences, decisions to staff areas outside the park, and opportunities for new partnerships and funding strategies.
- Create a strategic operations plan structure that can be updated in a timely manner when the first three- to five-year operational period is nearing completion.

Park Asset Management Plan

Rationale — The park infrastructure is aging and preventative maintenance funding has been inadequate, resulting in a significant maintenance backlog. The park is reaching a crisis point of not being able to sustain its historic infrastructure. In addition, the design of many facilities does not reflect current visitor uses or operational needs. Concerns about facility maintenance are exacerbated by the infrastructure’s location and vulnerability to flooding and environmental damage. The park asset management plan can provide information that would help guide future decisions about preservation, maintenance, and adaptive reuse of park infrastructure.

Scope — The park is in need of a traditional park asset management plan; however, given concerns about infrastructure vulnerability, it would be useful to integrate and capture some information about asset risks and vulnerabilities in the park asset management plan, potentially by adopting a model such as the North Cascadia Adaptation Partnership.

Wilderness Stewardship Plan

Rationale — Since the last wilderness management plan was completed in 1992, visitation and demand for access to the wilderness from the general public, groups, and commercial entities has increased. Although some issues are addressed through smaller plans and associated National Environmental Policy Act (NEPA) documents such as the Camp Muir rehabilitation plan, the hazard tree management plan, the fire management plan, and smaller planning efforts, the park does not have a comprehensive plan that addresses wilderness stewardship, meets current wilderness planning standards, and provides direction on additional issues and threats facing the Mount Rainier Wilderness. The park needs a current plan to guide day use and overnight use, as well as administrative activities, in the Mount Rainier Wilderness, which comprises more than 97% of the park.

Scope — In addition to developing a wilderness character narrative and the more recent wilderness stewardship planning framework, the scope of a wilderness stewardship plan for the Mount Rainier Wilderness should include the following elements:

- Basics for wilderness stewardship.
- Evaluation and prioritization of the management zones and indicators and standards previously developed for user capacity in the Mount Rainier Wilderness.
- Revision of overall use limits within each zone and backcountry camp based on these indicators and standards.
- Identification of strategies for managing day and overnight use within the Mount Rainier Wilderness to respond to user capacity issues and ensure resource and wilderness protection.
- Evaluation of the feasibility of and requirements for implementing a comprehensive wilderness camping fee program.
- Determination on the extent to which commercial services are necessary in wilderness.
- Clarification of the decision-making process for and documentation of impacts from various administrative uses in the Mount Rainier Wilderness.
- Analysis of alternatives for managing water supply systems located in wilderness.
- Development of management goals, indicators, and standards for acoustic and photic resources in wilderness.

Paradise/Nisqually Corridor Visitor Experience Planning

Rationale — Transportation and traffic management are needed to manage congestion at parking areas, entrance stations, and trailheads during peak summer days, particularly at Paradise and Sunrise. During the summer months, approximately 55% of visitors enter the park at the Nisqually Entrance and approximately 70% of all park visitors stop at Paradise while in the park. On the busiest summer weekend days, the parking capacity at Paradise is exceeded by more than 300 vehicles that overflow and park far down the Paradise Valley Road. The park is considering actions that would improve safety, provide a better visitor experience, and protect resources, such as eliminating overflow parking.

While there is a need to look at the congestion holistically, different transportation strategies need to be developed that meet the needs of different areas of the park (e.g., what works at Paradise with a shuttle might not work at Sunrise). Because the Nisqually corridor and Paradise are the most heavily visited portions of the park with a significantly high percentage of day use visitors, and a number of visitor use/transportation studies for this area are nearing completion that would help integrate transportation planning with user capacity, implementation planning should begin in this area of the park while information and data gathered from recent studies is current and relevant.

Scope — This project would use recent transportation and visitor use study recommendations to eliminate overflow parking on the Paradise Valley Road, and through management of parking and transportation, establish a carrying capacity for the Paradise area. Options would be evaluated to mitigate the impact of closing overflow parking at Paradise and to better disperse visitor use within the park on the busiest days of summer. Mitigation options could include providing real-time information to visitors on parking availability and alternative destinations, development of additional parking capacity within the Paradise picnic area, more effective use and intensive management of existing parking, and the potential use of shuttle service within the Paradise area and Nisqually Road corridor.

The product would be a transportation and visitor use management plan for Paradise and the Nisqually Road Corridor. Public involvement would be an essential aspect of this planning effort.



Development Concept Plan for Paradise and Cougar Rock Picnic Areas

Rationale — Transportation and visitor use management studies have recommended reconfiguration of the Paradise picnic area to accommodate overflow visitor parking, and the Cougar Rock picnic area as a shuttle stop within the Nisqually Road Corridor. Developing parking in the underused picnic area at Paradise would be an important step to accommodate some of the vehicles that would be displaced by closure of the Paradise Valley Road to overflow parking. Both picnic areas would need to be redesigned to accommodate the needs of an integrated transportation system, while still supporting picnicking opportunities. In addition, design standards are needed to upgrade other picnic areas and campgrounds in the park that aren't adequately serving the public and/or are in need of rehabilitation.

Scope — Develop alternatives to support parking, picnicking, and a Paradise circulator shuttle system for the Paradise picnic area, as well as a potential shuttle staging area at Cougar Rock picnic and parking area. The plan would prepare a schematic design and would consider visitor experience, circulation—including both vehicular access and pedestrian access between the picnic area and Paradise via a new trail—signage needs, and resource protection measures. This project would also develop design and material standards for the rehabilitation of Cougar Rock Campground that could also apply to the park's other historic campgrounds and picnic areas.



Westside Road Access Management Plan

Rationale — The Westside Road departs from the Nisqually Road Corridor less than 1 mile east of the Nisqually Entrance. While approximately 10 miles of this road was open to vehicle traffic for years, repeated flood events led to the closure of the road to public vehicle access in 1989. The park retains limited administrative access, but visitor vehicle traffic is limited to the first 3 miles only. The Westside Road, above the damaged section along Tahoma Creek, provides access to several previously very popular trailheads and exceptional historic stonework. Renewed summer vehicle access, if proven safe and feasible, could help disperse visitor use within the Nisqually Road corridor and enable more people to enjoy this area of the park.

Scope — The park needs to evaluate the feasibility of reopening the Westside Road to motorized public access via shuttle or private vehicle beyond Dry Creek. The evaluation would include an assessment of geohazards, public safety, facility needs, and environmental impacts.

Development Concept Plans for Carbon River Boundary Expansion and Mowich Lake

Rationale — There are three distinct areas that are components of the overall Carbon River part of the park: Mowich Lake, the boundary expansion lands, and the corridor from the historic Carbon River entrance to Ipsut Creek Campground. Mount Rainier National Park needs more specific implementation-level direction for the development and management of the Carbon River boundary expansion lands (approximately 800 acres) that were recently acquired by the National Park Service and added to the park (e.g., the Marsh and Thompson properties). The planning team assembled to complete this work could also complete a draft development concept plan that was previously initiated for Mowich Lake but never completed. Together, these two areas represent a significant portion of the visitor experience in the Carbon River area, and an efficiency would be achieved by completing these two development concept plans through a single planning effort.

Scope — The development concept plan for the boundary expansion lands should provide implementation / site plan recommendations for the newly acquired land, including visitor and operational activities and facilities (ranger station, entrance, maintenance area, trails, campground, and other day use facilities), and should include interpretive planning components. Field natural and cultural resources inventories and determination of eligibility for the National Register of Historic Places should also be completed. This project also provides an opportunity to demonstrate watershed management planning, and the plan could include restoration opportunities as well as site development.

The development concept plan for Mowich Lake is in draft form and needs to be updated and completed as part of this effort (PMIS # 158187). These two development concept plans should also consider existing guidance for visitor services and resource protection contained in the recently completed “Finding of No Significant Impact / Carbon River Access Management Environmental Assessment: Mount Rainier National Park” (2011) to ensure a compatible visitor experience and appropriate level of development.



Resource Stewardship Strategy

Rationale — The park manages a diverse array of natural and cultural resources that are fundamental to the purpose of the park. The status of planning for natural and cultural resources varies and many topic-specific plans are either outdated or incomplete. There is no singular document that provides comprehensive resource management guidance for the park beyond the broad, qualitative direction provided in the general management plan. In order for Mount Rainier National Park to fulfill its commitment to managing its natural and cultural resources to their desired conditions, additional guidance is needed to link broad direction with everyday management of natural and cultural resources and help the park identify how financial and human resources should be allocated for resource stewardship.

Scope — The resource stewardship strategy for Mount Rainier would evaluate and summarize the current conditions and trends of high-priority park resources and values; establish scientifically and scholarly based strategies, activities, and projects to achieve protection of those resources; and determine measurable targets for success. The resource stewardship strategy could include or integrate some aspects of climate change scenario planning to help the park think through how climate change may affect or impact resource management and set priorities for vulnerable resources and/or resources that are most at risk.

High Priority Data Needs

Research and Monitoring Plan

Rationale — Given the volume of data needs identified by the park, the prioritization of data needs will be completed in a separate research and monitoring planning process that engages appropriate participants. The park has many goals and responsibilities for research and monitoring related to natural and cultural resources; however, these projects need to be prioritized in light of current financial and human resources and partnership opportunities. Continued research and monitoring would provide important information for managing these resources and increase understanding of climate change effects on vulnerable natural resources and processes in the park. Changing climate portends profound changes to natural cycles and systems, with related impacts on access, infrastructure, and environmental conditions. Resources such as fish, amphibians, wetlands and small ponds and lakes, headwater streams, glaciers, vegetation, acoustics, night skies, and wildland fire are all impacted by climate change, as are natural processes and functioning ecosystems. The park needs to establish priorities for research and monitoring.

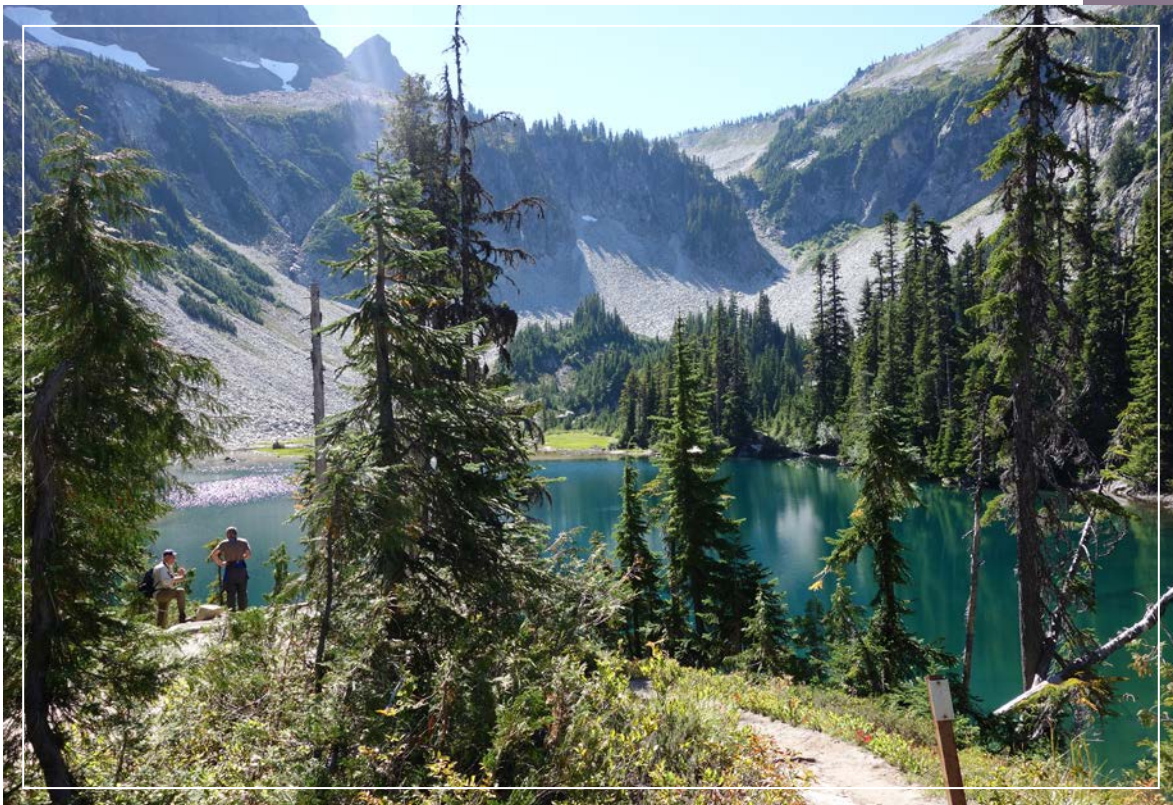
Scope — The park has completed a significant portion of this work in preparation for the assessment of planning needs portion of the foundation workshop, which included inventorying all the research and data needs that have been identified for natural and cultural resources through a variety of plans and efforts, and assigning some initial priorities (high, medium, low) to these efforts. The next step would be to look at how to phase in the highest priorities based on other park goals, which probably could be accomplished with internal park staff as part of annual work planning. The park needs to review the recently completed natural resource condition assessment recommendations, North Coast and Cascade Network Inventory and Monitoring program protocols, and may want to consult with other regional staff for advice or review.

