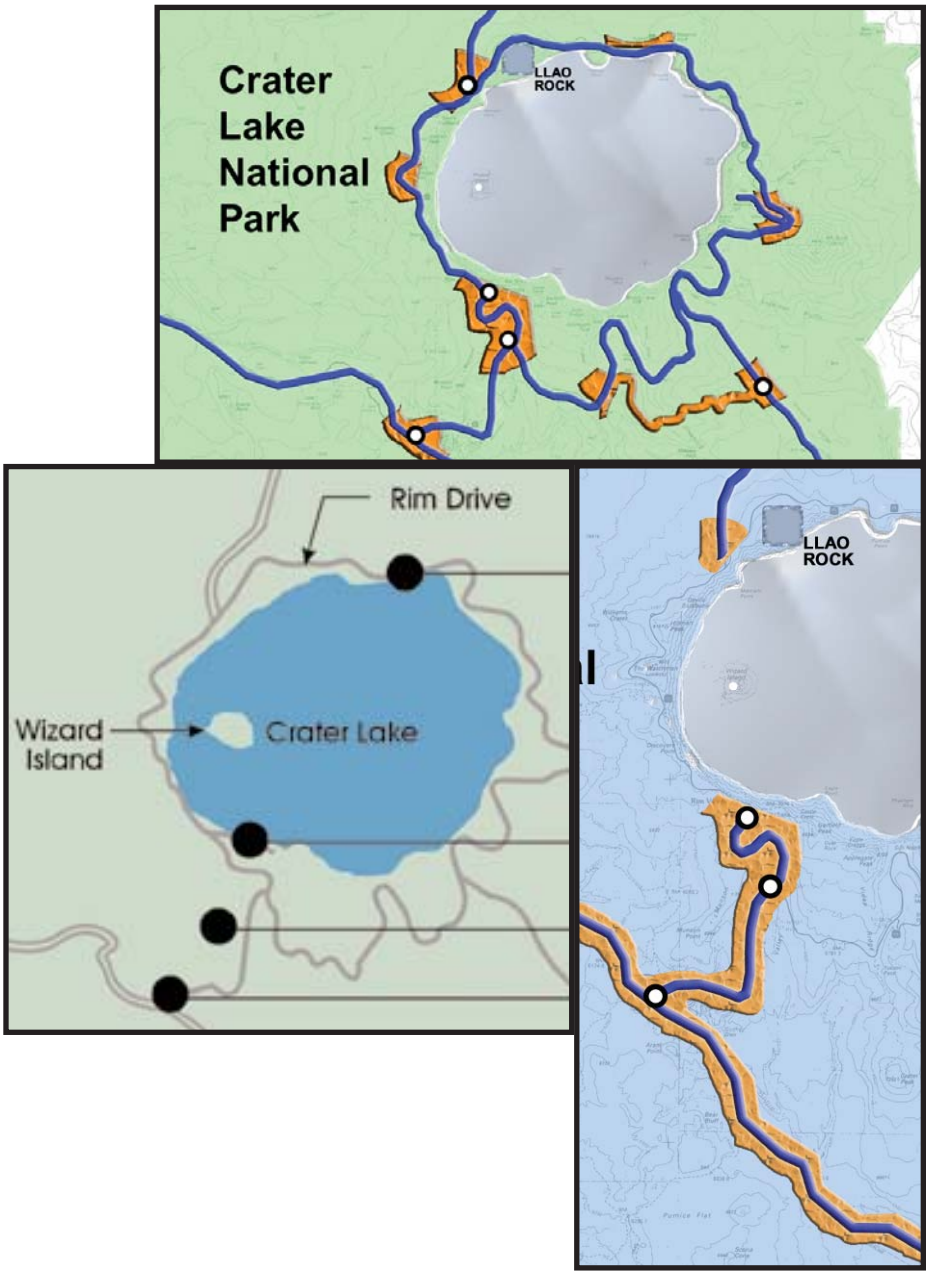
ALTERNATIVES, INCLUDING THE PREFERRED ALTERNATIVE



THE ALTERNATIVES

This *Draft General Management Plan / Environmental Impact Statement* presents four alternatives, including the National Park Service's preferred alternative, for future management of Crater Lake National Park. Alternative 1, the no-action alternative, describes the continuation of current management and trends and serves as a basis for comparing the other alternatives. Alternative 2 is the National Park Service's preferred alternative. It would provide additional opportunities while providing for the research and protection of resources. Alternative 3 would allow visitors to experience the entire range of natural and cultural resources significant and unique to the park through recreational opportunities and education. Alternative 4 would have a greater emphasis on resource preservation and restoration than the other alternatives.

The preferred alternative was developed following an initial assessment of the impacts of the preliminary alternatives. An evaluation process, called "Choosing by Advantages (CBA)," was then used to evaluate and compare the alternatives and to develop a preliminary preferred alternative. As part of the CBA process, the planning team looked at comparative costs of the alternatives (see appendix C for these comparative costs).

ACTIONS COMMON TO ALL ALTERNATIVES

All alternatives to be considered in the *General Management Plan* must be consistent with and contribute to sideboards within which all management actions must fall. These sideboards are the purpose and significance statements, along with the mission goal. All alternatives must also be within NPS legal mandates and park policies.

At Crater Lake National Park the lake and the surrounding environment led to the initial creation of the park. Research and information since the legislation creating the park have highlighted the unique and scientific aspects of the lake. In addition to the beauty of its large size, blue color, and mountain setting, the lake holds the world record for clarity among lakes and has been the object of scientific study for more than a century due to its pristine waters, associated geothermal activities, and unusual aquatic organisms. The ongoing Crater Lake Long-Term Limnological Program has indicated that the chemical and physical parameters measured in the lake are within their expected range of variation.

All alternatives in this *General Management Plan* would provide for resource protection and visitor use. The park would manage its ecosystems for the sustainability of the resources found in the park. Protection, preservation, and monitoring of the primary and most unique resource in the park, Crater Lake, would occur in all alternatives.

All alternatives in this general management plan discuss resource condition, the visitor experience, and appropriate activities and facilities. Prior to this general management plan, the 1999 *Crater Lake National Park Visitor Services Plan* established the basis for a new concession contract. This new 10- year contract went into effect in 2003. The concession projects proposed in the *Visitor Services Plan* are consistent with the alternatives. Any future commercial actions or operations would need to be

within the defined visitor experience, level of activity, and facilities as defined in the preferred alternative.

DEVELOPMENT OF THE ALTERNATIVES

Before the alternatives were developed, information on park resources, visitor use, and visitor preferences was gathered and analyzed. Information about the issues and scope of the project was solicited from the public, other agencies, special interest groups, and park staff through newsletters, meetings, and personal contacts. This information helped with developing the preliminary alternatives. The alternatives were further refined based on public comments on an alternatives newsletter. Each of the alternatives support the park's purpose, significance, and mission; address issues; avoid unacceptable resource impacts; and respond to differing public desires and concerns.

Using the information described above, the planning team developed eight management zones for guiding preservation, use, understanding, and development of Crater Lake National Park and its resources. These zones form the basis of the alternatives and reflect the range of ideas proposed by the Park Service and public.

MANAGEMENT ZONES

An important tool in planning and management is the establishment of management zones for various areas in the park. These zones identify how different areas could be managed to achieve a variety of resource conditions and visitor experiences. Each zone specifies a particular combination of resource, social, and management conditions (see the following chart). Under the action alternatives, the National Park Service would take different actions in different zones concerning uses and facilities.

Summer and winter scenarios and maps follow each alternative description because the park landscape changes so dramatically from winter to summer. These scenarios help distinguish when visitor activities and access are possible and allowed.

Table 1: Management Zones

ZONE		RESOURCE CONDITION OR CHARACTER	VISTOR EXPERIENCE	APPROPRIATE ACTIVITIES OR FACILITIES
NATURAL HERITAGE ZONES	BACKCOUNTRY	**Biological diversity and ecological integrity** • Managed for wilderness character and values • Moderate level of management for resource protection and visitor safety • Minimal evidence of modern civilization • Subtle onsite controls and restrictions • Resource modifications would harmonize with the natural environment. Tolerance for resource degradation in this zone would be very low	**Immersed in nature, away from comforts and conveniences** • Opportunities for solitude • Few other visitors • High level of independence, challenge, adventure and application of outdoor skills • Longer time commitment • Low tolerance for noise and visual intrusions • Generally requires higher level of physical exertion	**Minimal** • Primitive trails • Small designated campsites • Small facilities, including antennas • No motorized vehicles (except to attain management objectives when determined necessary) • If any, facilities in the zone would avoid sensitive resources
	FRONT COUNTRY	**Transition between developed areas and those managed for natural values** • Managed predominately for natural values • Subtle site modifications to accommodate use that harmonizes with natural environment • Moderate level of management for resource protection Tolerance for resource degradation would be low to moderate	**In contact with nature, close to modern conveniences** • Common to encounter other visitors • Some physical exertion required • Short to moderate time commitment • Moderate tolerance for noise and visual intrusions	**Support facilities** • Trails, possibly paved • Facilities for visitor comfort and convenience — may include restrooms, trash cans, benches, tables, kiosks, signage or drinking fountains • Bicycling and other nonmotorized recreation

ZONE		RESOURCE CONDITION OR CHARACTER	VISTOR EXPERIENCE	APPROPRIATE ACTIVITIES OR FACILITIES
	LAKE AND CALDERA	**Pristine** • Highest level of resource protection • Low levels of management for access, resource protection and visitor safety would be appropriate in these areas • Any resource modifications would be minimal and would harmonize with the natural environment	**Fully immersed in nature in a unique environment** • Access would require a moderate to high level of challenge • Visitors would access the resource as part of a guided boat tour • Intimacy with resources, learning, and access to a large portion of the lake would be key elements of this experience • Probability of encountering other boats would be low, and there would be some opportunities for individual solitude	**Minimal facilities to accommodate boat operations, research, and visitor needs** • Boat touring with a guide would be the predominant activity • Swimming, fishing, and scuba diving are permitted. Any other activities would require park approval • Comfort stations, boat dock and storage, and access trail • Hiking would be necessary to access the area
	RESEARCH NATURAL	**Protection for unique habitats and extraordinary ecological values** • Managed to allow natural processes to occur without disturbance or impacts from humans • Tolerance for resource degradation in this zone would be very low	**Resource Oriented** • Visitors may or may not be allowed, depending on specific resource goals. • If allowed, visitation would be education-oriented and an NPS guide could be required	**Minimal and probably temporary facilities required to meet the resource objectives** • Research, observation, and other activities which would not impact the zone's specific objectives

