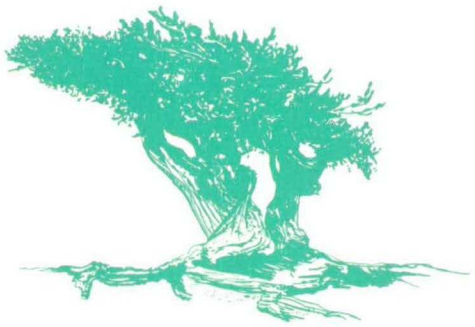
final
general management plan
development concept plans
environmental impact statement

GREAT BASIN
NATIONAL PARK • NEVADA





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United States Department of the Interior
NATIONAL PARK SERVICE
GREAT BASIN NATIONAL PARK
BAKER, NEVADA 89311

IN REPLY REFER TO:

December 18, 1992

Dear Friends,

On October 27, 1986, Great Basin became the 49th national park in a nationwide system of parks, monuments, cultural and historic sites, with over 350 individual units. Planning for the management direction to be taken, and the visitor use facilities to be provided at Great Basin National Park began almost immediately following its establishment.

The planning process involved the collective input of interested agencies, professional planners, park staff, and the general public. In fact, significant public comment was received at a number of meetings, as well as through hundreds of written comments.

The result of this extensive planning process is the document which is enclosed. The General Management Plan presents the basic management philosophy for the park and provides strategies for meeting management objectives over the next 15 years. The Development Concept Plans will guide major facility development for the park over the same time period.

The quality and extent of the public involvement in this process has been most gratifying. It clearly shows the interest and importance which is placed on the management of this valuable natural treasure.

Your interest in Great Basin National Park, and participation in this planning process, are appreciated.

Al Hendricks
Superintendent

FES 92-33

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

RECORD OF DECISION

GENERAL MANAGEMENT PLAN
DEVELOPMENT CONCEPT PLANS
FINAL ENVIRONMENTAL IMPACT STATEMENT

Great Basin National Park
White Pine County, Nevada

INTRODUCTION

Pursuant to section 102 (2)(C) of the National Environmental Policy Act of 1969, Public Law 91-190, and specifically the regulations promulgated by the Council on Environmental Quality at 40 CFR 1505.2, the Department of the Interior, National Park Service (NPS), has prepared the following Record of Decision on the *Final General Management Plan and Development Concept Plans/Environmental Impact Statement* for Great Basin National Park, White Pine County, Nevada (FES 92/33).

This Record of Decision is a concise statement of what decisions were made, what alternatives were considered, the basis for the decision, and the mitigating measures developed to avoid or minimize environmental impacts.

DECISION

The NPS will implement a general management plan and development concept plans for Great Basin National Park as detailed in the proposed action of the *Final General Management Plan/Development Concept Plans/Environmental Impact Statement,* issued in January 1992. The draft plan/environmental impact statement was issued in October 1991. The selected action is described in the Selected Action section.

SELECTED ACTION

The selected plans will diversify visitor opportunities by expanding interpretation of significant features in the park and the Great Basin physiographic region, improving access to and within the park, constructing a new visitor center, and offering new ways to view and appreciate the park's many resources. The more specific elements of the selected plans are as follows.

Management Zoning

A management zoning concept has been applied to provide a balanced range of recreational opportunities. Most visitors will continue to concentrate in the Lehman Cave and Wheeler Peak areas – the primary interpretive areas at present – and two subzones (the modern and semi-primitive day use subzones) will be established in these areas to accommodate relatively high levels of use and permit visitors to easily reach and view many of the park's significant features. For visitors wishing to escape the mainstream of tourist activity, the rural subzone will provide opportunities for fishing, hiking, and dispersed camping in more remote areas. This zone will be around selected unpaved access roads on the east and south sides of the park.

The southern portion of the park will be opened to more backcountry use by including large areas in the semi-primitive subzone and constructing trails that will allow visitors to hike the entire length of the park from north to south. Areas with special resource needs and concerns, in particular the alpine and subalpine areas above 10,500 feet, will be included in the protected natural area and research natural area subzones. The remainder of the park will constitute the primitive subzone.

Visitor Use and Development

Opportunities to experience representative portions of the Great Basin will increase, and interpretation will be expanded. Primary road access to the park will continue to be from the east side of the Snake Range. Major facilities to support interpretation will include the new Wheeler Peak Scenic Drive and 11 associated pullouts (the scenic drive would include the existing 12-mile Wheeler Peak road and a new 7-mile eastern extension that would pass through the basin environment), a new Great Basin visitor center on Baker Ridge, and a rehabilitated Lehman Cave interpretive center, which will focus on cave interpretation. Four regional interpretive exhibit shelters will be established, in cooperation with neighboring federal agencies, along the major highways leading to the park, and a new park orientation center will be built on the park's 80-acre administrative site near the town of Baker. Interpretive exhibit panels at the scenic drive pullouts and in other park areas will provide site-specific interpretation about the life zones and natural and cultural features visible from the sites. Most interpretive developments will be accessible to disabled and elderly visitors.

Other visitor facilities will include campgrounds and campsites, roads, trails, trailheads, and a parkwide system of trailhead orientation exhibits and campground information shelters. Facilities will be limited to those necessary to achieve the major planning objectives for the park – the protection of park resources and values and the provision of recreational activities that inspire visitors and contribute to their understanding and appreciation of the park. Approximately 180 campsites will be maintained or built in the modern and rural subzones. Except for the new portions of Wheeler Peak Scenic Drive and several short spur roads, existing roads will provide access to park developments. Paved roads will lead to developments in the modern subzone; two-wheel-drive gravel or dirt roads will serve rural subzone developments. All other areas of the park will be accessible only on foot or horseback. About 60 miles of existing trails will be upgraded and maintained, and 24 miles of new trails will be constructed to link existing trails; roughly 64 miles will be open to horseback riders, and corrals will be provided at several of the trailheads. Five or six backcountry camps will be designated in the remote central and southern parts of the park.

Most existing and all proposed NPS operational support functions will be relocated from the Lehman Cave area to the 80-acre administrative site near Baker. The Baker site will have three components - a 3,000-square-foot administrative facility, a 5-acre maintenance compound, and a residential area with six single-family units and 20 to 30 apartment units - and it will provide room for expansion in the future. Over the long term, non-functional housing facilities will be removed from the park except for those needed for in-park security and emergency response.

Natural Resource Management

Natural resource management activities will recognize that Great Basin National Park comprises only a portion of a much larger ecosystem centered around the South Snake Range. The park will be managed as an integral part of this larger ecosystem, and full consideration will be given to the potential effects of actions inside and beyond park boundaries. The following specific actions will be taken.

The grazing of domestic livestock will continue in the park in accordance with the enabling legislation, except in the semi-primitive day use, protected natural area, and research natural area subzones (alpine/subalpine areas above 10,500 feet, the Wheeler Peak, Lexington Arch, and Mt. Washington areas, and the Pine and Ridge creeks drainages). The Park Service will develop and use sound range management techniques, consistent with NPS policies and guidelines, to minimize grazing's adverse effects on resources including exceptional resources such as riparian areas and rare and sensitive plant species. In addition, to reduce the recurring conflicts between park visitors and livestock, methods will be used to separate cattle and sheep from visitors. Allotment management plans will prescribe methods for managing each of the grazing allotments in the park.

There are 247 mining claims in the park, most (238) are in the immediate vicinity of Mt. Washington and many are in the heart of the ancient bristlecone pine forest. The NPS will continue to recognize all valid existing mining claims in the park and to monitor and enforce the regulations governing mining within park boundaries. Mining plans of operations will be reviewed under the provisions of the Mining in the Parks Act and its implementing regulations (36 CFR Part 9A). The NPS will continue to examine the validity of all existing mining claims within park boundaries. If a claim is found to be invalid, the Service will recommend to the Bureau of Land Management that the claim be extinguished. To reduce the effects of past mining activity, abandoned mining shafts, equipment, and materials that are not historically significant will be secured or removed, and mining sites and access routes will be rehabilitated by the park staff as funds are made available.

Any identified impacts on water quality will be mitigated. Mining claimants will also be required to secure or remove any shafts, equipment, and materials that might present safety hazards.

The NPS will continue to cooperate with the Nevada Department of Wildlife in managing fish and wildlife. In consultation with the department, the NPS will reestablish Bonneville cutthroat trout into selected streams on the east side of the park. The drainages containing populations of Bonneville cutthroat trout on the west side will be zoned as protected natural areas, and domestic sheep grazing will be prohibited within those areas. No new stocking of nonnative fish species will be permitted in park waters. The NPS will continue to cooperate in efforts to reestablish the peregrine falcon. All native predators will be strictly protected within the park boundaries, and the NPS will work with surrounding land management agencies to ensure that populations of predators are maintained at natural levels.

Other natural resource management actions will include inventorying the extent of plant and animal diversity and identifying forces that might affect that diversity; cooperating in firefighting activities in the region and developing a wildland fire management plan for the park; inventorying all caves in the park and preparing a cave management plan; gathering baseline water quality data; and cooperating in regional efforts to maintain pristine air quality and reduce existing and potential air pollution effects.

Cultural Resource Management

Every effort will be made to protect cultural resources consistent with laws and regulations, NPS policies, and through a completed cultural resources management plan. Sites currently on or eligible for listing on the National Register of Historic Places – the Lehman orchard, Lehman aqueduct, Rhodes cabin, and Osceola ditch – will be preserved and interpreted. Evaluation of other sites under the National Register criteria is underway in consultation with the Nevada State Historic Preservation Officer. The Park Service will continue to identify and evaluate potential sites under National Register criteria.

Treatment of National Register sites or sites potentially eligible for the register will be determined in consultation with the state historic preservation officer and the Advisory Council on Historic Preservation as appropriate under the council's implementing regulations in 36 CFR Part 800.

Before any ground-disturbing activities are initiated to implement proposed projects, the affected areas will be surveyed for archeological resources and a clearance obtained in accordance with the December 18, 1979, agreement between the NPS and the state historic preservation officer. If any sites are discovered, the NPS will attempt to avoid these in the design phase for the project. If this is impossible, appropriate mitigating measures will be developed in consultation with the state historic preservation officer and the Advisory Council on Historic Preservation. Any action to remove debris from potential National Register sites will be undertaken only after evaluation under register criteria and in the presence of qualified preservation personnel.

Land Protection

To preserve the significant views of the Snake Valley and Spring Valley basins, which are an integral part of the Great Basin experience, the NPS will review, evaluate, and make recommendations to local governments concerning all proposals for major developments or activities that might affect the visual integrity of the valleys. Grazing, small agricultural developments, and daily ranching activities will not be subject to viewshed evaluation.

Other land protection actions will include cooperating with the Bureau of Land Management and state agencies to develop and use the regional exhibit shelters; cooperating with the Forest Service to develop and use parking area/trailheads at the ends of the Big Wash and Lexington Arch approach roads; negotiating with the Forest Service to effect transfer to the park of two sections of Forest Service land along the eastern park boundary; and obtaining rights-of-way from the Bureau of Land Management and Forest Service for access to the park along the proposed park entrance road and the Strawberry Creek, Snake Creek, Big Wash, and Lexington Arch roads. An easement will also be sought from the landowner for the portion of the Big Wash trail that crosses private land.

A long-range land protection goal will be to submit a recommendation to Congress for a boundary addition adjacent to Mt. Washington and to acquire all patented claims in this area to ensure preservation of the nationally significant bristlecone pine resource. Until that time, the NPS will work with property owners and local, county, and state officials to ensure protection of resource values.

ALTERNATIVES CONSIDERED

Three alternatives to the selected plan were evaluated in the draft and final plans/environmental impact statements. These included Alternative A - no action/minimum requirements alternative; Alternative B - backcountry emphasis alternative; and Alternative C - access emphasis alternative.

Under Alternative A, the no action/minimum requirements alternative, there would be no significant changes in present management and visitor use. Actions would be taken to meet legislative requirements, protect natural and cultural resources, and address health and safety concerns, but no new areas of the park would be opened to visitor use and few additional interpretive or recreational facilities would be provided. Management zoning would reflect these minimal changes.

Alternative B provided for a higher degree of protection for natural and cultural resources in the park than any of the other alternatives. Actions proposed in this alternative would fulfill legislative mandates and provide for the health and safety of visitors and staff while promoting resource preservation and protection in large areas of the park. The modern subzone would be smaller than in the selected action, and more of the central and southern portions of the park would be placed in the primitive and special protection subzones. Staff and funding would be provided to carry out this preservation emphasis and to encourage backcountry use in the central and southern portions of the park. Large areas would be designated as protected natural areas and research natural areas.

Alternative C provided for the most extensive development of the park. More areas would be accessible by car or four-wheel-drive vehicle, and fewer areas would be set aside for isolated, primitive experiences. Under this alternative, modern and rural subzone areas extend along the entire length of the park's eastern boundary, and three semi-primitive day use subzones would be established to encourage visitors to use the northern, central, and southern portions of the park, including the Mt. Washington area. An expanded backcountry trail system would be provided in the semi-primitive subzone. The primitive subzone would be limited to a few remote and isolated areas. No protected natural area or research natural area subzones would be designated.

Alternative B is the environmentally preferred alternative because it would have limited public access to much of the park and thereby provided a greater amount of protection of resources from human disturbance.

BASIS FOR DECISION

The selected action was formulated to address problems and management concerns related to visitor use (access, increased parkwide visitation, concentrations of visitors at traditional use areas, and inadequate facilities and programs to tell the Great Basin story), resource management (valid existing mining claims, continuation of congressionally authorized grazing), protection of federal and state threatened and endangered plants and animals, and preservation of important scenic, natural, geologic, and cultural resource values (including viewsheds). These issues and concerns were identified in a series of meetings held with concerned government agencies and the public over a two-year period from July 1987 to July 1989.

The selected action is designed to protect and preserve exceptional resources and to meet identified planning objectives. The objectives reflect the park purpose established in the authorizing legislation (PL 99-565) to preserve for the benefit and inspiration of the people a representative segment of the Great Basin of the Western United States possessing outstanding resources and significant geological and scenic values. Resources of particular concern, addressed by the selected action, include the large stands of bristlecone pine; the biologically productive riparian areas; water quality in park lakes and streams; the fragile alpine and subalpine areas; all endangered, sensitive, protected, and candidate plant and animal species, including the Bonneville cutthroat trout and peregrine falcon; the park's biological diversity; more than 30 known natural caverns; the glacial cirques, tarns, glacier, and rock glacier; air quality and the vistas across the two broad valley basins to the east and west; and the park's archeological and historic resources, three of which are listed on the National Register of Historic Places.

The selected action implements a management zoning concept that focuses on diversity in recreational experiences. The zoning concept includes three zones and seven subzones: park development zone – modern subzone; natural zone – rural, semi-primitive day use, semi-primitive, primitive, protected natural area, and research natural area subzones; and special use zone. The concept provides for a wide range of experiences consistent with NPS mandates, policies, and guidelines – thus balancing frontcountry (modern and developed) and backcountry (primitive and undeveloped) uses. The semi-primitive, semi-primitive day use, and rural subzones play a key role in establishing a continuum of experiences between the extremes of paved and primeval.

During the 30-day no action period for the final plans/EIS, three parties expressed concerns in writing. Two were the Bureau of Land Management and the Forest Service. Both expressed a need for close coordination in the implementation of the plans. The NPS will take steps to ensure that this will be done. The third party, a private citizen, expressed the opinion that livestock grazing should be prohibited. This issue was addressed in the response to comments in the final EIS and the plan prescriptions for this activity are in accord with the legislation establishing the park. The above-stated concerns raise no new issues that require modification of the selected action.

MEASURES TO MINIMIZE HARM

All practicable measures to avoid or minimize environmental impacts that could result from implementation of the selected action have been identified and incorporated into the selected action. These include but are not limited to maintaining historical integrity of historic properties, aesthetic treatment of structures and placement of facilities, removal of facilities from floodplains, site

restoration to natural conditions, protection measures for known and unknown cave resources, and provision of facilities accessible to visitors with disabilities. Close coordination with the Bureau of Land Management and Forest Service, along with any other affected agencies, will be established and maintained on matters of mutual concern such as interpretation, signing, fire management, minerals issues, grazing and other natural resource management initiatives in general.

Other mitigating measures include two specific actions associated with the new park entrance road and the management zoning for the park.

> **New park entrance road** – the NPS, in cooperation with the Nevada Department of Wildlife and Bureau of Land Management, will monitor sage grouse use in the area planned for the entrance road prior to construction. The planned road might be rerouted based on this evaluation. Also, the NPS will closely coordinate the other aspects of this road, particularly relating to width of the right-of-way, with the Bureau of Land Management.
>
> **Carrying capacity** – the NPS will work toward developing a limits of acceptable change program for maintaining and monitoring social and resource conditions in each of the subzones of the park.

In addition to the above, an Impact/Mitigation Matrix has been prepared to guide the implementation of the various elements of these plans.

CONCLUSION

The above factors and considerations justify the selection of the alternative identified as the proposed action in the draft, and as modified in the final, general management plans/development concept plans/environmental impact statements.

Approved: Stanley T. Albright
Regional Director, Western Region

Date: 3/2/93

Fes 92-83

GREAT BASIN NATIONAL PARK
IMPACT/MITIGATION MATRIX
FOR THE
FINAL GENERAL MANAGEMENT PLAN
DEVELOPMENT CONCEPT PLANS
ENVIRONMENTAL IMPACT STATEMENT

GENERAL ISSUES

IMPACT	PRESCRIBED MITIGATION AND RESPONSIBLE PARTY
1. NEPA & RELATED COMPLIANCE DOCUMENTATION FOR THE FINAL GMP/DCPs MAY NOT BE SPECIFIC ENOUGH TO COVER SOME ACTIONS, OR MAY BECOME DATED IF DESIGN CHANGES OCCUR OR NEW INFORMATION OR NEW CIRCUMSTANCES ARISE.	Prior to any undertaking prescribed in the GMP/DCPs, park staff will ascertain, through their park screening process that compliance documentation in the final EIS covers the action and is correct. If not, supplemental compliance documents will be prepared.
2. PLANNED ACTIONS IDENTIFIED IN THE FINAL GMP/DCPs, PARTICULARLY CONSTRUCTION OF NEW FACILITIES, INTERPRETIVE PROGRAMS, & NATURAL RESOURCE MANAGEMENT ACTIVITIES, MAY OR WILL HAVE IMPACT ON NEIGHBORING FEDERAL LAND MANAGEMENT AGENCIES OR ON THE PROGRAMS OF OTHER FEDERAL OR STATE AGENCIES.	On all activities affecting other agencies, particularly the neighbor federal land managing agencies, full coordination will be effected before implementing the action so as to minimize or eliminate potential conflicts.

NEW CONSTRUCTION

1. AESTHETICS	Restoration and revegetation of scars to be completed as soon as possible to reduce duration of visual intrusion (Contractor or Park Resource Management); rock scars treated to maintain natural appearance (Contractor). Restoration and revegetation costs will be included in planning (DSC or Park).
2. AIR QUALITY	Temporary impacts from fugitive dust will be reduced by having surface-disturbing activities coupled with water sprinkling to reduce fugitive dust (Contractor).
3. ARCHEOLOGICAL & HISTORIC RESOURCES	Direct impacts on archeological and historic resources will be avoided to the extent possible through consultation between designers, WRO and WACC archeologists (NPS). When sites cannot be avoided, mitigative measures, including excavation and recording of sites, will be developed in consultation with WACC and the State Historic Preservation Officer. Should previously unknown sites be uncovered during removal, work will stop in the discovery area and the NPS will consult with WACC and the State Historic Preservation Officer (Contractor).
4. SOILS	Topsoil and duff removed prior to grading will be stockpiled for use in revegetation (Contractor). Construction zone will be minimized and construction fencing will be used to keep zone of compaction small (DSC or Park). Any topsoil brought in for fill will be treated to reduce chances of exotic plant introduction (Contractor).
5. FLOODPLAINS & WETLANDS	All new construction will be directed outside floodplain and wetland areas, except in some cases such as trail building across creeks. During trail construction, any creek crossing will be protected by silt fencing (DSC or Park).
6. SCENIC RESOURCES	Non-glaring roof materials or colors will be chosen to blend with the surroundings to minimize visibility from high points. Muted colors for siding and trim of buildings will be used. DSC architects will review designs and locations to assure a minimum of impact to scenic resources (DSC, Park).

7. THREATENED AND ENDANGERED SPECIES	While there are no direct impacts and no significant indirect impacts expected from new construction activity to T & E species, all preliminary future designs will be reviewed by park personnel to assure that T & E species are not impacted. Consultation with U.S. Fish & Wildlife Service will be undertaken in cases where there is any potential impact to T & E species (Park Resource Management).
8. VEGETATION	Generally, vegetation will be removed prior to construction for replanting around the new construction site. Vegetation impacts will be minimized by maintaining the smallest construction site possible. Species used in revegetation must be endemic to the park. Revegetation to occur as soon as possible following disturbance to minimize time available for colonization by exotics (DSC, Park). To the extent possible, seed used will be collected from native plants within the park and in as close proximity to the disturbed area as possible (Park Resource Management).
9. WATER RESOURCES	Minimal short term effects to water resources may occur as new construction takes place. Impacts to water quality will be minimized by soil stabilization during construction (Contractor).
10. WILDLIFE	Minimal effects during construction are anticipated. No long term effects are anticipated. Construction season will be minimized to extent possible to reduce duration of impacts (DSC, Park).

FACILITY REMOVAL

IMPACT	PRESCRIBED MITIGATION AND RESPONSIBLE PARTY ()
1. AESTHETICS	Same as for new construction (Park Resource Management).
2. AIR QUALITY	Same as for new construction (Park Resource Management).
3. ARCHEOLOGICAL & HISTORIC RESOURCES	Although impacts to archeological and historic resources are infrequent during removal of facilities, they do occur. On-site monitoring of removal of facilities will be conducted by the resource management staff. Should previously unknown sites be uncovered during removal, work will stop in the discovery area and the NPS will consult with WACC and the State Historic Preservation Officer (Park Resource Management).
4. FLOODPLAINS & WETLANDS	The park's resource management staff will coordinate restoration of any facility sites that previously impacted floodplain/wetlands (Park Resource Management).
5. VEGETATION	Where necessary, facility removal plans will include a site restoration component. The park's Resource Management Specialist will coordinate restoration of previously impacted sites (DSC or Park Resource Management).

RESOURCE MANAGEMENT

IMPACT	PRESCRIBED MITIGATION AND RESPONSIBLE PARTY ()
1. AESTHETICS	Resource management activities would only minimally impact visual resources. Most resource management projects will take place away from visitor use areas. All research will be carefully reviewed and monitored to prevent impacts to visual resources (Park Resource Management).
2. AIR QUALITY	Prescribed fire would temporarily impact air quality. Burn plans will coincide with favorable atmospheric conditions to minimize effects. Burning permits will be obtained from the State of Nevada, when required.

3. ARCHEOLOGICAL & HISTORIC RESOURCES	All resource management activities will be conducted in conjunction with approved plans developed in cooperation with WRO, WACC and the State Historic Preservation Officer. Minimal impacts on archeological and historic resources is anticipated (WRO, WACC, Park).
4. FLOODPLAINS & WETLANDS	Resource management activity impacts will be limited except for research such as baseline inventories to prevent impacts to floodplains and wetlands. Intrusions will be kept to a minimum (Park Resource Management).
5. INTERPRETIVE PROGRAMS	Interpretive programs will be developed around resource management programs/projects to keep the visiting public informed of these activities. Interpretive programs will use an ecosystem approach as well as cooperative interagency (BLM, USFS) planning (Park Interpretive Specialist & Resource Management).
6. IMPACTS ON SURROUNDING LANDS	Interagency meetings to discuss resource management programs will be held to inform other federal agencies (BLM, USFS) of the park's resource management activities and to plan mitigation. Interagency agreements will be approved and in place for cooperative resource management programs (Park Superintendent and Resource Management).
7. SOILS	Any resource management activity will be closely reviewed and monitored for potential impacts. Resource management activities near water sources will be carefully evaluated before approval to prevent erosion and siltation (Park Resource Management). Research affecting soil compaction and erosion will be carefully monitored (Park Resource Management).
8. VEGETATION	Resource management activities will affect vegetation to some extent (example; grazing). Vegetation utilization monitoring will continue, and allotment rotations will continue in order to afford better resource protection. A vegetation management plan will be developed (Park Resource Management).

9. THREATENED & ENDANGERED SPECIES	There are no direct impacts and no significant indirect impacts expected from resource management activities on T & E species. Inventories of T & E species will be conducted to obtain information on location and populations of T & E species in the park in order to provide better resource protection. Consultation with U.S. Fish & Wildlife Service as well as other affected federal or state agencies will take place before any major project is undertaken that might affect any T & E species (Park Resource Management).
10. WATER RESOURCES	Resource management activities will be kept to a minimum in order to prevent impacts to water resources. Only essential water research will be conducted. A Water Resource Management Plan will be written addressing future resource management projects (Park Resource Management).
11. WILDLIFE	Wildlife research will be carefully reviewed and monitored in order to afford the best protection to wildlife. Wildlife will be affected to some extent during research activities. The latest and best capture and release techniques will be used in order to lessen impacts and stress on wildlife (Park Resource Management).

Approved by: _____ Date 2/25/93
Superintendent

SUMMARY

This *Final Environmental Impact Statement* presents the proposed action for management, use, and development of Great Basin National Park for the next 15 years. The proposed action constitutes the National Park Service's general management plan and development concept plans for the park.

The proposed action was formulated to address problems and management concerns related to visitor use (access, increased parkwide visitation, concentrations of visitors at traditional use areas, and inadequate facilities and programs to tell the Great Basin story), resource management (valid existing mining claims, continuation of congressionally authorized grazing), protection of federal and state threatened and endangered plants and animals, and preservation of important scenic, natural, geologic, and cultural resource values (including the viewshed from Wheeler Peak, the bristlecone pine forests, the Wheeler Peak cirque, and the Osceola ditch). These issues and concerns were identified in a series of meetings held with concerned government agencies and the public over a two-year period from July 1987 to July 1989.

The proposed action and three alternatives were included in the *Draft General Management Plan/Development Concept Plans/Environmental Impact Statement*, which was distributed for public review in September 1991. Based on the comments received during the review, the proposed action has been revised, and the text of the *Final Environmental Impact Statement* revised to clarify certain sections.

The proposed action is designed to protect and preserve exceptional resources and to meet identified planning objectives. The objectives reflect the park purpose established in the authorizing legislation (PL 99-565) "to preserve for the benefit and inspiration of the people a representative segment of the Great Basin of the Western United States possessing outstanding resources and significant geological and scenic values." Resources of particular concern include the large stands of bristlecone pine; the biologically productive riparian areas; water quality in park lakes and streams; the fragile alpine and subalpine areas; all endangered, sensitive, protected, and candidate plant and animal species, including the Bonneville cutthroat trout and peregrine falcon; the park's biological diversity; all of the limestone outcrops and formations, which contain more than 30 known natural caverns; the glacial cirques, tarns, glacier, and rock glacier; air quality and the vistas across the two broad valley basins to the east and west; and the park's archeological and historic resources, three of which are listed on the National Register of Historic Places.

The proposed action reflects a management zoning concept that focuses on diversity in recreational experiences. The zoning concept includes three zones and seven subzones: park development zone – modern subzone; natural zone – rural, semi-primitive day use, semi-primitive, primitive, protected natural area, and research natural area subzones; and special use zone. The concept provides for a wide range of experiences consistent with Park Service mandates, policies, and guidelines – thus avoiding the limitations of offering only frontcountry (modern and developed) and backcountry (primitive and undeveloped) uses. The semi-primitive, semi-primitive day use, and rural subzones play a key role in establishing a continuum of experiences between the extremes of "paved and primeval."

PROPOSED ACTION

Management Zoning

The proposed action focuses on diversifying visitor opportunities by expanding interpretation of significant features in the park and the Great Basin physiographic region, improving access to and within the park, constructing a new visitor center, and offering new ways to view and appreciate the park's many resources. The zoning concept has been applied to provide a balanced range of recreational opportunities. Most visitors would continue to concentrate in the Lehman Cave and Wheeler Peak areas – the primary interpretive areas at present – and two subzones (the modern and semi-primitive day use subzones) would be established in these areas to accommodate relatively high levels of use and permit visitors to easily reach and view many of the park's significant features. For visitors wishing to escape the mainstream of tourist activity, the rural subzone would provide opportunities for fishing, hiking, and dispersed camping in more remote areas. The southern portion of the park would be opened to more backcountry use by including large areas in the semi-primitive subzone and constructing trails that would allow visitors to hike the entire length of the park from north to south. Areas with special resource needs and concerns, in particular the alpine and subalpine areas above 10,500 feet, would be included in the protected natural area and research natural area subzones. The remainder of the park would constitute the

primitive subzone. Primary road access to the park would be from the east side of the Snake Range.

Visitor Use and Development

Opportunities to experience representative portions of the Great Basin would increase under the proposed action, and interpretation would be expanded. Major facilities to support interpretation would include the new Wheeler Peak Scenic Drive and 11 associated pullouts (the scenic drive would include the existing 12-mile Wheeler Peak road and a new 7-mile eastern extension that would pass through the basin environment), the new Great Basin visitor center on Baker Ridge, and the rehabilitated Lehman Cave interpretive center, which would focus on cave interpretation. Four regional interpretive exhibit shelters would be established along the major highways leading to the park, and a new park orientation center would be built on an 80-acre administrative site near the town of Baker. Interpretive exhibit panels at the scenic drive pullouts and in other park areas would provide site-specific interpretation about the life zones and natural and cultural features visible from the sites. Most interpretive developments would be accessible to disabled and elderly visitors.

Other visitor facilities would include campgrounds and campsites, roads, trails, trailheads, and a parkwide system of trailhead orientation exhibits and campground information shelters. Facilities would be limited to those necessary to achieve the major planning objectives for the park – the protection of park resources and values and the provision of recreational activities that inspire visitors and contribute to their understanding and appreciation of the park. Approximately 180 campsites would be maintained or built in the modern and rural subzones. Except for the new portions of Wheeler Peak Scenic Drive and several short spur roads, existing roads would provide access to park developments. Paved roads would lead to developments in the modern subzone; two-wheel-drive gravel or dirt roads would serve rural subzone developments. All other areas of the park would be accessible only on foot or horseback. About 60 miles of existing trails would be upgraded and maintained, and 24 miles of new trails would be constructed to link existing trails; roughly 64 miles would be open to horseback riders, and corrals would be provided at several of the trailheads. Five or six backcountry camps would be designated in the remote central and southern parts of the park.