Best Management Practices for Routine Maintenance of Park Infrastructure

Rationale — Park resources would benefit from the adoption of parkwide best management practices and standards and guidelines designed to protect park resources including roads, trails, and campgrounds, as well as the landscape and sensitive aquatic and terrestrial resources surrounding them.

Scope — Much work has been accomplished toward the development of best management practices. The next step would be to finalize them formally through the NEPA process, and then complete a parkwide Endangered Species Act consultation that evaluates impacts of park activities on federally listed species. This work would need to be supported by resource data and information that not only describes the environment, but predicts and quantifies environmental impacts.

Summary of High-Priority Planning and Data Needs
Strategic operations plan
Park asset management plan
Wilderness stewardship plan
Paradise/Nisqually corridor visitor experience planning
Development concept plan for Paradise and Cougar Rock picnic areas
Westside Road access management plan
Development concept plans for Carbon River boundary expansion, Mowich Lake, and Tipsoo Lake
Resource stewardship strategy
Research and monitoring plan (data)
Best management practices for roads and trails (data)



Other Planning and Data Needs		
Planning or Data Needs	Priority (M, L)	Notes
Facilities and Infrastructure		
Plans		
Vulnerability/risk assessment	M	In addition to facilities, also need to increase understanding of climate change effects on vulnerable natural resources/processes
Access/flood protection planning	M	
Watershed analysis and restoration	M	Road-related water quality issues; watershed planning; culvert upgrades and decommissioning; evaluate roads and infrastructure and assess risk of roads and infrastructure within given watersheds, e.g., Westside Road
Structural fire plan	M	Infrastructure at risk from fire (existing plan needs update)
Trail management plan	M	Guidance needed for maintaining trails; not the same trails or standards as in the past; need public communication element
Wastewater management plan	M	Facilities for water systems, including wastewater management, are outdated and over-taxed
Americans with Disabilities Act (ADA) accessibility plan	M	Direction for park improvements to make park more widely accessible and to meet ADA standards
Washington State Route 410 management toolkit/maintenance plan	L	Washington State Route 410 management guidance; explore potential treatment options for State Route 410 in response to aggradation of the White River
Telecommunication infrastructure plan	L	Communication plan for directing the future of cell infrastructure and other communication infrastructure; could be a zoning recommendation
Public communication standard operating procedures	L	Need some common direction and/or reminders for public communication around a range of park activities—ongoing maintenance, planning, etc.
Site-Specific Management and Surrounding Lands		
Plans		
Carbon River corridor planning	M	A collaborative forum that would work together to address issues of conservation, recreation, and sustainable tourism from Wilkeson to Mount Rainier (includes Carbon River entrance and Mowich Lake); already happening now and getting started; agreement has been circulated and Mount Rainier is the convener of the stakeholder group
White River / Sunrise corridor, Chinook Pass / Tipsoo and Carbon River corridor visitor experience and resource protection and restoration / transportation planning	M	Repeat transportation and visitor experience and resource protection planning process that has been done for the Nisqually corridor for the White River/Sunrise corridor and Carbon River corridor (including Mowich Lake)
Sunshine Point evaluation and recommendation	L	Guidance for the future of Sunshine Point is needed; evaluation and recommendation for restoration (riparian), and potential use as shoulder season picnicking or camping
Wild and Scenic River suitability study	L	Wild and Scenic River evaluation for the West Fork of the White River, Muddy Fork of the Cowlitz River, the Ohanapecosh River, and the Carbon River
Land protection plan	L	Updated analysis of adequacy of boundaries

Other Planning and Data Needs		
Planning or Data Needs	Priority (M, L)	Notes
Site-Specific Management and Surrounding Lands (continued)		
Data Needs and Studies		
Visitor use data	M	Accurate visitor use data is lacking for trails and park entrances (trail and traffic counters)
Natural Resources		
Plans		
Wildland fire plan (update)	M	Outdated guidance for wildland fire—plan has sunset and policies have changed
Paradise Meadows and Sunrise plan	M	Address visitor impacts on sensitive resources in key areas
Invasive species plan	M	Need to cover ongoing resource management activities relating to invasive plant and animal/fish species through a comprehensive plan
Soundscape management plan	M	Strategies and guidance to protect park soundscapes
Hazard fuel reduction plan	M	Hazard fuel reduction is needed
Hazard tree management plan	M	Update hazard tree management plan NEPA document and biological opinion
Climate friendly parks action plan	M	This action plan would lay out the measures the park would take to meet this goal. In addition to implementing these measures, Mount Rainier National Park would <ul style="list-style-type: none"> • monitor progress with respect to reducing emissions to preserve natural and cultural resources and infrastructure • identify additional actions to reduce greenhouse gas emissions to preserve natural and cultural resources and infrastructure • revise and update this action plan at least every five years, to strengthen existing actions and include additional actions
Water resources management plan	L	Water resources guidance
Air tour management plan	L	Overflights
Data Needs and Studies		
Rare, threatened, or endangered species or species of concern monitoring	M	Need status and trends of vulnerable species, including baseline data
Cultural Resources		
Plans		
Cultural landscape report	M	Importance/prioritization of maintaining the national historic landmark district
Spoils and borrow plans	M	Archeological sites at Sunrise Borrow Pit and Tipsoo Lake have been disturbed and continue to be threatened by erosion and visitor impact
Historic structure reports	M	Update and complete historic structure reports
Archeological overview and research design (update)	M	Survey work was completed in 1995 and the report published 1998; since this time significant discoveries have been made of prehistoric and historic sites, justifying an update

Other Planning and Data Needs		
Planning or Data Needs	Priority (M, L)	Notes
Cultural Resources (continued)		
Plans		
Museum management plan; museum preservation and maintenance plan	M	Curatorial and collection plans are need updating
Integrated pest management plan	M	Develop integrated pest management plan to address preservation and health and safety issues related to aging historic structures
Vista management plan	L	Vista management guidance
Data Needs and Studies		
Cultural landscape inventories	M	Complete cultural landscape inventories for nine identified sites
Ethnographic study	M	Update Mount Rainier ethnography and initiate ethnographic resource inventories
Historic resource study	M	Historic resource study completed in 1990; significant amount of time has passed, requiring a new update
Archeological field inventories	M	Archeological field inventories have been completed on approximately 10% of park lands; there is a need to continue field inventories to understand prehistoric site distribution patterns; encourage academic and/or contracted surveys to increase surface and subsurface coverage
Other Park Strategies and Actions		
Update national register nomination for national historic landmark district	M	Changes have occurred to national historic landmark district guidance
Interpretation/Education and Outreach		
Plans		
GMP amendment: interpretive planning	L	GMP recommendations may not be feasible for the current level of park resources (including partners); the park would need to establish and maintain sufficient partnerships to accomplish goals; staffing welcome centers in addition to Paradise and Longmire would require more commitments; park has made commitments to many areas and may need to reallocate resources to accomplish/honor those commitments
Operations		
Plans		
Winter operations plan	M	Future of winter recreation at Mount Rainier; GMP support for continuing winter recreation and managed snow play at Paradise, but more planning is needed to assess most suitable and sustainable types of winter recreation in terms of historic use, resource impacts, and costs
Information management plan	M	Information management—data organization
Emergency response plan and/or continuity of operations plan	L	
Volunteer management plan	L	How do we leverage volunteers to augment resources to achieve priorities?

Part 3: Contributors

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Appendixes

Appendix A: Enabling Legislation for Mount Rainier National Park

FIFTY-FIFTH CONGRESS. SESS. III. CHS. 375-377. 1899.

993

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That all those certain tracts, pieces, or parcels of land lying and being in the State of Washington, and within the boundaries particularly described as follows, to wit: Beginning at a point three miles east of the northeast corner of township numbered seventeen north, of range six east of the Willamette meridian; thence south through the central parts of townships numbered seventeen, sixteen, and fifteen north, of range seven east of the Willamette meridian, eighteen miles more or less, subject to the proper easterly or westerly offsets, to a point three miles east of the northeast corner of township numbered fourteen north, of range six east of the Willamette meridian; thence east on the township line between townships numbered fourteen and fifteen north, eighteen miles more or less to a point three miles west of the northeast corner of township fourteen north, of range ten east of the Willamette meridian; thence northerly subject to the proper easterly or westerly offsets, eighteen miles more or less, to a point three miles west of the northeast corner of township numbered seventeen north, of range ten east of the Willamette meridian (but in locating said easterly boundary, wherever the summit of the Cascade Mountains is sharply and well defined, the said line shall follow the said summit, where the said summit line bears west of the easterly line as herein determined); thence westerly along the township line between said townships numbered seventeen and eighteen to the place of beginning, the same being a portion of the lands which were reserved from entry or settlement and set aside as a public reservation by proclamation of the President on the twentieth day of February, in the year of our Lord eighteen hundred and ninety-three, and of the Independence of the United States the one hundred and seventeenth, are hereby dedicated and set apart as a public park, to be known and designated as the Mount Rainier National Park, for the benefit and enjoyment of the people; and all persons who shall locate or settle upon or occupy the same, or any part thereof, except as hereafter provided, shall be considered trespassers and be removed therefrom.

SEC. 2. That said public park shall be under the exclusive control of the Secretary of the Interior, whose duty it shall be to make and publish, as soon as practicable, such rules and regulations as he may deem necessary or proper for the care and management of the same. Such regulations shall provide for the preservation from injury or spoliation of all timber, mineral deposits, natural curiosities, or wonders within said park, and their retention in their natural condition. The Secretary may, in his discretion, grant parcels of ground at such places in said park as shall require the erection of buildings for the accommodation of visitors; all of the proceeds of said leases, and all other revenues that may be derived from any source connected with said park, to be expended under his direction in the management of the same, and the construction of roads and bridle paths therein. And through the lands of the Pacific Forest Reserve adjoining said park rights of way are hereby granted, under such restrictions and regulations as the Secretary of the Interior may establish, to any railway or tramway company or companies, through the lands of said Pacific Forest Reserve, and also into said park hereby created, for the purpose of building, constructing, and operating a railway, constructing and operating a railway or tramway line or lines, through said lands, also into said park. He shall provide against the wanton destruction of the fish and game found within said park, and against their capture or destruction for the purposes of merchandise or profit. He shall also cause all persons trespassing upon the same after the passage of this Act to be removed therefrom, and generally shall be authorized to take all such measures as shall be necessary to fully carry out the objects and purposes of this Act.