ZONE	RESOURCE CONDITION OR CHARACTER	VISTOR EXPERIENCE	APPROPRIATE ACTIVITIES OR FACILITIES
CULTURAL HERITAGE ZONE	**Maintaining and protecting cultural resources and providing for quality visitor experiences** • Evidence of management activity and resource preservation could be visible to visitors. • Setting would be predominantly historic • National register-listed (or eligible) properties would be managed to preserve their documented values. • Historic scene and the landscape would be managed to maximize their integrity and to support visitor use • Some minor aspects of the natural and cultural landscape could be modified to protect resources and accommodate use	**Immersed in a built environment** • Rich in architectural and cultural history • Interpretive and educational services and media would be greatest • Opportunities to understand and appreciate resources • Visitor activities would occur in both structured (such as interpretive talks) and unstructured ways (self-guided tours and waysides) • Probability of encountering other people and NPS staff would be high • Opportunities for physical challenge would be low • Moderate intrusions on the natural soundscape by cars and other people	**Learning about the park's natural and human history and its ecological and historical significance** • Viewing Crater Lake, birdwatching, photography, walking, and picnicking • A range of interpretive, educational, and orientation programs would be provided, with orientation and interpretation of resources taking place mostly onsite • Facilities could include visitor contact, restrooms, exhibits, and facilities related to park administration and operations • Trails and picnic areas
TRANSPORTATION ZONE	**Resources modified to accommodate roads and road construction** • Minimize impacts to resources • Minimize landscape and visual impacts • Resources modified for essential visitor and park operational needs	**Touring the park, enjoying scenic overlooks and interpretive media, and gaining access into other park areas** • Visitor attractions would be convenient and easily accessible • Visitors would have little need to exert themselves, apply outdoor skills, or spend a long time in the area • Probability of encountering other visitors and NPS staff would be high	**Substantially developed area** • Paved roads, pullouts, overlooks, and associated short trails and picnic areas, parking areas and other facilities (such as restrooms, picnic tables, kiosks, wayside exhibits) that support visitor touring • Most facilities and some trails would be accessible in this area • Road realignment could occur within a road corridor measuring 200 feet from the centerline of the road

ZONE	RESOURCE CONDITION OR CHARACTER	VISTOR EXPERIENCE	APPROPRIATE ACTIVITIES OR FACILITIES
DEVELOPED ZONE	**Resources modified for visitor and park operational needs** • Not in designated wilderness nor near sensitive resources • Visitors and facilities would be intensively managed • Signs of human activity would be fairly obvious	**Convenient and accessible** • Opportunities for adventure would be relatively unimportant • Promotes social experiences • Probability of encountering other visitors or NPS staff would be high	**Visitor and administrative facilities** • Visitor centers, lodges, administrative offices, maintenance areas, and residences • Paved paths, roads, parking, and other walkways connecting facilities could be appropriate • Campground

ALTERNATIVE 1 – NO ACTION

The no-action alternative represents continuation of the current management direction and approach currently used at the park. This alternative is presented as a way of evaluating the proposed actions of the other three alternatives and is useful in understanding why the National Park Service or the public may believe that future changes are necessary.

Ongoing and planned actions and projects in the park are included under projects that make up the cumulative impact scenario and are not included as part of this alternative. The impacts of these actions are analyzed as part of the cumulative impact analysis.

The existing road access and circulation system within the park would continue. Two-way traffic and existing pullouts along Rim Drive that provide scenic lake views would be maintained. Several pullouts that are heavily used would likely continue to have crowding problems during peak times and problems with newer, larger vehicles and RVs. Grayback Road would remain unpaved and open to one-way traffic. During winter, private vehicular access would be maintained from the south and west on OR 62 through park headquarters and up to Rim Village. Winter snowmobile and snowcoach access would continue along North Junction to the rim. Other winter visitor activities in the park, including cross-country skiing and snow play on unplowed roads, would also continue. The Park Service would initiate a data collection and monitoring program to gather information on winter use and resource conditions to ensure long-term protection and sustainable use of park resources.

Existing buildings and facilities in the park would remain. Preservation and maintenance of existing historic structures would continue based on available staff and funding. Some historic structures would be adaptively used for visitor use and administrative functions. The superintendent's residence, a national historic landmark, would be rehabilitated for use as a science and learning center. Munson Valley would continue to serve as the center of NPS administration, maintenance, and housing. It would also serve as the year-round visitor interpretation and orientation point. There would continue to be inadequate storage and workspace for park collections that meets NPS museum standards. Due to limited staffing, the cataloging backlog would continue to increase .

Existing visitor recreational opportunities and interpretive programs in the park would continue. Rim Village would continue to function as a year-round operation with limited services in the winter. Seasonal interpretive activities would be provided at the rim. Mazama Village would be the primary overnight visitor use area in the summer. Development at Cleetwood would continue to provide access to Crater Lake and the commercial boat tours of the lake.

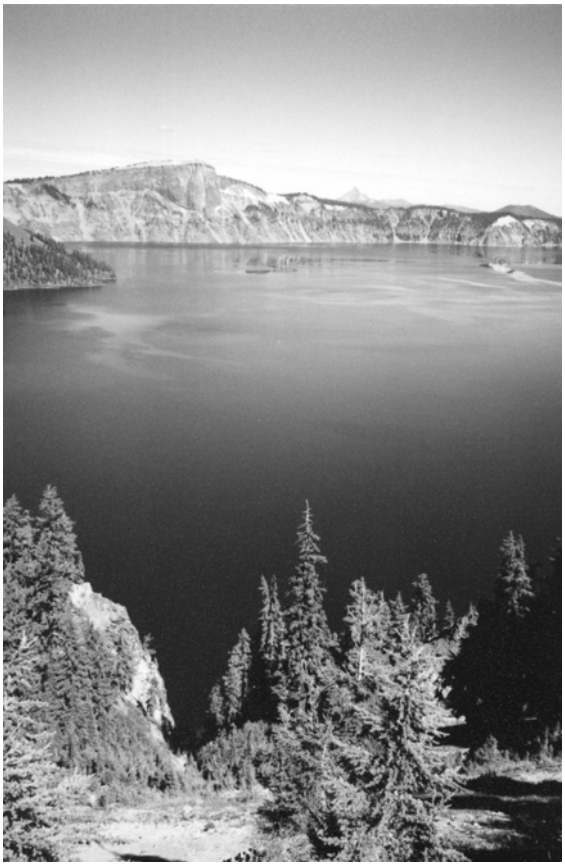
Cultural resources in the national park would continue to be surveyed, inventoried, and evaluated under National Register of Historic Places criteria of evaluation to determine their eligibility for listing in the national register as NPS staff and funding permitted.

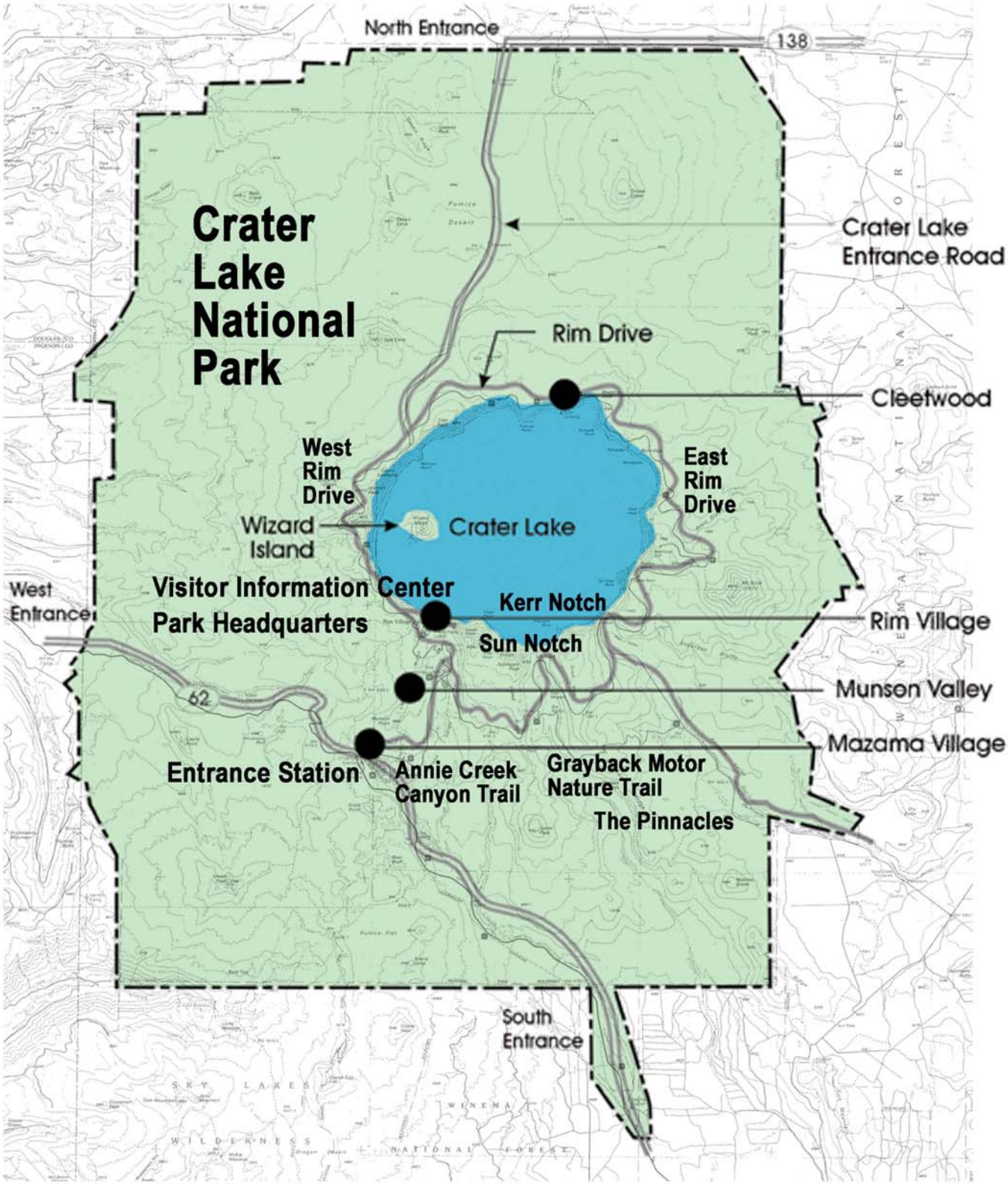
Natural resource management protection, preservation, and restoration activities would also continue as staffing and funding allowed. The following protection

measures to protect the lake would also continue:

- minimal development would be allowed within the caldera and lake drainage area
- operations would be managed to prevent contaminants from draining into the lake
- only essential visitor service would be provided at Rim Village
- the number and types of boats would be controlled
- a single access trail would be provided to the lake

The Crater Lake Long-term Limnological Program would continue to research and monitor Crater Lake as well as determine periodic recommendations for resource preservation. Partnerships with academia and other outside research interests would continue in support of inventorying and monitoring of resources.