Under the proposed action most existing and all proposed NPS operational support functions would be relocated from the Lehman Cave area to the 80-acre administrative site near Baker. Relocation of these functions would permit a number of administrative, maintenance, and housing facilities that are currently in a prime resource area to be removed. The Baker site would have three components – a 3,000-square-foot administrative facility, a 5-acre maintenance compound, and a residential area with six single-family units and 20 to 30 apartment units – and it would provide room for expansion in the future. In the long term the only administrative and housing facilities that would be maintained in the park would be those needed to protect park resources.

Natural Resource Management

Natural resource management activities under the proposed action would recognize that Great Basin National Park comprises only a portion of a much larger ecosystem centered around the South Snake Range. The park would be managed as an integral part of this larger ecosystem, and full consideration would be given to the potential effects of actions inside and beyond park boundaries. The following specific actions would be taken.

The grazing of domestic livestock would continue in the park in accordance with the enabling legislation, except in the semi-primitive day use, protected natural area, and research natural area subzones (alpine/subalpine areas above 10,500 feet, the Wheeler Peak, Lexington Arch, and Mt. Washington areas, and Pine and Ridge creeks). The Park Service would develop and use sound range management techniques, consistent with NPS policies and guidelines, to minimize grazing's adverse effects on exceptional resources such as riparian areas and rare and sensitive plant species. In addition, to reduce the recurring conflicts between park visitors and livestock, methods would be used to separate cattle and sheep from visitors. The allotment management plans to be completed in 1993 would prescribe methods for managing each of the grazing allotments in the park.

There are 247 mining claims in the park, most (238) in the immediate vicinity of Mt. Washington and many in the heart of the ancient bristlecone pine forest. The Park Service would continue to recognize all valid existing mining claims in the park and to monitor and enforce the regulations governing mining within park boundaries. Mining plans of operations would be reviewed under the provisions of the Mining in the Parks Act and its implementing regulations (36 CFR 9A). The Park Service would continue to examine the validity of all existing mining claims within park boundaries. If a claim was found to be invalid, the Service would recommend to the Bureau of Land Management that the

Final
General Management Plan
Development Concept Plans
Environmental Impact Statement

Great Basin National Park
White Pine County, Nevada

This *Final General Management Plan/Development Concept Plans/Environmental Impact Statement* describes the National Park Service's proposed action and three alternatives for future management and use of Great Basin National Park. The proposed action and alternatives were fully examined in the *Draft General Management Plan/Development Concept Plans/Environmental Impact Statement* released in September 1991. The proposed action would diversify visitor opportunities by expanding interpretation, improving access to and within the park, constructing a new visitor center, and adding new camping and trail facilities. Administrative support facilities would be moved to an area outside the park. The park would be zoned to protect natural resources. Grazing would continue but would be more closely regulated. Any future mining activity would be subject to National Park Service mining regulations. Alternative A would open no new areas to visitors, and few new facilities would be provided. Support facilities would remain in the park. Resource protection would remain at present levels. Grazing would be less restricted than under the proposed action but would be subject to regulation. Mining would be regulated as under the proposed action. Alternative B would offer maximum natural resource protection. Most of the park would be designated as part of the primitive and special protection subzones. Visitor use would be concentrated in existing use areas, and support facilities would be moved outside the park. Grazing would be allowed but would be subject to more stringent control than under the proposed action. Mining would be regulated as under the proposed action. Alternative C would provide the most extensive park development, with more areas accessible by car or four-wheel-drive vehicle and fewer areas reserved for primitive experiences. Support facilities would remain in the park. Grazing would be somewhat less restricted than under the proposed action. Mining would be regulated as under the proposed action. Major impact topics assessed for the proposed action and alternatives include natural and cultural resources, the socioeconomic environment, including the local and regional economy, and NPS and other agency operations.

The no-action period on this plan will end 30 days after the Environmental Protection Agency has accepted the document and published a notice of availability (NOA) in the *Federal Register*.

For further information, contact:

Superintendent
Great Basin National Park
Baker, Nevada 89311

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claim be extinguished. To reduce the effects of past mining activity, abandoned mining shafts, equipment, and materials that are not historically significant would be secured or removed, and mining sites and access routes would be rehabilitated by the park staff as funds were made available.

Any identified impacts on water quality would be mitigated. Mining claimants would also be required to secure or remove any shafts, equipment, and materials that might present safety hazards.

The Park Service would continue to cooperate with the Nevada Department of Wildlife in managing fish and wildlife. In consultation with the department, the Park Service would reestablish Bonneville cutthroat trout into selected streams on the east side of the park. The drainages containing populations of Bonneville cutthroat trout on the west side would be zoned as protected natural areas, and domestic sheep grazing would be prohibited within those areas. No new stocking of nonnative fish species would be permitted in park waters. The Park Service would continue to cooperate in all efforts to reestablish the peregrine falcon. All native predators would be strictly protected within the park boundaries, and the Park Service would work with surrounding land management agencies to ensure that populations of predators are maintained at natural levels.

Other natural resource management actions would include inventorying the extent of plant and animal diversity and identifying forces that might affect that diversity; cooperating in firefighting activities in the region and developing a wildland fire management plan for the park; inventorying all caves in the park and preparing a cave management plan; gathering baseline water quality data; and cooperating in all regional efforts to maintain pristine air quality and reduce existing and potential air pollution effects. The park is designated as a class II area under the Clean Air Act as amended.

Cultural Resource Management

Under the proposed action every effort would be made to protect cultural resources consistent with laws and regulations, Park Service policies, and a completed cultural resources management plan. Sites currently on or eligible for listing on the National Register of Historic Places — the Lehman orchard, Lehman aqueduct, Rhodes cabin, and Osceola ditch — would be preserved and interpreted. Evaluation of other sites under the National Register criteria is underway in consultation with the Nevada state historic preservation officer. The Park Service would continue to identify and evaluate potential sites under National Register criteria.

Treatment of National Register sites or sites potentially eligible for the register would be determined in consultation with the state historic preservation officer and the Advisory Council on Historic Preservation as appropriate under the council's implementing regulations in 36 CFR 800.

Before any ground-disturbing activities were initiated to implement proposed projects, the affected areas would be surveyed for archeological resources and a clearance obtained in accordance with the December 18, 1979, agreement between the Park Service and the Nevada state historic preservation officer. If any sites were discovered, the Park Service would attempt to avoid these in the design phase for the project. If this was impossible, appropriate mitigating measures would be developed in consultation with the state historic preservation officer and the Advisory Council on Historic Preservation

Any action to remove debris from potential National Register sites would be undertaken only after evaluation under register criteria and in the presence of qualified preservation personnel.

Land Protection

To preserve the significant views of the Snake Valley and Spring Valley basins, which are an integral part of the Great Basin experience, the Park Service would review, evaluate, and make recommendations to local governments concerning all proposals for major developments or activities that might affect the visual integrity of the valleys. Grazing, small agricultural developments, and daily ranching activities would not be subject to viewshed evaluation.

Other land protection actions would include cooperating with the Bureau of Land Management and state agencies to develop and use the regional exhibit shelters; cooperating with the Forest Service to develop and use parking area/trailheads at the ends of the Big Wash and Lexington Arch approach roads; negotiating with the Forest Service to effect transfer to the park of two sections of Forest Service land along the eastern boundary; and obtaining rights-of-way from the Bureau of Land Management and Forest Service for access to the park along the proposed park entrance road and the Strawberry Creek, Snake Creek, Big Wash, and Lexington Arch roads. An easement would also be sought from the landowner for the portion of the Big Wash trail that crosses private land.

A long-range land protection goal would be to submit a recommendation to Congress for a boundary addition in the area delineating the western park boundary adjacent to Mt. Washington and to acquire all patented claims in this area to ensure preservation of the nationally significant bristlecone pine resource. Until that time, the Park Service would work with property owners and local, county, and state officials to ensure protection of resource values.

Environmental Consequences

The proposed action would have generally beneficial effects on the park's biological and physical resources. Bristlecone pine forests would receive additional protection because vehicular access to the Mt. Washington stand would be prohibited, trails in the Wheeler Peak stand would be improved to reduce random pedestrian traffic, and all other known stands would be included in the protected natural area subzone. Riparian areas and water quality would continue to be adversely affected by domestic livestock grazing, but to a lesser extent than at present. There would be a net increase of 1¾ acres of riparian habitat. Alpine/subalpine areas and rare and sensitive plant species would also receive increased protection because domestic livestock grazing would be prohibited above 10,500 feet in elevation, new development in these areas would be limited to trails, and the effects of mining and recreational use would be minimized. Additional protection would be provided for peregrine falcon habitat on the west side of the park, and no developments would be built there. Habitat for the existing Bonneville cutthroat trout population in the Pine and Ridge creek drainages would be further protected by zoning it as protected natural area and eliminating grazing within the subzone. This trout would be reintroduced into east-side streams, expanding it into its original range. There would be few direct effects on the park's biological diversity; the fire management plan might contain provisions to allow natural fires to burn, which would help assure habitat diversity. Two campgrounds would be removed from apparent floodplains (floodplains have not yet been mapped). New road alignments would require construction of two bridge crossings over apparent creek floodplains and associated riparian wetlands. Design of the crossings would minimize the effects on these areas. The effects on air quality would be minor. The effects on vistas would be generally positive. Most NPS operational developments would be removed from the park, improving views in and of those areas. The new Baker Ridge visitor center would be visible from several vantage points, but it would be designed and sited to minimize its visual impact. The effect of the building on park vistas would be offset by the benefits of conveying the Great Basin story in a setting that complements its presentation.

Recommended actions for historic resources would generally upgrade preservation and protection. Actions affecting these resources would be undertaken only after evaluation under National Register criteria and in accordance with 36 CFR 800.

The proposed action would have only minor effects on nearby residents, property owners, and commercial interests. Current grazing permittees would be required to restrict livestock to certain locations to a greater extent than in the past, but they would be assured the continued availability of grazing allotments in the park. Mining activities would continue to be regulated under the provisions of the Mining in the Parks Act. The potential economic impacts are unknown and would depend on the extent of the deposits and the feasibility of their extraction within the regulations promulgated under the act. Residents and private property owners along the existing entrance road would experience a substantial reduction in traffic volumes and noise after that road was closed as a park visitor access; there would be some increases in traffic and noise south of Baker near the new scenic drive. The proposed action would have a positive impact on the regional economy, but the actual economic benefit would be small. Local park visitors would continue to have opportunities for many traditional recreational uses. Some consumptive and high-impact recreational activities (for example, hunting, trapping, tree cutting, commercial pine nut harvesting, prospecting, collecting, unrestricted four-wheel driving, undesignated camping, snowmobiling, mountain biking, and hang gliding) would be prohibited or more closely regulated than in the past. The effects on other park visitors would be generally beneficial. Understanding and appreciation of the park would increase, and a greater diversity of recreational opportunities would be provided.

The proposed action would require substantial increases in NPS interpretive, resource management, and maintenance personnel and funding and slight increases in law enforcement personnel and funding. There would be few if any effects on the Forest Service and Bureau of Land Management.

ALTERNATIVES

Under alternative A, the no action/minimum requirements alternative, there would be no significant changes in present management and visitor use. Actions would be taken to meet legislative requirements, protect natural and cultural

resources, and address health and safety concerns, but no new areas of the park would be opened to visitor use and few additional interpretive or recreational facilities would be provided. Management zoning would reflect these minimal changes.

Alternative B would provide a higher degree of protection for natural and cultural resources in the park than any of the other alternatives. Actions proposed in this alternative would fulfill legislative mandates and provide for the health and safety of visitors and staff while promoting resource preservation and protection in large areas of the park. The modern subzone would be smaller than in the proposed action, and more of the central and southern portions of the park would be placed in the primitive and special protection subzones. Staff and funding would be provided to carry out this preservation emphasis and to encourage backcountry use in the central and southern portions of the park. Large areas would be designated as protected natural areas and research natural areas.

Alternative C would involve the most extensive development of the park. More areas would be accessible by car or four-wheel-drive vehicle, and fewer areas would be set aside for isolated, primitive experiences. Under this alternative, modern and rural subzone areas would extend along the entire length of the park's eastern boundary, and three semi-primitive day use subzones would be established to encourage visitors to use the northern, central, and southern portions of the park, including the Mt. Washington area. An expanded backcountry trail system in the semi-primitive subzone would allow visitors to traverse the park from north to south. The primitive subzone would be limited to a few remote and isolated areas. No protected natural area or research natural area subzone would be designated.

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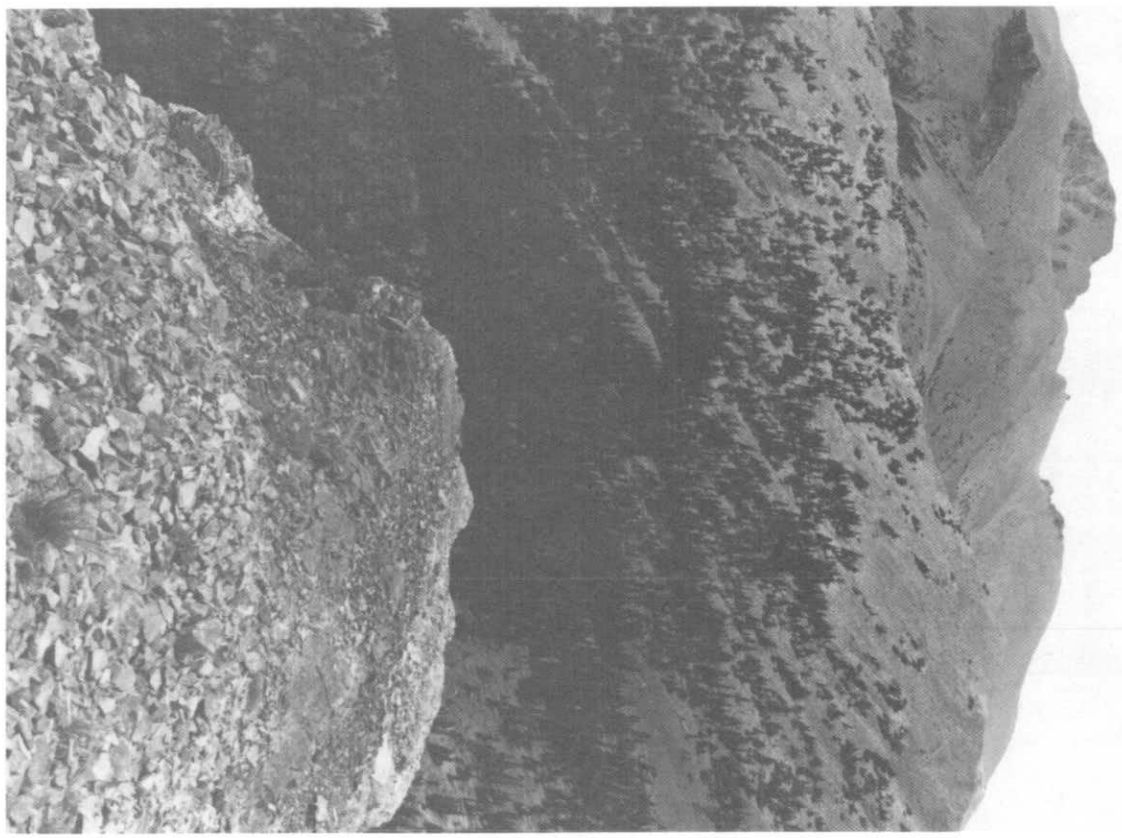
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PURPOSE OF AND NEED FOR THE PLAN

INTRODUCTION

The purpose of the general management plan for Great Basin National Park is to guide visitor use, natural and cultural resource management, and general development for the next 15 years. The plan is needed to address problems and management concerns related to visitor use (access, increased parkwide visitation, concentrations of visitors at traditional use areas, and inadequate facilities and programs to tell the Great Basin story), resource management (valid existing mining claims, continuation of congressionally authorized grazing), protection of federal and state threatened and endangered plants and animals, and preservation of important scenic, natural, geologic, and cultural resource values (including the viewshed from Wheeler Peak, the bristlecone pine forests, the Wheeler Peak cirque, and the Osceola ditch). To address these issues, the plan needs to determine what activities and actions can and cannot occur in various areas in the park.

This *Final General Management Plan/Development Concept Plans/Environmental Impact Statement* presents the National Park Service's proposed action for the management of Great Basin. It also analyzes the environmental consequences of implementing the action. The alternatives that were examined in the *Draft Environmental Impact Statement* are summarized in this document.

BRIEF DESCRIPTION OF THE PARK

The Great Basin physiographic region consists of more than 90 wide valley basins separated by some 160 long, parallel, north/south-trending mountain ranges. This basin region is immense (200,000 square miles) and includes most of Nevada, half of Utah, and portions of Oregon, Idaho, and California (see the Great Basin Region map). Defined by the peculiar fact that its few waterways drain not into the sea but into the desert flats, it is one of the least known and least visited areas in the West.

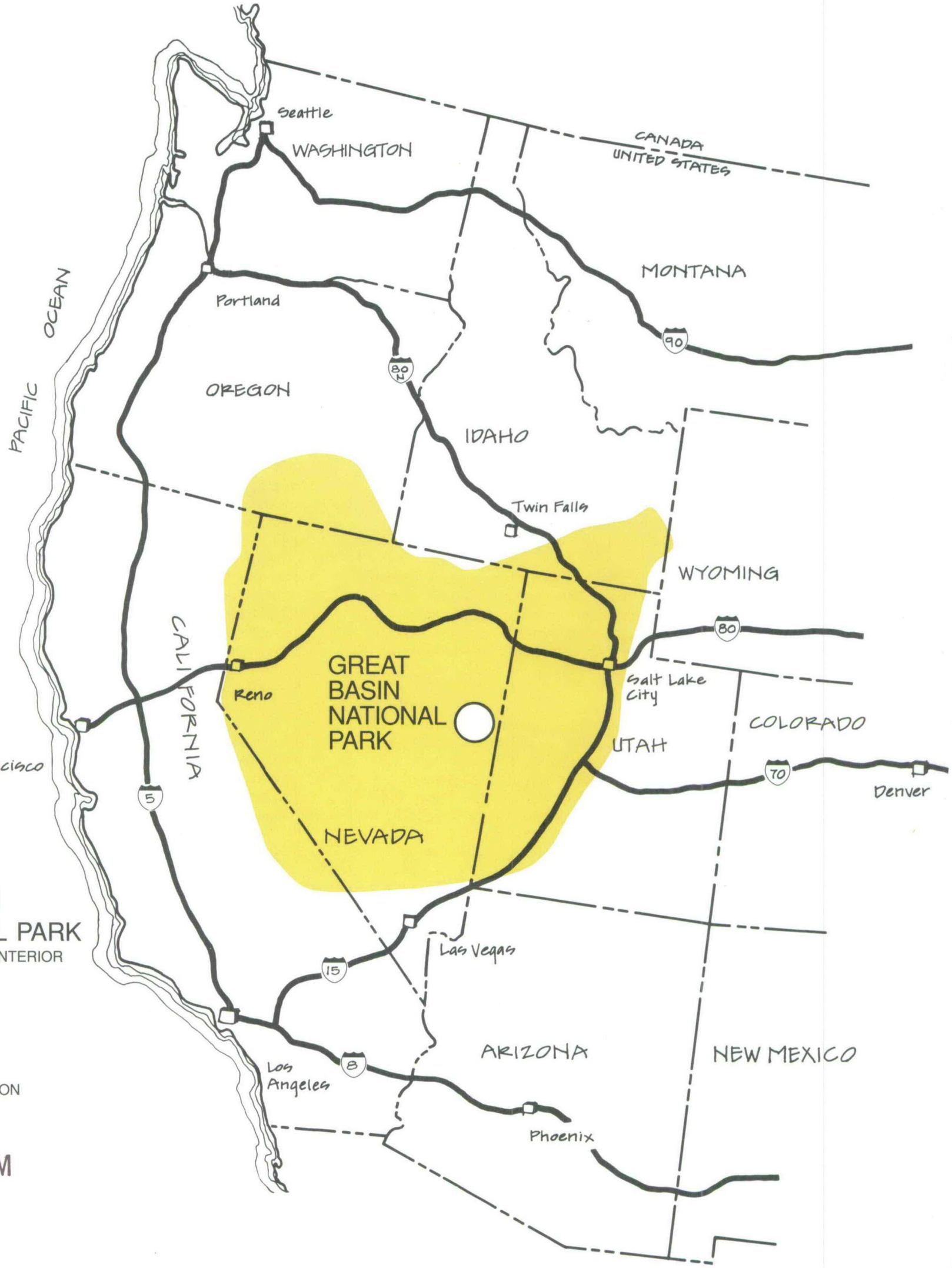
The 77,082-acre Great Basin National Park lies at the heart of this vast region in the Snake Range in east-central Nevada. The park incorporates two areas previously managed by the federal government: a 76,442-acre portion of the Humboldt National Forest (28,000 acres of this tract once constituted the Wheeler Peak Scenic Area), and the National Park Service's 640-acre Lehman Caves National Monument. This isolated mountain park overlooks two expansive basins – Spring Valley to the west and Snake Valley to the east – but it includes none of the basin environment.

The park is 300 miles north of Las Vegas, 250 miles southwest of Salt Lake City, and only a few miles south of U.S. 50, a stretch of road with widely separated services. It is 130 miles from the nearest interstate. The nearest town is Baker, a hamlet with 50 residents about 5 miles from park headquarters. Some 65 miles to the west, Ely, Nevada (population 4,900), provides major services and a regional airport. Delta, Utah (population 1,950), is 90 miles to the east.

Great Basin is dominated by 13,063-foot Wheeler Peak and its great U-shaped glacial cirque. Beneath the cirque's towering 2,000-foot walls are a glacier and rock glacier, a bristlecone forest, and three subalpine lakes. On the east side of the park, some 280 feet below the surface, is Lehman Cave – currently the park's most popular attraction. The cave, which has been a national monument since 1922, receives approximately 50,000 visitors a year (cave visitation only). Park rangers lead 90-minute tours along paved trails through the limestone caverns. The cave is artificially illuminated, and tours are given on a year-round basis. Stalactites, stalagmites, bacon strips, cave coral, shields, flowstone, and helictites are some of the unusual geological formations that contribute to the cave experience.

The visitor center next to the cave entrance provides ticket sales for cave tours, information, book sales, and a food concession. Cave tours, the visitor center orientation exhibits, film, and slide program, guided and self-guided interpretive walks, a wayside exhibit along the Wheeler Peak road, and the evening campfire programs comprise the interpretive program. From the visitor center, overlooking the historic Lehman orchard, visitors can glimpse the basin below, including a portion of Snake Valley and the Confusion Range some 40 miles in the distance.

Most administrative development, including park housing and maintenance, is near the visitor center. There are several developed campgrounds on Lehman Creek and Baker Creek within reasonable distance of the visitor center. More primitive car camping sites on Strawberry Creek and Snake Creek are popular with local and regional visitors. Campers, as well as other park visitors, frequently encounter domestic



GREAT BASIN REGION

GREAT BASIN NATIONAL PARK

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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GREAT BASIN PHYSIOGRAPHIC REGION

NO SCALE

ON MICROFILM

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livestock during their visits because grazing is permitted in most of the park (see the "Constraints" section below).

The paved 12-mile Wheeler Peak road intersects the entrance road about ½ mile east of the visitor center. The road winds through several life zones, climbing from 6,600 feet near the visitor center to 10,000 feet on the flank of Wheeler Peak. From lower to higher elevations, sagebrush steppes give way to pinyon/juniper woodlands. Higher still, mahogany stands and spruce/fir and bristlecone/limber pine communities predominate. Pullouts along the road provide dramatic views of "the Great Basin." Here visitors can see for a hundred miles and grasp the expanse of the Snake Valley and the mountain ranges far to the east. One pullout provides access to the Osceola ditch – an interesting cultural remnant. This 18-mile-long ditch (10 miles of which are inside the park boundary) was built in the late 1800s and carried water from Lehman Creek to the town of Osceola where water was used in a placer mining operation.

From the small parking area and trailhead at the end of the road, visitors can hike to the Wheeler Peak cirque, the glacier and rock glacier, the bristlecone forest, and the three subalpine lakes, or they can take a more strenuous trail to the top of Wheeler Peak for a commanding 360-degree view of the Snake Range, Snake Valley, and Spring Valley.

For those hardy visitors who can hike longer distances up steep slopes, Mt. Washington in the west-central portion of the park offers an outstanding backcountry experience, and the magnificent stand of ancient bristlecone pine provides one of the park's most picturesque destination points. This forest of twisted, weather-beaten giants has endured for thousands of years, and visitors who make the effort are rewarded with a spectacular scene. The backcountry also offers opportunities to explore five life zones – from sagebrush to alpine meadow – subalpine lakes, caves, interesting geologic formations, and mining relics and paraphernalia that date from the late 1800s to the present time.

The major visitor facilities in the park today are shown on the Existing Conditions map in the "Management Zoning Concept" section.

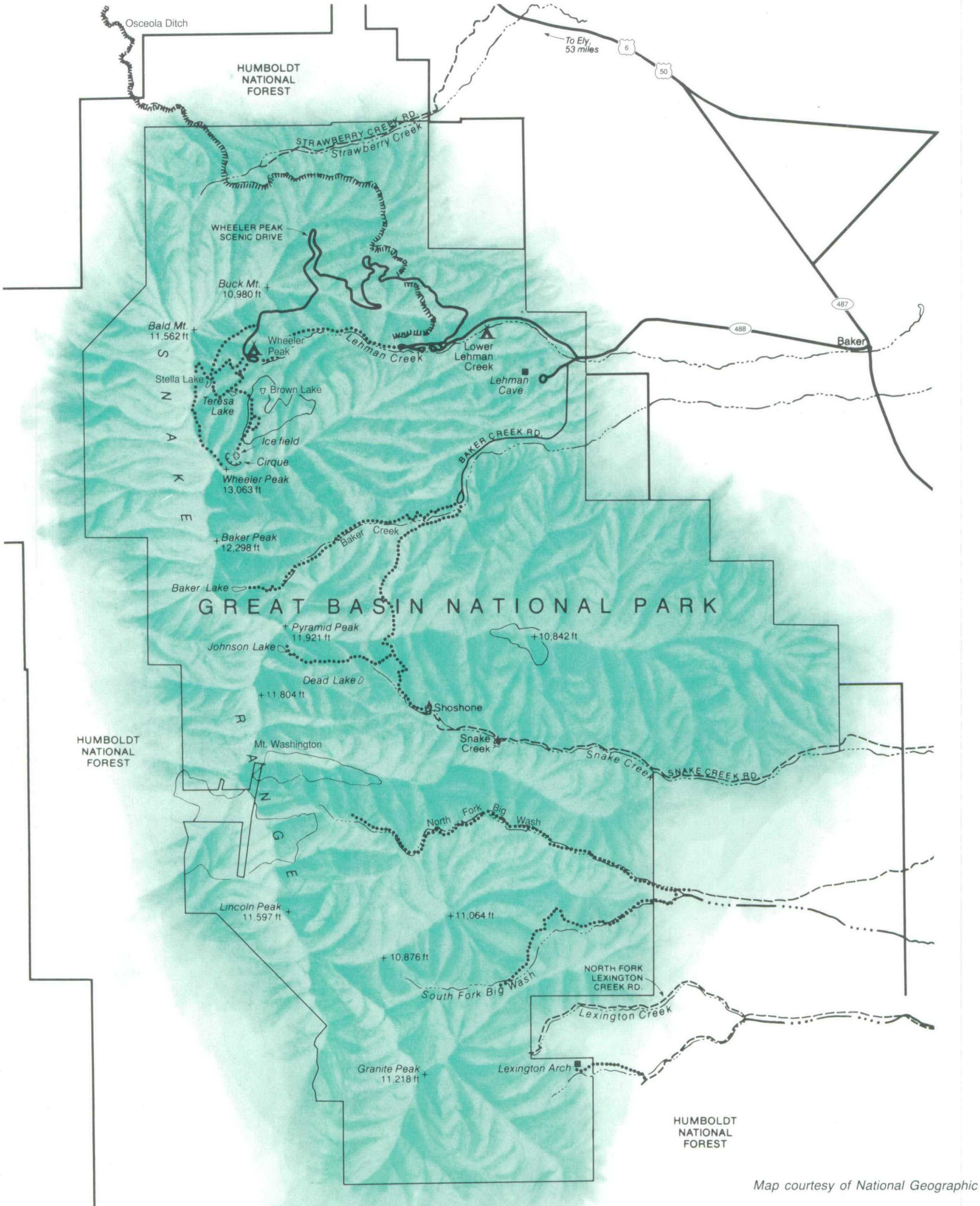
LEGISLATIVE HISTORY

Lehman Caves National Monument was established in 1922 under the jurisdiction of the U.S. Department of Agriculture. In 1924 advocates of the park idea proposed to expand the national monument by adding Wheeler Peak and to redesignate the monument as a national park. Because of insufficient support, the idea was dropped. In 1933 Lehman Caves National Monument was transferred from the U.S. Department of Agriculture to the U.S. Department of the Interior under the administration of the National Park Service. In 1955 another proposal was made to enlarge the national monument by including adjacent national forest land and designating the area as Great Basin National Park. At the request of Congress, in 1958 the Park Service evaluated the area and determined that it qualified for national park status. Between 1959 and 1965 several bills were introduced in an attempt to add the area to the national park system, but none were successful.

In 1973 the Park Service initiated a study to inventory and list by priority the natural features in the Great Basin with potential for nomination to the National Registry of Natural Landmarks. The study was also to recommend an area that could be added to the national park system as Great Basin National Park. In 1975 the completed landmark study suggested four potential areas: the Snake Range, Railroad Valley, Monitor Valley, and the White Mountains. In 1979, after additional consideration, a Great Basin reconnaissance survey evaluated four areas: the Snake Range/Spring Valley, Railroad Valley, Monitor/Big Smoky Valley, and White Mountains/Fish Lake Valley. The reconnaissance survey recommended that a study of alternatives be made of the Snake Range/Spring Valley area. In 1981 the Great Basin *Study of Alternatives* recommended seven alternative strategies for managing and protecting the resources in the Snake Range/Spring Valley study area. These strategies were perceived as too broad-ranging, and opposition to the national park continued. From the mid-1980s various bills were introduced to create a version of a Great Basin National Park with a variety of constraints and options. The acceptable acreage ranged between 44,000 acres and 174,000 acres. In October 1986 a last-minute compromise allowed for the creation of a 77,082-acre mountain park where there would be no hunting and no new mining claims established, but domestic livestock grazing would continue. The authorizing legislation for Great Basin National Park was signed on October 27, 1986.