SEC. 3. That upon execution and filing with the Secretary of the Interior, by the Northern Pacific Railroad Company, of proper deed releasing and conveying to the United States the lands in the reservation hereby created, also the lands in the Pacific Forest Reserve which have been heretofore granted by the United States to said company, whether surveyed or unsurveyed, and which lie opposite said company's constructed road, said company is hereby authorized to select an equal quantity of nonmineral public lands, so classified as nonmineral at the time of actual Government survey, which has been or shall be made, of the United States not reserved and to which no adverse right or claim shall have attached or have been initiated at the time of the making of such selection, lying within any State into or through which the railroad of said Northern Pacific Railroad Company runs, to the extent of the lands so relinquished and released to the United States: *Provided*, That any settlers on lands in said national park may relinquish their rights thereto and take other public lands in lieu thereof, to the same extent and under the same limitations and conditions as are provided by law for forest reserves and national parks.

SEC. 4. That upon the filing by the said railroad company at the local land office of the land district in which any tract of land selected and the payment of the fees prescribed by law in analogous cases, and the approval of the Secretary of the Interior, he shall cause to be executed, in due form of law, and deliver to said company, a patent of the United States conveying to it the lands so selected. In case the tract so selected shall at the time of selection be unsurveyed, the list filed by the company at the local land office shall describe such tract in such manner as to designate the same with a reasonable degree of certainty; and within the period of three months after the lands including such tract shall have been surveyed and the plats thereof filed by said local land office, a new selection list shall be filed by said company, describing such tract according to such survey; and in case such tract, as originally selected and described in the list filed in the local land office, shall not precisely conform with the lines of the official survey, the said company shall be permitted to describe such tract anew, so as to secure such conformity.

SEC. 5. That the mineral-land laws of the United States are hereby extended to the lands lying within the said reserve and said park.

Approved, March 2, 1899.

Appendix B: Special Mandates and Administrative Commitments for Mount Rainier National Park

The following special mandates and administrative commitments apply to Mount Rainier National Park. For a full list of park-specific laws, please see appendix A of the *Mount Rainier National Park Final General Management Plan / Environmental Impact Statement* (2000). Furthermore, the park maintains a complex array of administrative commitments in a wide variety of formats including agreements, memorandums of understanding, and permits that support park operations and fulfill park goals and objectives. The administrative commitments included here are a few representative samples of the full suite of arrangements that pertain to Mount Rainier National Park.

Wilderness Designation

The Mount Rainier Wilderness was designated as part of the Washington Park Wilderness Act of 1988 (PL 100-668). The wilderness designation encompasses approximately 97% of Mount Rainier National Park. Designated wilderness must be managed according to the provisions of the Wilderness Act of 1964 (PL 88-577).

Wild and Scenic River Eligibility

In 1989 it was determined that 9 miles of the West Fork of the White River, 6.7 miles of the Muddy Fork of the Cowlitz River, 12.7 miles of the Ohanapecosh River, and 8 miles of the Carbon River are eligible for inclusion in the national wild and scenic rivers system under the Wild and Scenic Rivers Act. In addition, the US Forest Service has determined that downstream segments of these rivers are also eligible. Until such time as a suitability study is completed (to determine whether or not to recommend these river segments for congressional designation) the park manages these river segments to maintain the resource values on which the eligibility criteria were evaluated (Public Law 90-542).

Geothermal Steam Act

The Department of the Interior and Related Agencies Appropriations Act was passed by Congress and signed into law on October 30, 1986. Section 115 of the act required the Secretary of the Interior to publish a list of proposed significant thermal features in selected national parks (Public Law 99-591). A subsequent law, the Geothermal Steam Act Amendments of 1988, specifically included Mount Rainier National Park as having significant thermal features. The law gives special protection to Mount Rainier's geothermal features. Thermal features of the park fall into six separate groups: the summit thermal area, upper-flank thermal areas, Winthrop Springs, Paradise Springs, Longmire Mineral Springs, and Ohanapecosh Hot Springs (Public Law 100-443).

Class I Airshed under the Clean Air Act

Mount Rainier National Park is designated a Class I area under the Clean Air Act. The Clean Air Act requires federal land managers to protect park air quality related values, which include visibility and natural and cultural resources. The park has policies and strategies in place to ensure that Mount Rainier's air quality is enhanced or maintained with no significant degradation and that nearly unimpaired views of the landscape both within and outside the park are available. These policies and strategies are meant to ensure that scenic views that are integral to the visitor experience, which have been identified in the park in accordance with the Clean Air Act, remain substantially unimpaired.

National Historic Landmark District Designation

The Mount Rainier National Historic Landmark District was listed in the National Register of Historic Places in 1997. This large and exceptional district includes approximately 1,700 acres, including nearly all of the park's roads and historic developed areas. The Mount Rainier National Historic Landmark District is an outstanding example of early park planning and National Park Service Rustic architecture of the 1920s and 1930s.

Exclusive Legislative Jurisdiction

With the creation of Mount Rainier National Park, Congress set aside the reserved lands under the exclusive jurisdiction of the Department of the Interior (within the original boundary). Exclusive jurisdiction places the National Park Service in a unique situation of being the sole agency responsible for law enforcement, emergency services, and compliance with environmental laws. The only rights retained by the State of Washington and its subdivisions are taxation and the ability to serve civil and criminal process within the park boundary. A change in jurisdiction is being considered nationally. In addition to implications for law enforcement, a change in jurisdiction would also affect planning and project implementation as it relates to environmental compliance with county ordinances and state laws.

Chinook Scenic Byway and Mather Memorial Parkway

Washington State Route 410 from Enumclaw to Naches traverses the northeast corner of Mount Rainier National Park and is a designated national scenic byway. In 1998 the Federal Highway Administration's National Scenic Byways Program recognized the Chinook Scenic Byway with the designation of "All American Road." This is the highest honor in America's scenic byway system. To gain it, a road must be known nationally or internationally for scenic or other intrinsic qualities that provide an exceptional travel experience. Mount Rainier serves in an advisory capacity to the nonprofit Chinook Scenic Byway Board of Directors.

The Mather Memorial Parkway traverses a 75-mile portion of SR 410 on federal lands managed by the US Forest Service and National Park Service. It was established in 1931 and named in honor of Stephen Mather, the first director of the National Park Service. The parkway is managed collaboratively between the US Forest Service, National Park Service, and Washington State Department of Transportation to respect and protect the aesthetic, natural resource, and recreational values common to those agencies since the 1930s.

Pacific Crest Trail

The Pacific Crest National Scenic Trail was designated one of the first scenic trails in the national trails system, authorized by Congress in 1968 and dedicated in 1993. Several miles of the trail pass through or near Mount Rainier National Park along the park's eastern boundary with the Wenatchee National Forest. The Pacific Crest National Scenic Trail is a continuous 2,650-mile-long protected scenic corridor for outdoor recreation and is managed by the US Forest Service (Public Law 111-11).

Butter Creek Research Natural Area

Research natural areas are administratively designated areas identified as prime examples of natural ecosystems with significant genetic resources valuable for long-term baseline observational studies, or as control areas for comparative studies involving manipulative research outside the park. The Butter Creek Research Natural Area was established in 1942 and includes the entire watershed of Butter Creek, approximately 2,000 acres located in the Tatoosh Range in the southern part of the Mount Rainier Wilderness. An additional 560 acres was added to the area in 1974, encompassing portions of the drainage located on US Forest Service lands in the Tatoosh Wilderness. NPS *Management Policies 2006* directs that research natural areas will be managed to provide the greatest possible protection of site integrity in accordance with their designation. Activities in research natural areas will be restricted to nonmanipulative research, education, and other activities that will not detract from the areas' research values. The general management plan (2001) closed this area to recreational use, permitting access only for scientific and educational purposes.

Outstanding Resource Waters

Washington State has an abundance of high-quality waters that are important to protect for uses such as habitat for threatened and endangered salmon, tribal customs, and recreation. The Clean Water Act provides an opportunity for states to identify their highest quality waters as outstanding resource waters and provide extra protection from future sources of degradation. Mount Rainier National Park has waters that may meet the eligibility requirements for Tier III status and can be nominated to the Washington Department of Ecology as outstanding resource waters under the state’s “antidegradation” policy.

Commercial Visitor Services

More than 50 companies provide a wide variety of commercial visitor services in Mount Rainier National Park. These services are limited to those companies having specific authorization, usually in the form of a concessions contract or commercial use authorization.

Mount Rainier manages five long-term concession contracts. One contract authorizes the operation of in-park hotels, food service, and gifts shops; three contracts provide guided mountaineering services; and one is for firewood in Ohanapecosh and White River campgrounds. In addition, Mount Rainier manages approximately 50 commercial use authorizations issued for the following activities: single trip summit climbs, backpacking, guided day hikes, drive-in campground use, photography courses, winter day and overnight use, and bicycle tours.

Discover Your Northwest

Mount Rainier National Park partners with its cooperating association, Discover Your Northwest, to further its interpretation, educational, historical, and scientific efforts. The association is a 501 (c)(3) nonprofit that provides educational products and services to the public through retail sales of items such as high-quality books, toys, DVDs, and other items that enhance visitor understanding. Sales help to fund park education efforts, including onsite events and programs, displays, free publications, staff training, speakers, and performances. Activities are sanctioned and guided by Director’s Order 32 and Reference Manual 32, as well as an agreement with the Pacific West Region.

Washington’s National Park Fund

Mount Rainier has an agreement with the Washington’s National Park Fund that sets forth obligations and understandings between both parties regarding specifically authorized fundraising, friend-raising, and related activities in support of the mission of Mount Rainier National Park.

Weather Stations

National Oceanic and Atmospheric Administration–National Weather Service weather stations exist at Longmire, Paradise, and Ohanapecosh, with a precipitation site at White River. Sites are administered by the National Weather Service but park staff plays a significant role in recording daily data and assisting in troubleshooting and maintenance issues for the service as necessary. Weather station data is used by the National Weather Service to provide the park with the Mount Rainier recreational forecast reports and in producing climate reports.

SNOTEL

The Natural Resources Conservation Service installs, operates, and maintains an extensive automated system call SNOTEL (short for Snow Telemetry). Data are collected on snowpack and other meteorological information needed to produce water supply forecasts and support resource management activities. SNOTEL stations are in operation at Paradise and Cayuse Pass. Snow survey sample sites also exist at Paradise and Cayuse areas. NPS natural resources staff coordinates SNOTEL activities with the Natural Resources Conservation Service. Rangers assist in conducting snow surveys. SNOTEL site data are also used in producing climate reports.

Northwest Avalanche Center

An interagency agreement with the US Forest Service Northwest Avalanche Center exists to provide avalanche forecasting to the park and to the region. The avalanche center also assists in maintaining park stations located at Camp Muir and Sunrise.

Volcanic and Seismic Monitoring

Volcanic and seismic monitoring is conducted cooperatively by the University of Washington and the US Geological Survey Cascades Volcano Observatory via research permits, renewed on a five-year basis. The University of Washington monitors seismic activity at the Longmire, camps Muir and Schurman, Mt. Fremont, and Emerald Ridge sites. The Cascades Volcano Observatory monitors sites at Panhandle Gap, Camp Muir, Camp Schurman, Sunrise, Observation Rock, and St. Andrews Rock.