Legend

Park Boundary

0 1.5 3 6

Scale in Miles

Alternative 1

No Action

ALTERNATIVE 2: PREFERRED ALTERNATIVE—EMPHASIS ON INCREASED OPPORTUNITIES

CONCEPT AND RELATED ACTIONS

Management of the park would emphasize increased opportunities for visitors in both recreational diversity and learning about park resources. Most visitor recreational opportunities would remain.

This alternative would explore a greater diversity of uses along Rim Drive. New opportunities would allow visitors to directly experience the primary resource of Crater Lake in ways other than driving. Any new uses would be nonmotorized and low impact and be limited to areas that would have space to accommodate them; new trails could be included. Additional opportunities may be provided by seasonal closures of sections of east Rim Drive to allow hiking and biking along Rim Drive. These closures would also provide opportunities to experience the lake in a quieter setting without requiring physical changes to the historic Rim Drive. Closure of Rim Drive would be experimental to determine how well this approach worked, and the road may be reopened if warranted. The Grayback Road would no longer be used for motorized transportation. It would function as a nonpaved trail to accommodate hikers, bicyclists, and stock use. Winter snowmobile and snowcoach access would remain along North Junction to the rim. Winter access in private vehicles to Rim Village would continue via plowing the road. The Park Service would initiate a data collection and monitoring program to gather information on winter use and resource conditions to ensure long-term protection and sustainable use of park resources.
Other current opportunities would still be available but with a greater depth and range of information. Some additional frontcountry opportunities would be in areas along the rim and along the roadways. Transitional experiences (such as short trails and picnic areas) would be provided between the developed areas or transportations corridors and the backcountry. Areas for enhanced interpretation, new research, and access to the backcountry would also be provided.

Opportunities would be added for research, learning, and conveying of information to park visitors. The goal would be to facilitate research that was focused, purposeful, and significant to the resources of Crater Lake National Park or that would further basic natural, cultural, and social science understanding. A new science and learning center would form the core of the new research. The park would expand and encourage partnerships with universities, scientists, and educational groups. Research would provide information that is relative to and could be compared to larger regional and global contexts, which would then form the basis of a more substantive interpretive and educational experience for visitors.

The park, through its partnerships, would invite scientists, educators, students, and researchers to study mutually beneficial subjects at Crater Lake. Joint conferences and seminars could be held on related topics with partnering universities or with other agencies or at the park's science and learning center. The information gathered would be disseminated throughout the park to rangers, interpretive staff, and visitors. Park staff would use new and expanding sources of information to manage resources and to analyze impacts to the resources and incorporate the newest research into their interpretive

talks. Researchers would interpret their research through field trips, seminars, and workshops. Visitors would have the opportunity to participate in extended workshops to support research and resource management. Special in-depth tours would be available to interest groups, such as bird groups or geology clubs. An underlying theme would be the environment, especially its connection beyond park boundaries. Methods for disseminating information about park resources would go beyond the current level. Radio information would be provided for visitors in private cars, and interpreters would provide research-based programs for buses and tour boats. New technology would be used to provide information to "virtual" visitors who may never step within the boundary of the park.

The park's museum collections would be increased as a result of the expanded research activities. Pertinent park-related collection materials not currently owned or managed by the National Park Service would be acquired and stored in onsite and offsite facilities that met professional and National Park Service museum standards. Thus, adequate storage and workspace would be provided for improvement of curation, protection, and access to the collections, and staffing would be upgraded to reduce the cataloging backlog.

Existing buildings and facilities in the park would remain, but some structures would be adaptively used for new functions and uses, including the rehabilitation of the superintendent's residence as a science and learning center. While researchers, scientists, and artists may be invited and encouraged to visit and stay in the park, it is anticipated to be small numbers and relatively short term — a few days to a month. Space would be provided within existing facilities for educational groups — classes, clubs, and tour groups. Current and future needs for office and administrative space would be accommodated without additional construction. Administrative and other organizational functions, which were not by necessity park-based, would be moved to surrounding communities as demand for space within the park increased. Community- based employees would strengthen ties to nearby communities as well as provide greater choices of living situations for employees, thereby improving recruitment and retention. Functions could be dispersed to more than one community in the area, locating close to institutions partnering with the park to strengthen and solidify those relationships.

A greater emphasis on research, education, and interpretation would require an increase in staffing in those areas.

Parking and road congestion at the park would be managed by improving existing pullouts, parking areas, and overlooks. Minor changes could include signing, marking parking spaces, and minor pavement alterations. If, in the future, crowding conditions developed, shuttles and other alternative transportation systems would be used to solve the problems, rather than expanding road and parking capacities. At that time, a feasibility analysis would determine whether the alternative transportation would be a concession, Park Service operated, or a service contract.

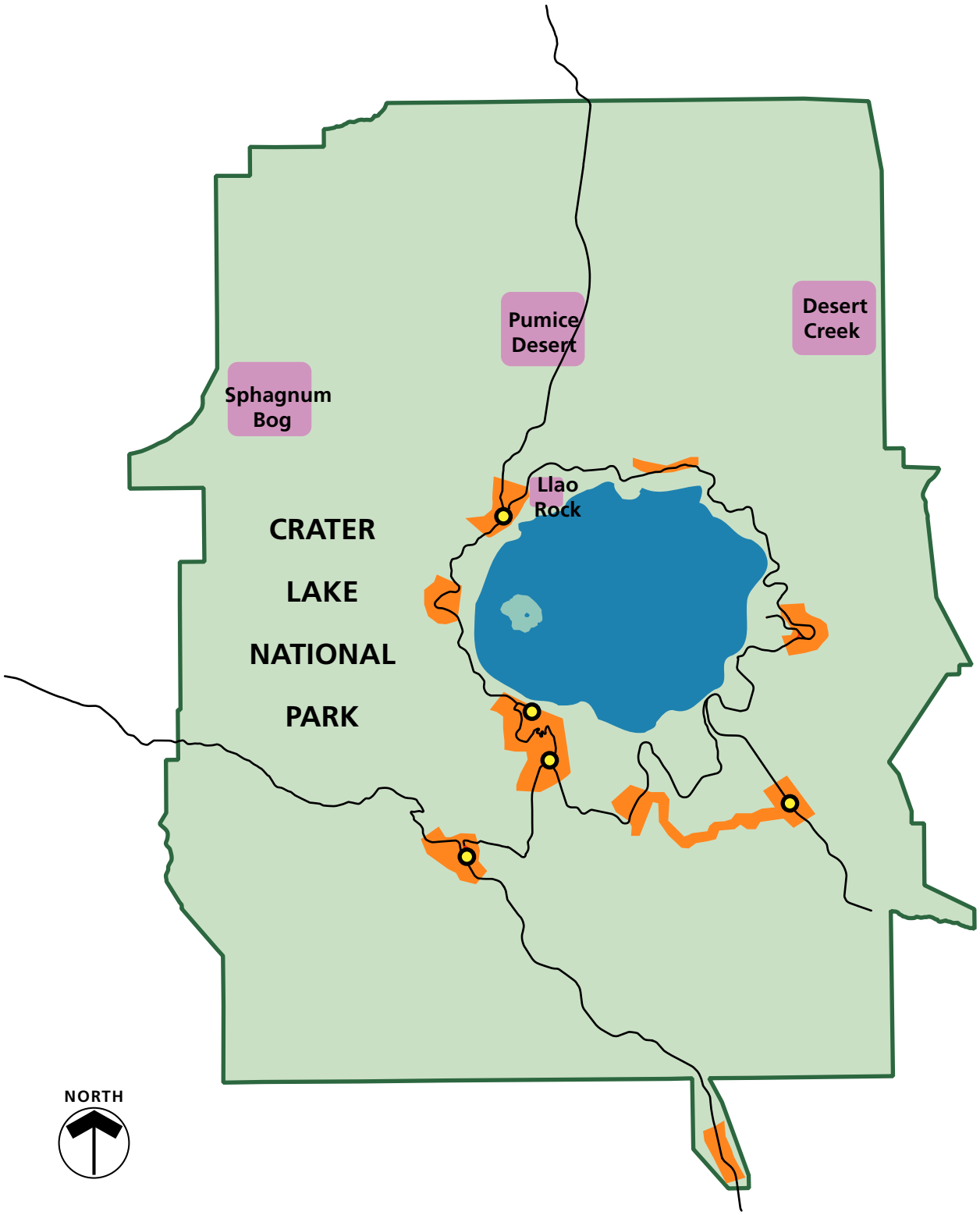
MANAGEMENT ZONING

Summer

Most of the lands within the park would be managed under the backcountry management zone, which includes most lands contained in the 1974 wilderness recommendation. This zone would preserve the park's pristine landscape and provide visitor opportunities for solitude and a primitive experience. The research natural zone would be applied to the four research natural areas (shown on the Alternative 2 — Summer map) in the park that posses unique habitats and extraordinary ecological values. This zone includes the remaining lands contained in the 1974 wilderness recommendation not zoned as backcountry. Crater Lake would be zoned lake and caldera. Management would emphasize continued resource protection and the learning opportunities associated with this unique environment. The developed zone would include visitor and administrative facilities at Rim Village, Munson Valley, Mazama Village, North Junction, and Lost Creek. The transportation zone would include corridors along the park road system. The frontcountry zone would be in a number of areas along the Rim Drive and other park roadways to support expanded frontcountry opportunities. The Grayback Road, which would become a nonpaved trail, would also be included in this zone.