PURPOSE OF THE PARK

Public Law 99-565 established Great Basin National Park "to preserve for the benefit and inspiration of the people a representative segment of the Great Basin of the Western United States possessing outstanding resources and significant geological and scenic values." It further stated that the Park Service is to "protect, manage and administer the park in such a manner as to conserve and protect scenery, the natural, geologic, historic and archeological resources of



Map courtesy of National Geographic

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GREAT BASIN NATIONAL PARK

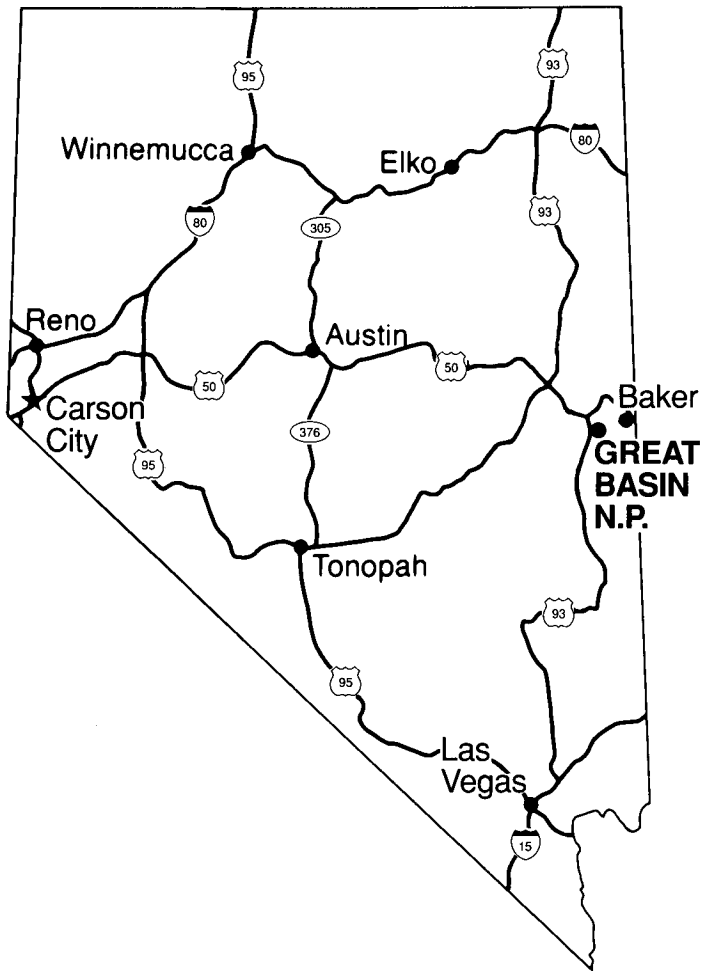
UNITED STATES DEPARTMENT OF THE INTERIOR
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DEVELOPED CAMPGROUND
PRIMITIVE CAMPGROUND
BRISTLECONE PINE GROVE
PAVED HIGHWAY
DIRT/GRAVEL ROAD
TRAIL

N

0 2 MILES
0 3 KILOMETERS



the park, including fish and wildlife and to provide for the public use and enjoyment of the same in such a manner as to perpetuate these qualities for future generations." The complete text of the law is included in appendix A.

CONSTRAINTS

The Great Basin authorizing legislation placed the following constraints on management of the park:

> The Secretary [of the Interior] shall permit fishing on lands and waters under his jurisdiction within the park . . . except that he may designate zones where, and periods when, no fishing may be permitted for reasons of public safety. . . .
>
> Subject to valid existing rights, Federal lands and interests therein, within the park, are withdrawn from disposition under the public land laws and from entry or appropriation under the mining laws of the United States, from the operation of the mineral leasing laws of the United States, and from operation of the Geothermal Steam Act of 1970, as amended.
>
> Subject to such limitations, conditions, or regulations as he may prescribe, the Secretary shall permit grazing on lands within the park to the same extent as was permitted on such lands as of July 1, 1985. Grazing within the park shall be administered by the National Park Service. . . .
>
> Nothing in this Act shall be construed to establish a new express or implied reservation to the United States of any water or water-related right. . . . The United States shall be entitled to only that express or implied reserved water right which may have been associated with the initial establishment and withdrawal of Humboldt National Forest and the Lehman Caves National Monument. . . .
>
> The Secretary is authorized and encouraged to enter into cooperative agreements with other Federal, State, and local public departments and agencies providing for the interpretation of the Great Basin physiographic region. Such agreements shall include . . . authority for the Secretary to develop and operate interpretive facilities and programs on lands and waters outside the boundaries of such park, with the concurrence of the owner or administrator thereof.

Other guidelines and constraints that may affect this planning effort can be found in Public Law 99-565 (see appendix A).

PLANNING FUNCTION

PL 99-565 and its historical record give direction as to how the park is to be managed. The record is clear on which uses should be allowed and under what conditions they should be regulated or restricted. It is the function of the general management plan to identify, within these legislative parameters, reasonable use and development alternatives to ensure adequate protection of the resource values that prompted Great Basin to be included in the national park system and to provide for compatible public use and enjoyment of those resources.

In addition to the direction found in the act, the plan must be in compliance with all other applicable federal and state statutes and regulations. Consideration will be given to the protection of historic objects and archeological resources (National Historic Preservation Act and Archeological Resources Protection Act), floodplains and wetlands (Executive Orders 11988 and 11990), air and water quality (Clean Air Act and the Federal Water Pollution Control Act), and threatened/ endangered plant and animal species (Endangered Species Act).

PLANNING ISSUES AND CONCERNS

The planning issues and concerns addressed in this document were identified in meetings with concerned government agencies and the public (for additional information, see the "Consultation and Coordination" section). To a large extent, the primitive character and biological integrity of Great Basin are due to its remoteness and relative obscurity. However, with the area's recent designation as Nevada's first national park and the associated increases in visitation that can be anticipated, the impacts on Great Basin's natural and cultural resource values will likely increase. How to provide for visitor use without impairing these values or the beneficial experiences they offer is a primary planning concern. A related concern is the challenge to successfully interpret and adequately protect a basin scene when the two basins within view of the park are outside the park boundary. All of the issues and concerns related to planning for the park are described below.

INTERPRETATION

Two aspects of interpretation are of concern in planning for Great Basin. First, the present interpretive emphasis inside the park is on Lehman Cave, although the creation of the park has greatly expanded the area's interpretive purpose and potential. The general management plan identifies ways to increase public understanding and appreciation of all of Great Basin's resource values within the context of its larger geographic setting. Second, examination of the 1981 Great Basin *Study of Alternatives* shows that the landforms and ecosystems within the established national park boundary do not fully represent the physiographic theme that is central to the Great Basin story. For that reason, PL 99-565 encouraged the Park Service to enter into cooperative agreements with other agencies in the region to develop interpretive facilities and programs on lands outside the park boundary that will ensure full interpretation of this physiographic region. The general management plan includes proposals for interpreting Great Basin National Park in areas administered by other agencies and for initiating a cooperative interagency interpretive plan for the region's many and varied resources.

PARK DEVELOPMENT

A number of facilities are already in place in Great Basin to support visitor use at Lehman Cave, and these facilities can form the nucleus of services for the new park. Included in a single building are a food and gift concession, an orientation center/publication sales area, a ticket sales area for the cave tour, and park offices. A 30-site picnic area and restrooms are a short distance from the administration building. The developed area also includes a potable water treatment and storage system, a sewage treatment facility, park housing, and a maintenance facility. The lands transferred from the U.S. Forest Service include four developed campgrounds, with a total of 104 sites and restroom facilities, and two primitive campgrounds. Although these facilities were adequate to serve the needs of visitors to the national monument, the expanded Park Service responsibilities associated with managing a 77,082-acre park and the potential for substantially increased visitation will require additional development. The general management plan assesses changing needs and includes cost-effective and resource-sensitive proposals for future development.

In 1989 a draft backcountry trails study was prepared for the existing 61 miles of trails in the park. In general, most of the trails are in fair to poor condition, requiring rehabilitation and in some cases relocation. Common problems are excessive grades, unstable treads and backslopes, and loose rock; safety hazards associated with these conditions; inadequate water diversion; berm buildup along the edges of trails that causes water to course and accelerate erosion on the trails; common use of trail sections by cattle and park visitors; and inadequate signing. Based on the recommendations in the trails plan, the general management plan proposes maintenance, rehabilitation, reconstruction, and new construction to provide an upgraded and integrated trail system in the park.

ACCESS

Visitors currently approach the park along a state road that passes through the center of Baker and then through a small housing subdivision before crossing the park boundary. The existing approach does not provide an appropriate setting for entering the park, and there is potential for additional commercial development along it. Improved park access is a major component of the general management plan.

Most of the area that is now Great Basin National Park was previously managed for multiple use, and numerous paved, gravel, and dirt roads provide access. The 20+ entry points and all existing roads (both surfaced and unsurfaced) need to be evaluated to determine which of them are needed for park purposes. Because 93 percent of the park is

surrounded by other federal lands, close cooperation will be required among all managing agencies to ensure proper coordination of access in and around the park. Existing powerline, pipeline, and other special use rights-of-way also need to be assessed to ensure that important or sensitive resource areas within the park are adequately protected. The general management plan includes these evaluations and recommends actions to provide for park access and circulation.

SCENIC RESOURCES

The views across Snake Valley and Spring Valley as visitors approach the park and from various locations within the park greatly enhance experiences and are a significant park resource. Although these valleys are not within the park boundary, they are critical in conveying the theme of "the Great Basin physiographic region" to visitors. Without the contrasting valley basins, the mountainous lands inside the park can illustrate only a portion of that theme. The loss or visual impairment of these basins as a result of major industrial, commercial, or military activity would alter the pastoral basin scene that adds a critical dimension to the national park. The general management plan includes recommendations for preserving scenic resources within the Great Basin region.

GRAZING

PL 99-565 authorizes domestic livestock grazing within the park boundary and directs the Park Service to administer this activity. There are seven grazing allotments and five permittees in the park. Improvements on the allotments include cattle guards, fencing, troughs, pipelines, and water tanks. Most of the individual allotments involve Forest Service lands as well as lands within the park; one involves Bureau of Land Management as well as park lands. In these cases different regulations apply for different parts of the same allotment, which can confuse and burden the permittee.

A number of concerns need to be considered in the management of grazing within the park. The present level of grazing in specific locations may be damaging vegetation beyond the point of recovery. Grazing in sensitive resource areas at higher elevations (subalpine meadows and tundra) may be particularly damaging because of the slower regenerative powers of high elevation landscapes. Erosion associated with overgrazing may be affecting the water quality of streams and lakes. Disease and competition for pasture are continuing concerns in managing both domestic livestock and native wildlife. Finally, as public use increases, there is the potential for conflicts both real and perceived between livestock and park visitors. The plan addresses these concerns and includes general proposals to reduce the effect of grazing on the park environment and the potential conflicts between visitors and livestock.

During early scoping and public involvement efforts for the Great Basin general management plan, concerns were expressed about the continuation of livestock grazing in the park. More than 200 unsolicited write-in responses were received to the 1988 *Alternatives Workbook* stating that grazing is incompatible with the purpose of the park and should be eliminated (see the "Consultation and Coordination" section for details). The authorizing legislation for the park provides for the continuation of grazing subject to such limitations, conditions, or regulations as the secretary of the interior may prescribe. The plan recommends that actions be taken to ensure sound rangeland management, to protect sensitive natural features, and to provide strategies that will minimize conflicts between grazing and public use.

WATER RIGHTS

PL 99-565 provided that the existing reserved water rights in Humboldt National Forest (only that portion included in the new park) and Lehman Caves National Monument be transferred to Great Basin National Park. However, it excluded the creation of new federal reserved water rights for national park purposes.

To ensure adequate environmental conditions for wildlife and to perpetuate a natural ecological system, water requirements for Great Basin National Park may prove to be much greater than that which can be provided through the exercise of reserved water rights. If additional water is required, the Park Service will need to develop strategies to obtain more water (in accordance with the substantive and procedural law of the state of Nevada) or alter the park's management objectives to "make do" with the existing water rights allocation (by storing more of the water provided within existing rights, for example).

MINING

The South Snake Range has high potential for mineral occurrence. There are seven mining districts and a limestone quarry in the South Snake Range. Tungsten and gold have historically been the highest yielding commodities, while lesser amounts of silver, lead, zinc, and copper have been extracted. Beryllium and fluorspar are other prospective mineral resources within the park. The enabling legislation for Great Basin National Park specifically prohibits mineral leasing within the park boundary. Additionally, Congress has closed the park to mineral entry (mining claim location) subject to valid existing rights. This means that holders of valid claims have the right (assuming an approved plan of operation) to develop the minerals associated with these

claims. Although historically there has been mining activity within the boundary, there are currently no active mining operations in the park. Some of the claim groups have, however, had assessment work or exploration activities as recently as 1986.

There are no patented mining claims within the park boundary. Unpatented claims number 247. The Park Service is in the process of examining the validity of all of these claims. The claims occur in six claim groups; five are in the immediate vicinity of Mt. Washington on the west side of the park. At present it is not known how many of the unpatented claims will be found to be valid. The management zoning proposal in the general management plan (along with other relevant documents and information) provides an appropriate level of protection for natural, cultural, and scenic resources and will be used as a basis for evaluating any future mining plans of operation that may be submitted by owners of valid claims.

Active mining operations have occurred as recently as the 1970s adjacent to but outside the park boundary near Mt. Washington. The bristlecone pine forest atop Mt. Washington is one of the park's most important and fragile resources. The potential impact of mining activities on park resources is a prime planning concern.

BOUNDARY ADJUSTMENTS

Approximately 93 percent of the Great Basin National Park boundary abuts other federal lands (78 percent Forest Service, 15 percent Bureau of Land Management). This planning effort does not address major boundary adjustments; however, minor boundary modifications are recommended between federal agencies where such modifications will facilitate more efficient management of federal lands.

FISH AND WILDLIFE MANAGEMENT

When a portion of the area that is now Great Basin National Park was under Forest Service management, hunting and fishing were major recreational activities. With the passage of PL 99-565, hunting was prohibited within the park boundary. Fishing, specifically authorized in the park legislation, occurs in several major streams and lakes in the park. The Nevada Department of Wildlife is responsible for fish stocking and in the past stocked streams and lakes in the park with a variety of nonnative fish species. Park Service management policies do not allow for stocking of nonnative fish in areas designated as "natural" zones, but they do permit stocking in areas identified as "special use" zones. The general management plan, which is the primary vehicle for establishing zones within Great Basin National Park, includes a determination of whether fish stocking is appropriate and if so where it should occur.

The Bonneville cutthroat trout is the only native trout in the streams of the park; it once inhabited all of the major streams on the park's eastern side. Because these streams have been disturbed by human actions, pure strains of Bonneville cutthroat trout no longer exist in the park. On the west side of the park, at least two streams outside the historic range of the Bonneville cutthroat trout contain introduced pure-strain populations of the trout. It may be possible to reestablish Bonneville cutthroat trout in the east side streams if the factors that contributed to their elimination from those streams are removed or mitigated by some means. The general management plan addresses the reintroduction of the trout.

The general management plan establishes broad objectives for wildlife management, taking into consideration related park issues. A resource management action plan is being prepared concurrently with the general management plan and will be finalized after the general management plan is approved. That plan will provide recommendations for wildlife management as well as other natural and cultural resource concerns.

THREATENED, ENDANGERED, AND SENSITIVE SPECIES

The park contains potential habitat for bald eagles and peregrine falcons, both listed as endangered under the Endangered Species Act. The park is also home to several candidate species, including the ferruginous hawk, Bonneville cutthroat trout, and at least eight alpine and subalpine plant species. The plan recommends cooperative activities for reintroducing some of the species into their historic ranges and developing methods to protect them and their habitats.

CAVE MANAGEMENT

In addition to the significant cave resources within Lehman Cave, caves are found in limestone outcroppings throughout the park. Many of these resources are extremely fragile, highly susceptible to vandalism, and at best only partially known. The general management plan addresses several concerns related to caves, including proper management of cave resources to ensure visitor safety, protection of wild caves from vandalism, and provision of access to caves that can accommodate visitor use without deterioration. Issues concerning the use and management of Lehman Cave are also addressed, including appropriate visitor use levels.

BACKCOUNTRY MANAGEMENT

Although visitor use within the park will most likely continue to focus on Lehman Cave and the resources along the Wheeler Peak scenic road, there is also potential for

increased use of the park's backcountry. Numerous trails and unmaintained roads provide access to large portions of the park. The general management plan identifies the appropriate types and levels of backcountry use and the primary backcountry trail corridors and access points that will be available for future use.

SPECIAL USES

The Park Service mandate requires that the agency regulate the use of parks so that their resources are perpetuated for enjoyment by future generations. Thus, the types of allowable uses are limited by requirements of resource management and protection, and consumptive uses are not permitted. Because most of the area that is now Great Basin National Park was previously managed as a multiple use area where consumptive uses of resources were allowed, traditional resource uses and visitor activities as well as potential future uses have been evaluated to determine if they are compatible with national park management concepts. The general management plan includes recommendations concerning hang gliding, snowmobiling, cross-country skiing, mountain bicycling, horseback riding, hiking, spelunking, and research under permit.

ARCHEOLOGY

Three studies of the park's archeological resources have been completed to support and guide general management planning: *Archeological Overview of Great Basin National Park* (NPS, Deal 1988a), *Archeological Survey and Site Assessment at Great Basin National Park* (NPS, Wells 1990a), and *Archeological Survey of the Baker Guard Station* (NPS, Teague 1990b). These studies are described briefly in the "Related Issues and Concerns" section.

Radiocarbon dates fix the earliest known occupation of the area within the park boundary at 11,000 to 10,000 B.P. Archeological surveys have been conducted on less than 2 percent of the newly added park lands. This limited research indicates that the frequency of sites in the park is slightly higher than in adjacent areas. There are a variety of site types within the Snake Range. Prehistoric types include caves and rock shelters (some with stratified living floors); burial grounds and burial caves; spring sites; open sites that contain lithic and artifact scatters, potsherds, hearths, or rock circles; pueblos; pictographs and petroglyphs; and hunting blinds and hunting corrals. Historic sites of archeological value include mines and mining-related sites. The general management plan provides direction for identifying and managing historic and prehistoric archeological sites.

HISTORIC SITES

Historic resources of the park reflect settlement attempts and crossings of the area by Mormon pioneers, Army survey party incursions, and most notably the development of mining and ranching. Of the many representative resources, the Lehman orchard and aqueduct and the Rhodes cabin are listed on the National Register of Historic Places as having local significance. A *Historic Resource Study* (NPS, Unrau 1990c) has been completed in concert with the general management plan. It identifies actions needed for the protection, management, and interpretation of historic resources within the park. These actions are summarized in the plan.

NATIVE AMERICAN RELATIONSHIPS

There is a Western Shoshone colony in nearby Ely, Nevada, and some descendants of the original inhabitants of the area may live on the Goshute Reservation to the north or on the Duckwater Reservation to the west. Traditional pine nut gathering areas are still in use in the vicinity. Native American groups will be consulted concerning the identification of important cultural sites in the park and the development of a park ethnographic program. An ethnographic overview and assessment will be prepared for the park.

INTERAGENCY COOPERATION

All proposed actions require interaction with and assistance from other federal, state, and local agencies if the Park Service is to be successful in implementing the plan. For example, Forest Service cooperation and assistance will be critical because most of the lands surrounding the park are administered by the Forest Service. Similarly, BLM lands are important in protecting the Snake Valley and Spring Valley viewsheds that are critical to the visitor experience at Great Basin National Park. The state will play an important role in the evaluation and determination of water rights, and the county will be instrumental in the development of tourism. The plan recognizes the importance of interagency cooperation in planning for the park and region, and it includes specific recommendations for cooperative activities.

RELATED ISSUES AND CONCERNS

Relationship of the General Management Plan to Other NPS Planning Efforts and Management Actions

When the final general management plan is approved, it will establish the guiding management philosophy for Great Basin National Park and will provide strategies for addressing issues and achieving management objectives for the next 15 years. Based on those strategies, more detailed implementing plans, or action plans, will be developed to carry out plan concepts and identify necessary developments and specific actions for efficient protection, use, and operations. A resource management plan, a rangeland analysis, and grazing allotment management plans are being prepared concurrently with this draft general management plan, and interpretive proposals are included in the general management plan. Other action plans will include a fire

management plan, cave management plan, water resources plan, backcountry management plan, and land protection plan.

A number of studies have been prepared concurrently with the general management plan to provide research and other support information for planning.

The 1990 Great Basin *Historic Resource Study*, prepared by the Park Service's Denver Service Center, provides research data on historic events in and near the park and identifies historic resources associated with those events. The study has been used by the planning team to formulate actions to preserve, protect, and interpret the park's historic resources.

The Park Service's Western Archeological and Conservation Center has prepared three reports on archeological resources in the park and region. The *Archeological Overview of Great Basin National Park* presents an overview of regional archeology and cultural resources along with procedural guidelines for their preservation and protection. The *Archeological Survey and Site Assessment at Great Basin National Park* documents the findings of a preliminary survey of archeological resources in the park. The *Archeological Survey of the Baker Guard Station* documents the results of an archeological survey of that property.

A Great Basin visitor survey conducted in 1988 by the Park Service's Cooperative Park Studies Unit and the Department of Forest Resources at Oregon State University has generated information about park visitors for managers and planners and provided baseline data for monitoring the impacts of the park's creation and subsequent changes in visitation over time. This data has been used in the preparation of the draft general management plan.

A Great Basin economic study has been prepared under contract. This study used Great Basin National Park as a prototype in developing a methodology for measuring and predicting the economic impacts of national park units on local and regional economies. A related aspect of the study is determining the effects that different Park Service actions (for example, park establishment and general management planning) have on park visitation and surrounding economies. Research at Great Basin will establish baseline data, predict impacts, and measure actual economic impacts over time. Subject to funding, the draft methodology will be applied in other national park units to perfect its use as a tool for determining such impacts. If successful, it may become a standard methodology for analyzing economic impacts throughout the national park system.

A Great Basin water and sewer study has been prepared to evaluate the condition of the existing water and sewer system and associated facilities. The study, which has been completed by a private contractor, identifies and evaluates alternatives for providing the park with adequate water and sewer service, including options that would allow the Park Service and the community of Baker to share water and sewer services.

Other plans that are being prepared include an interim grazing management plan, a geographical information system plan, a water resources management plan, and an abandoned mine land survey.

Relationship of the Plan to Other Federal, State, and Private Organizations and Programs

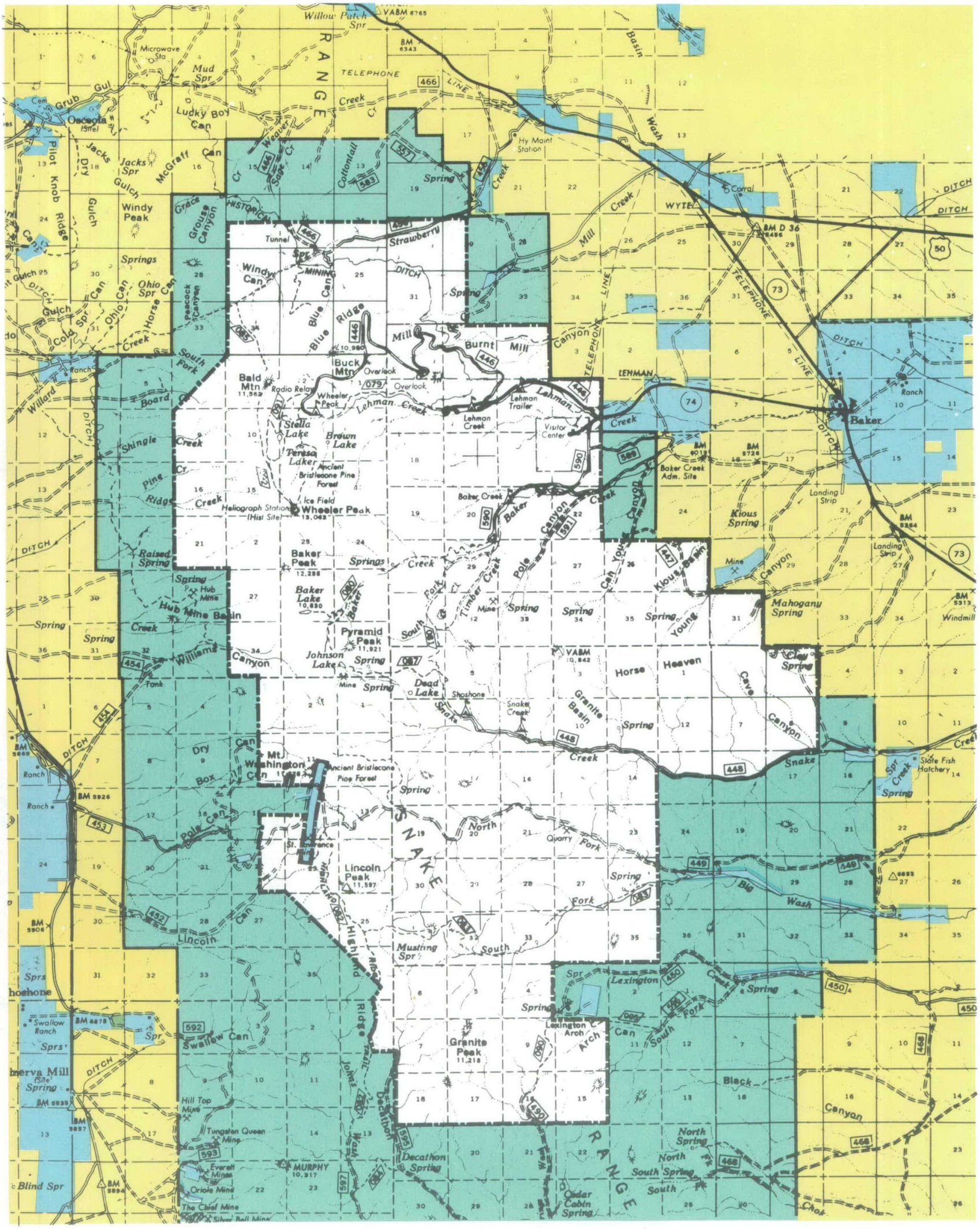
The state of Nevada is taking the lead in developing a Baker town plan. This plan will address a wide range of community needs and will aid the town of Baker in preparing for changes associated with the establishment of Great Basin National Park. White Pine County, the Baker Town Board, and, if requested, the Park Service will provide assistance to the state.

The Humboldt National Forest 1985 *Land and Resources Management Plan* and the Bureau of Land Management 1984 *Schell Resources Area Management Framework Plan* are in place and currently guide the management of other federal lands adjacent to the park (see the Land Status map). The Park Service formally consulted with both federal agencies before developing the draft plan and alternatives in this document.

The *State Comprehensive Outdoor Recreation Plan* was prepared by the Nevada Department of Conservation and Natural Resources, State Parks Division, in 1987 to guide the development of recreational opportunities in Nevada. It states:

> The recreational, historical, cultural and natural resources of the State of Nevada that are significant need further protection. Some of the multiple uses that occur on public domain have in many cases destroyed the significant resources of the state. Without some sort of protection, many other resources could be lost.