State Highway Road Maintenance – SR 123 and 410

Mount Rainier has an Agreement with the Washington State Department of Transportation that allows that agency to maintain State Routes 123 and 410 through the east side of the park. This includes annual road opening and closure procedures (due to snow conditions) and spring opening snow plowing. The park does not charge an entrance fee for travelers using these highways.

Nisqually Entrance Levee Maintenance

Mount Rainier has an agreement with Pierce County that sets forth conditions for county maintenance of the levee near the Nisqually Entrance. Approximately one-third of the levee lies inside the park boundary.

Pierce County Fire District

The park maintains a memorandum of understanding with Pierce County Fire Districts 22 and 23 and with Lewis County Fire District 10 for structure fire response and mutual aid.

CenturyLink

Mount Rainier National Park is installing new utilities including telecommunications within the road corridor as part of the Nisqually to Paradise Road Rehabilitation Project 2015. A new right-of-way agreement with CenturyLink will be established for the maintenance of the new facilities.

Mount Rainier Institute

Mount Rainier entered into an agreement with the University of Washington to implement the Mount Rainier Institute. The institute will be deeply integrated with the Mount Rainier education program and will be located and operated using existing facilities at the University of Washington Pack Forest campus near Eatonville, Washington.

Upper Nisqually Heritage Area Forum

A memorandum of understanding is nearing completion that will create a nonbinding collaborative forum to focus on conservation, recreation, and tourism economics in the Upper Nisqually region from Northwest Trek to the Nisqually Entrance. The Town of Eatonville is identified as the “convener” of the forum in the memorandum of understanding, and Mount Rainier will participate as a stakeholder.

Relationships with American Indians

Federally recognized tribes are sovereign governments, at least six of which have traditional association with Mount Rainier. These tribes are the Muckleshoot Indian Tribe, the Puyallup Tribe of Indians, the Nisqually Indian Tribe, the Cowlitz Indian Tribe, the Squaxin Island Tribe, and the Confederated Tribes and Bands of the Yakama Nation. Five of these tribes signed one or more treaties negotiated in 1854 and 1855 by the US government under the direction of then-governor Isaac Stevens: the Treaty of Medicine Creek, the Treaty of Point Elliott, and the Treaty with the Yakama. A treaty with the Cowlitz was negotiated, but ratification was interrupted by the US Civil War and never completed. These treaties establish certain continuing rights and privileges to aquatic and terrestrial resources on ceded lands. These rights periodically have been upheld through litigation, and have been affected in various ways by subsequent legislation or regulation. Park staff work to ensure that traditional American Indian ties to Mount Rainier are recognized and strive to maintain positive, productive, government-to-government relationships with these culturally affiliated tribes.

Support North Coast Cascades Network Functions

Mount Rainier supports North Coast Cascades Network-sponsored programs and activities including the following:

- Information Technology (IT) personnel are part of a network team that provides IT support for all parks in the network.
- Provision of office space and related support facilities (phones, IT, etc.) for the Northwest Servicing Human Resources Office staff.
- Participation in the Major Acquisition Buying Office for contracting.
- Inventory and Monitoring Program: the North Coast and Cascades Inventory and Monitoring Program, of which Mount Rainier National Park is a member, is one of 32 National Park Service I&M networks across the country established to facilitate collaboration, information sharing, and economies of scale in natural resource monitoring.
- Science Learning Network: the mission of the North Coast and Cascades Science Learning Network is to establish a cooperative research and education effort that supports research about the parks while involving and educating the public about science in parks.

Appendix C: Analysis of Fundamental Resources and Values

The fundamental resource or value analysis table includes current conditions, potential threats and opportunities, and selected laws and NPS policies related to management of the identified resource or value.

Fundamental Resource or Value	Mount Rainier and its associated geologic and glacial features
Related Significance Statements	Directly related to 1, 2, 3, and 8
Current Conditions and Trends	<p>Conditions</p> <ul style="list-style-type: none"> • Mount Rainier first erupted about one-half million years ago and as recently as the 1840s. As the mountain continues to behave as it has over the last half million years, “all evidence suggests that Mount Rainier will continue to erupt, grow, and collapse” (US Geological Survey). • Due to the more than 1.5 million people (and growing) living within a 50-mile radius of Mount Rainier, it is considered the most dangerous volcano in the Cascade Range. Nearly 350,000 people are estimated to be directly affected in lahar hazard, ash flow, and post-lahar areas. <p>Trends</p> <ul style="list-style-type: none"> • The glaciers on Mount Rainier have decreased in area, volume, and length since 1913. • Some damage to cryptobiotic soils from human impacts has been documented, particularly in subalpine and alpine meadows, ranging from trampled vegetation to severely eroded social trails more than three feet deep. For example, Mowich Lake has experienced adverse impacts.
Threats and Opportunities	<p>Threats</p> <ul style="list-style-type: none"> • Geologic hazards—volcanic, debris flows, lahars, glacier outburst floods, precipitation flood events, aggradation effects, etc.—threaten access and infrastructure within and outside of the park. • External activities can impact and diminish park resources (air pollution) and park experiences (viewsheds). For example, Mount Rainier aquatic ecosystems are vulnerable to atmospheric deposition from nearby urban and industrial areas as well as long-range transport of airborne contaminants. • Management actions are affecting park natural resources (water supplies, dredging, channelization of rivers, dumping spoils, etc.). • Changing climate portends profound changes to natural cycles and systems, with related impacts on environmental conditions. Resources such as glaciers, headwater streams, wetlands, and small ponds and lakes are all impacted by climate change, as are natural processes and functioning ecosystems. Climate change has the potential to profoundly impact Mount Rainier’s resources. <p>Opportunities</p> <ul style="list-style-type: none"> • In 1989 it was determined that 9 miles of the West Fork of the White River, 6.7 miles of the Muddy Fork of the Cowlitz River, 12.7 miles of the Ohanapecosh River, and 8 miles of the Carbon River were eligible for inclusion in the national wild and scenic rivers system. The US Forest Service has also found that downstream segments of these rivers are eligible. • Mount Rainier has 10 different water systems that treat surface water and has the opportunity to convert 4 systems from the “blue” status to a “green” status permit (though capital improvements are needed). Primarily, leaks need to be repaired in some of the systems, such as at Paradise and Longmire. The park also needs to take a closer look at water withdrawals/use for administrative purposes and assess impacts on the environment.

Fundamental Resource or Value	Mount Rainier and its associated geologic and glacial features
Data and/or GIS Needs	<ul style="list-style-type: none"> • Research and monitoring plan.
Planning Needs	<ul style="list-style-type: none"> • Resource stewardship strategy.
<p>Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance</p>	<p>Laws, Executive Orders, and Regulations That Apply to the FRV</p> <ul style="list-style-type: none"> • Paleontological Resources Protection Act • Federal Cave Resources Protection Act (1988) • Wild and Scenic Rivers Act (1968) • Clean Water Act • Water rights adjudication and law • Executive Order 11514, “Protection and Enhancement of Environmental Quality” • Executive Order 11988, “Floodplain Management” • Executive Order 12088, “Federal Compliance with Pollution Control Standards • National Flood Insurance Act of 1968 <p>NPS Policy-level Guidance (NPS Management Policies 2006 and Director’s Orders)</p> <ul style="list-style-type: none"> • NPS Management Policies 2006 (§4.6.1, 4.6.2, 4.6.4 and 4.8.1.1) • NPS Natural Resource Management Reference Manual 77 • Director’s Order 77-2: Floodplain Management





Fundamental Resource or Value	Dynamic landscape-scale processes
Related Significance Statements	Directly related to 1, 2, 3, 5, and 8
Current Conditions and Trends	<p>Conditions</p> <ul style="list-style-type: none"> Lahars, debris flows, avalanches, river aggradation, flooding, wildland fire, and other hazards created by proximity to an active volcano continue to pose challenging management issues for the park. Flood protection measures and other structures, ranging from minor culverts along trails to levees located along the Nisqually, are located throughout the park, some of which are contributing elements of the national historic landmark district. <p>Trends</p> <ul style="list-style-type: none"> River aggradation, debris flows, and flood events have impacted park infrastructure in high-visitor-use areas. While some of these areas have been repaired, others have been and continue to remain closed to vehicular access, such as the West Side Road, which has been damaged by a number of events in the last 25 years. The Carbon River Road was severely damaged by flooding in 2006. The road has been converted to a hiking and bicycling trail. The Nisqually River has similar issues. Longmire is also experiencing impacts from river aggradation and flooding. Half of Sunshine Point Campground washed away and has been closed due to flooding. The longer closed facilities remain so, the longer it might take to recover or restore them.
Threats and Opportunities	<p>Threats</p> <ul style="list-style-type: none"> Extreme weather and snowfall conditions, geohazards, and aggrading stream beds, which are all exacerbated by the effects of global climate change, pose difficult challenges for park management to sustain operations, access, and services. Any damage to park infrastructure threatens access to the park. Given the proximity of designated wilderness to park infrastructure, including the national historic landmark district, difficulties arise with needing to protect infrastructure while allowing these natural processes to occur unimpeded. <p>Opportunities</p> <ul style="list-style-type: none"> Develop a plan to manage park roads and campgrounds for future climate change (such as redesigning stream crossings) and protect or relocate existing infrastructure. Look comprehensively at structures/areas that are at risk and identify and prioritize road improvement actions and restoration activities designed to minimize impacts on the environment while protecting infrastructure. Identify decommissioning priorities and mitigation/adaptation strategies. Adopt standards for bridge/culvert replacement. Reevaluate GMP decisions in light of climate change, or perhaps pick up where the general management plan left off by providing additional guidance about whether to construct flood protection in certain areas or let the river take its course. Enhance relationships with adjacent landowners—federal, state, private, tribes, etc.