Winter

In the winter, the backcountry zone would be expanded to include those portions of the park's road system and visitor facilities that would be closed in the winter.



Legend

- Park Boundary
- Lake/Caldera
- Transportation
- Development
- Front Country
- Research
- Back Country (Summer)

Alternative 2 - Preferred

Summer

Emphasis on Increased Visitor Opportunities

Crater Lake National Park

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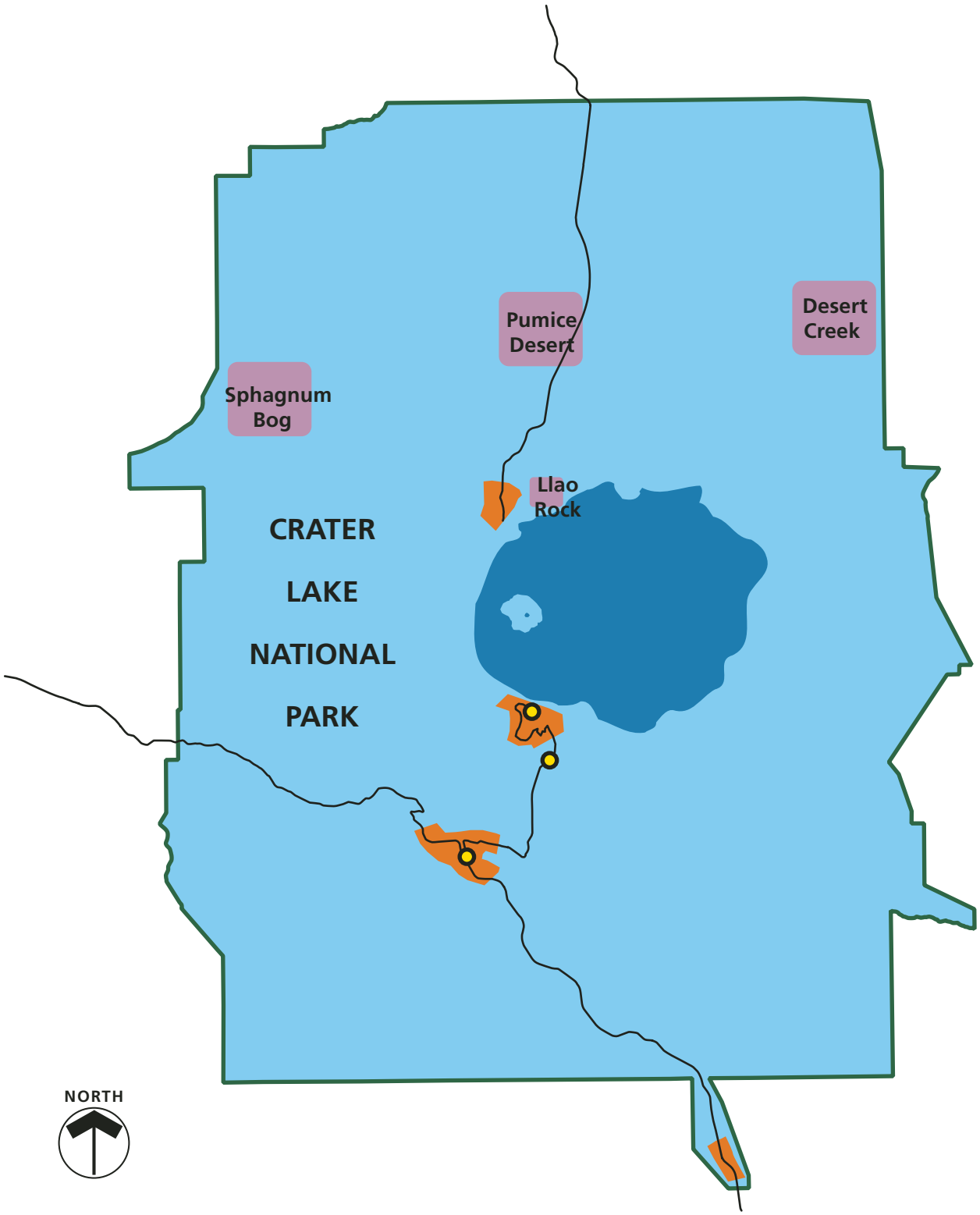

Legend

- Park Boundary
- Lake/Caldera
- Transportation
- Development
- Front Country
- Research
- Back Country (Winter)

Alternative 2 - Preferred Winter

Emphasis on Increased Visitor Opportunities

Crater Lake National Park

United States Department of the Interior ▪ National Park Service
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ALTERNATIVE 3 — EMPHASIS ON ENJOYMENT OF THE NATURAL ENVIRONMENT

CONCEPT AND RELATED ACTIONS

The emphasis of this alternative would be to allow visitors to experience a greater range of natural and cultural resources significant and unique to the park through recreational opportunities and education. The park would be managed to provide a wider range of visitor experiences and would reach out to a greater diversity of visitor groups — different ages, abilities, economic, and ethnic groups. Recreational opportunities would provide the base for interpretation and education. These programs would focus on minimizing impact, leaving no trace and acquisition of skills for outdoor recreation. Programs would include a broader range to provide appropriate levels of education and interpretation for a variety of groups. Trails would be located to introduce visitors to a diverse range of ecosystems and terrain and to accommodate ability and experience levels.

Resources would be managed to permit recreation while protecting resources. The park would partner with a range of tourism, hospitality, and recreation clubs, along with private contractors and related agencies, to provide orientation and education. Some orientation and education efforts could occur offsite in local hotels and/or on tours to prepare visitors for and teach stewardship to groups before getting to the park. Partnering with commercial operators to provide interpretation on guided van tours would be encouraged. Interpretive programs for less physically fit visitors would be provided; possibly on tours or in community facilities. Opportunities for recreation would be viewed in a regional context. While not all recreational activities are appropriate for, nor would be allowed within the boundaries, the park could serve as a source of information for regional recreational opportunities. Winter access would be improved by grooming along North Junction Road to accommodate both snowmobiling and snowcoaches. Plowed vehicle access would continue from Mazama Village to Rim Village. Increases in numbers or impacts to resources or visitors could warrant changes in management actions.

In addition to reaching out to groups in nearby communities and those on tours, use of a shuttle bus system would be explored. The shuttle would be integrated with recreational opportunities to create a wide range of visitor opportunities. The shuttle would also be integrated with the interpretive program to expand the park experience. For example, visitors could park at Mazama and take a shuttle to and around Rim Drive. The shuttle stops could be connected with the trail system, allowing visitors to have short stops, short hikes, or successively longer outings, as they chose. The road section between Cleetwood Cove and Kerr Notch could be one way for private vehicles. This could create an area where visitors could ride bikes in one lane with a high degree of safety.

Increases in visitor contact and contact with the resource would stimulate a shift toward increased interpretive and ranger services. Some interpretive functions could be based in nearby communities where partnerships with the tourism industry have established off site interpretive programs For example,

interpretive programs could be presented in local hotel meeting rooms, schools, or community buildings. Use of most current facilities would continue. Treatment of historic structures and cultural landscapes under this alternative would be similar to the no-action alternative, although such resources could be affected by construction of additional trails, installation of new interpretive signs and other media, and expanded tour programs.

Adequate space would be provided for the curation and storage of the park's museum collections, which would be stored in an onsite facility that met professional and National Park Service museum standards. Although adequate storage and workspace would be provided to improve curation and protection of the collections, and staffing would be upgraded to reduce the cataloging backlog, park-related collection materials not currently owned or managed by the National Park Service would generally not be acquired. Access to the collections, both for NPS and non-NPS researchers, would be limited by availability of museum staff to assist in use of the collections.