Following is a SCORP list of favorite recreational activities and needs for regional planning and development district IV, which includes Lincoln County, Eureka County, White Pine County, and Great Basin National Park (see the State Planning Regions and Counties map):


Willow Patch Spr
VABM 6765
BM 6343
Microwave Sta
Mud Spr
TELEPHONE LINE
466
Creek
Lucky Boy Can
Osceola (Site)
Grub Cem
Gul
Hy Maint Station
Basin Wash
Pilot Knob Ridge
Jacks Dry Gulch
Jacks Spr
McGraff Can
Weaver Cr
Sage Cr
Cottontail Creek
583
557
Spring
Windy Peak
Grace Grouse Canyon
HISTORICAL
Tunnel
Strawberry Spr
MINING DITCH
Windy Can
Blue Can
Blue Ridge
10,980
Springs
Ohio Spr Can
Ohio Creek
Horse Can
Peacock Canyon
Cold Spr Can
Gulch
Ranch
South Fork
Willard
Board Creek
Shingle Creek
Pine Ridge Cr
Bald Mtn 11,562
Radio Relay
Buck Mtn
Overlook
079
Wheeler Peak
Lehman Creek
Stella Lake
Brown Lake
Teresa Lake
Ancient Bristlecone Pine Forest
Ice Field
Heliograph Station (Hist Site)
Wheeler Peak 13,063
Baker Peak 12,298
Baker Lake 10,630
Pyramid Peak 11,921
Johnson Lake
Mine Spring
Dead Lake
Shoshone
Snake Creek
Granite Basin
Horse Heaven
Cave Canyon
Clay Spring
Mill Creek
Burnt Mill
Canyon
TELEPHONE LINE
WYTE
Corral
DITCH
BM D 36
8486
50
73
74
LEHMAN
Lehman Trailer
Visitor Center
Baker
Ranch
BM 9013
BM 8726
Baker Creek Adm. Site
Landing Strip
Kious Spring
BM 8364
Mine
Mahogany Spring
BM 8313
Windmill
Kious Basin
Young Canyon
Pole Canyon
Timber Creek
South Fork
Baker Creek
Baker
Raised Spring
Hub Mine
Hub Mine Basin
Williams Canyon
Fork
Johnson Lake
Spring
Mt. Washington
Ancient Bristlecone Pine Forest
St. Lawrence Mine
Lincoln Peak 11,597
Highland Ridge
Dry Box Can
Pole Can
Lincoln Can
Swallow Ranch
Swallow Can
Hill Top Mine
Tungsten Queen Mine
Everett Mines
Oriole Mine
The Chief Mine
Silver Bell Mine
MURPHY 10,317
Blind Spr
Minerva Mill (Site)
Decathon Spring
Decathon Canyon
Mustang Spr
North Fork
South Fork
Quarry Fork
Big Wash
Snake Creek
Spring
Lexington Arch
Lexington Creek
Granite Peak 11,218
Black Canyon
North Spring
South Spring
Cedar Cabin Spring
Slate Fish Hatchery
Creek
Spr
Ranch
BM 5926
BM 5906
BM 5878
BM 5835
BM 5857
BM 5894
BM 5869
453
452
454
455
456
457
458
459
460
461
462
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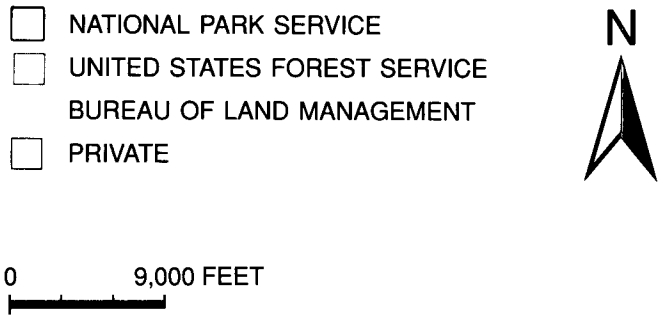
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LAND STATUS

GREAT BASIN NATIONAL PARK VICINITY

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Favorite Activities (in priority)
lake fishing*
game hunting
hiking/walking*
pleasure driving*
horseback riding*

Recreational Needs
(activities where demand exceeds supply)
stream fishing*
cross-country skiing*
tennis

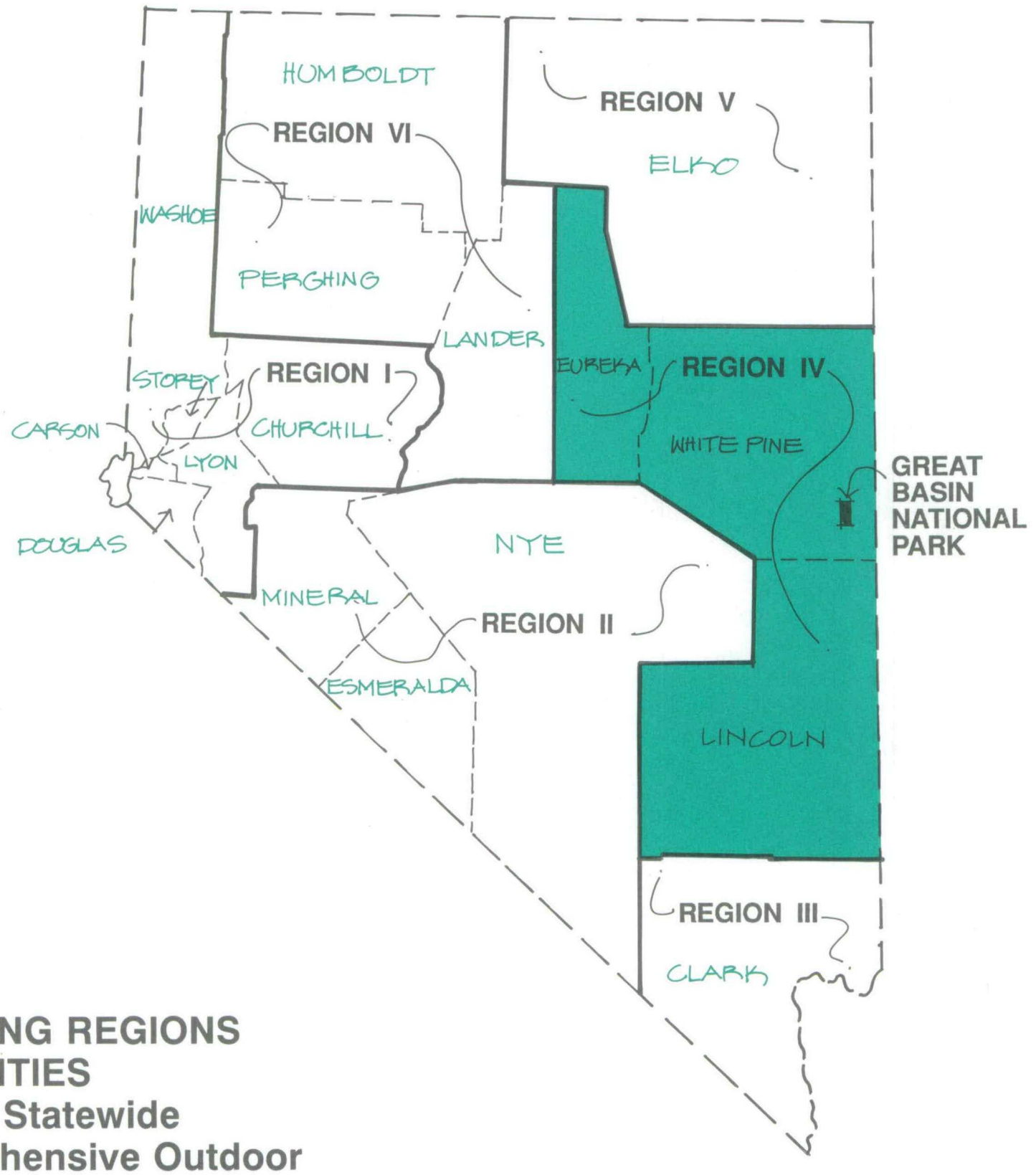
*Activities provided at Great Basin National Park

The recreational interests and needs identified in the state plan have been considered during the development of the general management plan.

ISSUES BEYOND THE SCOPE OF THE GENERAL MANAGEMENT PLAN

Wilderness recommendation was determined to be beyond the scope of the general management plan. When the 28,000-acre Wheeler Peak Scenic Area was part of Humboldt National Forest, the Forest Service reviewed the area and proposed it for future wilderness evaluation. The general management plan for Great Basin does not include a wilderness recommendation. However, the planning team has evaluated the lands within the park and produced a map showing the lands that meet or potentially meet the criteria for wilderness under the Wilderness Act. If the Park Service decides to make a wilderness recommendation in the future, this map can be used to provide necessary background information. The map is included in this document as appendix B.

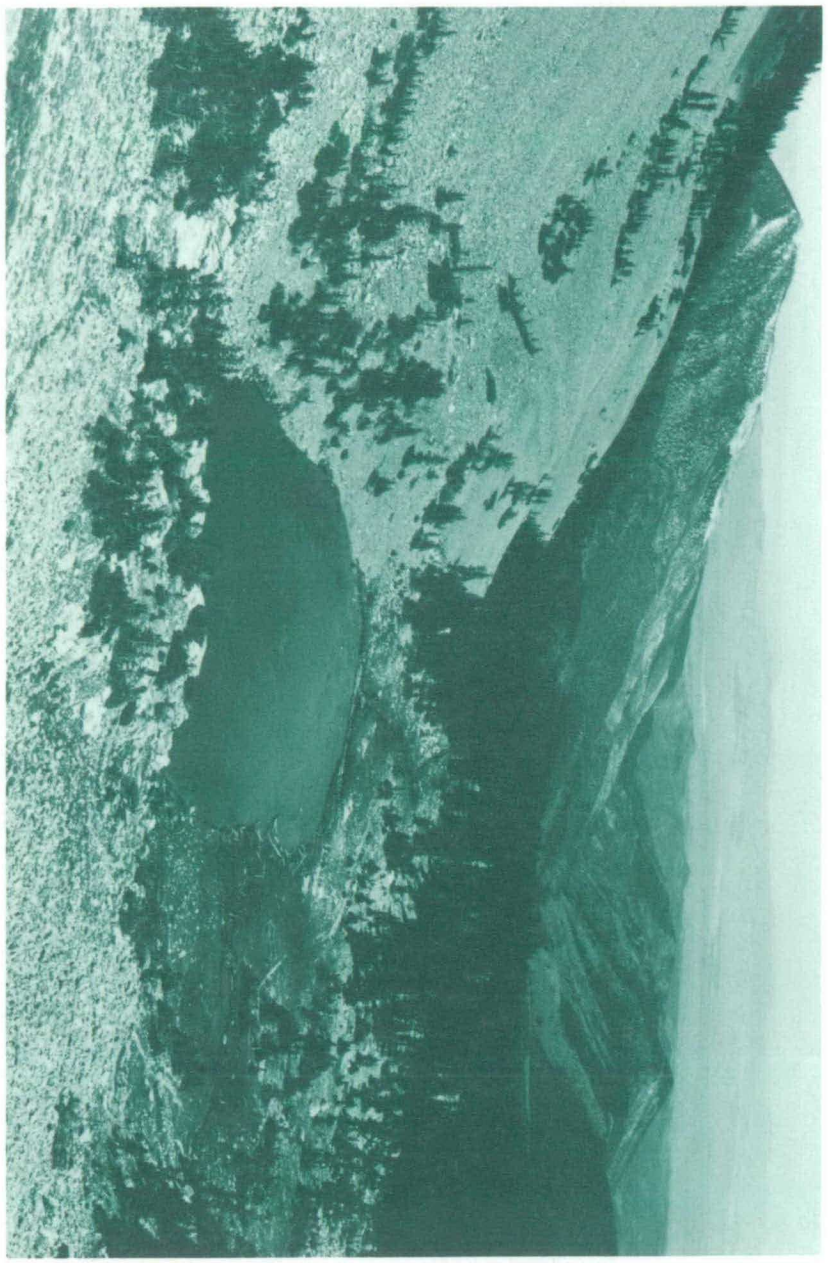
Other issues and concerns that were raised during the public involvement process were considered beyond the scope of this general management plan or were inappropriate given the legislative mandate for the park. Suggestions included eliminating Great Basin National Park, doubling or tripling its size, allowing hunting, and eliminating grazing. Many suggestions have been passed on to field managers for their consideration, but they have not been considered in this plan. The "Consultation and Coordination" section contains a discussion of public issues, concerns, and suggestions.



PLANNING REGIONS & COUNTIES Nevada Statewide Comprehensive Outdoor Recreation Plan, 1987

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PROPOSED ACTION AND ALTERNATIVES

PLANNING PERSPECTIVE

The Great Basin National Park authorizing legislation (PL 99-565) and the National Park Service *Management Policies* (NPS 1989a) provided primary direction for park planning. In addition, exceptional resources were identified, planning objectives were established, and a management zoning concept was developed to guide the formulation of the proposed action and the alternatives. The exceptional resources and planning objectives identified by the planning team are described below. The management zoning concept is detailed in the "Actions Common to All Alternatives" section.

EXCEPTIONAL RESOURCES

The known exceptional natural and cultural resources and unique biological attributes of the park were identified, inventoried, analyzed, and where possible mapped using the following criteria:

- outstanding examples of the natural, scenic, geological, ecological, floral, faunal, and recreational values for which the park was established
- populations of rare plants and animals that are particularly vulnerable because of their small population sizes and genetic isolation
- habitat necessary for the survival or reintroduction of federal- or state-recognized threatened or endangered species or candidate species being considered for listing
- resources that are unusually sensitive to human use
- major known archeological or important historical resources

The following resources and attributes were given particular attention during planning. They are illustrated on the Exceptional Resources maps.

Bristlecone Pine Forests

Bristlecone pines grow at high elevations (generally between 9,000 and 12,000 feet) in the Sierras, the mountains of the southern Rocky Mountains, and the ranges of the Great Basin. Although fairly common along the ridgetops where they grow, most stands are relatively inaccessible. Great Basin National Park contains several bristlecone pine stands – the most exceptional examples of this species in the national park system. Most of these stands are near ridgetops on limestone soils at elevations above 10,000 feet.

Bristlecone pines are the oldest trees in North America and are capable of growing in some of the harshest environments on the continent. Some of the stands in the park contain very ancient trees (in excess of 4,500 years) and represent an unparalleled scenic attraction and a valuable scientific resource. The world's oldest known bristlecone pine was discovered in a stand near Wheeler Peak in 1967. It was estimated to be over 4,900 years old.

In addition to living bristlecones, the Mt. Washington area of the park contains stands of dead standing and fallen bristlecones with no large living trees and little evidence of reproduction. These trees are also a valuable scientific resource for evaluating past climatic changes and the way plants respond to those changes.

Riparian Areas and Water Quality

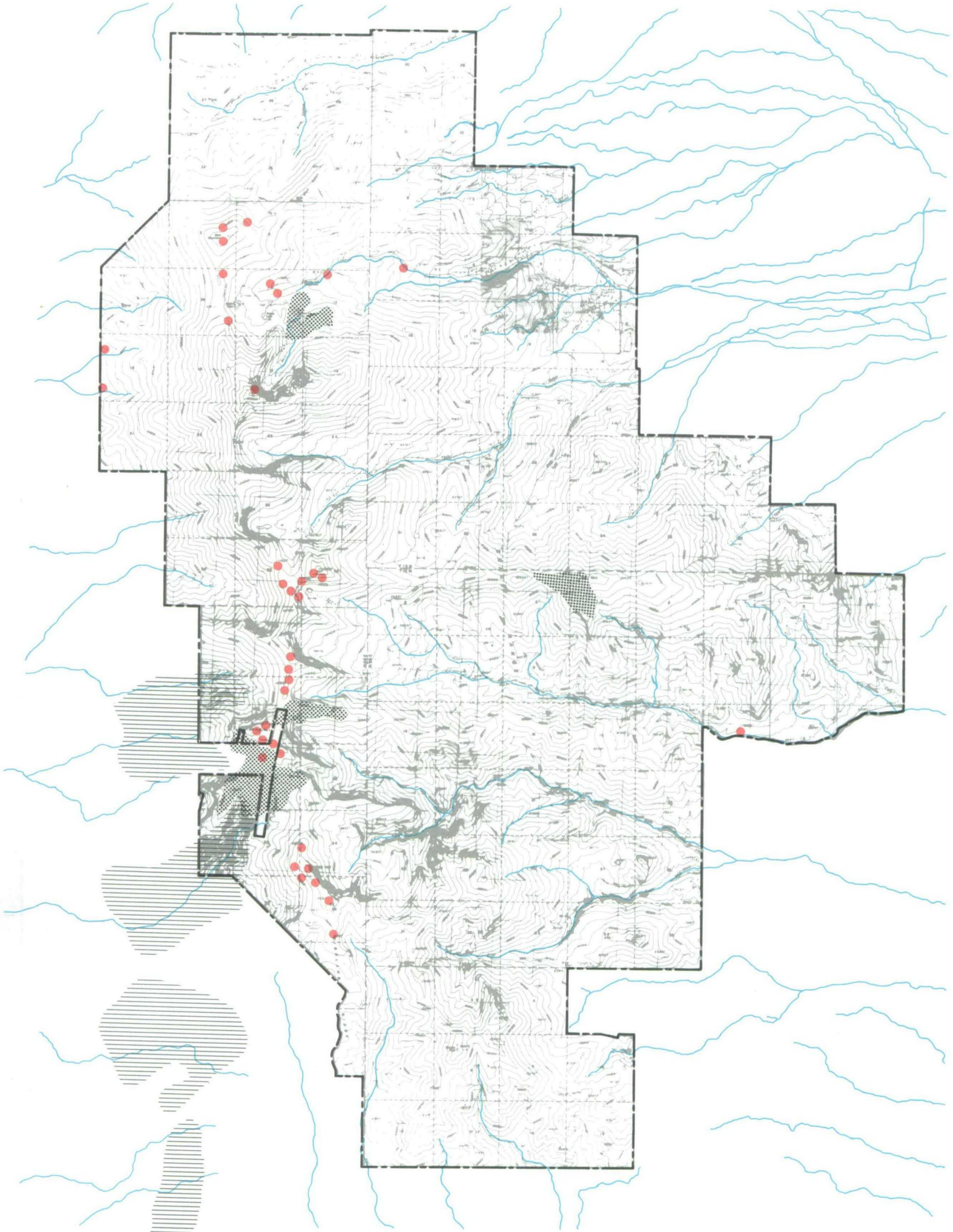
Because of the relative scarcity of water in the South Snake Range, riparian areas represent a very small percentage of the park. However, these areas have great ecological significance because they support a greater quantity and diversity of species than the adjoining more arid land.

The biological productivity of riparian areas is substantially higher than that of surrounding areas. They provide food, water, shade, and cover for fish and wildlife. They remove sediment from the water flowing through them and shade the streams, thus cooling the water. Many life forms in the park are dependent upon these areas.

Water quality in the South Snake Range is a planning concern because high elevation (above 10,000 feet) lakes and streams contain exceptionally pure water and because livestock grazing in the lower portions of the park's drainages may be adversely affecting water quality in riparian areas. Several high elevation lakes and streams contain water with exceptionally low quantities of soluble minerals and very low buffering capacities. These streams and lakes are extremely vulnerable to acid deposition resulting from rain, snow, fog, and dry fallout.

Alpine/ Subalpine Areas

The park contains more than 20,000 acres over 10,000 feet in elevation. At these high elevations, environmental stress on resident plant species is at its extreme. The geologic



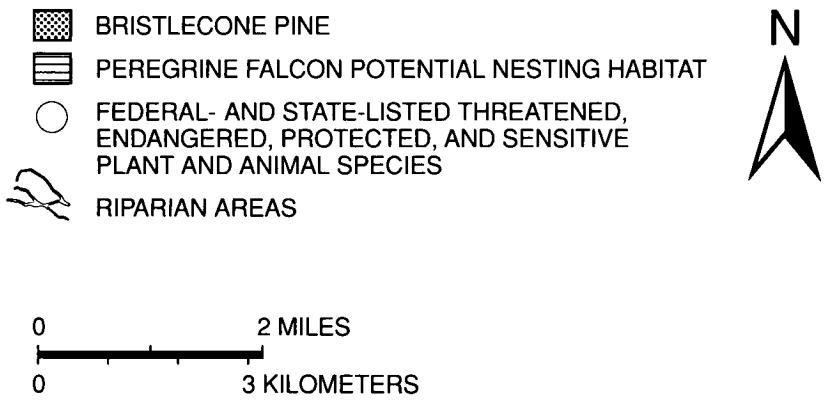
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EXCEPTIONAL RESOURCES – BIOLOGICAL

GREAT BASIN NATIONAL PARK

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history of the Great Basin and the isolation of alpine/subalpine areas from other high elevation mountainous areas have combined to produce endemic plant species, subspecies, and varieties that exist nowhere else. The majority of the park's known rare plant species are found in these areas. Alpine/subalpine areas are extremely sensitive to human disturbance and, once disturbed, very slow to recover.

Federal- and State-Listed Threatened, Endangered, Protected, and Sensitive Plant and Animal Species

Several endangered, sensitive, and candidate species were identified in cooperation with the U.S. Fish and Wildlife Service, the Nevada Natural Heritage Program, and Nevada Department of Wildlife as inhabiting the park. Two species on the federal endangered species list are known or suspected to occur in the park; 12 others are candidate species for listing. The park also contains one species that is listed on the Nevada Natural Heritage Program list as endangered, protected, or sensitive (see table 1).

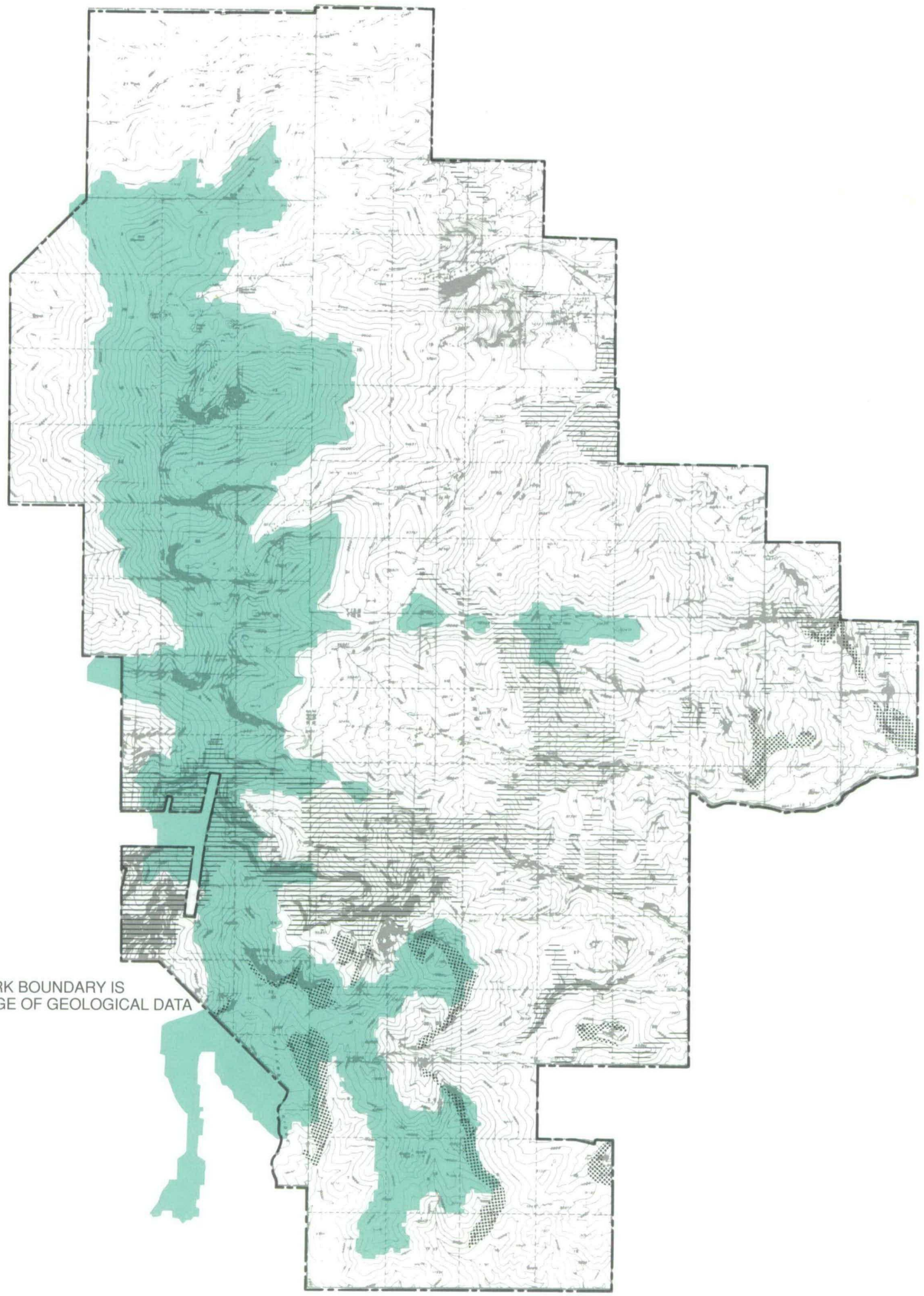
Of the species listed in table 1, the following are considered critical to this planning effort.

Sensitive Plant Species. All of the plant species listed in table 1 are considered important in planning because of the potential for domestic livestock grazing, mining, and recreational uses in the park to affect these species and their habitats.

Bonneville cutthroat trout. At the present time, only 15 wild populations of Bonneville cutthroat trout are known to exist, and one of these populations is in the park. Genetically pure populations of this fish are very rare because of habitat loss and the introduction of competitive and hybridizing salmonid species.

Planning for the Bonneville cutthroat is important because of its value as a genetic resource and because of the susceptibility of this isolated population to random events such as flooding or drought. In addition, the Park Service has an opportunity to reintroduce it into at least part of its historic range in the park.

Peregrine falcon. Planning for the endangered peregrine falcon is important because there is excellent potential nesting habitat in the southern and western sections of the park. Interagency recovery efforts are underway to reestablish peregrines in the South Snake Range, and the Park Service can contribute to these efforts. A portion of the park has already been designated as a part of the recovery area.



PARK BOUNDARY IS
EDGE OF GEOLOGICAL DATA

EXCEPTIONAL RESOURCES – PHYSICAL

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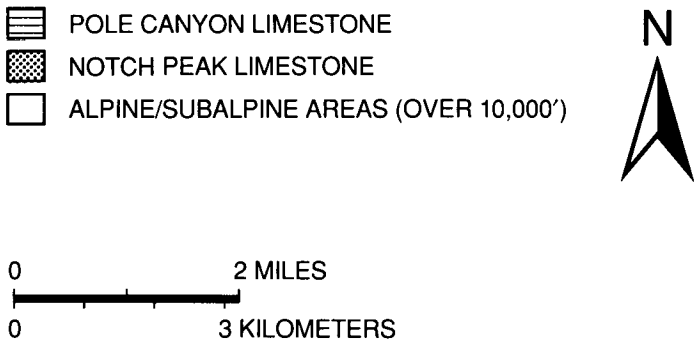


Table 1: Endangered, Sensitive, Protected, and Candidate Species Known or Suspected to Use Habitat In Great Basin National Park

	Federal Status	State Status
Plants		
Snow wavewing, *Cympoterus nivalis*	C	–
Intermountain wavewing, *Cympoterus basalticus**	C	–
Holmgren's buckwheat, *Eriogonum holmgrenii*	C	–
Tunnel springs beardtongue, *Penstemon concinnus*	C	–
Nevada primrose, *Primula nevadensis*	C	–
Nachlinger's catchfly, *Silene nachlingerae****	C	–
Pennell's penstemon, *Penstemon francisci-pennellii*	C	–
Waxflower, *Jamesia tetrapetal*	C	–
Birds		
Bald eagle, *Haliaeetus leucocephalus***	E	E
Peregrine falcon, *Falco peregrinus*	E	E
Ferruginous hawk, *Buteo regalis**	C	P
Swainson's hawk, *Buteo swainsoni**	C	P
Mammals		
Spotted bat, *Euderma maculatum**	C	P
Fish		
Bonneville cutthroat trout, *Oncorhynchus clarki utah*	C	S
Insects		
Koret's checkerspot, *Euphydryas editha koreti****	–	–

Codes: E = Endangered
S = Sensitive
P = Protected (under Nevada law)
C = Candidate

* Not known to be present but habitat is suitable
** Transient through the park
***Species recommended for state listing by Nevada Natural Heritage Program

(A more detailed description of these species is found in the "Affected Environment" section.)

Biological Diversity

Because of the elevation, temperature, and moisture gradients in the South Snake Range, one of the park's most notable attributes is its great diversity of biological communities. These communities, ranging from desert to alpine, provide a wide range of habitats for animal species and a valuable laboratory for understanding and evaluating how plants and animals respond to environmental change. Although most of the park's biological communities are characteristic of high Great Basin ranges, nowhere else is the distribution of these communities more dramatically displayed. Many communities in the park are small, isolated, and occupy unique habitats with a specific combination of climatic, geologic, topographic, and other environmental factors. In addition, many species in the park are at the extreme ends of their natural ranges.

Because of the isolation of the South Snake Range from other temperate mountain ranges and the harshness of the surrounding desert environment, many plant and animal populations have evolved in isolation from other populations into unique endemic forms. The genetic significance of many of these populations and the interrelationships and habitat requirements of many of the unique species are poorly understood because they have not been fully studied.

Caves

Great Basin has numerous limestone outcrops, many of which contain natural caverns. Lehman Cave is only one of about 30 known caverns in the park. Many have not been explored, and many more undoubtedly exist. Because of the general lack of knowledge about the location of caves in the park, all areas with the potential for underlying solution caves are considered sensitive areas.

Glacial Features

Glacial formations in the park include cirques, tarns, a remnant glacier, and a rock glacier. These features are important because few other mountain ranges within the Great Basin physiographic region contain glacial features that are as well defined. The park's glacial features are also important in interpretation because they provide visual evidence of the dramatic climate change during the Pleistocene epoch that so strongly influenced the present biotic communities and landforms of the park and the Great Basin region.

Air Quality

The area of eastern Nevada that includes the park has air quality exceeding the highest standard in the United States. Visibility from the park often exceeds 120 miles. The ability to view broad areas of basin and range topography and distant mountains is central to interpreting the entire Great Basin region, one of the park mandates established by Congress. In addition, because of the superior air quality and the area's general lack of artificial night lighting, Great Basin is one of the finest areas in the United States for experiencing the night sky. The park is designated as a class II area under the Clean Air Act as amended.

Vistas

Great Basin provides exceptional views of the two broad basins to the east and west and the surrounding mountain ranges. At present, these vistas are relatively undisturbed by human developments. They are important because they offer breathtaking scenery and because the natural landscapes enhance the park's ability to interpret the Great Basin physiographic region and the forces that shaped it.

Snake Valley dominates views from the eastern side of the park. At present the valley contains few developments – two small towns (Baker and Garrison), a state highway running north and south (Nevada Highway 487), a federal highway running east and west (US 50), several small ranches and irrigated fields, and gravel and dirt access roads. This valley is important as a scenic resource viewed by nearly all visitors and as an area for interpreting the geologic history of the basin (it was once the floor of Lake Bonneville), human settlement, and contemporary ranching.

Spring Valley dominates views to the west from Wheeler Peak and other points along the western crest of the South Snake Range in the park. The only visible developments in this valley are small ranches, a federal highway (US 93) running north and south the length of the valley, several gravel and dirt access roads, and several mine sites.

Cultural Resources

Little is known about the park's prehistoric resources because only about 2 percent of the park – primarily the areas around the Baker Creek cave system, Lehman Cave, and the alluvial fan that extends from the Lower Lehman Creek campground to the park entrance – has been systematically surveyed for archeological sites. Most of the historical sites are related to ranching or mining themes. Three sites – the Lehman orchard, Lehman aqueduct, and Rhodes cabin – were entered on the National Register of Historic Places in 1975. The Osceola (east) ditch and its component, the Stella Lake rock dam, are significant because of their relationship to the development of the large hydraulic placer mines at nearby Osceola. Knowledge about ethnographic resources in the park is lacking because ethnographic studies have not been initiated.

PLANNING OBJECTIVES

The following objectives are based on the direction provided in the park's authorizing legislation.

Manage the park to maintain the greatest degree of biological diversity and ecosystem integrity within the provisions of the authorizing legislation.

Eliminate or mitigate any impacts that threaten biological resources.

Determine the extent of plant and animal diversity, monitor the changes that are occurring, and identify the sources of change; eliminate or mitigate any identified adverse impacts, recognizing that native populations fluctuate naturally.

Monitor and evaluate biological diversity in relation to the influences of major climatic and environmental change, particularly those caused by man.