Fundamental Resource or Value	Dynamic landscape-scale processes
Data and/or GIS Needs	<ul style="list-style-type: none"> • Research and monitoring plan. • Best management practices for roads and trails.
Planning Needs	<ul style="list-style-type: none"> • Resource stewardship strategy. • Strategic operations plan.
<p>Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance</p>	<p>Laws, Executive Orders, and Regulations That Apply to the FRV</p> <ul style="list-style-type: none"> • Wilderness Act, 1964 • Wild and Scenic Rivers Act • Endangered Species Act of 1973, as amended • National Invasive Species Act • Lacey Act, as amended • Migratory Bird Treaty Act; 16 USC 703-712 • Eagle Protection Act; 16 USC 668 • National Environmental Policy Act of 1970; 42 USC 4321 • Federal Noxious Weed Act of 1974, as amended • Clean Water Act • Clean Air Act; 42 USC 7401 et seq. • Paleontological Resources Preservation Act (Pending, Senate Bill S.263), USC Title 9, Chapter 79, 5937 • Executive Order 13112, "Invasive Species" • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" • Department of the Interior and Related Agencies Act of 1986 • Geothermal Steam Act Amendments of 1988 <p>NPS Policy-level Guidance (NPS Management Policies 2006 and Director's Orders)</p> <ul style="list-style-type: none"> • NPS Management Policies 2006 (§1.6, 4.1, 4.1.4, 4.4.1, 4.7.2) provides general direction for managing park units from an ecosystem perspective • NPS Director's Order 18: <i>Wildland Fire Management</i> • NPS Natural Resource Management Reference Manual 77 • NPS Wildland Fire Management Reference Manual 18

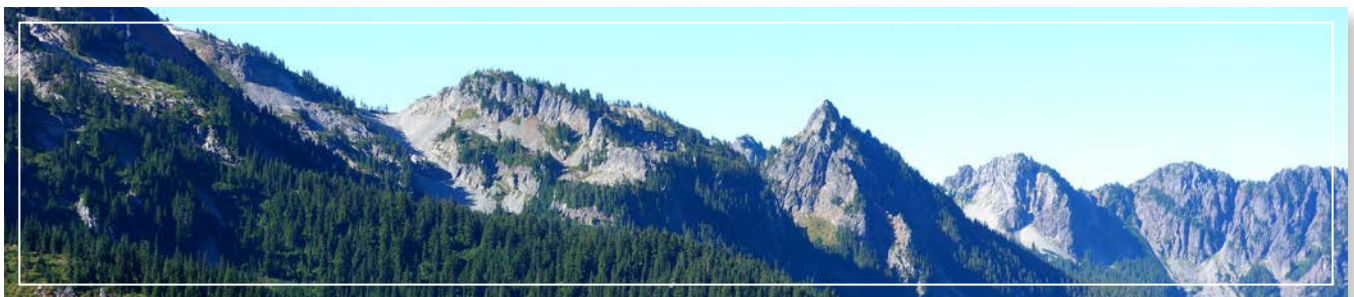


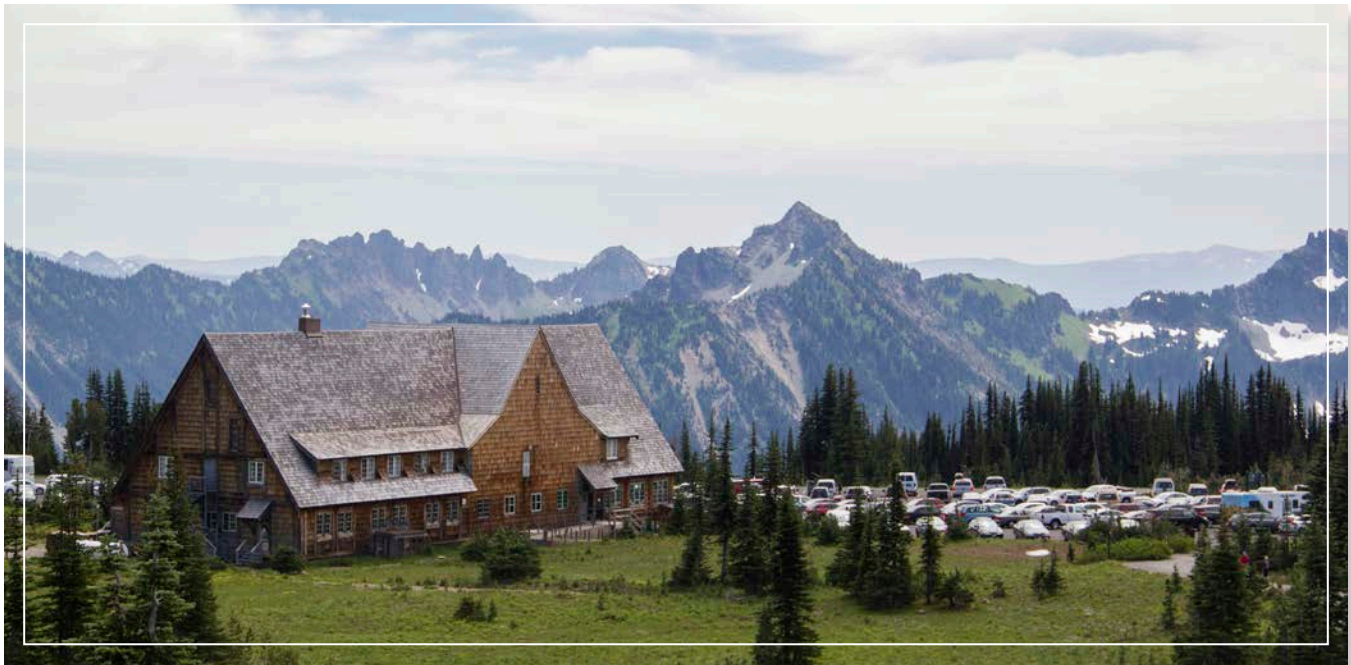
Fundamental Resource or Value	Biological diversity that contributes to the integrity of the Cascade ecosystem
Related Significance Statements	Directly related to 4, 8, and 9
Current Conditions and Trends	<p>Conditions</p> <ul style="list-style-type: none"> • Some ecological changes at Mount Rainier National Park are statistically attributable to climate change, such as an increase in forest mortality since 1955 and outbreaks of bark beetle and mountain pine beetle. • Other impacts that are consistent with, but not statistically attributable to human climate change include: increased fire frequency in mid-elevation conifer forests and a shift of subalpine fire into formally open alpine meadows (increased tree establishment). • The species composition of forests in Mount Rainier has not changed significantly since the mid-1900s. <p>Trends</p> <ul style="list-style-type: none"> • Some areas, particularly in high-visitor-use subalpine/alpine environments such as Mowich Lake, have been adversely impacted by humans.
Threats and Opportunities	<p>Threats</p> <ul style="list-style-type: none"> • Changing climate portends profound changes to natural cycles and systems. Resources such as fish, amphibians, vegetation, and wildland fire are all impacted by climate change, as are natural processes and functioning ecosystems. Specifically, fragile alpine communities may change, as species typically found at lower elevations are established higher due to changing climate conditions. • Impacts on rare, threatened, or endangered species or species of concern (plant/animal) from climate change and other pressures. • Impacts from nonnative invasive plant and animals/fish species. • Food conditioning/habituation is occurring from visitors feeding wildlife. • Mount Rainier aquatic ecosystems are vulnerable to atmospheric deposition from nearby urban and industrial areas as well as long-range transport of airborne contaminants. • Increasing numbers of visitors may impact fragile alpine environments. • The park has many goals and responsibilities for monitoring and protecting resources, which may not happen in light of current financial constraints. • Management actions such as maintenance and use of water systems, dredging, channelization of rivers, dumping spoils, removal of hazard trees, etc., affect park natural resources. • External threats, such as light, sound, and air pollution and external land use practices, such as poaching and timber harvesting, threaten park resources. <p>Opportunities</p> <ul style="list-style-type: none"> • The 2014 North Cascadia Adaptation Partnership Strategy will provide guidance for park managers in adapting to climate change. • The park has a Climate Friendly Parks action plan that can be updated and implemented. • Complete a “State of Paradise Meadows” final report to help define restoration progress over 20 years, priorities in the future, and assist park managers in implementing effective strategies for the continued preservation and restoration of the meadows. • Revise the subalpine vegetation restoration plan. • Improve or establish baselines for vulnerable species and monitor trends. • Complete surveys for invasive plant species on lands outside of road corridors with high potential for establishment and in the acquired lands in the Carbon River area. Develop an invasive, nonnative plant management plan. • Develop a nonnative fish species management plan. • Partner with North Cascades National Park to restore the fisher (<i>Pekania pennanti</i>) to the Washington Cascades (environmental assessment completed in 2014). • Partner with communities/agencies downstream in restoration and protection efforts. Mount Rainier is located at the headwaters of several very important watersheds and contains habitat for four or five listed salmonids.

Fundamental Resource or Value	Biological diversity that contributes to the integrity of the Cascade ecosystem
Data and/or GIS Needs	<ul style="list-style-type: none"> • Research and monitoring plan.
Planning Needs	<ul style="list-style-type: none"> • Resource stewardship strategy.
<p>Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance</p>	<p>Laws, Executive Orders, and Regulations That Apply to the FRV</p> <ul style="list-style-type: none"> • Wilderness Act, 1964 • Wild and Scenic Rivers Act • Endangered Species Act of 1973, as amended • National Environmental Policy Act • National Invasive Species Act • Lacey Act, as amended • Federal Noxious Weed Act of 1974, as amended • Clean Water Act • The Clean Air Act (42 USC 7401 et seq.) gives federal land managers the responsibility for protecting air quality and related values, including visibility, plants, animals, soils, water quality, cultural resources, and public health, from adverse air pollution impacts • Executive Order 13112, "Invasive Species" • Secretarial Order 3289, "Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources" • Department of the Interior and Related Agencies Act of 1986 • Geothermal Steam Act Amendments of 1988 <p>NPS Policy-level Guidance (NPS Management Policies 2006 and Director's Orders)</p> <ul style="list-style-type: none"> • NPS Management Policies 2006 (§1.6, 4.1, 4.1.4, 4.4.1, 4.7.2) provides general direction for managing park units from an ecosystem perspective • NPS Natural Resource Management Reference Manual 77



Fundamental Resource or Value	Mount Rainier Wilderness values and experiences
Related Significance Statements	Directly related to 5 Indirectly related to 1, 2, 3, 4, 6, 7, 8, and 9
Current Conditions and Trends	<p>Conditions</p> <ul style="list-style-type: none"> The Mount Rainier Wilderness includes more than 97% of the total park acreage and is generally in good condition. <p>Trends</p> <ul style="list-style-type: none"> Visitation and demand for recreation from the general public, groups, and commercial entities is increasing.
Threats and Opportunities	<p>Threats</p> <ul style="list-style-type: none"> Increasing visitation in wilderness (both overnight and day use) impacts opportunities for solitude. The park is receiving an increasing number of proposals from researchers to install temporary structures / tools / monitoring devices in wilderness. Decision-making for administrative use in wilderness is complicated and driven by a variety of plans that are not always consistent, which can easily lead to inconsistent management practices. This threat is exacerbated by increasing, changing, and emerging technologies. External uses, such as air tours and transportation are impacting wilderness character, dark night skies, and soundscapes. <p>Opportunities</p> <ul style="list-style-type: none"> Some plans—such as a search and rescue plan, wilderness management plan, or air tour management plan—may address threats. Establish consistent minimum requirements analysis decision guide. The park recently installed wireless infrastructure at Camp Muir.
Data and/or GIS Needs	<ul style="list-style-type: none"> Research and monitoring plan.
Planning Needs	<ul style="list-style-type: none"> Wilderness stewardship plan. Resource stewardship strategy. Development concept plan for Paradise and Cougar Rock picnic areas.
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	<p>Laws, Executive Orders, and Regulations That Apply to the FRV</p> <ul style="list-style-type: none"> Wilderness Act, 1964 Washington Park Wilderness Act of 1988 <p>NPS Policy-level Guidance (NPS Management Policies 2006 and Director's Orders)</p> <ul style="list-style-type: none"> NPS Management Policies 2006 (chapter 6) Director's Order 41: <i>Wilderness Stewardship</i> NPS Reference Manual 41: <i>Wilderness Stewardship</i> NPS Keeping It Wild in the National Park Service User Guide





Fundamental Resource or Value	Year-round access to a range of high-quality recreational experiences from the wild and challenging to the indoor and refined
Related Significance Statements	Directly related to 5, 7, and 9
Current Conditions and Trends	<p>Conditions</p> <ul style="list-style-type: none"> • There is no year-round campground at Mount Rainier National Park. • Recreational activities occur year-round. • The park spends substantial funding and staff time removing human waste from the backcountry, and impacts are occurring from human waste in the shoulder season. • Managing year-round access on the mountain requires specialized staff skills (high-altitude mountaineering) and specialized equipment (high-altitude helicopter, climbing equipment). • Commercial guide allocations are set, but limits have not been set for independent use. The 1992 wilderness plan doesn't lay out the day use carrying capacity of the mountain. • Each search and rescue effort has the potential to pull staff from various divisions and can involve the concessioners. This means the Ranger division needs to ensure other NPS staff and the concessioners know how the park conducts a response prior to an event happening, and that the climbing rangers have at least a working relationship with the concessioners. • The extreme environment makes it expensive and difficult to maintain infrastructure. <p>Trends</p> <ul style="list-style-type: none"> • The park is experiencing severe congestion in key locations as all visitors want to do the same thing, at the same time, at the same place (i.e., view wildflowers at Paradise in the mid-summer). • Carrying capacities and parking capacities are exceeded and current park staffing levels are unable to manage over-use. • There are some conflicts rising between different user groups, such as biking vs. driving on narrow roads. • Weather extremes create high hazards; climate change could potentially mean more extreme, or different, weather with more/different hazards.