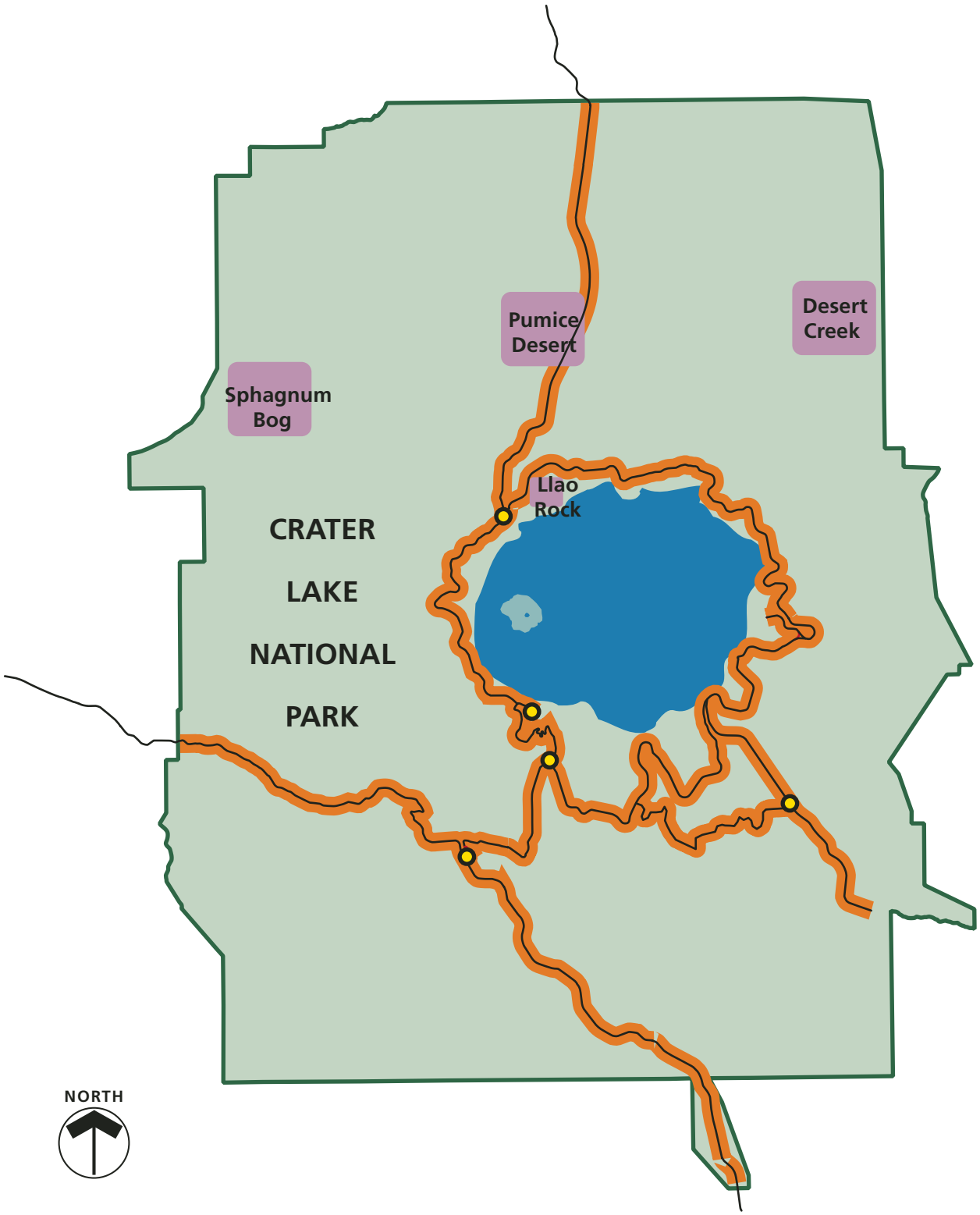
MANAGEMENT ZONING

Summer

The zone allocation would be similar to alternative 2, with the following exceptions. The Grayback Road would be included in the transportation zone to accommodate continued motorized recreational opportunities. In addition, a corridor along the park's road system would be zoned frontcountry to allow for increased visitor opportunities, such as hiking and picnicking, in these corridors. (Please see the Alternative 3 — Summer map.)

Winter

The zone allocation would be similar to alternative 2, where the backcountry zone would be expanded to include those portions of the park's road system and visitor facilities that would be closed in the winter. However, the frontcountry zone would be applied along the entire OR62 and south access road corridors to support increased winter use opportunities.



Legend

- Park Boundary
- Lake/Caldera
- Transportation
- Development
- Front Country
- Research
- Back Country (Summer)

Alternative 3

Summer

Emphasis on Enjoyment of the Natural Environment

Crater Lake National Park

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Legend

- Park Boundary
- Lake/Caldera
- Transportation
- Development
- Front Country
- Research
- Back Country (Winter)

Alternative 3
Winter
Emphasis on Enjoyment of the Natural Environment
Crater Lake National Park

United States Department of the Interior ■ National Park Service
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ALTERNATIVE 4 — EMPHASIS ON PRESERVATION AND RESTORATION OF NATURAL RESOURCES

CONCEPT AND RELATED ACTIONS

Park management would be focused on the preservation of native species and natural processes and the restoration of biodiversity and natural processes where altered. The park would be an active partner in a regional conservation strategy that would include other agencies and environmental groups. Most park operations and visitor contact facilities could be outside the park and shared with other agencies and communities.

Resource preservation and restoration would be the overriding consideration in the park. Evaluations, surveys, and monitoring would be conducted to ensure protection of park resources. Areas that have been altered would be restored to their natural conditions. Research within the park would be nonmanipulative. Cultural resources would be preserved at the highest level possible. Preservation of historic fabric would be an overriding factor. Adaptive reuse, which permits additions or alterations to a historic structure to accommodate a compatible contemporary use, would occur only where it can be accomplished in accordance with the *Secretary of Interior's Standards and Guidelines for Archeology and Historic Preservation.*

The volume of the park's museum collections would be increased as a result of the expanded park research activities as well as acquisition of pertinent park-related collection materials not currently owned or managed by the National Park Service. The museum collections would be stored in an offsite facility that met professional and National Park Service museum standards. Thus, provision for adequate storage and workspace would be provided to improve curation, protection, and access to the collections, and staffing would be increased to reduce the cataloging backlog.

The visitor experience would stress activities that have low environmental impact on and are harmonious with the resources. Existing trails would be routed away from sensitive areas. The trail system would be reviewed and new trails may be provided (e.g., low elevation nature trails). Some trails could be eliminated and the area rehabilitated. If not eligible for the National Register of Historic Places, the Grayback Road would be closed and restored to natural conditions. Existing services would continue, however, there would be more emphasis on self-guided and discovery education. Environmental sensitivity would serve as a strong theme. Interpretive programs would focus on stewardship within the park and on the protection of resources, while incorporating this philosophy into everyday life.

Vehicular transportation would be altered to reinforce the visitor experience. The Rim Road would be closed between Cleetwood Cove and Kerr Notch . The area between the two sides would provide visitors with opportunities for hiking and solitude along the rim.

To reduce the human presence on the natural landscape, the trend would be toward fewer buildings and facilities. Facilities that are not historic and not essential to park functions would be removed and the area rehabilitated. Functions that are by necessity park-based, such as maintenance and law

enforcement, would be retained in the park. The composition of the staff would increase in the areas of resource preservation, restoration, protection, and education activities.

Winter use of the park would change to allow natural processes to proceed with less disturbance than current management practices allows. Winter plowing of the road to the rim would stop, except for spring opening. Winter access to the rim would begin from the Mazama parking lot and would be via snowcoach. Grooming of the road would probably be needed to ensure access by snowcoach. Snowmobiling along North Junction Road would no longer be allowed.

MANAGEMENT ZONING

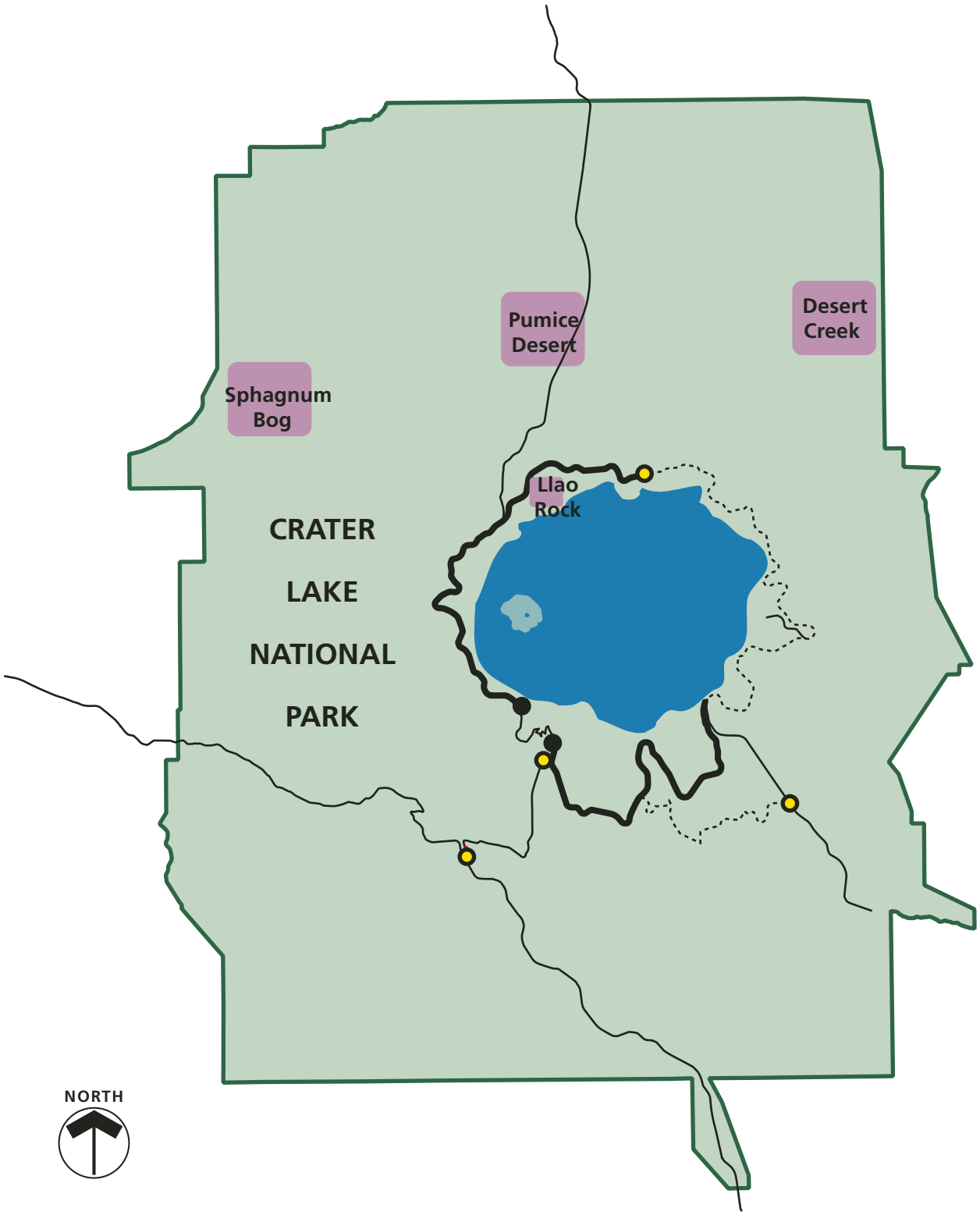
Summer

As under alternatives 2 and 3, most of the lands within the park would be managed under the backcountry management zone, which would include most lands contained in the 1974 wilderness recommendation (see the Alternative 4 — Summer map). The Grayback Road, which would be closed and restored if not eligible for the national register, would also be zoned backcountry. The research natural zone would be applied to the four areas in the park that posses unique habitats and extraordinary ecological values. This management zone would include the remaining lands contained in the 1974 wilderness recommendation not zoned as backcountry. Crater Lake would be zoned lake and caldera.