Protect threatened, endangered, and endemic species and restore them within their natural ranges.

Manage the grazing program to minimize effects on natural processes; adhere to the best range management practices, with an emphasis on protecting sensitive species.

Determine the natural role of wildland fire in the South Snake Range ecosystem, and manage the park to restore and maintain this process.

Develop an action plan for fire management.

Maintain the pristine quality of air, water, geologic, and scenic resources in the park.

Establish a baseline to determine resource conditions, monitor changes, and identify sources of change; eliminate or mitigate any human-caused impacts that threaten abiotic and scenic park resources.

Restore previously disturbed and abandoned areas (sites of mining activity, undesignated roads and trails, etc.) to natural conditions.

Continue to allow actions associated with valid existing mineral rights under regulated conditions as long as there is no direct or indirect impact on exceptional resource values; if such actions are determined to be detrimental to exceptional resource values, notify and petition Congress for the funds to acquire the mineral estate.

Maintain an adequate supply of potable water to meet the present and future needs of park visitors and management.

Seek protection of present park water rights under Nevada water laws.

Preserve and protect caves and cave systems in the park.

Identify, inventory, and classify caves and cave systems, and eliminate or mitigate impacts on cave resources.

Avoid potentially harmful development in, above, or adjacent to caves unless it can be demonstrated that such development would not significantly affect natural cave conditions.

Minimize the adverse visual impacts of human activity on the Snake and Spring valleys through active, early consultation with government agencies and private interests; eliminate or mitigate the effects of any development or activity within the park boundary that intrudes on visitors' views of the park's scenic resources.

Allow only those recreational activities that contribute to understanding and appreciation of the park's resources and only to the extent that natural, cultural, and scenic values are not impaired.

Provide recreation information about other public lands in the region for visitors wishing to participate in high-impact activities or activities that are otherwise incompatible with the NPS mission.

Establish and maintain a broad spectrum of management zones and subzones to avoid limiting visitor use to the extremes of "paved and primeval."

Develop an interpretive initiative, including facilities, programs, and activities, that makes Great Basin

National Park the primary area for interpreting the theme of the Great Basin physiographic region.

Provide strategically located orientation media that meets the information needs of visitors.

Design an interpretive operation that recognizes and serves a wide range of visitors, including special populations.

Provide some interpretive programs and media designed to foster active visitor involvement.

Provide programs and media that heighten visitor awareness of the interrelationships of people and their environment; encourage a higher degree of personal responsibility for environmental concerns.

Preserve and interpret selected cultural resources that best illustrate significant aspects of the park's history and prehistory.

Encourage concessioners to market items that enhance visitor understanding and appreciation of Great Basin's ecosystem and history.

Provide a sense of anticipation for visitors before they reach the park.

Design a park entry and associated road corridor that contribute aesthetically to the park experience and to the learning experience of each visitor.

Encourage the production and distribution of previsit information materials in the region that encourage visitors to discover the park and prepare them to visit this remote area.

Locate NPS management facilities outside park boundaries whenever the management functions can be adequately supported from such locations.

Work with local communities and assist them in meeting community goals.

Work with adjacent communities to help them maximize economic benefits.

ACTIONS COMMON TO ALL ALTERNATIVES

MANAGEMENT ZONING CONCEPT

A management zoning concept has been developed for Great Basin National Park that focuses on diversity in planning for recreational experiences. The concept provides for a wide range of experiences – consistent with Park Service mandates, policies, and guidelines – thus avoiding the limitations of offering only frontcountry (modern and developed) and backcountry (primitive and undeveloped) use. The semi-primitive subzone, semi-primitive day use subzone, and rural subzone described below play a key role in establishing a continuum of experiences between the extremes of "paved and primeval."

The difference in the levels and types of use and the types of physical development for each zone and subzone is fundamental to the zoning concept. For example, early in the planning process, it was determined that driving on dirt roads provides a different and desirable type of visitor experience – different from hiking or driving on paved roads and desirable because it offers a "continuum" alternative to either of those activities. This type of experience was reserved for the rural subzone, where no paved roads and no major developments would be allowed.

The zones and subzones established under the management zoning concept would permit visitors to better understand what activities could and could not occur in different parts of the park. In addition, the management strategies outlined for each subzone would guide the actions of the superintendent and staff in maintaining the integrity of the zoning system and the individual subzones. The concept would provide direction for day-to-day management and operations as well as for long-term decision making to ensure that a range of experiences continued to be provided. As the park's personnel changed, the zoning concept would also direct the actions of future superintendents, visitor use specialists, resource management specialists, and maintenance personnel, providing management continuity over time. If future research, surveys, and assessments produced new information about the significance of natural or cultural resources, park management might make minor administrative adjustments to the zone boundaries to reflect this information. However, the idea of a continuum of experiences would continue to guide decisions.

The zoning concept includes three zones and seven subzones. The specific guidance for each subzone is described using the following six categories: visitor experience, access, natural resource management, cultural resource management, facilities, and maintenance. In addition to the subzones, two special site designations are identified to give additional recognition and protection to outstanding natural and cultural features.

Park Development Zone

This zone would include all major park development required to serve visitors and meet the needs of management. It would encompass areas where park development and/or intensive use substantially alter the natural environment or the setting of historically significant resources.

Modern Subzone. The modern subzone would accommodate the highest levels of use in the park. Visitor activities would be fairly structured and involve little challenge. Support facilities and services would be extensive. Interparty contacts and contacts with NPS personnel would be frequent in this subzone, especially during the peak season. Contacts might be somewhat less frequent during the off-peak season, but would still be common compared to other subzones. There would be little or no opportunity for solitude. Relatively intensive resource management activity would be required in this subzone to mitigate impacts associated with high levels of visitor use and development. Although natural processes would be perpetuated wherever possible, major alterations and human intrusions would continue to be evident.

Visitor experience – The modern subzone would provide the primary experience for the majority of Great Basin visitors, introducing them to many of the park's significant resources and presenting the primary park themes. Guided tours, interpretive trails, films, slide programs, exhibits, and publications would be used to convey an understanding of what the "Great Basin" encompasses. Orientation and information would also be provided to assist visitors in planning their stays in the park and region. Cave tours and campgrounds included in this subzone might be managed under a permit system during the peak season.

Access – Access would be easy. This subzone would have both surfaced and unsurfaced roads, and all roads would be accessible by two-wheel drive vehicles. No off-road vehicle use would be permitted. Pedestrian

access would be along low- to high-standard trails that would allow people to explore a variety of environments.[1] A stable walking surface and artificial lighting would be provided for Lehman Cave.

Natural resource management – The natural character of lands within this subzone would be maintained as much as possible while accommodating high levels of visitor use. Wherever possible, previously disturbed areas would be used for new or expanded development. New structures and facilities would be designed and located to blend harmoniously with the environment.

To protect cave resources from direct disturbance from construction, where facilities were proposed on limestone or on alluvial deposits overlying limestone, the underlying areas would be thoroughly investigated for the presence of caverns before initiating construction. If it was determined that cave resources might be adversely affected, the facilities would be redesigned or an alternate location would be selected.

Vista clearing or other site modifications might be used to improve views and conditions in visitor use areas. In some areas visitors might be confined to hardened sites to reduce resource impacts. Native species would be used for all revegetation projects. Landscaping, mowing, and pruning would be carried out in appropriate areas.

Cultural resource management – A number of cultural resources are currently being evaluated under National Register criteria in consultation with the Nevada state historic preservation officer. To guide management decisions for these resources a cultural resource management plan would be prepared, which would address treatment of individual sites. Treatment might include restoration, preservation, or other appropriate actions developed in accordance with NPS policy and the regulations in 36 CFR 800.

Facilities – All major developments would be confined to this subzone. Existing and potential modifications might include visitor centers, surfaced parking lots and roads, transportation systems, rustic and limited-service campgrounds, maintenance facilities, residential areas, water and sewage treatment facilities, and various other support facilities.

Maintenance – Maintenance activities would involve maintaining existing facilities (cleaning, painting, patching, striping, etc.), hardening sites, landscaping, providing for visitor convenience and comfort, protecting resources, and restoring areas disturbed by human activities. Roads, buildings, signs, walks, interpretive displays, landscaping, and other facilities would be maintained on a regular basis. Power tools would be used for routine maintenance activities, and heavy equipment would be used for road and utility system repairs and maintenance.

Natural Zone

The emphasis in the natural zone would be on conservation of natural resources and processes. Various levels and types of visitor use that do not adversely affect those resources and processes would be accommodated in the subzones of the natural zone.

Rural Subzone. The rural subzone is a critical part of the zoning concept, because it provides an alternative to the highly structured experiences in the modern subzone and the backcountry experiences in the primitive and semi-primitive subzones. The types of visitor activities to be accommodated in this subzone (rustic camping, interpretation along trails, and access to hiking and horse trails) would permit opportunities for solitude except on peak season weekends. Interparty contacts and contacts with NPS staff would be moderately frequent during these times and infrequent on weekdays and during the off-season. Visitor challenge in the rural subzone would be low. A moderate amount of resource manipulation would be required to mitigate impacts associated with moderately high visitor use levels. Natural

1. Three types of trails would be provided in the park – low, medium, and high standard. Low-standard trails would be designed and maintained for low volumes of horse and hiker traffic. Areas with difficult terrain or sensitive resources might be restricted to hiking only. Generally these trails would serve the more remote destination areas of the park. They would be unsurfaced, average about 18 to 20 inches wide, and have grades exceeding 15 percent in short sections. Medium-standard trails would accommodate higher volumes of horse and hiker traffic. These trails would generally be dirt-surfaced but in wet sections might be surfaced with rock or gravel or elevated on puncheon bridges. They would be about 24 inches wide; grades would not exceed 15 percent. High-standard trails would be designed for hiking only and would accommodate the highest volumes of traffic. Generally these trails would be short access routes to major interpretive or scenic attractions. They would be surfaced with crushed gravel or paved depending on location, use, and surrounding terrain. Widths would average 30 inches, and grades would not exceed 8 percent.

processes would be perpetuated and natural conditions would be maintained as much as possible, but some human alterations and intrusions would be evident.

Visitor experience – In the rural subzone there would be a sense of remoteness and solitude, but not of isolation from human activity. Visitors would be able to reach undeveloped areas of the park from gravel roads and stay overnight in rustic campsites. The gravel roads would contribute to the perception of remoteness, and the rustic campsites would be designed and designated to permit a high degree of solitude. For those who cannot manage the backcountry, this subzone would provide an alternative to mainstream visitation.

Off-site interpretation and education would be stressed for visitors to this subzone; however, low-profile signs and interpretive exhibit panels might be placed in selected locations to provide information, offer limited interpretation of the primary park themes, ensure protection of park resources, and provide for visitor safety.

Access – Access would be easy to moderately difficult. No surfaced roads would be provided, and all travel would be on unsurfaced roads accessible to vehicles. No off-road vehicle use would be permitted. Trails for both hikers and horseback riders would originate in this subzone. Short interpretive trails would allow visitors to discover areas of special interest.

Grazing permittees would be allowed to use vehicles (under special permit) on designated roads in this subzone to maintain grazing improvements such as springs, channels, pipelines, ditches, watering troughs, drift fences, and salt blocks. Vehicles might also be used for routine access or herd management.

Natural resource management – The natural character of lands within this subzone would be preserved to the extent possible while accommodating moderately high visitor use levels. Any apparent effects of visitor use would be mitigated, and disturbed areas that caused significant visual impairment would be restored. The cumulative effects associated with unacceptable levels of visitor use at campsites, along streams, or in other areas of visitor concentration would be prevented. The Park Service would maintain close control over resource-damaging activities. Research plots and grazing facilities (fencing, water troughs) would be allowed under special use permit.

Cultural resource management – A number of cultural resources are currently being evaluated under National Register criteria in consultation with the Nevada state historic preservation officer. To guide management decisions for these resources a cultural resource management plan would be prepared, which would address treatment of individual sites. Treatment might include restoration, preservation, or other appropriate actions developed in accordance with NPS policy and the regulations in 36 CFR 800.

Facilities – Only limited development would be provided in this subzone; no major structures or facilities would be allowed. Gravel roads, low-profile interpretive panels and informational signs, unstaffed interpretive kiosks, trailheads, corrals, interpretive, hiking, and horseback riding trails, and campsites and campgrounds might be provided.

Campsites would be dispersed and designated. They would be rotated as necessary to allow resource restoration. Some campsites might be hardened using natural materials. Fire rings, picnic tables, and vault toilets would be provided, but there would be no potable water, electricity, or sewer connections. Campsites might be managed under a permit system during peak season. Although they would be accessible by vehicle, size restrictions might be placed on RVs and trailer-campers.

Maintenance – Activities would include maintaining roads and facilities (cleaning, painting, repair, pumpout, etc.), hardening sites, providing for visitor convenience and comfort, protecting resources, and restoring areas disturbed by human activities. Grazing improvements, trailhead corrals, fences, and other special permit structures would also require maintenance. Power tools would be used for routine maintenance activities. Heavy equipment might be used when visitation is low or when an emergency (flood, fire, or other catastrophic event) could endanger resources, visitor safety, or access.

Semi-Primitive Day Use Subzone. The semi-primitive day use subzone would accommodate visitors wishing to experience the park's significant natural and cultural resources close up and on foot. Interparty and NPS contacts would be frequent in this subzone during peak season, and

opportunities for solitude would be limited, particularly along designated trail routes. Contacts would be less frequent during the off-season, and opportunities for solitude would be greater. Challenge would range from low to high according to visitors' abilities. Moderate resource management activity would be required to mitigate impacts associated with high visitor use levels in this subzone. Naturalness would be emphasized but human alterations and intrusions would be evident.

Visitor experience – This subzone would bring visitors into direct contact with many of the park's natural and cultural resources. The natural character of semi-primitive day use areas would be maintained while providing interpretation and trail access for large numbers of visitors.

A variety of on-site interpretive media would be used to present the primary park themes and provide orientation and information. Interpretation and information might also be provided by rangers. A permit system might be used for trails that take visitors to more remote destinations.

Access – Access would range from easy to difficult. This subzone would be entirely roadless, and access would be along low- to high-standard trails that connect various destination points. Wheelchair access would be provided in selected areas to permit visitors with disabilities to experience representative park settings.

Public access would be limited to foot and wheelchair traffic; no horses, bicycles, or motorized vehicles would be permitted for recreational use. NPS personnel might use horses for difficult or remote maintenance activities. Emergency vehicles and aircraft would be allowed only in emergency situations.

Natural resource management – Because semi-primitive day use areas would have high concentrations of visitors and include some of the most significant resources in the park, livestock grazing would be prohibited in this subzone except where the subzone is on land outside the jurisdiction of the Park Service (e.g., Lexington Creek). The natural environment along trail corridors would be maintained to the extent possible, and human impacts would be minimized where sensitive environments and species occur. Unavoidable human impacts would be confined to resistant and less sensitive environments. Human impacts would be prevented or mitigated in areas identified as scenic environments. The Park Service would take maximum measures within the framework of the park legislation and the NPS management policies to minimize the impacts of nonrecreational resource uses.

Resources and uses would be carefully monitored in this subzone, and mitigating actions such as revegetation would be undertaken as required.

Cultural resource management – A number of cultural resources are currently being evaluated under National Register criteria in consultation with the Nevada state historic preservation officer. To guide management decisions for these resources a cultural resource management plan would be prepared, which would address treatment of individual sites. Treatment might include restoration, preservation, or other appropriate actions developed in accordance with NPS policy and the regulations in 36 CFR 800.

Facilities – Only limited development would be provided in this subzone; major structures and facilities would not be allowed. The primary development would be a day use trail system (including low- to high-standard trails) that would lead to destination areas and points of special interest. Unstaffed interpretive kiosks and outdoor exhibits might be included; no staffed facilities would be provided. No overnight camping or open fires would be permitted in this subzone. Vault toilets and picnic tables might be provided where appropriate.

Maintenance – Activities would include maintaining trails and interpretive facilities, hardening sites, providing for visitor convenience and comfort, protecting resources, and restoring areas disturbed by human activities. Power tools would not be permitted in this subzone unless the superintendent determined that such tools were necessary to respond to a life- or resource-threatening emergency or they were the minimum tools necessary to accomplish an essential task.

Semi-Primitive Subzone. This subzone would include scenic destination areas in Great Basin's backcountry and would be oriented to hiking and horseback riding on designated trails; primitive camping would be permitted, and backcountry campsites might be provided to support this use and protect resources. Interparty contacts, both on trails and at campsites, would be moderately frequent during the peak

season; contacts in the off-season would be rare, and opportunities for solitude would be good. Contacts with NPS personnel would be limited in this subzone but more frequent than in the primitive subzone. Challenge would be moderate. Natural processes would be perpetuated in semi-primitive areas, and natural conditions would be maintained to the extent possible, but evidence of human alterations and recreational use would be apparent along trails and in camping areas. Resource manipulation would be kept to a minimum, but some resource management actions might be required to reduce the impacts of visitor use.

Visitor experience – This subzone would provide opportunities to hike and horseback ride on trails through some of the park's most remote areas and to experience its natural and scenic resources in relative solitude. Although backcountry activities would predominate in this subzone, the expected levels of use along trails and in camping areas might not permit the type of wilderness experiences that would be accommodated in the primitive subzone.

Off-site interpretation and education would be stressed for this subzone. Most rules and regulations would be explained to visitors before they reached backcountry areas; however, low-profile signs would be installed as needed to protect park resources and provide for visitor safety.

Access – Access would be moderately easy to difficult. This subzone would be roadless, and low- to medium-standard trails would connect various destination points. Public access would be on foot or horseback only. NPS personnel and grazing permittees would also use horses or foot travel for activities in this subzone, except for situations that require aircraft or emergency vehicles.

Natural resource management – The natural environment along trail corridors and in camping areas would be maintained to the extent possible, and the impacts of human use would be minimized where sensitive species or environments occur. Unavoidable human impacts would be confined to resistant and less sensitive areas. Human impacts would be prevented or mitigated in areas identified as scenic environments. The Park Service would maintain close control over resource-damaging activities. Research plots and grazing facilities (fencing, water troughs) would be allowed under special use permit. Resources and uses would be monitored in this subzone, and mitigating actions such as revegetation would be undertaken as required. Uses might be controlled or limited in sensitive areas, and campsites might be designated where necessary to protect resources from unacceptable impacts. A backcountry permit system might be implemented if resources were threatened.

Cultural resource management – A number of cultural resources are currently being evaluated under National Register criteria in consultation with the Nevada state historic preservation officer. To guide management decisions for these resources a cultural resource management plan would be prepared, which would address treatment of individual sites. Treatment might include restoration, preservation, or other appropriate actions developed in accordance with NPS policy and the regulations in 36 CFR 800.

Facilities – No major developments would be permitted in this subzone, except for grazing improvements. Recreational facilities would be limited to trails, modest backcountry shelters, and minor structural improvements associated with backcountry campsites and trail construction.

Campsites (both walk-in and horse camps) would be designated where the effects of casual use require mitigation. Heavily used campsites where fire is allowed would have fire rings as well as pit toilets (at least 200 feet from lakes or streams). Backcountry shelters might be considered. Campsites for visitors on horseback would have hitch rails. No tables would be allowed.

Maintenance – Most maintenance activities would be for the purpose of protecting resources and restoring areas disturbed by human activities. Other activities would include maintaining trails, campsites, and informational signs. Some maintenance would be associated with grazing improvements. Power tools would not be permitted in this subzone unless the superintendent determined that such tools were necessary to respond to a life- or resource-threatening emergency or they were the minimum tools necessary to accomplish an essential task.

Primitive Subzone. The primitive subzone would be reserved for wilderness experiences. Challenge in this subzone would be high. Visitors would have infrequent

contacts with one another or with NPS personnel, and they would be in an environment substantially free of human influence and alteration. Natural processes and conditions would be perpetuated in this subzone.

Visitor experience – The primitive subzone would provide abundant opportunities to experience the backcountry wilderness in solitude. It would be reserved for hiking and primitive camping only. Off-site interpretation and education would be stressed. No interpretive exhibits or signs would be provided. All rules and regulations would be explained to visitors before they reached primitive areas.

Access – Access would be difficult. This subzone would be roadless, and visitors would have to travel cross-country or on low-standard trails that provide connections over ridgelines. Hiking would in most instances not be oriented to specific destinations or points of interest. Orienteering and discovery would be encouraged.

Public access would be on foot only. NPS personnel and grazing permittees would use horses or foot travel for activities in this subzone, except for situations that require aircraft or emergency vehicles.

Natural resource management – The natural environment would be preserved to the extent possible while accommodating low-density backcountry use. Naturally occurring species would be maintained or reestablished, and populations of sensitive species would be protected or augmented. The introduction of nonnative species would be prevented to the extent possible, and attempts would be made to eliminate introduced species before they became established. The Park Service would maintain close control over resource-damaging activities. Research plots and grazing facilities (fencing, watering troughs) would be allowed under special use permit.

Monitoring would be carried out on a routine basis in this subzone, and mitigating measures (revegetation, species augmentation, and reintroduction of extirpated species) would be undertaken as needed. Uses might be controlled or dispersed if necessary to protect resources; however, with the anticipated light use, these measures are not expected to be needed. A backcountry permit system would be implemented if resources were threatened.

Some impacts that occurred before the park's establishment would be apparent for some time.

Cultural resource management – A number of cultural resources are currently being evaluated under National Register criteria in consultation with the Nevada state historic preservation officer. To guide management decisions for these resources a cultural resource management plan would be prepared, which would address treatment of individual sites. Treatment might include restoration, preservation, or other appropriate actions developed in accordance with NPS policy and the regulations in 36 CFR 800.

Facilities – No developments would be permitted in this subzone, and there would be no further modifications (except permitted grazing improvements) to the environment. No campsites would be provided.

Maintenance – Maintenance activities would be for the purpose of protecting resources and restoring areas disturbed by human activities. No recurring maintenance would take place except that associated with grazing improvements. Power tools would not be permitted in this subzone unless the superintendent determined that such tools were necessary to respond to a life- or resource-threatening emergency.

Protected Natural Area Subzone. This subzone would include lands and waters that are unusually fragile or ecologically or geologically significant. Strict protection measures would be employed to ensure perpetuation of these resources. Domestic livestock grazing would be prohibited in this subzone, and human intrusions would be minimized. Visitor experiences, access, natural and cultural resource management, allowable development, and maintenance in this subzone would be the same as in the primitive subzone.

Research Natural Area Subzone. This subzone would also include resources that are unusually fragile or ecologically or geologically significant, and protection measures similar to those in the protected natural area subzone would be implemented. Domestic livestock grazing would also be prohibited in this subzone, and human intrusions would be kept to a minimum. The major difference in management of this subzone would be that nonmanipulative observational research would be encouraged. Visitor experiences, access, natural and cultural resource management, allowable

development, and maintenance would be the same as in the primitive subzone.

Special Use Zone

The special use zone would include lands within the park boundary where NPS administrative control is secondary to that of other government agencies or private interests (rights-of-way and utility corridors, for example). Allowable uses and facilities within this zone would be stipulated in special use permits between the Park Service and such interests.

Special Site Designations

Outstanding Natural Feature. Geological and ecological features that illustrate the park's primary interpretive themes or that possess significant intrinsic value would be designated as outstanding natural features. Maximum protection would be afforded these resources while providing for public understanding and appreciation of them.

Outstanding Cultural Feature. Cultural sites, structures, and objects that illustrate primary park themes or that have aesthetic value and/or association with important personages, events, or periods in human history would be designated as outstanding cultural features. All properties listed on or eligible for listing on the National Register of Historic Places or designated as national historic landmarks meet this criteria. These resources would receive maximum protection and would be interpreted to provide for public understanding and appreciation of the park's history.

On-the-Ground Identification for Management Zones

To enable both NPS personnel and visitors to identify the zones and subzones while in the park, "on-the-ground" identification would be provided. Although zone boundaries would not be marked, in specific instances boundary determinations might have to be made to ensure that a certain action, activity, or use was not violating a zoning concept. The following zone definitions would allow field identification:

modern subzone

100 feet on each side of the centerline of all paved roads within the park boundary

400 feet on each side of the centerline of the proposed entrance road outside the park boundary (proposed action and alternative C only)

developed areas as designated by boundary lines (using contour lines where feasible) on 7½ minute USGS maps

rural subzone

¼ mile on each side of the centerline of designated gravel roads within the park boundary

200 feet on each side of the centerline of designated gravel roads outside the boundary

semi-primitive day use subzone

areas designated by boundary lines (using contour lines where feasible) on 7½ minute USGS maps

semi-primitive subzone

areas designated by boundary lines (using contour lines where feasible) on 7½ minute USGS maps

¼ mile on each side of the centerline of designated trail tread

primitive subzone

areas designated by boundary lines (using contour lines where feasible) on 7½ minute USGS maps

protected natural area

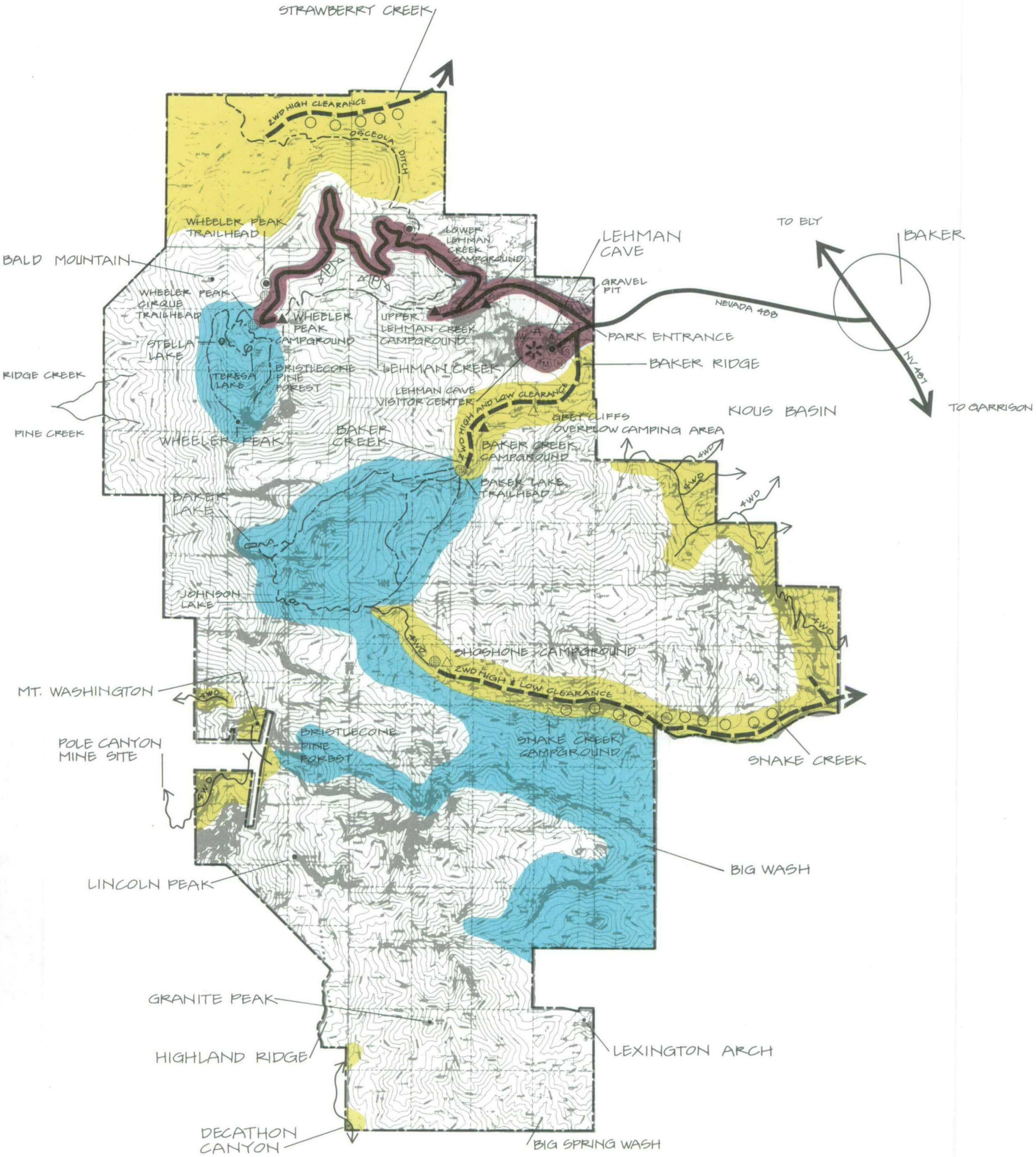
all areas in the park above 10,500 feet in elevation and the watersheds of Pine and Ridge creeks

research natural area

areas designated by boundary lines (using contour lines where feasible) on 7½ minute USGS map

Application of the Zoning Concept

Existing Conditions. The management zoning concept was developed specifically for Great Basin National Park. In order to illustrate and evaluate the zoning changes that would occur under the proposed action and alternatives, lands within the park boundary were first zoned to reflect existing management strategies and visitor activities. The following zones and subzones apply to current developments and uses:


STRAWBERRY CREEK
2WD HIGH CLEARANCE
OSCEOLA DITCH
WHEELER PEAK TRAILHEAD
BALD MOUNTAIN
LOWER LEHMAN CREEK CAMPGROUND
LEHMAN CAVE
TO ELY
BAKER
GRAVEL PIT
NEVADA 488
WHEELER PEAK CIRQUE TRAILHEAD
WHEELER PEAK CAMPGROUND
UPPER LEHMAN CREEK CAMPGROUND
PARK ENTRANCE
STELLA LAKE
TERESA LAKE
BRISTLECONE PINE FOREST
LEHMAN CREEK
BAKER RIDGE
RIDGE CREEK
LEHMAN CAVE VISITOR CENTER
NV 487
TO GARRISON
KOUS BASIN
PINE CREEK
WHEELER PEAK
BAKER CREEK
GREY CLIFFS OVERFLOW CAMPING AREA
2WD HIGH AND LOW CLEARANCE
BAKER CREEK CAMPGROUND
4WD
BAKER LAKE TRAILHEAD
BAKER LAKE
JOHNSON LAKE
SHOSHONE CAMPGROUND
2WD HIGH & LOW CLEARANCE
MT. WASHINGTON
POLE CANYON MINE SITE
BRISTLECONE PINE FOREST
SNAKE CREEK CAMPGROUND
SNAKE CREEK
BIG WASH
LINCOLN PEAK
GRANITE PEAK
HIGHLAND RIDGE
LEXINGTON ARCH
DECATHON CANYON
BIG SPRING WASH

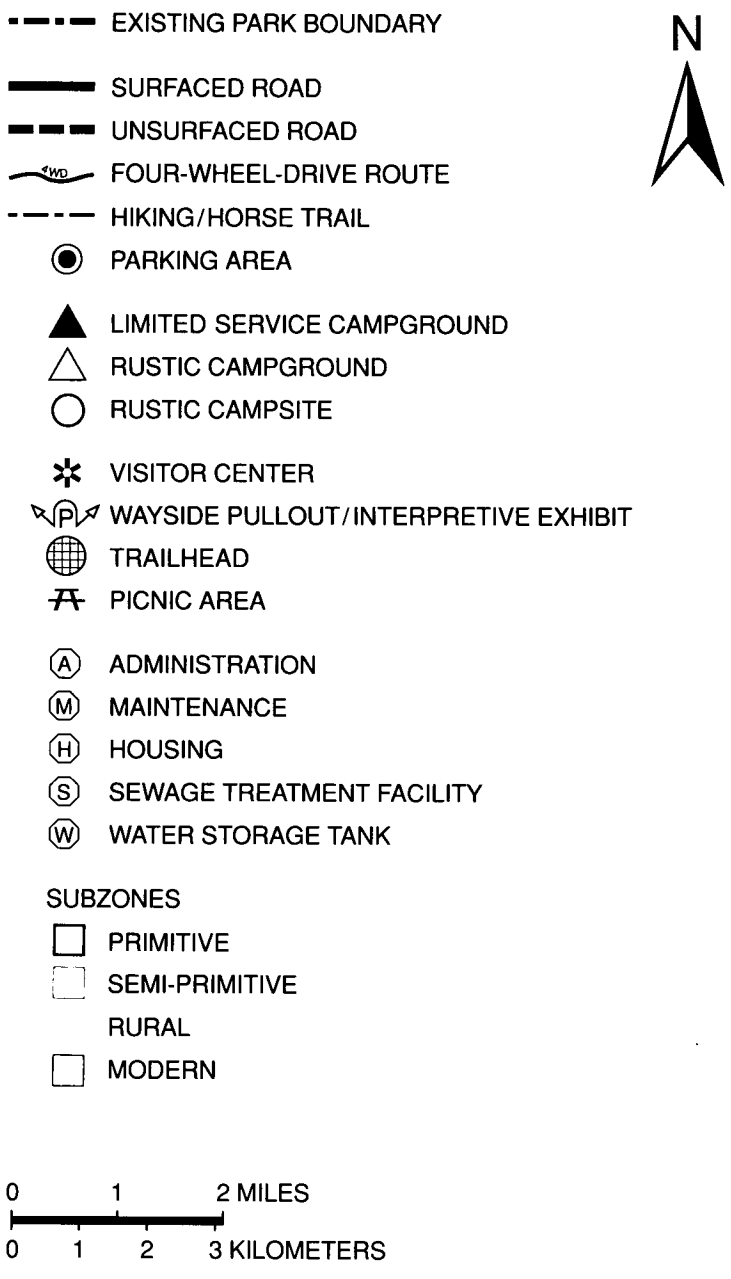
ON MICROFILM

EXISTING CONDITIONS

GREAT BASIN NATIONAL PARK

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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park development zone – 939 acres
    modern subzone – 939 acres
natural zone – 76,143 acres
    rural subzone – 5,711 acres
    semi-primitive subzone – 22,422 acres
    primitive subzone – 48,000 acres
special use zone – 10 acres

Park developments and uses are shown on the following Existing Conditions map.