Fundamental Resource or Value	Year-round access to a range of high-quality recreational experiences from the wild and challenging to the indoor and refined
Threats and Opportunities	<p>Threats</p> <ul style="list-style-type: none"> • Relatively easy access puts unprepared public at risk; adequate visitor safety is a struggle, despite the park's extensive efforts. • Mountaineering is a high-risk activity that places visitors in hazardous conditions, and subsequently places resources at risk. • Changes in visitor use patterns demand different types/style of infrastructure (i.e., large family groups desire more group campsites, wider trails, grouped picnic tables, more developed campsites, cell service, wireless internet). • Relevance to changing demographics requires changes in an historic area. • Overuse of Paradise Meadows and off-trail use in areas with fragile vegetation. • Winter access; access in general: roads, bridges, extreme environmental events are threats to maintaining year-round access. • Management of climbing program, for relatively few users, is expensive (supplies flown in by helicopter, waste flown out); current budget climate is difficult and cost of program is borne only partially by user fees. • Day users of high camps require management time and cost, but don't pay climbing fees. • Increased helicopter flights impact visitor experience. <p>Opportunities</p> <ul style="list-style-type: none"> • Increase information/communication with the public about current conditions using new techniques. • Education need for "Leave No Trace" materials in multiple languages. • Look for opportunities to enhance refined recreational experience.
Data and/or GIS Needs	<ul style="list-style-type: none"> • Best management practices for roads and trails.
Planning Needs	<ul style="list-style-type: none"> • Strategic operations plan. • Wilderness stewardship plan. • Park asset management plan. • Development concept plan for Paradise and Cougar Rock picnic areas. • Westside Road access management plan. • Development concept plans for Carbon River boundary expansion and Mowich Lake.
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	<p>Laws, Executive Orders, and Regulations That Apply to the FRV</p> <ul style="list-style-type: none"> • Americans with Disabilities Act of 1990 • Architectural Barriers Act of 1968 • Architectural Barriers Act Accessibility Standards 2006 • General Authorities Act of 1976 • 16 USC 12 Aid to Visitors in Emergencies • Rehabilitation Act of 1973 • NPS Concessions Management Improvement Act of 1998 • Wilderness Act of 1964 <p>NPS Policy-level Guidance (NPS Management Policies 2006 and Director's Orders)</p> <ul style="list-style-type: none"> • NPS <i>Management Policies 2006</i> (chapters 7, 8, 9, and 10) • Director's Order 6: <i>Interpretation and Education</i> • Director's Order 42: <i>Accessibility for Visitors with Disabilities in National Park Service Programs and Services</i> • NPS <i>Transportation Planning Guidebook</i> • NPS <i>RM-9: Law Enforcement Reference Manual</i> • NPS <i>Reference Manual 57A: Medical Standards Program</i>

Fundamental Resource or Value	Natural sounds and dark night skies
Related Significance Statements	Directly related to 3, 4, 5, and 8
Current Conditions and Trends	<p>Conditions</p> <ul style="list-style-type: none"> • Mount Rainier National Park provides some of the best night sky conditions in the region. Light domes from the Seattle and Tacoma areas are visible and are expected to increase in extent. While the amount of artificial light within the park remains relatively low, many lights continue to degrade night time viewing. • Natural sounds predominate in many areas of the park, supporting a healthy, naturally functioning ecosystem and providing remarkable wilderness experiences. • The general absence of artificial light ensures preservation of a dark nighttime lightscape that is vital for any species and a high-quality park experience. • Retaining natural nighttime conditions adds to the dimensional nature of wilderness and protects wildlife. <p>Trends</p> <ul style="list-style-type: none"> • The park has high-quality night skies and acoustic resources. While light domes from Seattle and Tacoma can be seen, the amount of artificial light in the park remains relatively low. • Acoustic research at the park demonstrates the presence of numerous wildlife species and documents physical phenomena such as rock slides and running water. Besides many natural sounds, the park is moderately impacted by human-caused noise from aircraft and vehicles.
Threats and Opportunities	<p>Threats</p> <ul style="list-style-type: none"> • Traffic noise. • Construction noise. • Air travel / overflights, air tours, commercial aviation, general aviation, military flights, and park aviation. • Use of “unmanned aerial systems” (remotely operated devices) threatens natural sounds with artificial noise. • Technology—improved/increased access to streaming music/noise. • Surrounding urban/developed environment reduces quality of night skies. • Potential Crystal Mountain expansion could impact natural sounds and night sky with increasing development adjacent to the park boundary. <p>Opportunities</p> <ul style="list-style-type: none"> • As digital technology improves and the capability of cameras to capture low light images, the population of night photography has exploded, increasing awareness and appreciation of dark night skies.
Data and/or GIS Needs	<ul style="list-style-type: none"> • Research and monitoring plan.
Planning Needs	<ul style="list-style-type: none"> • Resource stewardship strategy. • Wilderness stewardship plan.

Fundamental Resource or Value	Natural sounds and dark night skies
<p>Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance</p>	<p>Laws, Executive Orders, and Regulations That Apply to the FRV</p> <ul style="list-style-type: none"> • National Parks Air Tour Management Act of 2000 • National Parks Overflight Act of 1987 (Public Law. 100-91) • “Audio disturbance” (36 CFR 2.12) • “What is the maximum noise level for the operation of a vessel?” (36 CFR 3.15) • Clean Air Act (42 USC 7401 et seq.) <p>NPS Policy-level Guidance (NPS Management Policies 2006 and Director’s Orders)</p> <ul style="list-style-type: none"> • NPS <i>Management Policies 2006</i> (§4.9) Soundscape management policies require park managers to strive to preserve the soundscape • NPS <i>Management Policies 2006</i> (§5.3.1.7) “Cultural Soundscape Management” • Director’s Order 47: <i>Soundscape Preservation and Noise Management</i> • NPS <i>Management Policies 2006</i> (§8.4) “Overflights and Aviation Uses” • NPS <i>Management Policies 2006</i> (§8.2.3) “Use of Motorized Equipment” • NPS <i>Management Policies 2006</i> (§4.10) “Lightscape Management” • NPS <i>Management Policies 2006</i> (§4.7) and NPS <i>Natural Resource Management Reference Manual 77</i>



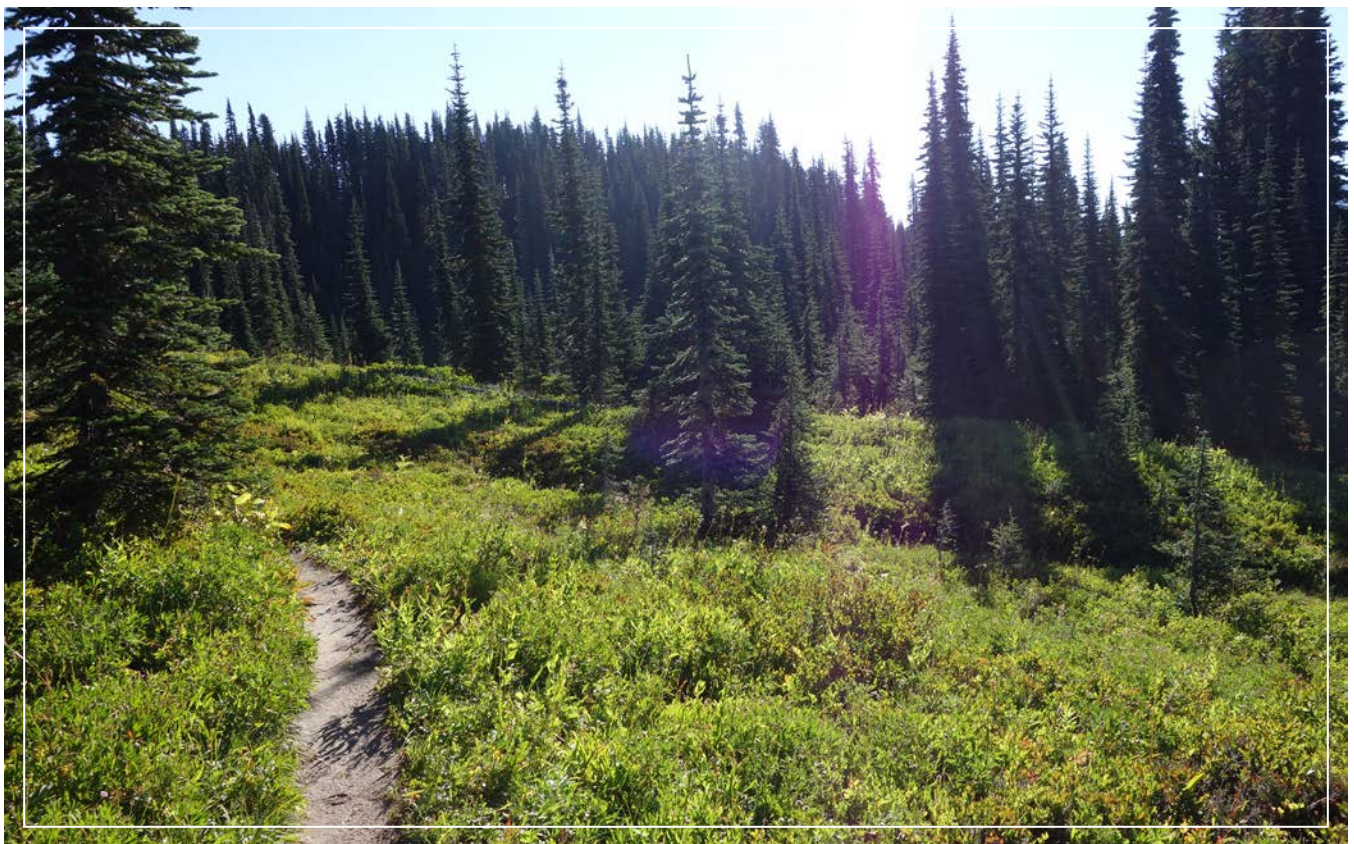
Fundamental Resource or Value	Mount Rainier National Historic Landmark District
Related Significance Statements	Directly related to 7
Current Conditions and Trends	<p>Conditions</p> <ul style="list-style-type: none"> As the national historic landmark district comprises the majority of nonwilderness areas in the park, its size and subsequent impact on park maintenance needs is huge. Maintaining the district takes money; given the current limited funds, prioritization is necessary among locations within the national historic landmark district. <p>Trends</p> <ul style="list-style-type: none"> Mount Rainier’s infrastructure is aging and needs restoration and preventative maintenance funding (significant maintenance backlog), and the park is reaching a crisis point of not being able to sustain its historic infrastructure.
Threats and Opportunities	<p>Threats</p> <ul style="list-style-type: none"> The design of facilities also does not reflect current visitor uses or operational needs. Natural processes pose significant threats to the national historic landmark district, including extreme weather, geohazards, climate change, hazardous trees, vegetation/ invasive plant species, and pests. The park must maintain access to and protect primary roads as they are part of the national historic landmark district. Routine maintenance is needed for aging infrastructure—avoid national historic landmark district falling apart because of “benign neglect.” Not sufficient time/resources to finish the cultural landscape inventories—only 80% are done—and cultural landscape reports. Balancing need for energy efficiency and ADA requirements with historical integrity/ importance is difficult; use of modern things in a historic district (i.e., should roads be wider for today’s recreational vehicles, should we improve cell and wifi service in historic buildings?). The use/carrying capacity of the national historic landmark district is in question—are there too many cars, etc.? Insufficient resources to meet the need for more interpretation, documentation (national register nominations/reports), stewardship, etc., in the national historic landmark district. Structural fire threats that could take out the district. The Paradise Inn Annex is falling apart and needs to be replaced. Although a lot of planning has been completed for Sunrise Lodge, much of the guidance is outdated and completed planning efforts need to be aligned with current NPS policies and guidance and park priorities, especially in light of current funding. Transportation issues threaten design of road. <p>Opportunities</p> <ul style="list-style-type: none"> Manual / guidebook / handbook that defines best management practices for preservation maintenance consistent with park values, or adopt state standards and guidelines. Site plans and facility designs that meet historic standards and better adapt to current and expected visitor trends and operational needs. Historic resource plan/record—some kind of “encyclopedia” that is updated and is a compilation of the numerous and dated reports we have for historic structures in the park.
Data and/or GIS Needs	<ul style="list-style-type: none"> Research and monitoring plan. Best management practices for roads and trails.