To preserve cultural resources at a higher level, Rim Drive, Rim Village, and the Munson Valley Historic District would be included in the cultural heritage zone. The developed zone would include visitor and administrative facilities at Munson Valley, Mazama Village, and Lost Creek. The transportation zone would include corridors along the park road system, excluding Rim Drive.

Winter

The backcountry zone would be expanded to include those portions of the park's road system and visitor facilities that would be closed in the winter, including the North Junction road. The south access road, between OR 62 and the rim, would be zoned transportation but would restrict motorized access to snowcoach only.



Legend

- Park Boundary
- Lake/Caldera
- Transportation
- Development
- Cultural
- Cultural/Non Motorized
- Back Country (Summer)

Alternative 4
Summer
Emphasis on Preservation & Restoration of Natural Processes

Crater Lake National Park

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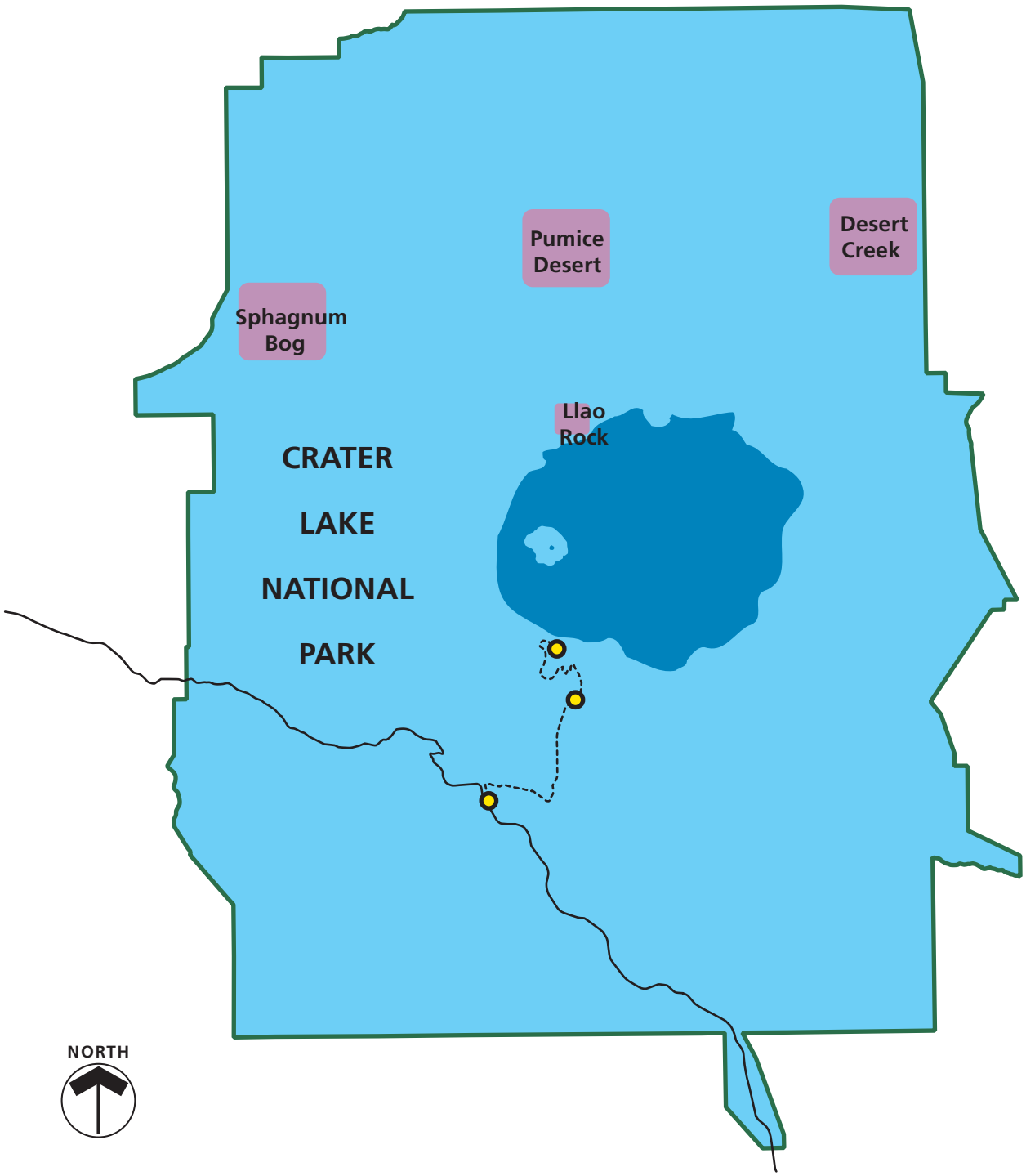

Legend

- Park Boundary
- Lake/Caldera
- Transportation
- Development
- Cultural/Non Motorized
- Back Country (Summer)

Alternative 4
Winter
Emphasis on Preservation & Restoration of Natural Processes

Crater Lake National Park

United States Department of the Interior ■ National Park Service
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MITIGATING MEASURES

The general management plan provides a management framework for the park. Within this broad context, the alternatives include the following practicable measures to minimize environmental harm. These measures are common to all alternatives and are based on the analysis of impacts of the alternatives presented in the "Environmental Consequences" section. However, additional appropriate mitigation would be identified as part of implementation planning and for individual construction projects to further minimize resource impacts.

CULTURAL RESOURCES

Adverse impacts on properties listed in, or determined eligible for listing in, the National Register of Historic Places, would be avoided if possible. If adverse impacts could not be avoided, these impacts would be mitigated through a consultation process with all interested parties.

Mitigation includes the avoidance of adverse effects to cultural resources. Avoidance strategies may include the application of the *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation.* Presented below is a description of typical mitigation measures.

Archeological Resources

Wherever possible, projects and facilities would be located in previously disturbed or existing developed areas. Facilities would be designed to avoid known or suspected archeological resources. If avoidance of archeological sites was not possible, mitigation strategies would be developed in consultation with all interested parties to recover information that makes sites eligible for inclusion in the National Register of Historic Places.

Archeologists would monitor ground-disturbing construction in areas where subsurface remains might be present. If previously unknown archeological resources were discovered during construction, work in the immediate vicinity of the discovery would be halted until the resources could be identified, evaluated, and documented and an appropriate mitigation strategy was developed, if necessary, in consultation with the Oregon State Historic Preservation Office and any associated Indian tribes. In the unlikely event that human remains, funerary objects, or objects of cultural patrimony were discovered during construction, applicable provisions of the Native American Graves Protection and Repatriation Act would be implemented.

Historic Structures/Buildings

All project work relating to historic structures/buildings would be conducted in accordance with the guidelines and recommendations of the *Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstructing Historic Buildings*. Typical mitigation measures for historic structures/buildings include measures to avoid impacts, such as rehabilitation and adaptive reuse, designing new development to be compatible with surrounding historic properties, and screening new development from surrounding historic resources to minimize impacts on cultural landscapes and ethnographic resources.

Cultural Landscape

All project work relating to cultural landscapes would be conducted in accordance with the guidelines and recommendations of the *Secretary of the Interior's Standards for the Treatment of Historic Properties With Guidelines for the Treatment of Cultural Landscapes*. Typical mitigation measures for cultural landscapes include measures to avoid adverse impacts, such as designing new development to be compatible with surrounding historic properties and screening new development from surrounding cultural landscapes to minimize impacts on those landscapes.

Ethnographic Resources

The National Park Service would continue to consult with park associated American Indian tribes to develop appropriate strategies to mitigate impacts on ethnographic resources. Such strategies could include identification of and assistance in providing access to alternative resource gathering areas, continuing to provide access to traditional use or spiritual areas, and screening new development from traditional use areas to minimize impacts on ethnographic resources.

Museum Collections

Mitigation measures related to museum collections consist of preventative conservation of a collection through proper storage, handling, and exhibit of objects as specified in the NPS *Museum Handbook* and NPS *Director's Order No. 24, Standards for NPS Museum Collections Management*.

NATURAL RESOURCES

General

New facilities would be built in previously disturbed areas or in carefully selected sites with as small a construction footprint as possible.

New facilities would be built on soils that are suitable for development. Soil erosion would be minimized by limiting the time that soil is left exposed and by the use of various erosion control measures, such as erosion matting or silt fencing. Once work is completed, construction areas would be revegetated with native plants in a timely period

Interpretive displays and programs, ranger patrols, and regulations on visitor use would be used to minimize impacts caused by visitors.

Areas used by visitors (e.g., trails) would be monitored for signs of native vegetation disturbance. Public education, revegetation of disturbed areas with native plants, erosion control measures, and barriers would be used to control potential impacts on plants from trail erosion or social trailing.

A long-term data gathering and monitoring program to evaluate winter use and associated impacts would be implemented to ensure long-term protection of park resources. Management actions, such as restrictions on off-trail use, specific area closures, or limits on party sizes, would be taken as necessary to address impacts.

Water Resources

Best management practices such as the use of silt fences, would be followed to ensure that construction related effects were

minimal and to prevent long-term impacts on water quality, wetland, and aquatic species.

Equipment would be regularly inspected for leakage of petroleum and other chemicals.

Revegetation plans would be developed for areas impacted by construction activities or other human disturbance and would include the use of native species, as well as salvaging of plant and topsoil.

Air Quality

The best available clean fuel technology for boat operations would be applied (as it becomes available) to the extent feasible.

Dust abatement measures such as watering and revegetation of disturbed areas, as well as requiring machinery to meet emission standards, would be employed.

Native Vegetation and Wildlife

Facilities would be designed and sited to use previously disturbed sites and to avoid sensitive resources such as wetlands or whitebark pine stands to the extent practicable. Other individual management actions to avoid or minimize the extent and severity of impacts would also be implemented, such as localized area or seasonal use restrictions and confining or directing use through use of barriers, trails, and designated camping sites.

Restoration of native vegetative communities would rely on natural regeneration and succession as well as active measures. The principle goal is to assist natural regeneration in reestablishing a sustainable native plant community.

Areas used by visitors would be monitored for signs of native vegetation disturbance and the introduction of non-native species. Public education, revegetation of disturbed areas with native plants, erosion control measures, and barriers would be used to control potential impacts from visitors along roads, trails, or social trailing.