Proposed Action and Alternatives. The proposed action and alternatives were zoned based on their different management emphases. Under all of the alternatives, primary consideration was given to the following criteria:

protection of exceptional resources

constraints imposed by the landscape

provision of a reasonable range of visitor experiences

perpetuation of traditional visitor experiences where appropriate

Endangered, threatened, and sensitive species, bristlecone pine forests, riparian and alpine/subalpine vegetation, and other exceptional resource values weighed heavily in determining zone and subzone boundaries. Exceptional resources were not compromised, but some alternatives placed a higher value on protection of these resources through zoning (i.e., the designation of large areas as primitive subzones, protected natural areas, or research natural areas). Other criteria also contributed to zoning decisions. For example, landscape constraints (steep escarpments) in the area of the Mt. Washington bristlecone pine forest limit access to and use of this area, whereas paved road and trail access to the Wheeler Peak cirque bristlecone forest encourages use there. Therefore, in the proposed action, different zoning was applied in these two areas (research natural area/primitive subzone at Mt. Washington, semi-primitive day use subzone at Wheeler Peak cirque). Both subzones provide protection for the prime bristlecone habitat; however, they offer different experiences and accommodate different levels of use.

Topography and terrain greatly influenced zoning. The more gentle slopes and associated drainages along the eastern side of the park have encouraged traditional use patterns because of ease of access. Access from the western side

has been restricted by the steep terrain. Because of these restrictions and the undisturbed nature of the resources in this area, only one alternative (alternative C) included zoning and related developments to encourage access from the west. Zoning under the proposed action and the other alternatives would perpetuate the tradition of entering the park only along its eastern boundary.

Zoning under the proposed action and the alternatives would also support park managers in maintaining diverse park experiences and avoiding the pitfalls of providing only the extremes of backcountry and frontcountry use. Managers could apply the legislative mandate, NPS policies, the planning objectives, and the rationale associated with the zoning concept to develop the "limits of acceptable change" (see the following section) and to define what levels of use and development could and could not occur within each subzone. This would maintain the distinctions between the seven subzones over time.

Traditional uses and use patterns that were determined to be compatible with the legislative mandate, NPS policies, and planning objectives were perpetuated through zoning under the proposed action and alternatives. For example, Lehman Cave and the Wheeler Peak road would be placed in the modern subzone to provide the primary park experience, traditional dispersed camping would continue in the rural subzone, and large portions of the central and southern sections of the park would be zoned semi-primitive and primitive to preserve opportunities for backcountry experiences.

LIMITS OF ACCEPTABLE CHANGE

Annual recreation visits to Great Basin National Park could grow to 78,000 by the year 2000. There were 40,400 visitors to Lehman Caves National Monument in 1986, the year before the park's establishment. In 1987 visitation to the new park jumped to 63,500 (a 57 percent increase), and in 1988 it grew to 73,600 (an increase of 16 percent over 1987). After this initial burst, visitation dropped by 4 percent in 1989 to 71,000.

Actual visitation since the park's establishment has closely paralleled the 1978 forecast model prepared by the Statistical Branch of the Denver Service Center (NPS 1987). The model predicted that there would be dramatic short-term increases in visitation because of the notoriety afforded the new national park. It also predicted that visitation would then gradually drop before settling down to a regular growth rate.

Although use of the park is expected to increase by approximately 76 percent from 1986 to 2000, sufficient data does not exist to determine whether or not the area can tolerate this amount of use. This planning effort does not attempt to determine "carrying capacity" – how much use the area can tolerate. Rather, it proposes that a *limits of acceptable change* (LAC) management program be implemented. The LAC system represents a reformulation of the recreational carrying capacity concept, with primary emphasis on the conditions desired in the area rather than on the amount of use the area can tolerate. The LAC system requires managers to define desired conditions and to undertake actions to achieve and maintain these conditions unless and until there are signs of resource damage or degradation.

The LAC process includes four major activities:

specification of acceptable and achievable (desired) resource and social conditions, defined by a series of measurable parameters

analysis of the relationship between existing conditions and those judged acceptable and achievable

identification of management actions necessary to achieve desired conditions

monitoring and evaluation of management effectiveness

These four activities are broken down into eight steps:

1. identification of area concerns and issues
2. definition and description of what activities can and cannot occur in specific areas of the park; establishment of zones and subzones
3. selection of desired indicators of resource and social conditions
4. inventory of resource and social conditions
5. specification of standards for resource and social indicators
6. identification of management actions for zones and subzones
7. implementation of actions and monitoring of conditions

8. adjustment of actions as necessary to achieve desired conditions

Steps 1 and 2 have been completed as part of this planning effort (see the "Planning Issues and Concerns" and "Management Zoning Concept" sections.) Steps 3 through 8 would be carried out by the park superintendent and staff after the general management plan is approved. The Forest Service LAC planning system (USFS, Stankey 1985) would serve as a guide, and an ongoing LAC management program would be established for Great Basin National Park.

One assumption concerning the limits of acceptable change is being made as part of this planning effort. Based on studies and observations by the park staff over a number of years, the maximum acceptable level of cave use has been determined to be 20 tours of 30 persons, or a total of 600 persons, per day. The demand for cave tours already exceeds this maximum on some peak season weekends and on all six major holiday weekends – when as many as 300 people per day may be turned away – and it is expected to increase even more dramatically as park visitation grows.

Managers of many cave parks (especially those with large caverns) have adopted self-guided tour systems in response to rapid increases in visitation. However, because of the small size of Lehman Cave (narrow chambers and low ceilings) and the large number of delicate features within easy reach of visitors, this option is not feasible for Lehman Cave. Because of this limitation and the fact that future research and monitoring may determine that a maximum acceptable use level lower than the 600 persons per day is required to protect cave resources, it is likely that Lehman Cave will not be able to meet the demands of increased visitation, particularly during the peak season. Therefore, one of the critical aspects of planning for Great Basin is to modify traditional use patterns and visitor activities to include a broader range of experiences involving other significant resources within and near the park. The proposal and alternatives in the following sections address possible ways to achieve that goal.

PROPOSED ACTION
GENERAL MANAGEMENT PLAN / DEVELOPMENT CONCEPT PLANS

The proposed action for Great Basin National Park focuses on diversifying visitor opportunities by expanding interpretation of significant features in the park and the Great Basin physiographic region, improving access to and within the park, constructing a new visitor center, and offering new ways to view and appreciate the park's many resources. The zoning concept would be applied to establish a continuum of experiences – from organized and highly structured interpretation at Lehman Cave and in the Wheeler Peak area to rustic camping in the more rural portions of the park to wilderness experiences in the remote backcountry. Together, these actions would transform the area from a one-dimensional national monument into a multidimensional national park.

The Park Service would review, evaluate, and make recommendations to local governments concerning all major development proposals that might affect the visual integrity of the Snake and Spring valley basins. Although outside the park boundary, these two basins are extremely important to the park purpose, and views of and across them are critical to the visitor experience. Park Service actions would aid in ensuring that the views associated with these basin landscapes would be preserved in perpetuity.

The proposed action constitutes the National Park Service's preferred alternative and draft general management plan for the park. The plan is the statement of intent for managing the area's resources, providing for legislatively authorized uses, and allowing for appropriate visitor use and interpretation of the resources.

ZONING RATIONALE

The zoning concept under the proposed action would provide a balanced range of recreational opportunities in the park. Most visitors would continue to concentrate in the Lehman Cave and Wheeler Peak areas, and two subzones (the modern and semi-primitive day use subzones) would be established in these areas to accommodate relatively high levels of use and permit visitors to easily reach and view many of the park's significant features. For visitors wishing to escape the mainstream of tourist activity, the rural subzone would provide opportunities for fishing, hiking, and dispersed camping in more remote areas. The southern portion of the park would be opened to more backcountry use by including large areas in the semi-primitive subzone and designating trails that would allow visitors to hike the entire length of the park from north to south. Areas with special resource needs and concerns would be included in the protected natural area and research natural area subzones. The remainder of the park would constitute the primitive subzone. Primary road access to the park would be from the east side of the Snake Range.

The acreages of each zone and subzone would be as follows:

park development zone – 1,148 acres
- modern subzone – 1,148 acres

natural zone – 77,204 acres
- rural subzone – 2,341 acres
- semi-primitive day use subzone – 1,574 acres
- semi-primitive subzone – 28,486 acres
- primitive subzone – 33,196 acres
- protected natural area subzone – 9,334 acres
- research natural area subzone – 2,273 acres

special use zone – 10 acres

These acreages include the approximately 1,280 acres in two sections of Forest Service land along the eastern park boundary adjacent to Baker Ridge that are proposed for transfer to the Park Service. The zoning concept is illustrated on the Proposed Action map.

VISITOR USE AND DEVELOPMENT

Great Basin National Park is the only unit of the national park system lying deep within the Great Basin physiographic region. This immense natural area, more than one-third the size of Alaska, is one of the largest physiographic regions in North America. The park preserves significant examples of the high range ecosystems of this region – from arid desert shrub to limestone caverns to towering mountain peaks surrounded by remnant glacial features – and it offers commanding views of the basin landscapes below. As such, it provides innumerable opportunities to combine education and recreation, to both enjoy and learn about this remarkably diverse environment.

Although visitor use has increased since the park was established in 1986, yearly visitation is still relatively low. Most use occurs in the northern part of the park, in the Lehman Cave area and along the Wheeler Peak road.

Recreational activities in these areas include touring the cave, sightseeing (on foot and by car), a variety of interpretive activities (guided walks, campfire talks, special programs), camping, fishing, picnicking, birdwatching, and other outdoor pursuits. The remainder of the park is largely undeveloped and accommodates hiking, fishing, rustic and backcountry camping, and orienteering. Spelunking is allowed under special use permit.

The proposed action would expand opportunities to experience representative portions of the Great Basin and to enjoy its many attractions. It would broaden the range of options to challenge virtually every visitor's level of interest and ability. A major component of the proposed action is the new interpretive initiative, which would provide the activities, programs, media, and services to encourage visitor understanding of the geologic, natural, and cultural evolution of the entire region and the national park. The following themes would provide the basis for interpretation:

the Great Basin physiographic region, especially as represented by Great Basin National Park

glacial processes and how glaciation influenced development of the Great Basin

air-quality-related resources: the park's scenic and other values and their dependence on pristine air quality

the unique scientific value of bristlecone pines

the fragile alpine and subalpine environments

cave ecology and the need for cave conservation

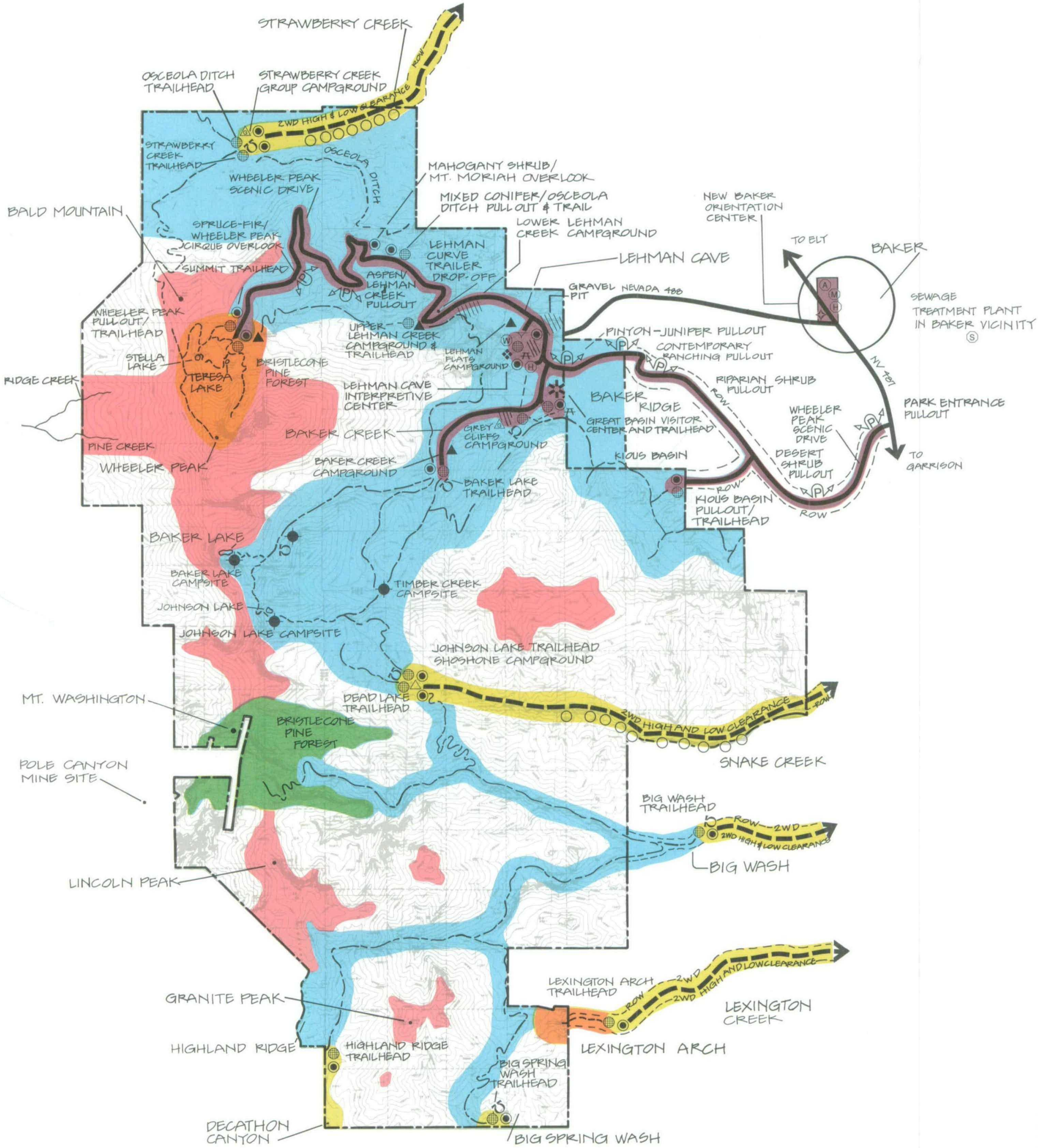
the record of pioneer homesteading, agriculture, and mining activities associated with the area that is now the park

native Americans who lived and continue to live in the Great Basin

Many of these themes would be illustrated through resource-oriented programs emphasizing the park's significant natural values and nonconsumptive uses of resources.

The major facilities to support interpretation would include the new Wheeler Peak Scenic Drive and its 11 associated pullouts (the scenic drive would include the existing 12-mile Wheeler Peak road and a new 7-mile eastern extension that would pass through the basin environment), the new Great Basin visitor center on Baker Ridge, the rehabilitated Lehman Cave interpretive center (which would focus on cave interpretation), an integrated parkwide system of trailhead orientation exhibits and campground information shelters, and four regional interpretive exhibit shelters that would be constructed along the major highways leading to the park. Interpretive exhibit panels at the scenic drive pullouts and in other park areas would provide site-specific interpretation about the life zones and natural and cultural features visible from the sites. Trailhead orientation exhibits would help prepare visitors for safe, enjoyable hiking experiences by providing safety information, details about trail length and level of difficulty, trail route maps, and brief introductions to the areas through which the trails pass. Campground information shelters would provide safety information and details about the campgrounds and their immediate areas.

Other park developments would include campgrounds and campsites, roads, trails and trailheads, viewpoints, park headquarters, staff housing, and other administration and maintenance facilities. Facilities would be limited to those necessary to achieve the major planning objectives for the park – the protection of park resources and values and the provision of recreational activities that inspire visitors and contribute to their understanding and appreciation of the park. Where possible, existing facilities would be upgraded to meet the growing demand for services, and previously disturbed areas would be used for new park development. Disturbed areas that were not proposed for development would be revegetated with native species and restored to natural or near-natural conditions. All facilities would meet current design standards for health and safety, accessibility by visitors in wheelchairs, minimum water use, and vehicular travel, and design guidelines specific to the park would be developed to provide a unified design theme for facilities. All sites would be selected to maximize energy efficiency, on- and off-site views, soil suitability (ability of soils to support structures, roads, and trails), and cost efficiency. Sites considered for development would be evaluated for the presence of rare, sensitive, threatened, or endangered species and important cultural resources before design work was initiated. In addition, any sites overlying limestone would be thoroughly investigated for the presence of caves. Techniques have been developed for determining from the surface if there are caves underlying an area proposed for excavation or development. Investigations would be performed before structural designs were developed and the exact placement of facilities was decided. Funding for


STRAWBERRY CREEK
OSCEOLA DITCH TRAILHEAD
STRAWBERRY CREEK GROUP CAMPGROUND
ROW
2WD HIGH & LOW CLEARANCE
STRAWBERRY CREEK TRAILHEAD
OSCEOLA DITCH
WHEELER PEAK SCENIC DRIVE
MAHOGANY SHRUB/ MT. MORIAH OVERLOOK
MIXED CONIFER/OSCEOLA DITCH PULLOUT & TRAIL
BALD MOUNTAIN
SPRUCE-FIR/ WHEELER PEAK CIRQUE OVERLOOK
SUMMIT TRAILHEAD
LOWER LEHMAN CREEK CAMPGROUND
LEHMAN CAVE
LEHMAN CURVE TRAILER DROP-OFF
ASPEN/ LEHMAN CREEK PULLOUT
NEW BAKER ORIENTATION CENTER
TO ELY
BAKER
GRAVEL NEVADA 488 PIT
SEWAGE TREATMENT PLANT IN BAKER VICINITY
WHEELER PEAK PULLOUT/ TRAILHEAD
UPPER LEHMAN CREEK CAMPGROUND & TRAILHEAD
PINYON-JUNIPER PULLOUT
CONTEMPORARY RANCHING PULLOUT
STELLA LAKE
TERESA LAKE
BRISTLECONE PINE FOREST
LEHMAN FLATS CAMPGROUND
RIPARIAN SHRUB PULLOUT
NV 487
RIDGE CREEK
LEHMAN CAVE INTERPRETIVE CENTER
BAKER RIDGE
PARK ENTRANCE PULLOUT
WHEELER PEAK SCENIC DRIVE
GREAT BASIN VISITOR CENTER AND TRAILHEAD
BAKER CREEK
GREY CLIFFS CAMPGROUND
PINE CREEK
WHEELER PEAK
KIOUS BASIN
DESERT SHRUB PULLOUT
TO GARRISON
BAKER CREEK CAMPGROUND
BAKER LAKE TRAILHEAD
KIOUS BASIN PULLOUT/ TRAILHEAD
BAKER LAKE
BAKER LAKE CAMPSITE
TIMBER CREEK CAMPSITE
JOHNSON LAKE
JOHNSON LAKE CAMPSITE
JOHNSON LAKE TRAILHEAD SHOSHONE CAMPGROUND
MT. WASHINGTON
DEAD LAKE TRAILHEAD
2WD HIGH AND LOW CLEARANCE
SNAKE CREEK
BRISTLECONE PINE FOREST
POLE CANYON MINE SITE
BIG WASH TRAILHEAD
2WD HIGH & LOW CLEARANCE
BIG WASH
LINCOLN PEAK
LEXINGTON ARCH TRAILHEAD
2WD HIGH AND LOW CLEARANCE
LEXINGTON CREEK
GRANITE PEAK
HIGHLAND RIDGE
HIGHLAND RIDGE TRAILHEAD
LEXINGTON ARCH
BIG SPRING WASH TRAILHEAD
DECATHON CANYON
BIG SPRING WASH

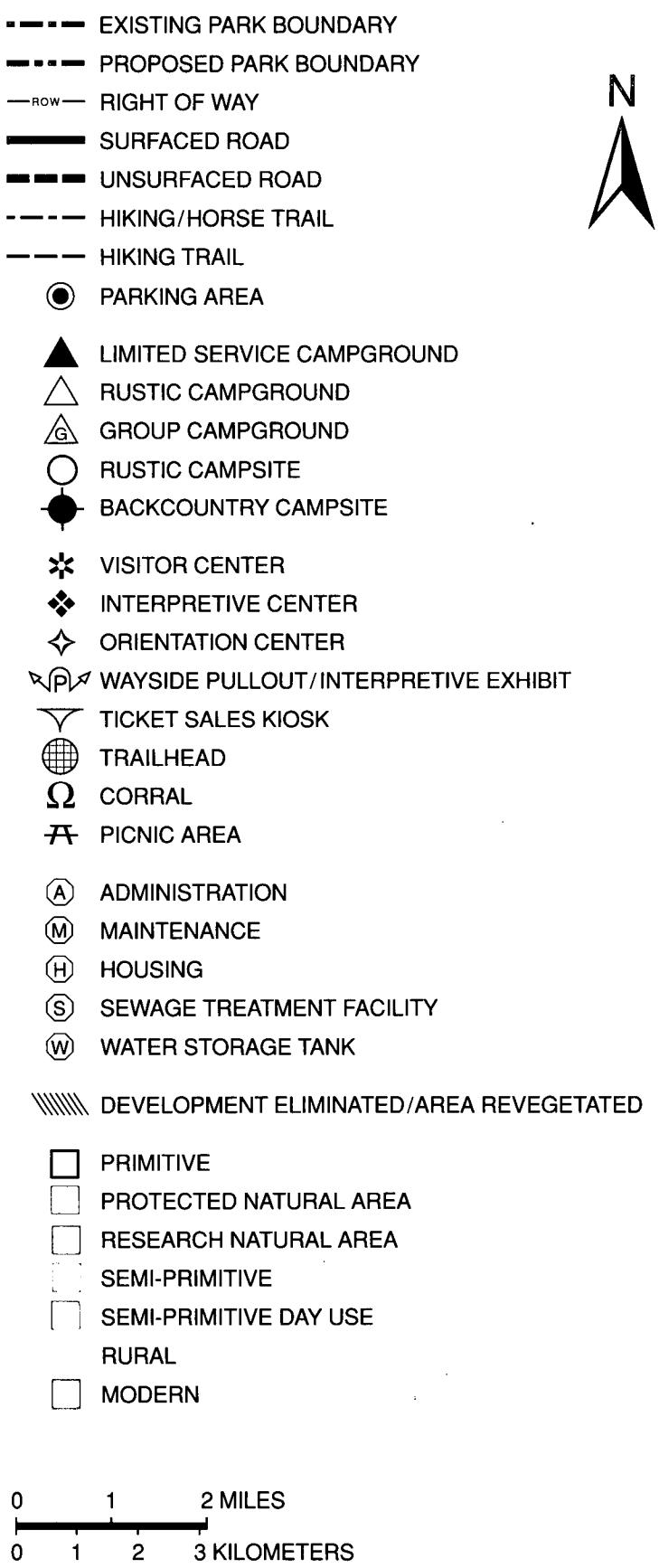
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PROPOSED ACTION

GREAT BASIN NATIONAL PARK

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investigations would be included in the construction package for each project.

An important aspect of the plan would be the upgrading and expansion of the park's extensive trail system. Approximately 46 miles of trails would receive major rehabilitation or reconstruction; 13 miles would receive minor rehabilitation or extensive maintenance. The remaining 1 mile of trail is in satisfactory condition and would receive routine maintenance. Approximately 24 miles of new trails would be constructed to link existing trails, bringing the total trail mileage within the park to 84 miles. Of this total, roughly 64 miles would be open to horseback riders.

Trails would be graded to reduce erosion. Some trails would be relocated to minimize safety hazards. Continuous grades in excess of 15 percent would be lessened by constructing switchbacks or relocating portions of the trails to less steep areas. Obstructions such as downed trees and rockfalls would be cleared. Backslopes would be stabilized to allow revegetation. Portions of trails subject to caving in or slumping would be stabilized by stone retaining walls. Water bars, ditches, and other drainage structures would be utilized to correct drainage problems. Unhardened trails would be earth or rock surfaced; hardened trails would be surfaced with gravel (crushed granite or limestone), except those designated for wheelchair access, which would be paved with asphaltic concrete or similar surfacing. Bridges, signs, stone walls, and special surfacing would be installed as needed. Old roads and trails no longer in use would be recontoured and revegetated to return them to natural conditions.

The interpretive programs and services, recreational activities, and support facilities that are proposed for various areas of the park are described by subzone in the following sections and illustrated on the Proposed Action map.

Modern Subzone

The modern subzone would contain all of Great Basin's major, permanent facilities. Most information/orientation and interpretive services would be provided here. Museum exhibits, films and other audiovisual presentations, interpretive programs and demonstrations, and publications would be available in the new visitor center and redesigned interpretive center. Scheduled guided tours would be provided in Lehman Cave. Paved roads and hard-surfaced trails would enable visitors to easily reach the scenic viewing areas, campgrounds, picnic areas, and other attractions in this portion of the park. Ranger-led hikes and campground programs would be among the other services. The majority

of park visitors would frequent this subzone, and there would be few opportunities for solitude.

Although the modern subzone would contain most of the park's developments, the natural environment in this subzone would only be altered to the extent necessary to provide the facilities to support visitor use. The 1,148-acre subzone would include an 800-foot-wide corridor along the Wheeler Peak Scenic Drive from Nevada 487 to the park boundary; a 200-foot-wide corridor along the Wheeler Peak Scenic Drive from the park boundary to the Wheeler Peak pullout/trailhead; a 200-foot-wide corridor along the Baker Creek road; and the acreage associated with the major developments along those road corridors.

The following proposals are presented in "tour" form and describe the park features and facilities that visitors would encounter as they entered the park and traveled through the modern subzone.

Highway Interpretive Exhibit Shelters/Baker Orientation Center. Visitors' first information about Great Basin National Park would be provided at interpretive exhibit shelters on the major highways leading to the park (see the Regional Orientation Exhibits map). These exhibit shelters would introduce visitors to the Great Basin physiographic region, each offering interpretation of the basin and range topography visible from the shelter – the South Snake Range (Great Basin National Park) and the basin foreground. The exhibits would also highlight the significance of the park and provide directions to the park and the park's orientation center in the town of Baker. Forest Service exhibits would be included that interpret lands adjacent to the park. The general locations for the exhibits would include

southwest exhibit shelter – US 93 southwest of the park, with a view of the west escarpment of the Snake Range

north exhibit shelter – US 50 on Sacramento Pass, with a view of the Wheeler Peak cirque

east exhibit shelter – US 50 just west of the Confusion Range, with a view of the eastern side of the Snake Range

southeast exhibit shelter – US 21 southeast of the park, with a view of the east escarpment of the Snake Range

The Baker orientation center would serve as a trip-planning center, providing more detailed information about the park as well as basic information about the Great Basin region. Designed for both staffed and unstaffed operation, it might also be used to issue camping permits (by telephone when the facility was unstaffed).