Fundamental Resource or Value	Mount Rainier National Historic Landmark District
<p>Planning Needs</p>	<ul style="list-style-type: none"> • Strategic operations plan. • Resource stewardship strategy. • Park asset management plan.
<p>Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance</p>	<p>Laws, Executive Orders, and Regulations That Apply to the FRV</p> <ul style="list-style-type: none"> • Antiquities Act of 1906 • Historic Sites, Buildings, and Antiquities Act of 1935 • National Historic Preservation Act of 1966, as amended (16 USC 470) • Archeological and Historic Preservation Act of 1974 • American Indian Religious Freedom Act of 1978 • Archaeological Resources Protection Act of 1979 • Native American Graves Protection and Repatriation Act of 1990 • Museum Act (16 USC 18f through 18f-3) • Executive Order 11593, "Protection and Enhancement of the Cultural Environment" • Executive Order 13007, "Indian Sacred Sites" • "Curation of Federally-Owned and Administered Archaeological Collections" (36 CFR 79) • "Protection of Historic Properties" (36 CFR 800) <p>NPS Policy-level Guidance (NPS Management Policies 2006 and Director's Orders)</p> <ul style="list-style-type: none"> • NPS Management Policies 2006 (chapter 5) • Director's Order 24: NPS Museum Collections Management • Director's Order 28: Cultural Resource Management (1998) • Director's Order 28A: Archeology (2004) • NPS Museum Handbook, parts I, II, and III • The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation



Fundamental Resource or Value	Archeological record that documents more than 9,000 years of human connection with the land and sustains a living connection to the park for contemporary descendant tribes
Related Significance Statements	Directly related to 6
Current Conditions and Trends	<p>Conditions</p> <ul style="list-style-type: none"> • The park has gaps in its documentation and guidance for managing archeological resources, and much of the park’s existing guidance is outdated. • Documented archeological sites are in varying conditions. • Routine all-tribal consultation meetings are presently in place, but rely on management by the park archeologist-cultural resource specialist and are not yet a formal part of the park’s annual calendar. <p>Trends</p> <ul style="list-style-type: none"> • There is increased tribal pressure to restore Mount Rainier’s name to Native American nomenclature such as Takhoma, Tacobet, Tahoma, etc.
Threats and Opportunities	<p>Threats</p> <ul style="list-style-type: none"> • The Frozen Lake archeological site is presently exposed and immediately adjacent to the trail and experiencing impacts from visitor use as a result. • Archeological sites at the Sunrise Borrow Pit and Tipsoo Lakes have historically been significantly disturbed and continue to be threatened today from erosion and visitor impact. • Managing developed areas that are heavily used by general visitors but are also important to tribes. • Expansion of tribal historic preservation offices (THPO) to affiliated tribes will increase the administrative load for the park’s cultural resource compliance specialist. <p>Opportunities</p> <ul style="list-style-type: none"> • Inventory Carbon River park expansion properties for archeological remains and other historic properties. • To date there are no archeological properties listed in the national register; however, there are 88 sites recommended as eligible for listing. • There is increased interest in small set-aside/co-managed areas for tribal ceremonies and events. • Resolve collection rights issues with affiliated tribes. • Expand state and tribal historic preservation office coordination activities consistent with the above issues.
Data and/or GIS Needs	<ul style="list-style-type: none"> • Research and monitoring plan. • Best management practices for roads and trails.
Planning Needs	<ul style="list-style-type: none"> • Resource stewardship strategy. • Strategic operations plan.

Fundamental Resource or Value	Archeological record that documents more than 9,000 years of human connection with the land and sustains a living connection to the park for contemporary descendant tribes
<p>Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance</p>	<p>Laws, Executive Orders, and Regulations That Apply to the FRV</p> <ul style="list-style-type: none"> • Antiquities Act of 1906 • Historic Sites, Buildings, and Antiquities Act of 1935 • National Historic Preservation Act of 1966, as amended (16 USC 470) • Archeological and Historic Preservation Act of 1974 • American Indian Religious Freedom Act of 1978 • Archaeological Resources Protection Act of 1979 • Native American Graves Protection and Repatriation Act of 1990 • Museum Act (16 USC 18f through 18f-3) • Executive Order 11593, "Protection and Enhancement of the Cultural Environment" • Executive Order 13007, "Indian Sacred Sites" • "Curation of Federally-Owned and Administered Archaeological Collections" (36 CFR 79) • "Protection of Historic Properties" (36 CFR 800) <p>NPS Policy-level Guidance (NPS Management Policies 2006 and Director's Orders)</p> <ul style="list-style-type: none"> • NPS Management Policies 2006 (chapter 5) • Director's Order 24: <i>NPS Museum Collections Management</i> • Director's Order 28: <i>Cultural Resource Management</i> (1998) • Director's Order 28A: <i>Archeology</i> (2004) • NPS Museum Handbook, parts I, II, and III • <i>The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation</i>

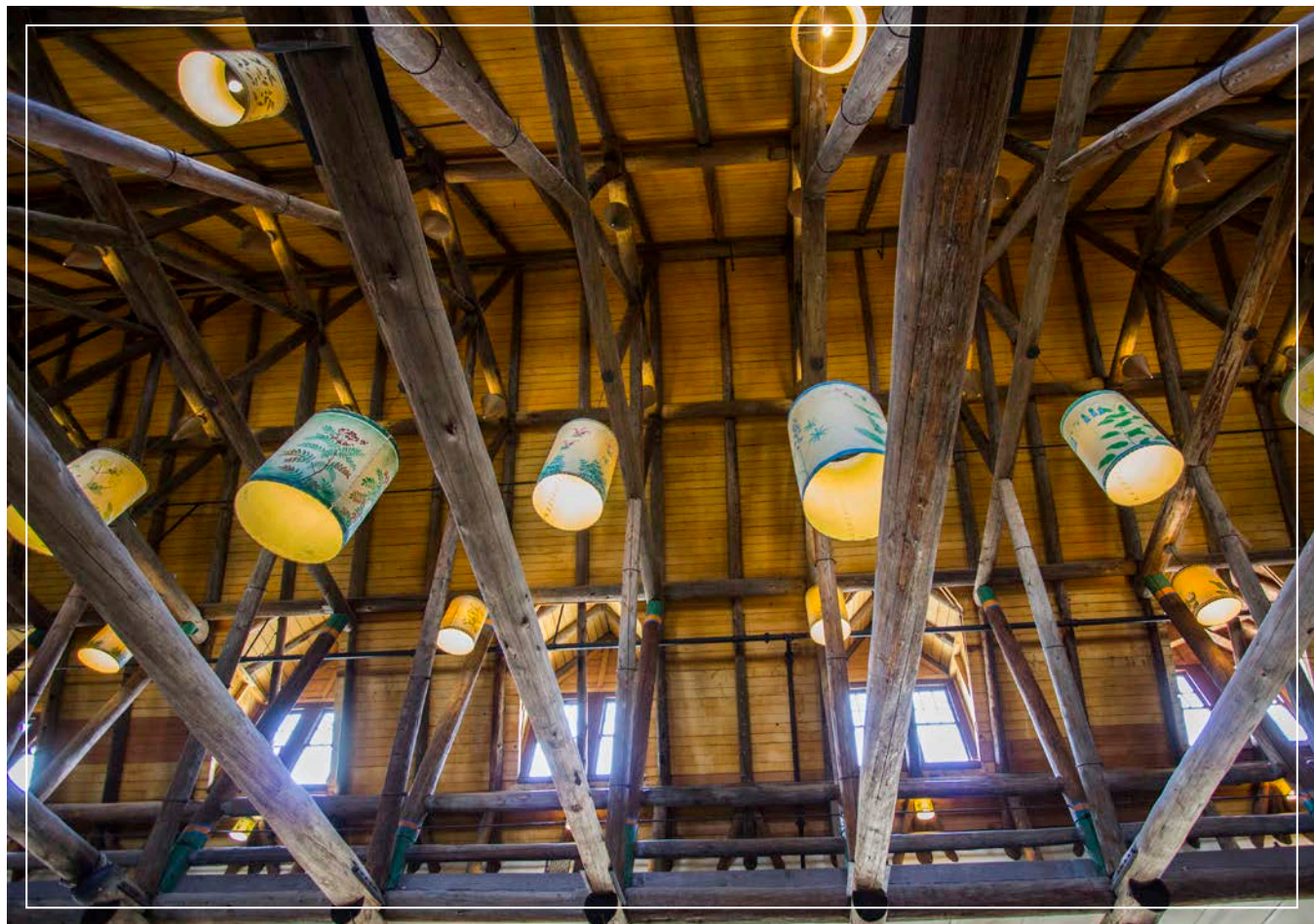


Fundamental Resource or Value	Clean air, scenic vistas, and viewsheds
Related Significance Statements	Directly related to 1 and 3 Indirectly related to 5, 8, and 9
Current Conditions and Trends	<p>Conditions</p> <ul style="list-style-type: none"> The park generally has clean air and scenic vistas, and viewsheds are in good condition. Policies and strategies are in place to work toward ensuring that Mount Rainier’s air quality is enhanced or maintained with no significant degradation and that unimpaired views of the landscape in the park are available. <p>Trends</p> <ul style="list-style-type: none"> Mount Rainier’s aging road infrastructure requires preventative maintenance (significant maintenance backlog), which is further exacerbated by the infrastructure’s location and vulnerability to flooding and environmental damage and affects scenic vistas and viewsheds along the historic road corridor. The Paradise Inn Annex, which contributes to the historic character of the Paradise area, is in need of rehabilitation and seismic stabilization. Visitor access to scenic vistas along the West Side Road is currently limited due to washouts/damage that led to the closure of the road.
Threats and Opportunities	<p>Threats</p> <ul style="list-style-type: none"> Emissions from external sources continue to threaten the park’s air quality. The pollutants of most concern to park air quality are fine particulates, sulfur and nitrogen deposition, ozone, mercury, pesticides, industrial by-products, and emerging chemicals. Extreme weather can damage infrastructure and the associated vistas provided by the infrastructure. State Route 410 and its associated vistas are threatened by potential flooding, and without complete planning in place (initiated but halted due to costs), the road work and techniques used in emergency situations may not be consistent with the park’s long-term goals for historic preservation and maintenance of the road. Rivers are now higher in many places than the roads (as much as 15 feet), and while forests are providing buffers in some places that protect the highway, these could easily be overwhelmed by a flood event. Ongoing use and potential expansion of the ski area at Crystal Mountain threatens park resources, including scenic vistas. New proposals are emerging to install cell tower infrastructure near/around developed areas such as Paradise and Sunrise, which could adversely affect scenic vistas. Increasing traffic on roads prevents visitors from being able to stop along roadside turnouts to experience the scenic vistas. <p>Opportunities</p> <ul style="list-style-type: none"> Integrate vista management planning when making improvements for ADA accessibility.
Data and/or GIS Needs	<ul style="list-style-type: none"> Research and monitoring plan. Best management practices for roads and trails.
Planning Needs	<ul style="list-style-type: none"> Strategic operations plan. Park asset management plan.
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	<p>Laws, Executive Orders, and Regulations That Apply to the FRV</p> <ul style="list-style-type: none"> Clean Air Act (42 USC 7401 et seq.) <p>NPS Policy-level Guidance (NPS Management Policies 2006 and Director’s Orders)</p> <ul style="list-style-type: none"> NPS Management Policies 2006 (§1.4, 1.6, 3.1, 4.7) NPS Natural Resource Management Reference Manual 77