A variety of techniques would be employed to minimize or avoid impacts to native vegetation and wildlife, including visitor education programs, ranger patrols, and use restrictions (permitted activities, locations, and times) in areas with rare plants, vegetative communities, and/or sensitive wildlife populations and habitats.

Wetlands would be delineated by qualified NPS staff or certified wetland specialists and marked if construction of new facilities were to occur near them.

New developments would not be built in wetlands if feasible. If avoiding wetlands is not feasible, other actions would be taken to comply with Executive Order 11990 ("Protection of Wetlands"), the Clean Water Act, and Director's Order 77-1 ("Wetland Protection").

Special precautions would be taken to protect wetlands from damage caused by construction equipment, erosion, siltation, and other activities with the potential to affect wetlands. Construction materials would be kept in work areas, especially if the construction takes place near natural drainages.

Threatened, Endangered, and Sensitive Species

These species include those listed by the U.S. Fish and Wildlife as threatened or species of concern, and by the state of

Washington as threatened, endangered, or sensitive. Also included are species on the Oregon Natural Heritage Program List 1 or 2.

Surveys would be conducted for special status species before implementing any action that might affect these species. Facilities would be designed and sited to avoid or minimize adverse impacts. In consultation with the U.S. Fish and Wildlife Service and Oregon Department of Natural Resources, measures would be taken to protect any sensitive species and their habitats.

Management practices to protect, restore, and monitor special status species would continue to be implemented, such as closing areas of the park near nest sites, restoring bull trout populations, and monitoring species status. The National Park Service would continue to work cooperatively with the U.S. Fish and Wildlife Service to identify and implement appropriate mitigation measures to protect nesting areas within the park.

Where visitor use near rare plant populations would occur such as along the rim, and there is the likelihood of disturbance to plants, visitors would be alerted about the need to stay on trails. If necessary, populations would be protected by placement of signs and fencing. New developments, including trails, would be sited to avoid disturbing or providing access to rare plant populations.

SUSTAINABLE DESIGN

Crater Lake National Park would strive to incorporate the principles of sustainable design and development into all facilities and park operations. Sustainability can be described as the result achieved by doing things in ways that do not compromise the environment or its capacity to provide for present and future generations. Sustainable practices minimize the short- and long- term environmental impacts of developments and other activities through resource conservation, recycling, waste minimization, and the use of energy efficient and ecologically responsible materials and techniques.

The National Park Service's *Guiding Principles of Sustainable Design (1993),* which provides a basis for achieving sustainability in facility planning and design, emphasizes the importance of biodiversity, and encourages responsible decisions. The guidebook describes principles to be used in the design and management of visitor facilities that emphasize environmental sensitivity in construction, use of nontoxic materials, resource conservation, recycling, and integration of visitors with natural and cultural settings. Crater Lake National Park would adhere to these principles and especially strive to reduce energy costs, eliminate waste, and conserve energy resources by using energy efficient and cost effective technology whenever possible. Energy efficiency would also be incorporated into any decision-making process during the design or analysis and value engineering, including life cycle cost analysis, would be performed to examine energy, environmental, and economic implications of proposed development. In addition, the park would encourage suppliers, permittees, and contractors to follow sustainable practices.

ALTERNATIVES OR ACTIONS CONSIDERED BUT ELIMINATED FROM FURTHER STUDY

Some comments received during public scoping suggested that the Park Service should consider increasing the number of roads in the park that are open to snowmobile use. Currently, snowmobiles are allowed along the North Entrance Road to North Junction to accommodate winter lake-viewing access. Other park visitors also enjoy being able to cross-country ski and snowshoe along the rim without encountering motorized vehicles and to enjoy the solitude and quiet of winter lake viewing. Expanding snowmobile use along the Rim Road would result in conflicts with other users. Snowmobilers also have a substantial network of roads and trails available for recreational use outside of the park. Consequently, increasing the extent of roads open to snowmobile use in the park was dropped from further consideration. The alternatives do examine the possibility of improving access along the North Entrance road to accommodate both snowmobiling and snowcoaches.

IDENTIFICATION OF THE PREFERRED ALTERNATIVE

EVALUATION

In order to develop the preferred alternative, all of the alternatives were evaluated. To minimize the influence of individual biases and opinions, the planning team used an objective analysis process called "Choosing by Advantages" (CBA). This process, which has been used extensively by government agencies and the private sector, evaluates different alternatives by identifying and comparing the relative advantages of each according to a set of criteria.

One of the greatest strengths of the CBA system is its fundamental philosophy: decisions must be anchored in relevant facts. For example, the question "Is it more important to protect natural resources or cultural resources?" is "unanchored," because it has no relevant facts on which to make a decision. Without such facts, it is impossible to make a defensible decision.

The CBA process instead asks which alternative gives the greatest advantage. To answer this question, relevant facts were used to determine the advantages the alternatives provide. To ensure a logical and trackable process, the criteria used to evaluate the alternatives were derived from the impact topics in the EIS. Alternatives were evaluated to see how well they would

- maximize protection of cultural resources (archeological resources, ethnographic resources, historic structures/buildings, cultural landscapes, and museum collections)
- maximize protection of natural resources (biotic communities, threatened and endangered species, water resources and, air quality)
- provide visitor experience (diversity of visitor activities, interpretation and orientation, visitor facilities and services and visitor experience values)
- limit effects on neighbors (park neighbors; local, state, and land/resource managing agencies)
- improve operational efficiency (staffing, infrastructure, visitor facilities and services, and the role of commercial operators)

Alternatives were rated on the attributes relating to each of the factors just listed. Then the advantages of the attributes were compared. Alternative 2 served as the basis for the preferred alternative. It was modified to add aspects of alternatives 3 that provided the greatest advantages.

COSTS

Costs are also a consideration in the selection of a preferred alternative. A GMP provides a framework for proactive decision making, including decisions on visitor use, natural and cultural resource management, and park development. The plan prescribes resource conditions and visitor experiences that are to be achieved and maintained over time. Park development is considered in general needs rather than in specifics. For the purposes of cost estimating, general assumptions were made regarding amounts and sizes of development. These assumptions are then carried across to all alternatives so that comparable costs can be considered for each alternative.

Costs identified in the GMP are not intended to replace more detailed

consideration of needs, sizes, and amounts of future development. They should not be used as a basis for money requests until further analysis has been completed. Costs and items considered are shown in appendix C.

Comparative costs for the alternatives include both initial development costs and total life-cycle costs. Initial development costs are the estimated construction costs of the alternatives. Demolition, labor, and materials for buildings, roads, trails, exhibits, and parking are included. Estimated costs are based on costs for similar types of development in other parks from the Denver Service Center Class "C" Estimating Guide. Life-cycle costs consider the costs of each alternative over a period of time. Life-cycle costs include the costs of operating buildings, the staffing required, maintenance, and replacement costs of alternative elements. The life-cycle costs below are for a 25-year period.

Table 2: Summary of Comparative Costs (FY 2002 Dollars)
(Summarized from Appendix C)

	Alternative 1	Alternative 2 (Preferred)	Alternative 3	Alternative 4
Ongoing Actions and Projects	$7,906,900	$7,906,900	$7,906,900	$7,906,900
Initial Development Costs	$ 3,800,000	$4,743,000	$3,934,000	$3,941,000
Total Life Cycle Costs (Present Worth)	$ 3,800,000	$12,905,000	$21,495,000	$8,479,000

ENVIRONMENTALLY PREFERRED ALTERNATIVE

The environmentally preferable alternative is the alternative that will promote the national environmental policy as expressed in section 101 of the National Environmental Policy Act. In the National Park Service, the environmentally preferred alternative is identified by (1) determining how each alternative would meet the criteria set forth in section 101(b) and (2) considering any inconsistencies between the alternatives analyzed and other environmental laws and policies (DO 12, 2.7E). Section 101 states that "… it is the continuing responsibility of the Federal Government to …

- fulfill the responsibilities of each generation as trustee of the environment for succeeding generations
- assure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings
- attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences
- preserve important historic, cultural, and natural aspects of our national heritage, and, wherever possible, maintain an environment that supports diversity and variety of individual choice
- achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities
- enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources." (Criteria 6 was determined to be not applicable to this planning effort.)

Taken as a whole, the preferred alternative (alternative 2) would best satisfy the five remaining goals and is the environmentally preferred alternative. The preferred alternative would enhance the park's ability to carry out its mission through developmental and programmatic activities while limiting the amount of new environmental impacts from development and use. Current visitor experiences would still be available but with a greater depth and range, and there would be increased opportunities for both recreational diversity and learning about park resources. Buildings would be adaptively used for new functions thus maximizing visitor opportunities without expanding the developed areas. Thus the preferred alternative would satisfy national goals 2, 3, 4, and 5 to a high degree, ensuring for the long-term that visitors coming to the park see an esthetically and culturally pleasing area, providing a wide range of opportunities for visitors to learn and enjoy the area with minimal adverse impacts, while preserving and enhancing the understanding and preservation of the park's important natural and cultural resources and fulfilling the Park Service's responsibilities as trustee of the environment (goals 1 and 4).

Alternative 1, the no-action alternative, would continue to preserve important cultural and natural resources (goals 1 and 4), although it would not enhance the Park Service's ability to achieve these goals to

the same degree as under the preferred alternative. Educational, informational, and research opportunities would remain limited by lack of facilities and programs and would thus not fulfill goals 2, 3, 4, and 5 as well as the preferred alternative.

Alternative 3 would provide the greatest range and flexibility in visitor recreational opportunities, thus meeting goals 2, 3, 4, and 5. However, alternative 3 would not have the emphasis on both research based educational opportunities and recreational diversity that the preferred alternative would offer. Providing these opportunities and associated new facilities would also result in more extensive and dispersed resource impacts and a greater likelihood that resource management would become more reactive rather than proactive in addressing issues. Thus this alternative would not provide as great a degree of protection for resources (goals 1 and 4) compared to the preferred alternative.