The orientation center would be built on an 80-acre site that straddles Nevada Highway 487 north of the existing park entrance road. The center would be on the small portion of the site on the west side of the highway; the larger eastern portion of the site would provide space for a number of administrative facilities that are proposed for relocation out of the park (see the "Administrative Facilities" description at the end of this section). The majority of visitors approach the park by driving south from US Highway 6/50 on Highway 487. The orientation center would be easily visible from this highway. A sign would also be placed on Highway 487 south of the park to direct visitors approaching from Garrison, Utah, to continue north to the orientation center to obtain park information.

The orientation center would be in a natural desert-shrub environment representative of the Great Basin. Any planted grass species would also be indigenous to the Snake Valley. Representative examples of plant species would be labeled, and the labels would include information about their range and ecological significance within the Great Basin.

A short paved entry road would provide access to the orientation center. A 25-car parking lot would be constructed, with pull-through parking for five RVs/buses. Bus parking would be separated from automobile parking by islands of desert-shrub vegetation. Seating would be incorporated into the parking lot for visitors wishing to remain near their cars. A barrier-free concrete pathway would lead visitors from the parking lot to the orientation facility. The concrete would be stained before placement to match the color of the desert soil. The path would accommodate visitors with mobility problems by incorporating a handrail and bench seating.

The orientation center would include a 100-square-foot room with a service window where rangers would provide information and orientation; information on campground status would be available, and campground permits might be issued. Orientation graphics, limited publication sales focusing on park orientation, self-service pamphlet dispensers, and a park bulletin board would be incorporated into the facility so that it could function without staff during the off-season. The center would also include a

400-square-foot restroom facility and a covered porch where visitors could obtain drinking water and plan their trips.

Interpretive brochures and pamphlets describing recreational opportunities in the region would be stored in the service room. Windows and skylights would provide natural lighting. Water would also be provided near the parking area for visitors who planned to camp where potable water was unavailable.

The average length of stay at the orientation center would be about 15 minutes – just long enough to get information about the park and the Great Basin region, to plan a stay, and to obtain a camping permit if desired.

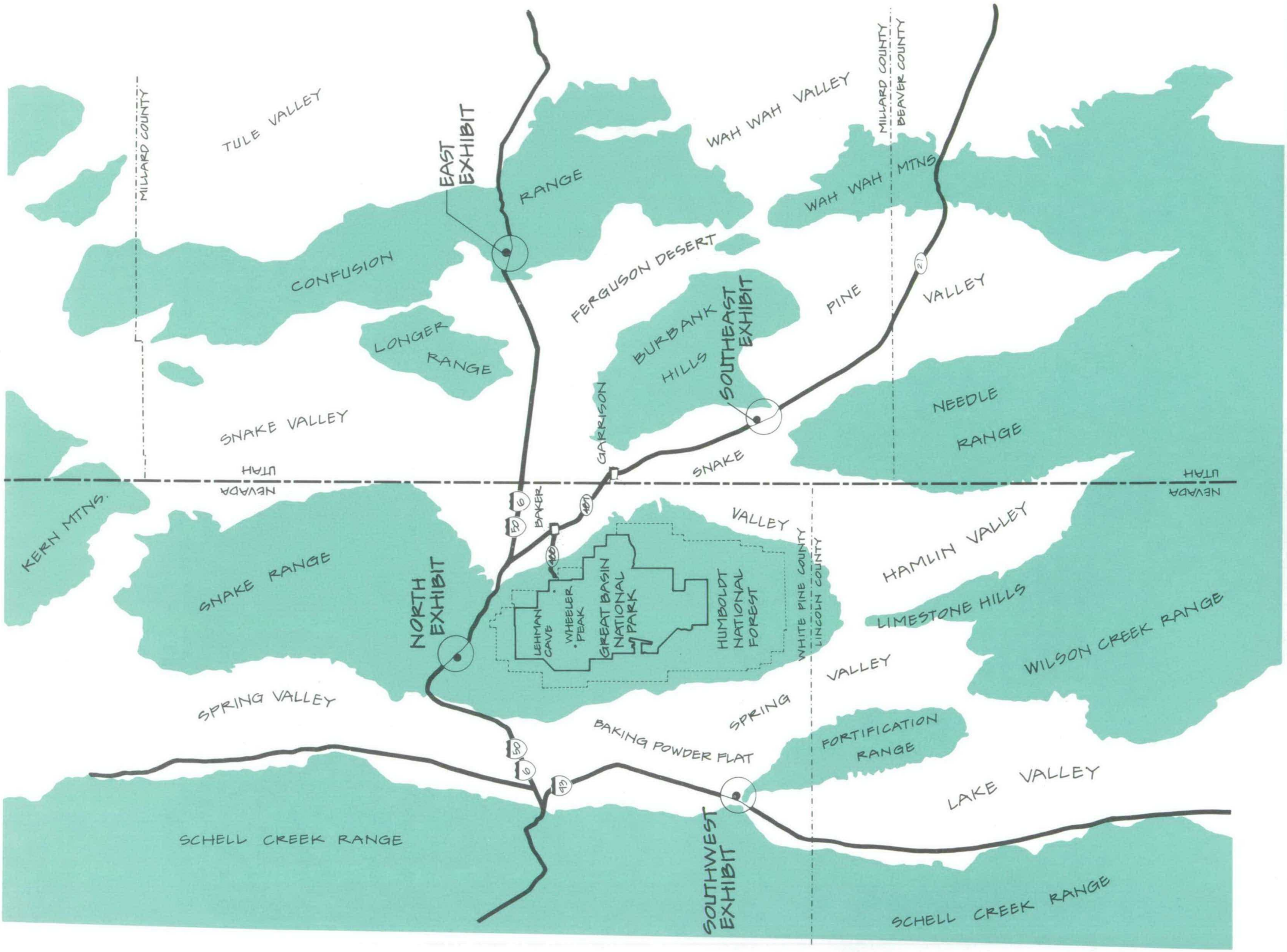
Wheeler Peak Scenic Drive/New Park Entrance. After leaving the orientation center, most visitors would drive 1.9 miles south on Highway 487 to the entrance of Wheeler Peak Scenic Drive (see the Wheeler Peak Scenic Drive Development Concept Plan). A new 7-mile extension of the existing Wheeler Peak road would become the eastern portion of the scenic drive. This extension would be designed to provide unique interpretive experiences, introducing visitors to a variety of terrains and life zones and arousing their curiosity and anticipation. The scenic drive would pass through three life zones before crossing the park boundary and would provide views of both basin and range environments. Within the park it would provide access to the new Great Basin visitor center at Baker Ridge and would continue on through other life zones to the Wheeler Peak pullout/trailhead. The new scenic drive alignment and Great Basin visitor center would relieve some of the visitation pressure at the Lehman Cave facility, which is currently functioning at capacity during the peak season. From the visitor center, visitors could drive or hike to various destinations along Baker Creek and in Kious Basin, could visit Lehman Cave, or could continue on up Wheeler Peak Scenic Drive to hike, camp, and enjoy the scenery.

The entire length of the scenic drive east of the park boundary would traverse public lands, eliminating the need to acquire land or scenic easements. The Park Service would obtain a right-of-way from the Bureau of Land Management to construct the first 6 miles of the road within an 800-foot-wide corridor on BLM land. This corridor would provide protection from roadside development. Slightly over 1 mile of the road would traverse two sections of Forest Service land. The Park Service would seek transfer of these isolated sections to NPS management. The entire scenic drive would be maintained by the Park Service, with no additional expense or responsibility placed on White Pine County, the Nevada Department of Transportation, the Bureau of Land Management, or the Forest Service. The existing park entrance road (Nevada Highway 488) would be gated at the park boundary, and passage would be limited to administrative staff and people with special use permits. Local residents who live along Highway 488 outside the park boundary would still use this county-maintained road to reach their properties.

The new eastern extension of the scenic drive would conform to the natural terrain and would provide views of Mt. Moriah to the north, the Snake Range to the west, and the basin landscapes in the foreground. The road would be paved, with 11-foot-wide lanes and 2-foot-wide shoulders, and would be designed to function as a 40-mile-an-hour road. Completion of the road would require the construction of a bridge across Baker Creek. Work limit lines would be established to minimize damage to the roadway corridor during construction. Because sage grouse have historically used the area of the new eastern extension of the scenic drive, the Park Service would consult with the Nevada Department of Wildlife and Bureau of Land Management to determine the extent of sage grouse use in the area and to evaluate the project in relation to sage grouse prior to construction. The road might be rerouted based on that evaluation.

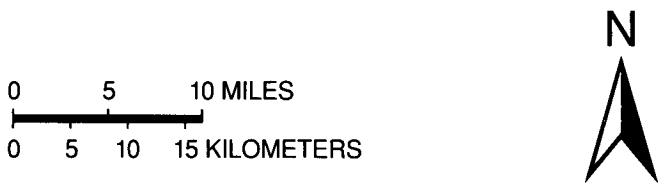
Six new interpretive pullouts would be constructed along this portion of the scenic drive from its intersection with Highway 487 to the park boundary (their specific locations would be determined during the design phase for the road). All of the pullouts except the park entrance pullout would be paved and provide space for 5 to 10 cars; the park entrance pullout would be paved but slightly larger. The pullouts would incorporate barrier-free access to viewpoints and interpretive media. Exhibit panels would be designed to reduce glare and to withstand the effects of wind, rain, and sun. They would be placed so that both children and adults could read them.

The park entrance pullout would be built near the intersection of the scenic drive and Highway 487, and a new entrance sign would be incorporated into the design. The entrance sign would signify the beginning of the park experience. It would be oriented toward the park and would be accessible along a short trail, which would permit visitors to photograph their friends and relatives with the South Snake Range as a backdrop. This pullout would also set the stage for the scenic drive. Interpretive exhibit panels would


TULE VALLEY
MILLARD COUNTY
EAST EXHIBIT
RANGE
WAH WAH VALLEY
MILLARD COUNTY
BEAVER COUNTY
WAH WAH MTNS
CONFUSION
FERGUSON DESERT
LONGER RANGE
BURBANK HILLS
SOUTHEAST EXHIBIT
PINE VALLEY
SNAKE VALLEY
GARRISON
NEEDLE RANGE
UTAH
NEVADA
SNAKE
KERN MTNS.
SNAKE RANGE
NORTH EXHIBIT
BAKER
VALLEY
HAMLIN VALLEY
LEHMAN CAVE
WHEELER PEAK
GREAT BASIN NATIONAL PARK
HUMBOLDT NATIONAL FOREST
WHITE PINE COUNTY
LINCOLN COUNTY
LIMESTONE HILLS
WILSON CREEK RANGE
SPRING VALLEY
BAKING POWDER FLAT
SPRING VALLEY
FORTIFICATION RANGE
LAKE VALLEY
SCHELL CREEK RANGE
SOUTHWEST EXHIBIT
SCHELL CREEK RANGE

ON MICROFILM
REGIONAL ORIENTATION EXHIBITS
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help visitors understand the life zone concept and anticipate the dramatic changes in elevation, vegetation, and scenery they were about to experience. The pullout would include paved parking for 15 to 20 cars.

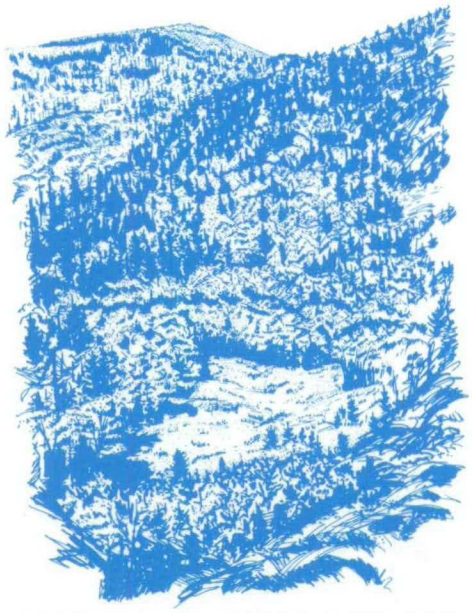
The desert shrub pullout would be on the north side of the scenic drive within 2 miles of the park entrance. Interpretive panels would orient visitors to the foreground desert-shrub vegetation – the dominant vegetation type in the Great Basin – and to distant views and features of the Snake Valley basin.

A couple of miles up the scenic drive visitors would come to the Kious Basin pullout. Kious Basin is an anomaly in Great Basin National Park because of its unusual and picturesque granite outcroppings. It is one of the most scenic areas in the park, providing dramatic views of Mt. Moriah and the Snake Valley to the northwest. Numerous old jeep trails overgrown with vegetation traverse this area. Access from the scenic drive into the Kious Basin area would be along a 1-mile paved spur road leading to a 5- to 10-car paved parking area and interpretive pullout. Interpretive panels would feature the outcropping and other landforms visible from this location. The same spur road would provide access to a trailhead for the Kious Basin area. The trailhead would include a 15- to 20-car parking area and exhibits providing orientation, interpretation, and self-guiding pamphlets. Trails would lead from the trailhead into the basin and up to the Baker Ridge vicinity; the trails are described in the "Semi-Primitive Subzone" section.

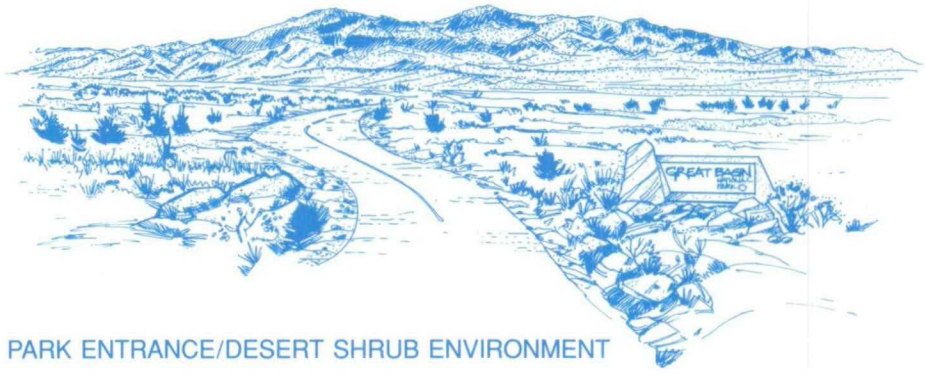
The next pullout along the main entrance road would be the riparian shrub pullout, which would be on the hillside overlooking the Baker Creek drainage. Here visitors would learn about the importance of water in the desert environment and the significant role that riparian habitat plays in the Great Basin ecosystem. Interpretive panels would illustrate the changing character of riparian habitat in the desert below and the mountains above.

The contemporary ranching pullout would be on the north side of the scenic drive about 1 mile east of the park boundary overlooking the historic Roland Springs ranch, which is privately owned. Interpretive panels at this pullout would discuss the theme of ranching – past and present – in the Great Basin.

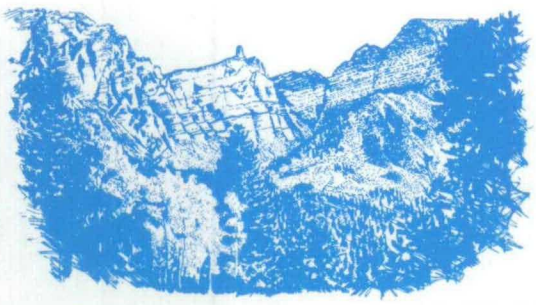
The last pullout before the Great Basin visitor center entrance would be the pinyon-juniper pullout, about ¼ mile east of the park boundary on the north side of the road.



ASPEN/LEHMAN CREEK OVERLOOK



PARK ENTRANCE/DESERT SHRUB ENVIRONMENT



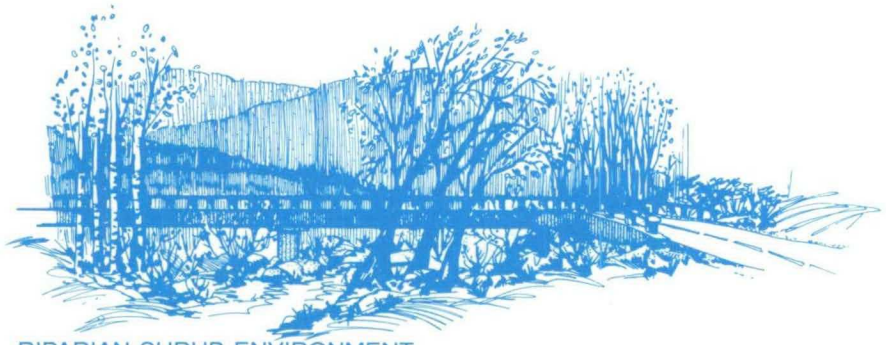
SPRUCE-FIR/WHEELER PEAK CIRQUE OVERLOOK



MAHOGANY SHRUB/MT. MORIAH OVERLOOK



PINYON-JUNIPER ENVIRONMENT



RIPARIAN SHRUB ENVIRONMENT

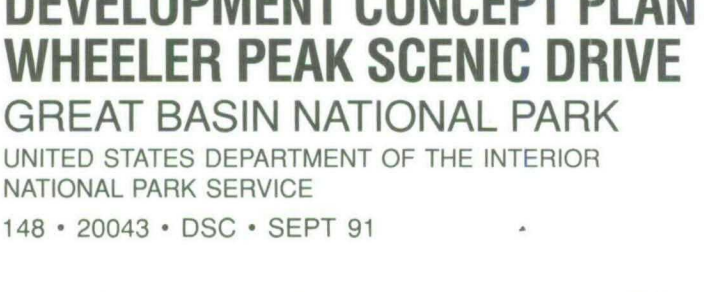
DEVELOPMENT CONCEPT PLAN
WHEELER PEAK SCENIC DRIVE
GREAT BASIN NATIONAL PARK

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INTERPRETIVE PULLOUTS

1 – PARK ENTRANCE PULLOUT (ELEVATION 5,300 FEET)
2 – DESERT SHRUB PULLOUT (ELEVATION 5,700 FEET)
3 – KIOUS BASIN PULLOUT (ELEVATION 6,600 FEET)
4 – RIPARIAN SHRUB PULLOUT (ELEVATION 6,120 FEET)
5 – CONTEMPORARY RANCHING PULLOUT (ELEVATION 6,280 FEET)
6 – PINYON-JUNIPER PULLOUT (ELEVATION 6,600 FEET)
7 – MIXED CONIFER/OSCEOLA DITCH PULLOUT AND TRAIL (ELEVATION 8,200 FEET)
8 – MAHOGANY SHRUB/MT. MORIAH OVERLOOK AND TRAIL (ELEVATION 8,450 FEET)
9 – ASPEN/LEHMAN CREEK PULLOUT (ELEVATION 9,200 FEET)
10 – SPRUCE-FIR/WHEELER PEAK CIRQUE OVERLOOK (ELEVATION 9,600 FEET)
11 – WHEELER PEAK PULLOUT/TRAILHEAD (ELEVATION 9,920 FEET)



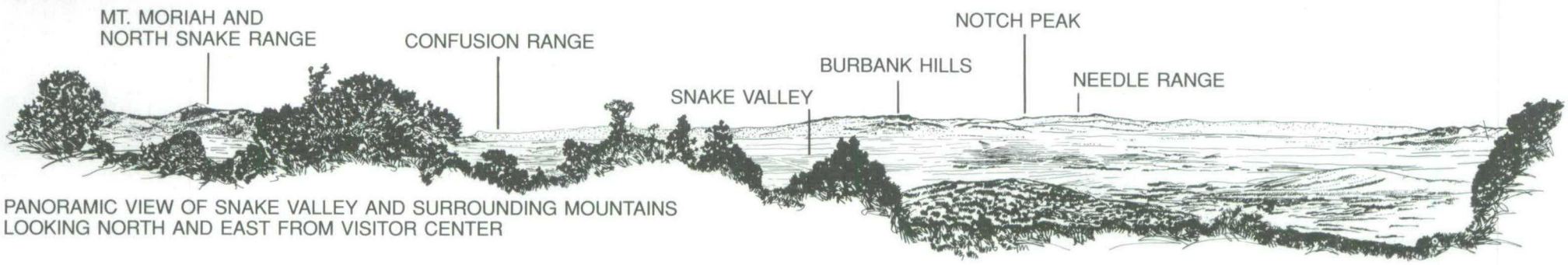
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This pullout would provide foreground views of the pinyon-juniper forest, with the South Snake Range peaks as a backdrop. Interpretive panels here would describe the extent and importance of this forest type in the Great Basin ecosystem.

Great Basin Visitor Center. Driving up the new eastern extension of the scenic drive, visitors would receive an introduction to basin and range ecology spanning 1,500 feet of elevation and three life zones. Just ¼ mile inside the boundary the entrance road would curve to the south and would lead to the new Great Basin visitor center, the main interpretive facility for the park (see the Baker Ridge Development Concept Plan). Here visitors would be able to learn about all of the park's major natural and cultural history themes and gain an overview of the entire Great Basin physiographic region. The new visitor center would be a full-service facility, offering orientation and trip planning services as well as a wide range of media, including films, audiovisuals, exhibits, and interpretive publications. It would be open year-round.

The visitor center would be nestled in a saddle on Baker Ridge. This site was selected for its distant views of basin and range features and its closer views of the northern Snake Range, including Snake Valley, the Confusion Range, the Conger Range, the Ferguson Desert, Burbank Hills, Pine Valley, and the Wah Wah Mountains. Dominant peaks within the Snake Range can also be seen when looking west from the visitor center site. The visitor center would be designed and located to take full advantage of these views, and it would include a large outdoor viewing deck.

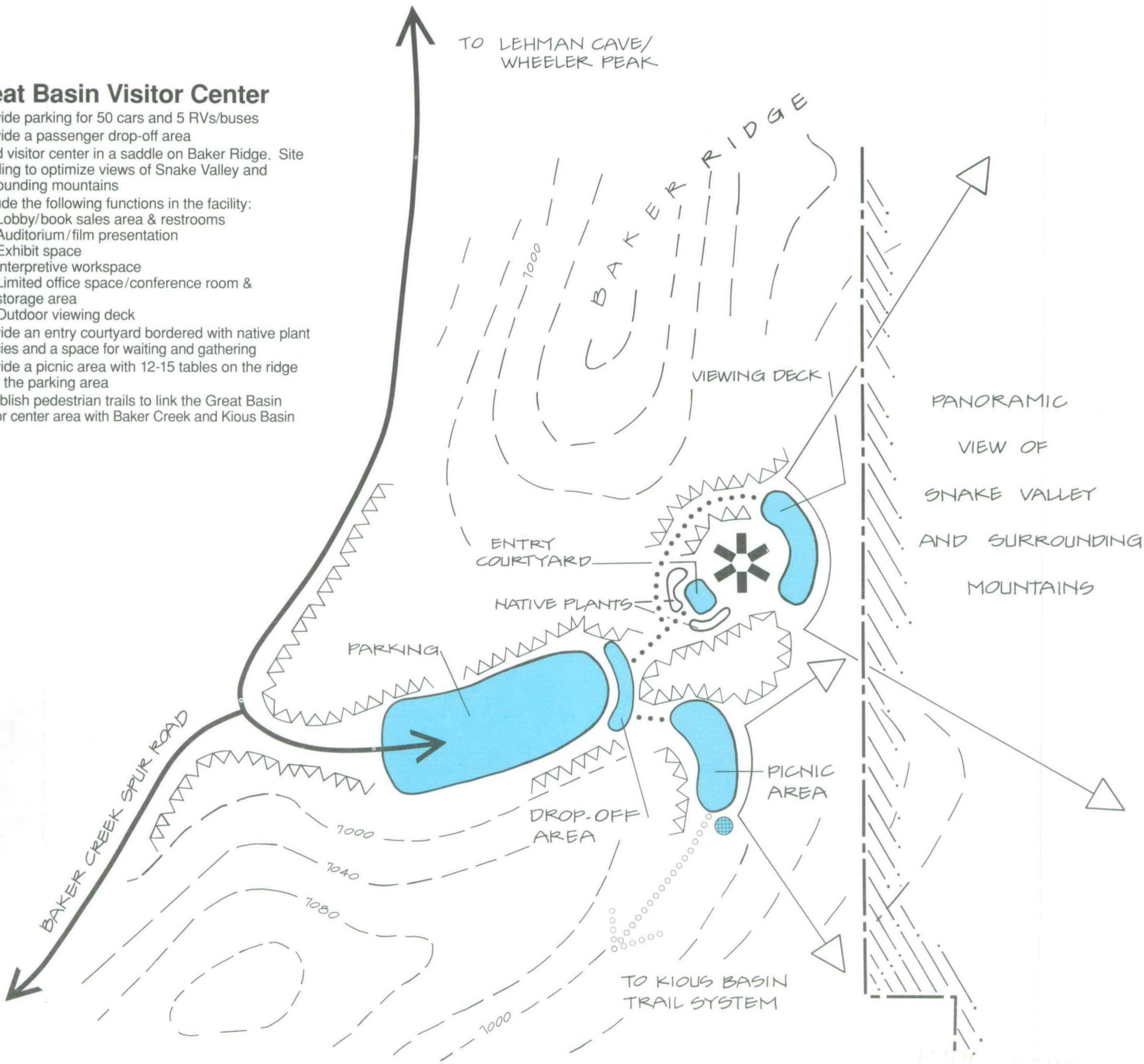
The visitor center would be situated in a pinyon-juniper forest and landscaped with shrubs characteristic of this vegetation type. The approximately 5,000-square-foot facility would include a lobby with an information/reception desk and trip-planning center, a natural history association book sales area, and a separate counter where campground permits could be issued during the off-season; a 75-seat auditorium; exhibit space; restrooms; an entry court; and a large east-facing viewing deck. There would also be space for a superintendent's office/conference room, interpretive staff office and work space, a natural history association office (near the sales area), and storage. Adequate circulation would be provided for visitors coming and going from the auditorium and exhibit area, both of which would be accessible from the lobby. The sales and publication display area would be out of the main circulation area but in view of the information desk. Public restrooms would have outside



PANORAMIC VIEW OF SNAKE VALLEY AND SURROUNDING MOUNTAINS
LOOKING NORTH AND EAST FROM VISITOR CENTER

Great Basin Visitor Center

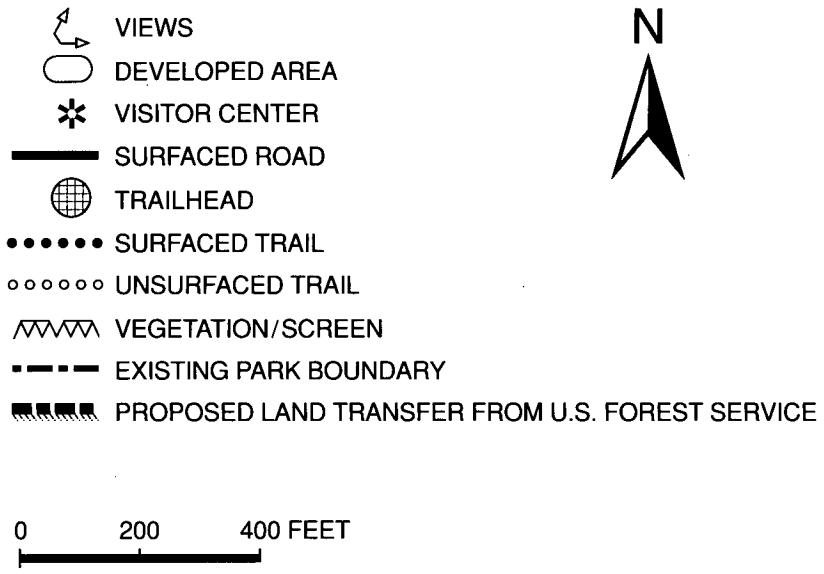
- Provide parking for 50 cars and 5 RVs/buses
- Provide a passenger drop-off area
- Build visitor center in a saddle on Baker Ridge. Site building to optimize views of Snake Valley and surrounding mountains
- Include the following functions in the facility:
  - Lobby/book sales area & restrooms
  - Auditorium/film presentation
  - Exhibit space
  - Interpretive workspace
  - Limited office space/conference room & storage area
  - Outdoor viewing deck
- Provide an entry courtyard bordered with native plant species and a space for waiting and gathering
- Provide a picnic area with 12-15 tables on the ridge near the parking area
- Establish pedestrian trails to link the Great Basin visitor center area with Baker Creek and Kious Basin



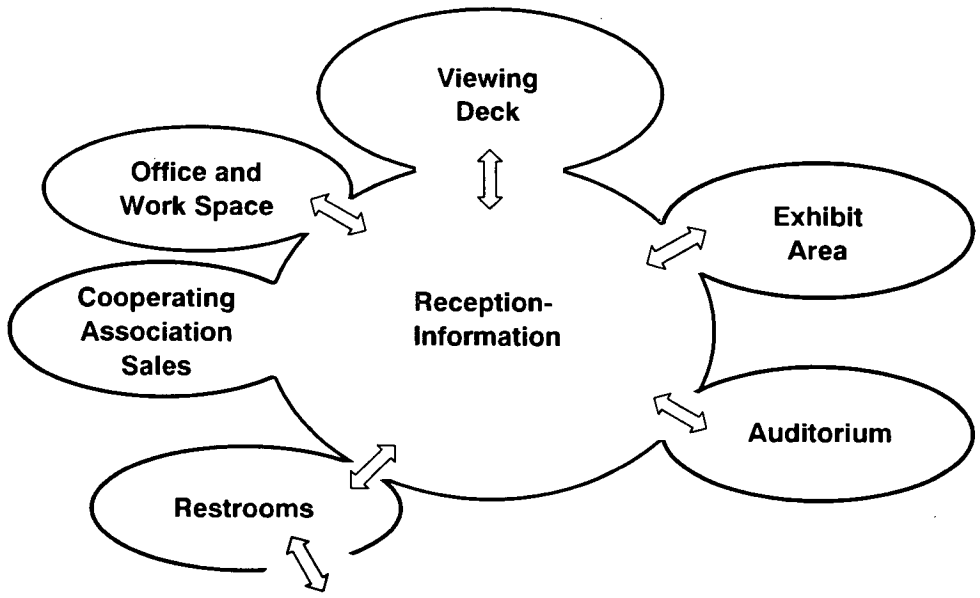
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DEVELOPMENT CONCEPT PLAN
BAKER RIDGE
GREAT BASIN NATIONAL PARK

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as well as inside entrances so that their use would not add congestion in the lobby area. Administrative work and storage spaces would be well separated from visitor spaces. The building would be fully accessible to disabled visitors and staff. It would be designed to minimize the heating effects of summer sun and maximize the warming effects of winter sun. Skylights and windows would be used throughout to increase natural lighting. Functional spaces are shown on the visitor center schematic.