Fundamental Resource or Value	Opportunities to understand Mount Rainier’s resources and heritage
Related Significance Statements	Directly related to 8 and 9
Current Conditions and Trends	<p>Conditions</p> <ul style="list-style-type: none"> • Volunteers and partnerships with public, private, and nonprofit groups for education, scientific research, and stewardship of park resources are integral to achieving the purpose of Mount Rainier. • The park maintains a wide variety of partnerships in support of its purpose and mission and cultivates new partnerships when appropriate and feasible. • The park provides a diverse array of opportunities to understand the stories of Mount Rainier and its surrounding landscapes. Interpretive and educational facilities, exhibits, and programs, as well as the park’s collections, convey important information and stories about the park’s natural and cultural heritage. • These resources allow visitors to understand and feel the significance of Mount Rainier and its role in the history and development of the National Park Service. • These resources and stories also contribute to the continued relevance of the park and other units of the national park system within national and international contexts. <p>Trends</p> <ul style="list-style-type: none"> • The demand for educational opportunities is high, and limited by the park’s ability to provide adequate support staff to take advantage of opportunities. • The cost of transportation and limited funding sources for schools limit their ability to take advantage of educational opportunities within the park.
Threats and Opportunities	<p>Threats</p> <ul style="list-style-type: none"> • Historic buildings are at risk from fire and extreme environmental conditions. • Aging infrastructure and how to address aging infrastructure. • Introduced cell towers. • Increased summer activity at Crystal and winter boundary issues from Crystal skiers. • Sufficient partnerships not yet in place. • Information on management with partners (communication) is not always clear. • Administration process hurdles for establishing partnerships—time and money. • Need sufficient staffing to manage relationships with partners. <p>Opportunities</p> <ul style="list-style-type: none"> • Need staffing and funding to capture significance and share stories with visitors—developing waysides, exhibits, social media, and programs with visitors. • Provide tools for partners in training them on sharing our mission. • Volunteer management/recruitment could increase.

Fundamental Resource or Value	Opportunities to understand Mount Rainier’s resources and heritage
Data and/or GIS Needs	<ul style="list-style-type: none"> • None identified.
Planning Needs	<ul style="list-style-type: none"> • Strategic operations plan. • Sign plan. • Waysides plan.
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	<p>Laws, Executive Orders, and Regulations That Apply to the FRV</p> <ul style="list-style-type: none"> • Americans with Disabilities Act of 1990 • Architectural Barriers Act of 1968 • Architectural Barriers Act Accessibility Standards 2006 • Rehabilitation Act of 1973 • NPS Concessions Management Improvement Act of 1998 • Wilderness Act of 1964 • Washington Park Wilderness Act of 1988 <p>NPS Policy-level Guidance (NPS Management Policies 2006 and Director’s Orders)</p> <ul style="list-style-type: none"> • NPS Management Policies 2006 (chapters 7, 8, 9, and 10) • Director’s Order 6: Interpretation and Education • Director’s Order 42: Accessibility for Visitors with Disabilities in National Park Service Programs and Services • NPS Transportation Planning Guidebook





Fundamental Resource or Value	Opportunities for first-hand observation, scientific research, and learning
Related Significance Statements	Directly related to 8
Current Conditions and Trends	<p>Conditions</p> <ul style="list-style-type: none"> • Fifty-five research permits are issued annually and include a variety of research projects. <p>Trends</p> <ul style="list-style-type: none"> • The demand for research permits continues to be high; many proposals are within wilderness. There is a perception that demand is increasing to install monitoring devices within the park and wilderness. This demand corresponds to technological advances that make monitoring devices smaller and more affordable.
Threats and Opportunities	<p>Threats</p> <ul style="list-style-type: none"> • Research on resources that are affected/sensitive to a warming climate. • Research takes place in a rare and rapidly changing environment. <p>Opportunities</p> <ul style="list-style-type: none"> • Consider connections to downstream communities. • Mount Rainier provides research access to unique high elevation habitat.
Data and/or GIS Needs	<ul style="list-style-type: none"> • Research and monitoring plan.

Fundamental Resource or Value	Opportunities for first-hand observation, scientific research, and learning
Planning Needs	<ul style="list-style-type: none"> • Resource stewardship strategy. • Strategic operations plan. • Wilderness stewardship strategy.
Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance	<p>Laws, Executive Orders, and Regulations That Apply to the FRV</p> <ul style="list-style-type: none"> • National Historic Preservation Act of 1966, as amended (16 USC 470) • Antiquities Act of 1906 • Archeological and Historic Preservation Act of 1974 • Archaeological Resources Protection Act of 1979 • American Indian Religious Freedom Act of 1978 • Historic Sites, Buildings, and Antiquities Act of 1935 • Museum Act of 1955, as amended • Native American Graves Protection and Repatriation Act of 1990 • Paleontological Resources Protection Act • Federal Cave Resources Protection Act of 1988 • Endangered Species Act of 1973, as amended • National Invasive Species Act • Lacey Act, as amended • Federal Noxious Weed Act of 1974, as amended • Clean Water Act • Clean Air Act • Executive Order 13112, "Invasive Species" • Executive Order 11593, "Protection and Enhancement of the Cultural Environment" • Executive Order 13007, "American Indian Sacred Sites" • "Curation of Federally-Owned and Administered Archaeological Collections" (36 CFR 79) • "Protection of Historic Properties" (36 CFR 800) • Wilderness Act of 1964 • Washington Park Wilderness Act of 1988 <p>NPS Policy-level Guidance (NPS Management Policies 2006 and Director's Orders)</p> <ul style="list-style-type: none"> • NPS Management Policies 2006 (§2.3.1.4, 4.2, 5.1, 8.10, 1.6, 4.1, 4.1.4, 4.4.1, 4.7.2) • Director's Order 24: <i>NPS Museum Collections Management</i> • Director's Order 28: <i>Cultural Resource Management</i> • Director's Order 28A: <i>Archeology, 4A(3) "Native American Graves Protection and Repatriation Act"</i> • Director's Order 77-2: <i>Floodplain Management</i> • NPS Museum Handbook, parts I, II, and III • NPS-75 <i>Natural Resources Inventory and Monitoring Guideline</i> • NPS <i>Natural Resource Management Reference Manual 77</i>



Fundamental Resource or Value	Curatorial collections
Related Significance Statements	Directly related to 4, 6, 7, and 8
Current Conditions and Trends	<p>Conditions and</p> <ul style="list-style-type: none"> • Curatorial and collection plans are dated. • Individual items in the collection are varying in their condition. • The program recently failed a 100% inventory audit. Due to NPS policy and poor management of the museum collections, artifacts are either missing, were not properly reconciled in the legal documentation, or accidentally transferred to another agency. • Staffing and facilities are inadequate to manage and properly protect collection. <p>Trends</p> <ul style="list-style-type: none"> • The park's museum collection has a rich diversity of cultural and natural history objects, specimens, and records. As a result of a 2013 inventory audit, the curatorial program is conducting a 100% inventory and reconciliation of museum acquisition and catalog records to validate ownership, provenance, copyright, loan status, location, description, and quantity of the 1.4 million items in the collection.
Threats and Opportunities	<p>Threats</p> <ul style="list-style-type: none"> • The park does not have a climate-controlled facility to store the museum collections and park archives. This is the fifth US national park and the oldest park in the Pacific Northwest, yet it does not have an appropriate facility to care for its museum collections and archives as mandated by the Department of the Interior, the National Park Service, and Congress. <p>Opportunities</p> <ul style="list-style-type: none"> • Update curatorial and collection plans. • Increase program funding and staffing levels to construct appropriate collections facilities and accomplish the backlog of work necessary to bring the cataloging and storage of the collection up to NPS standards.
Data and/or GIS Needs	<ul style="list-style-type: none"> • Research and monitoring plan.
Planning Needs	<ul style="list-style-type: none"> • Resource stewardship strategy. • Park asset management plan.

Fundamental Resource or Value	Curatorial collections
<p>Laws, Executive Orders, and Regulations That Apply to the FRV, and NPS Policy-level Guidance</p>	<p>Laws, Executive Orders, and Regulations That Apply to the FRV</p> <ul style="list-style-type: none"> • National Historic Preservation Act of 1966, as amended (16 USC 470) • Antiquities Act of 1906 • Archeological and Historic Preservation Act of 1974 • Archaeological Resources Protection Act of 1979 • American Indian Religious Freedom Act of 1978 • Historic Sites, Buildings, and Antiquities Act of 1935 • Museum Act of 1955, as amended • Native American Graves Protection and Repatriation Act of 1990 • Paleontological Resources Protection Act • Federal Cave Resources Protection Act of 1988 • Endangered Species Act of 1973, as amended • Executive Order 11593, "Protection and Enhancement of the Cultural Environment" • Executive Order 13007, "American Indian Sacred Sites" • "Curation of Federally-Owned and Administered Archaeological Collections" (36 CFR 79) • "Protection of Historic Properties" (36 CFR 800) <p>NPS Policy-level Guidance (NPS Management Policies 2006 and Director's Orders)</p> <ul style="list-style-type: none"> • NPS Management Policies 2006 (§2.3.1.4, 4.2, 5.1, 8.10, 1.6, 4.1, 4.1.4, 4.4.1, 4.7.2) • Director's Order 24: <i>NPS Museum Collections Management</i> • Director's Order 28: <i>Cultural Resource Management</i> • Director's Order 28A: <i>Archeology, 4A(3) "Native American Graves Protection and Repatriation Act"</i> • Director's Order 77-2: <i>Floodplain Management</i> • <i>NPS Museum Handbook</i>, parts I, II, and III • <i>NPS-75 Natural Resources Inventory and Monitoring Guideline</i> • <i>NPS Natural Resource Management Reference Manual 77</i>



Pacific West Region Foundation Document Recommendation Mount Rainier National Park

April 2015

This Foundation Document has been prepared as a collaborative effort between park and regional staff and is recommended for approval by the Pacific West Regional Director.

RECOMMENDED

Randy King, Superintendent, Mount Rainier National Park

Date

APPROVED

Christine S. Lehnertz, Regional Director, Pacific West Region

Date



As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our national parks and historic places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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