Alternative 4 would provide the highest degree of protection for the park's natural and cultural resources, primarily by removing nonhistoric facilities and restoring areas to more natural conditions, expanding resource management programs and data collection, and generally preserving cultural resources at the highest level possible, with preservation of historic fabric a priority. Thus goals 1 and 4 would be best served by this alternative. Although some visitor opportunities would be enhanced, particularly nonmotorized opportunities, overall there would be a narrower range and fewer opportunities for all visitors to fully enjoy the park and its resources (goals 2, 3, 4, and 5) compared to the other alternatives.

TABLE 3: SUMMARY OF ALTERNATIVE ACTIONS

	Alternative 1 No-Action	Alternative 2 Preferred Alternative Emphasis on Increased Opportunities	Alternative 3 Emphasis on Enjoyment of the Natural Environment	Alternative 4 Emphasis on Preservation and Restoration of Natural Resources
Concept	Continuation of existing management	Education, research, and learning about park resources and the park's national and international context would be emphasized. Recreational opportunities would be increased.	Visitors would experience the park resources through recreational opportunities and education.	Park management would be focused on preservation and restoration of natural processes.
Visitor Opportunities	Existing visitor recreational opportunities and interpretive programs in the park would continue.	Provide additional ways to experience the park – nonmotorized and low impact Additional frontcountry areas would provide enhanced interpretation and access to the backcountry. Additional interpretive experiences would offer a greater depth and range of information based on new research.	Recreational opportunities form the basis +or interpretation and education. Experiences would provide a wider range of visitor experiences and reach out to a greater diversity of visitors. A broad range of programs would accommodate all ages and abilities and economic and ethnic groups.	Environmental sensitivity would serve as the primary interpretive theme. More emphasis would be placed on self-guided and discovery education.
Transportation/Access	Grayback Road would remain unpaved and open to one-way traffic	Grayback Road would become a nonpaved trail to accommodate hikers and bicyclists. Sections of East Rim Drive would be closed in the fall.	A shuttle around Rim Village would integrate with recreational opportunities and interpretive programs. An additional shuttle would connect Mazama and Rim Village. East Rim Drive could be converted to one way.	Rim Road would be closed between Cleetwood Cove and Kerr Notch. The Grayback Road would be restored to natural conditions, if not eligible for the National Register of Historic Places.

	Alternative 1 No-Action	Alternative 2 Preferred Alternative Emphasis on Increased Opportunities	Alternative 3 Emphasis on Enjoyment of the Natural Environment	Alternative 4 Emphasis on Preservation and Restoration of Natural Resources
Winter Access	Winter access to Rim Village in private vehicles would be on plowed road. Winter snowmobile and snow coach access along North Junction to the Rim would continue.	Same as no-action alternative	Winter access for snowmobiles and snowcoaches would be enhanced by improved grooming.	Winter access to Rim Village would be via snow-coach from Mazama Village. Snowmobile and snowcoach access along North Junction to the Rim would not be allowed.
Facilities	Existing buildings and facilities would be adaptively used.	Same as no-action alternative.	Same as no-action alternative.	Facilities that are not historic and not essential to park functions would be removed and the area rehabilitated.
Administrative	Park functions would remain in existing facilities inside the park.	Administrative and other functions that are not park-based, would be moved to surrounding communities as needed.	Some interpretive functions would be based in sur-rounding communities.	Park-based functions would be retained in the park. Other functions would be moved to surrounding communities.
Partnerships	Partnerships with academia and other outside research interests would continue.	Partnerships would be targeted toward universi-ties, scientists, and educa-tional groups.	Partnerships would be formed with the tourism and hospitality industry.	Partnerships would be developed with other agencies and environmental groups.
Staffing	Existing staff would remain.	Staffing increases in research, education and interpretation	Staffing increases in interpretation and ranger services.	Staffing increases would increase in resource preservation, restoration, protection and education.
Research	Research activities would continue.	Facilitate research that is focused, purposeful and significant to resources. New research would form the basis of a more substan-tive interpretive and educational experience for visitors.	Same as no-action alternative	Research would be non-manipulative.

TABLE 4: SUMMARY COMPARISON OF IMPACTS OF IMPLEMENTING THE ALTERNATIVES

	Alternative 1 No-Action	Alternative 2 Preferred Alternative Emphasis on Increased Opportunities	Alternative 3 Emphasis on Enjoyment of the Natural Environment	Alternative 4 Emphasis on Preservation and Restoration of Natural Resources
Cultural Resources	There would be no adverse effects on archeological resources, cultural landscapes, ethnographic resources, or museum collections. Rehabilitation of the superintendent's residence would result in adverse, minor, permanent impacts due to some loss of historic fabric. Adaptive use of the structure would ensure its long-term preservation and thus moderate, beneficial impact on the building.	Same as alternative 1, except for museum collections. Increased volume due to research and acquisition along with improved storage and workspace would have beneficial, minor to moderate, long-term impacts on museum collections.	Same as alternative 1, except for museum collections. Improved storage would have minor to moderate benefits on the curation and protection of the collections.	There would be no adverse effect on archeological or ethnographic resources. Overall, this alternative would have minor to moderate, long-term, beneficial impacts on historic structures/ buildings. Impacts to the superintendent's residence would be the same as alternative 1. Increased volume due to acquisition, along with improved storage and workspace, would have beneficial, minor to moderate, long-term impacts on museum collections.
Natural Resources	The no-action alternative would have a minor, long-term, adverse impact on biotic communities, primarily in existing areas of concentrated use and development. It would not adversely affect and could beneficially affect threatened or endangered species if additional	Greater emphasis on research, partnering, and visitor education under this alternative would indirectly contribute to moderate long-term beneficial effects on biotic communities and could result in some adverse impacts on some threatened and endangered species. Long-term adverse	This alternative would result in some adverse impacts on some threatened and endangered species or biotic commun-ities. Long-term adverse impacts from construction and use of new facilities would be localized and minor. Actions in this alternative would have	The greater emphasis on reduction in development restoration would contribute to improved resource conditions within the park, potentially having localized minor to more widespread moderate long-term beneficial effects on biotic communities. It would also have positive

	Alternative 1 No-Action	Alternative 2 Preferred Alternative Emphasis on Increased Opportunities	Alternative 3 Emphasis on Enjoyment of the Natural Environment	Alternative 4 Emphasis on Preservation and Restoration of Natural Resources
	protection measures were implemented. The water quality within the park would remain good; there would be a negligible adverse effect on water quality and quantity due to continuing maintenance activities and a slight increase in visitation, but there would be no impairment to water resources. This alternative would have a negligible, long-term adverse effect on air quality from a small increase in vehicle use within the park.	impacts from construction and use of new facilities would be localized and minor. Actions in this alternative would have negligible, long-term impacts on water quantity, water quality, and air quality.	negligible, long-term impacts on water quantity, water quality, and air quality.	effects on threatened and endangered species and their habitat.
Visitor Experience	Visitor access, recreational opportunities, education, and visitor facilities and services would continue unchanged in this alternative. Potential increases in visitation over the life of the plan could have moderate, long-term impacts on the visitor's ability to access some areas of the park and enjoy scenic vistas in quiet, uncrowded conditions.	Increased visitor opportunities for recreation, educational, and interpretive programs, and access to park facilities and services would provide major beneficial impacts. Some visitors would experience minor long-term adverse impacts due to the seasonal closure of Rim Drive. The same action would create major beneficial impacts for a small number of visitors to enjoy scenic views. The	Alternative 3 would have a major beneficial impact on the diversity of visitor experience. There would be a reduction in the range of interpretive programs resulting in moderate long term adverse impacts to visitor enjoyment of interpretive programs. Access to park facilities and services would increase resulting in a major beneficial impact to visitors' enjoyment of park	Alternative 4 would have a moderate long-term adverse impact on the diversity of visitor opportunities, visitor accessibility, and on the ability of visitors to participate in educational and interpretive programs. There would be moderate long term adverse impacts on visitor enjoyment of park facilities and services.

	Alternative 1 No-Action	Alternative 2 Preferred Alternative Emphasis on Increased Opportunities	Alternative 3 Emphasis on Enjoyment of the Natural Environment	Alternative 4 Emphasis on Preservation and Restoration of Natural Resources
		cumulative actions in conjunction with the no-action alternative would result in an overall major, long-term, beneficial impact.	facilities. There would be minor, long term, adverse impacts to visitors' perceptions of sound-scapes. Opportunities for scenic views would be expanded, resulting in minor, beneficial impacts to visitors.	
Park Operations	Continuation of existing management would result in minor, long-term impacts to park operations. Reconfiguration of Rim Village and adaptive reuse of historic structures would result in overall moderate, long-term beneficial cumulative impacts.	Benefits of reconfiguration of Rim Village and adaptive reuse of historic structures would be the same as alternative 1. More functions would be accomplished outside the park, resulting in increased difficulties in communication and coordination. This would be offset by increased efficiencies in developing partnerships. Overall, this alternative would result in moderate, beneficial impacts on park operations.	Same as alternative 1 with small additional amounts of maintenance resulting from new frontcountry trails and closure of a portion of Rim Drive to two-way traffic.	Alternative 4 would result in moderate beneficial impacts to park operations.
Concession Operations	Alternative 1 would have negligible impacts to concession operations. Reconfiguration of Rim Village, Mazama Village,	Same as Alternative 1.	Increased partnering with commercial operators would provide for increased opportunities for concession/commercial	Winter access to the rim would be via snowcoach rather than private vehicles, resulting in a moderate, long-term adverse impact .

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	and Cleetwood Cove would have moderate, long-term, beneficial, cumulative impacts.		operations, which would result in a moderate, long-term beneficial impact.	
Socioeconomic	The no-action alternative would continue to have a minor to moderate, short-term, beneficial impact on the socioeconomic climate of the gateway communities and regional area due to development projects. In the long term, the park would continue to be an important visitor attraction and contributor to the tourism industry in the three-county region.	Increased staff levels and moving some functions to nearby communities would have a moderate impact on the local economy and a negligible impact on the regional economy. Ongoing and approved projects could result in moderate to major, short-term, beneficial impacts to individual firms and employees with some beneficial effects on the region and adjacent communities.	Same as alternative 2.	Moving some functions to nearby communities would have a moderate impact on the local economy and a negligible impact on the regional economy. Ongoing and approved projects could result in moderate to major, short-term, beneficial impacts on individual firms and employees with some beneficial effects on the region and adjacent communities.