Visitors would arrive at a 50-car, five-bus/RV parking lot just west of the visitor center. Parking for cars and buses would be separated by islands of pinyon-juniper vegetation and native grasses, and shade structures and seating would be included so that people could rest near their cars. The parking lot would incorporate a passenger drop-off, and bike racks would be provided nearby. It would be built in an area previously used as a rifle range and a borrow pit. The area would be reclaimed and revegetated after the parking lot was constructed.

A paved, barrier-free pathway would lead from the passenger drop-off through 100 feet of sparse pinyon-juniper forest to the visitor center entry court. The pathway would be about 8 feet wide to accommodate two-way travel. The entry court would incorporate space for tour groups of 50 to 60

people as well as smaller groups. Seating areas, drinking fountains, shade structures, and access to restrooms would be provided. The entry court would include interpretive panels identifying significant peaks and landforms visible to the west.

The lobby area of the visitor center would provide information, orientation, and trip-planning services to permit visitors to familiarize themselves about the park and region. However, the primary attraction in the center would be a film that would accomplish the following:

Provide a basic understanding of the Great Basin physiographic region and the park's significance as part of this landform.

Convey the message that the park is a mountain island in a desert sea (island biogeography).

Illustrate the responses of humans, plants, and animals to the stresses of this harsh environment.

Show visitors how their own actions may be contributing to global warming and how the park serves as an indicator of this trend.

The film would be presented in the 75-seat auditorium, and its message would be complemented by providing in-depth treatment of selected aspects of the Great Basin story in the nearby exhibit area. The following subjects would be the focus of interpretation:

- natural history
  - life zones and major habitats
  - island biogeography
  - climatic change
  - glacial geology
  - bristlecone pines
  - threatened species
  - topographical points of interest
- cultural history
  - native Americans in the Great Basin (past and present)
  - frontier settlement
  - ranching and agriculture
  - mining (past and present)

The final interpretive experience at the visitor center would take place on the outdoor viewing deck, where visitors would be able to immediately associate the subjects in the Great Basin film and exhibits with the magnificent panorama of Snake Valley and the distant basins and ranges. Part of the deck area would be shaded, and outdoor space for interpretive exhibit panels and programs would be provided. Movable outdoor seating would be provided. A path would connect the viewing deck with the entry court so that visitors could return to the parking area without passing through the visitor center.

A picnic area and a trailhead would be developed near the southwest end of the visitor center parking lot. The trailhead would provide access to an extensive system of hiking and horseback trails at lower elevations in the Baker Creek and Kious Basin areas. An interpretive trail guide dispenser would be installed at the trailhead. Equestrian access to the trail system would be provided near the Grey Cliffs campground.

Baker Creek. A branch of the road leading to the new Great Basin visitor center would extend on into the Baker Creek area, where opportunities for hiking, horseback riding, and camping would be available. The Grey Cliffs campground, about 1 mile up the spur road from the visitor center, would be modified to provide group camping only. Three of the four loops at the existing campground would be removed and revegetated because they are in a hazardous wildfire area (the only escape route is downslope through an area where wildfire is likely to be advancing), are in the apparent floodplain of Baker Creek, and are adjacent to archeological sites and cave entrances. The upper loop would be converted to a group camping area with six paved pull-ins, 12 picnic tables, six fire grates, a formalized group campfire circle, and two vault toilets. No potable water or electricity would be provided. A new 1/8-mile paved road would provide access to the campground. A trailhead and corral would be developed in the vicinity of the campground to permit equestrian access to the Baker Creek, Kious Basin, and Baker Lake trail systems.

The existing 32-site limited-service Baker Creek campground would continue to accommodate tent, RV, and trailer camping, and the gravel campground roads would be maintained. The campsites would be upgraded and a group campfire circle would be established, but there would be no major redesign of the roads or campground layout. New vault toilets would be provided. One campsite would be redesigned for disabled visitors, and barrier-free toilets would be included. Potable water would be available.

A paved 20-car parking area would be constructed at the existing Baker Lake trailhead. A separate unpaved parking area for vehicles with horse trailers and a corral would be built nearby. The trailhead would provide access to the Baker Lake loop trail system and connecting trails as well as to Lehman Creek, Baker Creek, and Kious Basin.

Lehman Cave. After stopping at the Great Basin visitor center, most visitors would travel to Lehman Cave to take a cave tour and continue on up Wheeler Peak Scenic Drive to the Wheeler Peak trailhead and parking area. All of these sites and features would be included in the modern subzone, and appropriate support facilities would be provided. Lehman Cave would continue to be a popular visitor attraction, and the existing visitor center there would be redesigned as an interpretive center offering in-depth interpretation of cave resources. To provide adequate space for cave interpretation, all administrative functions except two interpretive staff offices would be removed from the building and relocated to the Baker site (see the "Administrative Facilities" section). Cave tour ticket sales would be relocated to a new ticket sales kiosk to reduce congestion in the interpretive center. The existing concession operation and natural history association sales outlet would be retained. Proposed changes to the Lehman Cave area are shown on the Lehman Cave Development Concept Plan.

Visitors would approach Lehman Cave along a new paved spur road extending south from Wheeler Peak Scenic Drive (road changes in the Lehman Cave area are described in the following "Road Modifications" section). The road would end at a new 70-car/30-bus/RV parking lot, which would be designed in two levels stepped down the hillside to minimize their visual impact. A portion of the parking lot would be built on previously disturbed land near the existing picnic area in a pinyon-juniper forest setting. Islands of native vegetation would be incorporated into the parking lot, and some seating and shade structures would be provided. Parking for oversized vehicles would be separated from car parking by vegetation and topography.

The portion of the existing entrance road and lower parking lot in front of the Lehman Cave interpretive center would be removed to improve visitors' views of the Snake Valley basin from the building's front porch, to reduce the levels of congestion in front of this facility, and to provide more room to reestablish a portion of the historic Lehman orchard. After the road and parking lot were removed, the area would be recontoured and revegetated with native grass and shrub species. The existing upper parking lot in front of the interpretive center would be retained to provide parking space for service vehicles, emergency vehicles, and disabled visitors; it would be accessible from the new parking lot.

A cave ticket sales kiosk with attached restrooms and an open-air shelter and new picnic area with 12 to 15 tables would be constructed next to the new parking lot. The ticket sales kiosk would include a service window and a small information exhibit area providing cave information and tour schedules. It would be staffed during peak use periods. A 1,000-foot-long wheelchair-accessible paved trail beginning at the ticket kiosk would wind through the pinyon-juniper forest to the interpretive center entrance. The trail would incorporate seating areas and handrails.

The Lehman Cave interpretive center would offer a new film, exhibits, and interpretive publications. The following themes would be developed, using a variety of media:

geologic formation of the cave
cave decorations
human impacts on the cave/cave conservation
interrelationships between the cave and the surface
cave life
early inhabitants and discovery of the cave

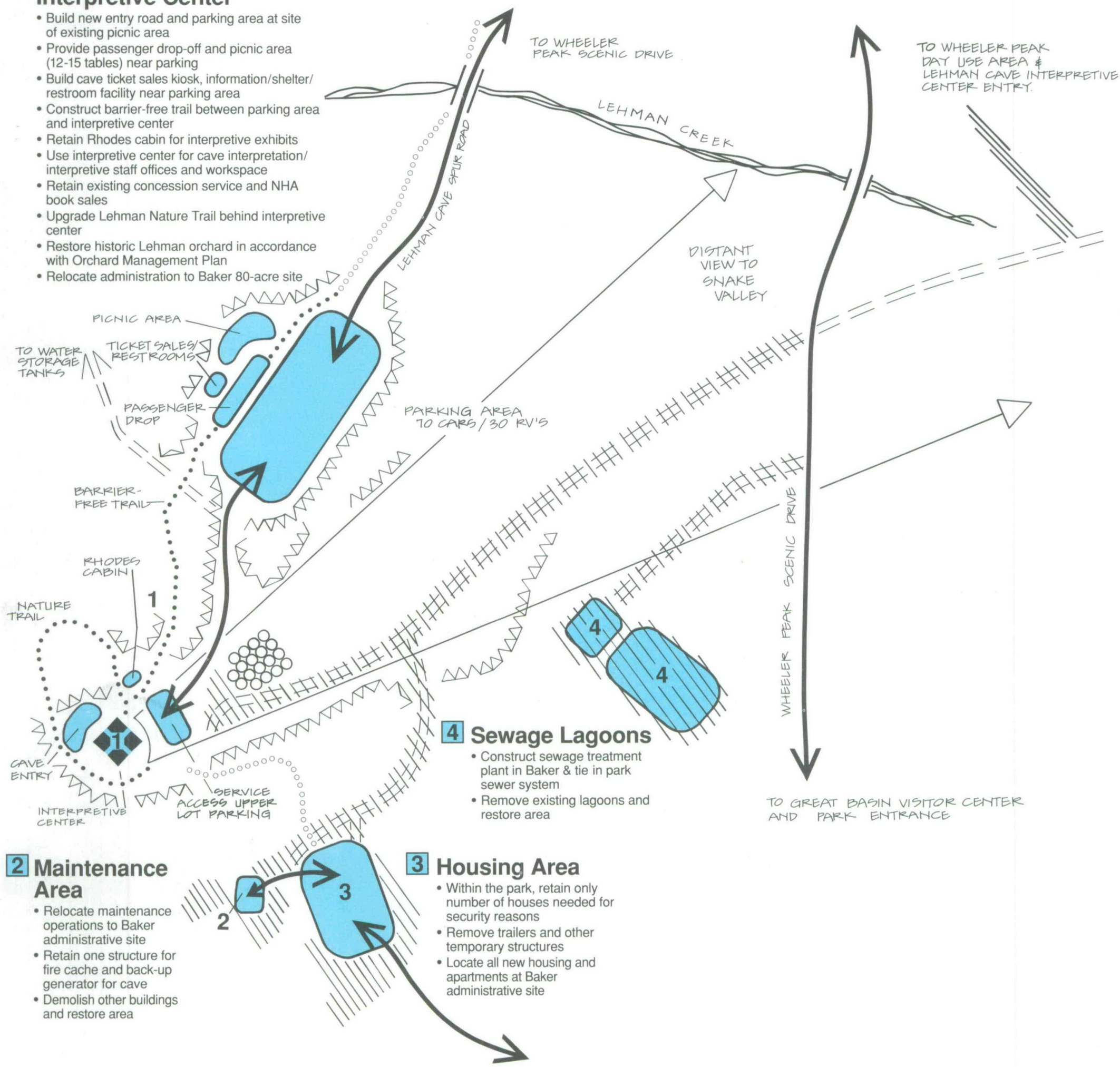
The building interior would be redesigned to provide space for a 75-seat auditorium, a new exhibit area, a lobby/natural history association sales and storage area, restrooms, and the two staff offices. The concession facility (restaurant and gift sales) would remain in its present location; the facility would be redesigned and remodeled to improve efficiency and visitor services, but it would not be increased in size.

The exterior of the interpretive center would remain unchanged except that the entry area would be redesigned to provide barrier-free access. Exhibit panels would be placed on the front porch to identify landscape features and themes associated with the views of the Snake Valley basin and the restored Lehman orchard in the foreground. The Park Service would continue to irrigate the shade trees and lawn areas in front of the building to provide a pleasant place for visitors to relax while waiting to take a cave tour.

Maximum cave use would be maintained at 20 guided tours of 30 persons, or 600 persons, per day unless future research indicated the need for a lower volume of cave use to protect fragile cave resources. Tours would last 1½ hours. The option of providing more tours of shorter duration

1 Lehman Cave Interpretive Center

- Build new entry road and parking area at site of existing picnic area
- Provide passenger drop-off and picnic area (12-15 tables) near parking
- Build cave ticket sales kiosk, information/shelter/ restroom facility near parking area
- Construct barrier-free trail between parking area and interpretive center
- Retain Rhodes cabin for interpretive exhibits
- Use interpretive center for cave interpretation/ interpretive staff offices and workspace
- Retain existing concession service and NHA book sales
- Upgrade Lehman Nature Trail behind interpretive center
- Restore historic Lehman orchard in accordance with Orchard Management Plan
- Relocate administration to Baker 80-acre site



4 Sewage Lagoons

- Construct sewage treatment plant in Baker & tie in park sewer system
- Remove existing lagoons and restore area

2 Maintenance Area

- Relocate maintenance operations to Baker administrative site
- Retain one structure for fire cache and back-up generator for cave
- Demolish other buildings and restore area

3 Housing Area

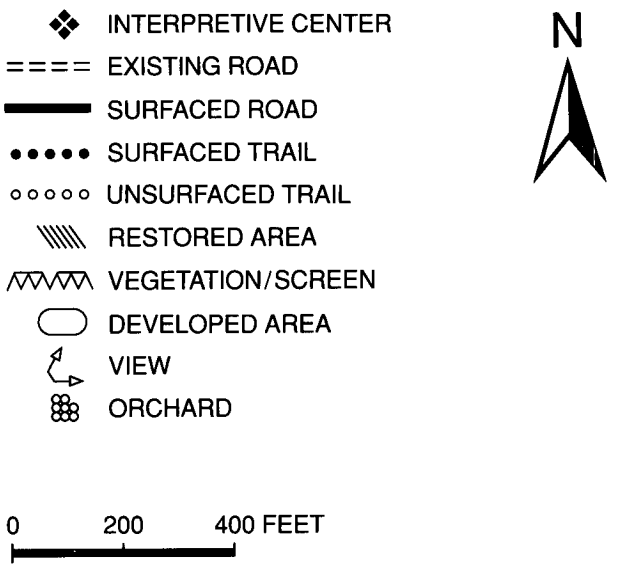
- Within the park, retain only number of houses needed for security reasons
- Remove trailers and other temporary structures
- Locate all new housing and apartments at Baker administrative site

ON MICROFILM

DEVELOPMENT CONCEPT PLAN
LEHMAN CAVE
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was considered; however, the 1988 visitor survey indicated that the majority of visitors were not interested in shorter or longer cave tours. Cave access would continue to be through a man-made corridor next to the patio at the rear of the interpretive center. The first room in Lehman Cave would have barrier-free access. Opportunities to take ranger-guided spelunking tours of other caves in the area would continue to be available if supported by cave research and the findings of the cave management plan proposed in the "Future Studies and Plans" section.

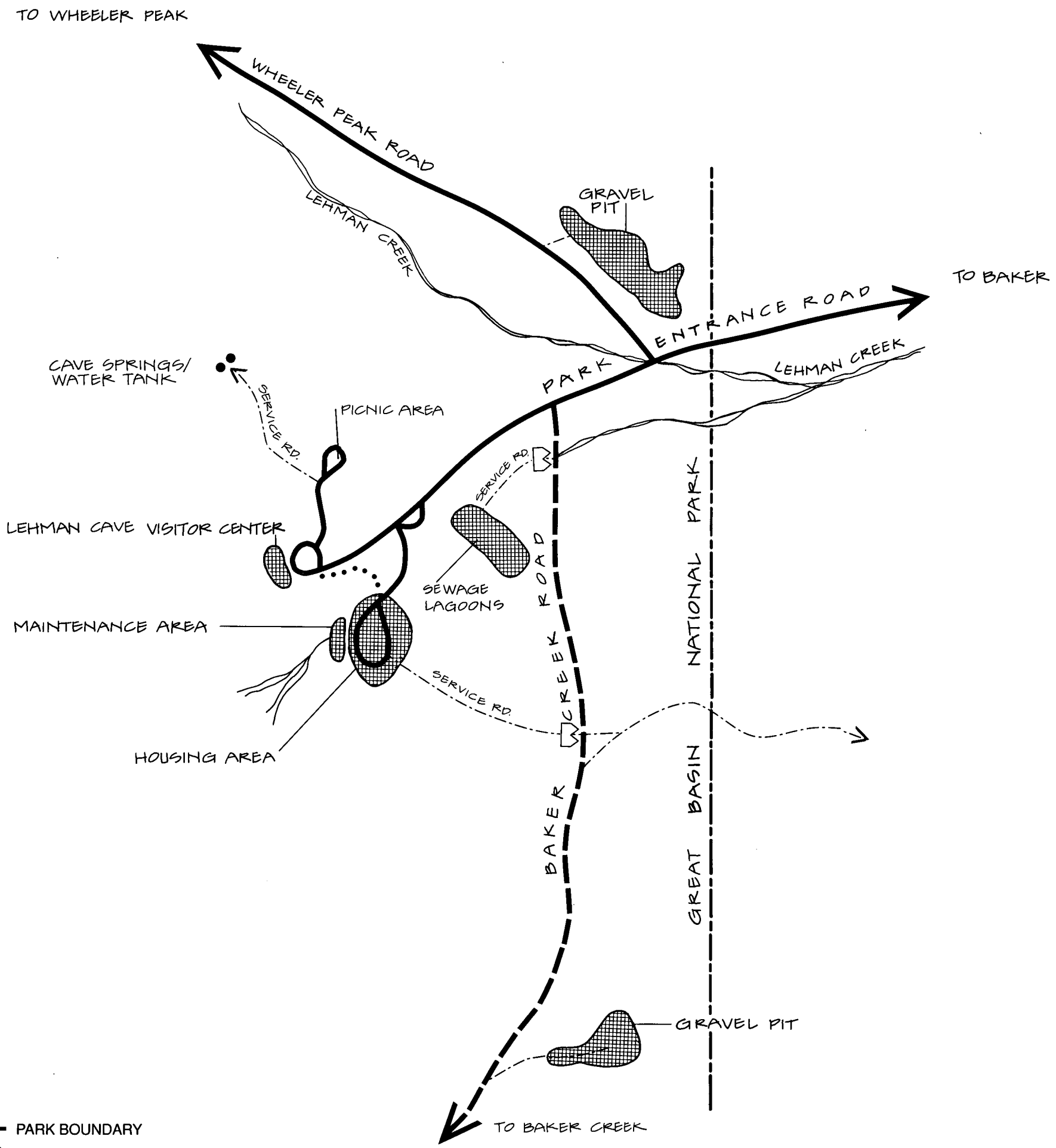
The historic Rhodes cabin, which predates the establishment of Lehman Caves National Monument, was built to provide overnight lodging for tourists visiting Lehman Cave when the property was in private ownership. The cabin has been moved from its original location, restored, and placed on a concrete foundation next to the interpretive center. It would be adaptively used to house new interpretive exhibits on its early history and original lodging function. An interpretive panel would be installed outside the cabin to inform visitors of its history.

The historic Lehman orchard, which currently contains only a few remnant fruit trees, is representative of early agricultural and horticultural development associated with mining camps. Based on the direction provided in the 1990 *Orchard Management Plan*, the orchard is currently being restored and expanded to approximately 40 trees, and a water-conserving drip irrigation system installed. Exhibit panels are proposed in the vicinity of the interpretive center to interpret the orchard as part of the historic landscape. Trail access to the orchard would not be provided.

The existing 0.1-mile Lehman nature trail, an interpretive loop trail behind the interpretive center that begins and ends at the Rhodes cabin, would be upgraded. Interpretation of the geology and history of Lehman Cave and history of the Rhodes cabin would continue to be provided on the trail through a self-guiding publication.

Road Modifications – Baker Ridge/Lehman Cave Area. Road modifications would be undertaken to improve access and circulation in this part of the park. The modifications are described below and illustrated on the Existing and Proposed Road Alignment maps for the Lehman Cave vicinity and on the Wheeler Peak Scenic Drive Development Concept Plan.

A new intersection would be established just inside the eastern park boundary to permit direct access to the Great Basin visitor center along an extension of Wheeler Peak



ON MICROFILM

EXISTING ROAD ALIGNMENT LEHMAN CAVE VICINITY

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Scenic Drive. At this intersection visitors could take the scenic drive south to the visitor center on Baker Ridge or north to the Lehman Cave developed area and on up to Wheeler Peak. A spur road on the scenic drive's southern extension would provide access to the Baker Creek developments. A second, ½-mile-long spur road about ¾ mile up the scenic drive would lead to the new Lehman Cave parking area. This new spur road would cross Lehman Creek on a small bridge.

The scenic drive between the Baker Creek and Lehman Cave spur roads would incorporate portions of the existing Baker Creek and Wheeler Peak roads. However, the drive would be realigned to form a gradual curve, thus eliminating two existing 90 degree turns. Road work would involve construction of ½ mile of new road and a bridge over Lehman Creek. These road improvements would simplify the major road configuration in the park and provide an improved park entry experience.

The Baker Creek and Lehman Cave spur roads and the entire length of the scenic drive, including all associated access roads to developed areas, would be paved. All intersections, entrances, and pullouts would be designed to safely accommodate traffic flows. Following road realignment, all abandoned road sections would be restored to natural conditions. An old road alignment extending west from the Baker Creek road would be paved to provide access to the NPS housing area south of the Lehman Cave interpretive center. The existing housing access road in front of the interpretive center, along with the existing Lehman Cave entrance road and lower parking lot, would be removed and replanted with native species.

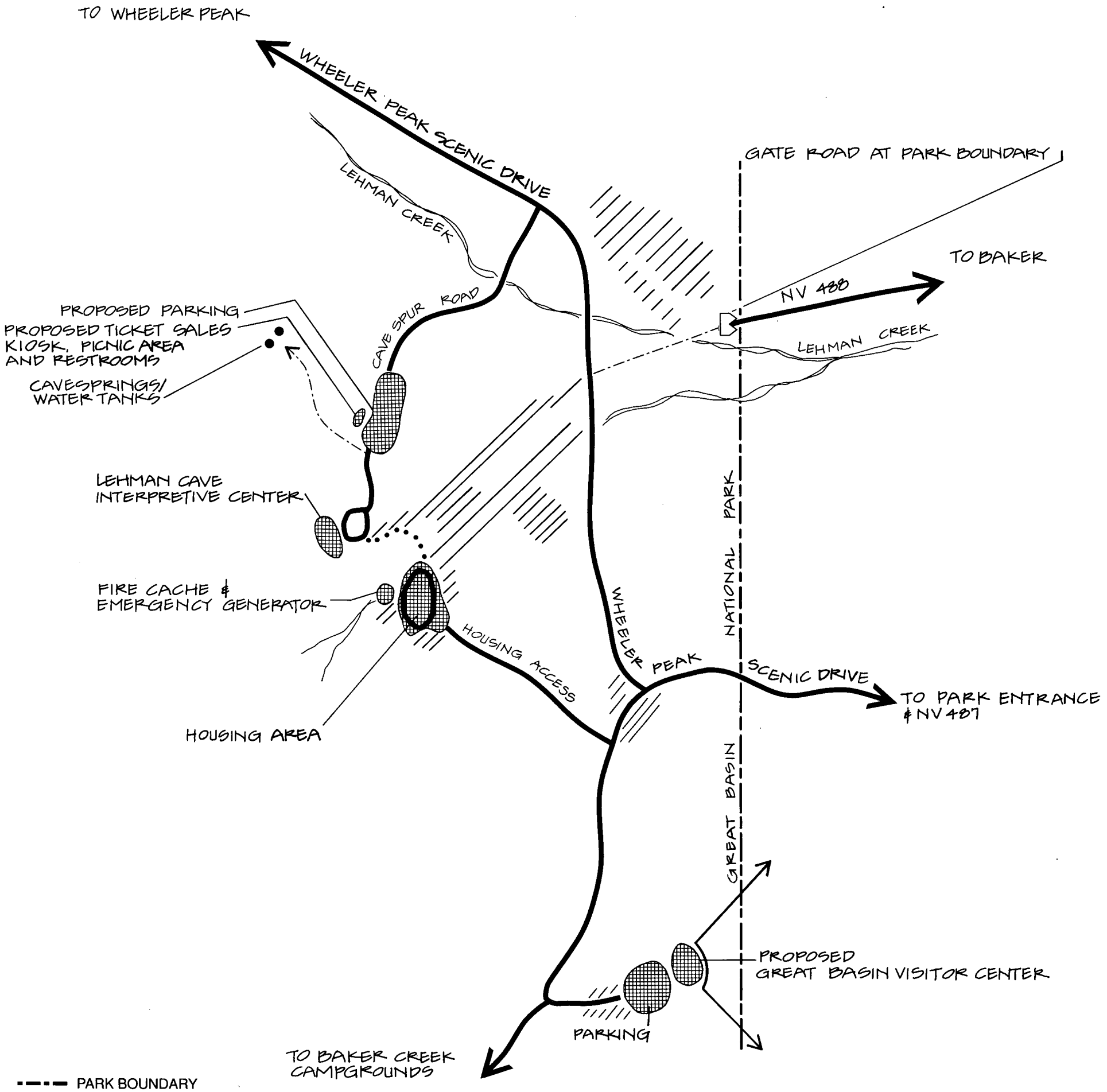
Continuation of Wheeler Peak Scenic Drive. After visiting the Lehman Cave interpretive center and viewing the cave, most visitors would continue on up Wheeler Peak Scenic Drive to the Wheeler Peak day use area. This portion of the scenic drive would be upgraded to meet safety requirements and improve access to interpretive pullouts. Road work would be limited to widening shoulders and stabilizing portions of the roadbed.

Wheeler Peak Scenic Drive is wide enough for most vehicles, except car/trailer combinations and RVs more than 30 feet long (overall) and 8 feet wide (mirror to mirror). Because of the potential safety hazards associated with these vehicles, the Park Service would enforce vehicle size restrictions for travel on the scenic drive. A trailer drop-off would be constructed on the north side of the road at Lehman Curve to permit visitors pulling trailers to park them and travel on up the scenic drive. This ½-acre paved pull-through parking area would accommodate 20 trailers. Visitors in oversized RVs would not be permitted past the drop-off point.

Five interpretive pullouts with exhibit panels would be established along this portion of Wheeler Peak Scenic Drive, and some would include trailheads with orientation exhibits for trails leading to representative park features and environments. Campgrounds would also be provided in several locations. All campgrounds in the modern zone would be fenced with timber pole fencing characteristic of the area to separate livestock grazing from camping activities.

Interpretive Pullouts – The first interpretive pullout along this portion of Wheeler Peak Scenic Drive would be the mixed conifer forest/Osceola ditch pullout. Interpretive developments at the existing pullout in this area would be expanded to give visitors a better understanding of these two important features. The 18-mile-long Osceola ditch was constructed in 1889-90 to carry water to the Osceola mining operations. Time and weathering have destroyed the original wood flume sections, and only the graded swath and rotting portions of wood remain in a few locations. A paved 0.1-mile high-standard trail would be constructed through the mixed conifer forest to a place where a portion of the ditch and wooden flume would be rehabilitated. Interpretive exhibits panels along the trail would explain both the mixed conifer life zone and the historic cultural feature. Wheeler Peak Scenic Drive would be slightly realigned in this area to simplify turning movements at the pullout. The parking area on the north side of the road would be restriped to accommodate 5 to 10 cars. A trailhead orientation exhibit would be included in the parking area.

Just beyond the mixed conifer forest/Osceola ditch pullout, an existing informal pullout provides views of a well-developed stand of mountain mahogany with Mt. Moriah in the background. This pullout (the mahogany shrub/Mt. Moriah overlook), also on the north side of the road, would be formalized, and a paved parking area for 5 to 10 cars would be provided. A ¼-mile wheelchair-accessible trail leading through the mountain mahogany stand to a viewing platform would provide interpretation of this life zone and vegetation type and of the geological and topographic features visible from this area. The 400-square-foot cedar viewing platform would be ramped, with tiered viewing areas to accommodate about 20 visitors. It would provide



PROPOSED ROAD ALIGNMENT LEHMAN CAVE VICINITY

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commanding views of Mt. Moriah, the North Snake Range, and the Snake Valley basin. Interpretation would be provided in exhibit panels. A trailhead orientation exhibit would be included in the parking area. Wheeler Peak Scenic Drive would be widened along the curve in this area to maximize sight distances in both directions.

The third pullout would be the aspen/Lehman Creek pullout, an existing pullout on the south side of the road that offers expansive views of the Lehman Creek drainage and the upper portion of Wheeler Peak. This pullout would be repaved, and parking would be provided for 5 to 10 cars. A low retaining wall or curbing would be added, and viewing areas would be constructed to enable visitors to look up and down the drainage. Interpretive panels would illustrate themes related to the Lehman Creek drainage, visible geological features, and the basin valley in the distance.

The fourth pullout would be the spruce-fir/Wheeler Peak cirque overlook. Located on the south side of the road, this new pullout would offer magnificent views into the Wheeler Peak cirque. A 5- to 10-car paved parking and viewing area with a retaining wall would be constructed, which would involve roadway widening and extensive fill. Interpretive panels on the retaining wall would focus on the Wheeler Peak cirque and the geologic history that produced it and would also illustrate themes related to the spruce-fir forest community.

The last pullout, the Wheeler Peak pullout, would be associated with the developments described in the "Wheeler Peak Pullout/Trailhead" section. A series of interpretive exhibit panels would describe significant points of interest in surrounding areas, including the bristlecone pine forest, glacier, rock glacier, and other scenic features of the subalpine environment, and would illustrate the life zone theme. This pullout would be the culmination of the tour along the Wheeler Peak Scenic Drive. At the pullout/trailhead, visitors could choose to hike into the adjacent Wheeler Peak day use area or to return to lower elevation attractions on the scenic drive.

Campgrounds – Two sites along Wheeler Peak Scenic Drive in the Lehman Creek vicinity would be developed for limited-service camping.[2] A new 50-site campground – the Lehman Flats campground – would be established about ½ mile west of the Lehman Cave access road and ⅛ mile south of the scenic drive in an area above the Lehman Creek floodplain. The access road system and vehicle sites in the campground would be paved. An amphitheater would be included, and each site would have a tent pad, picnic table, and fire ring. A water line would be extended from Cave Spring to the campground, and a potable water system and comfort stations with low-volume flush toilets would be installed. Two campsites would be designed for use by disabled visitors and would include barrier-free toilets. A dump station would be designed and located to service all recreation vehicles without interfering with campground traffic flow. One campsite with water, sewer, and electrical hookups would be reserved for the campground host. Hookups would not be provided at other campsites, but electricity would be extended to the amphitheater and toilets.

The second campground would be the existing 24-site limited-service campground at Upper Lehman Creek, which would accommodate small RVs and cars with small trailers. The campsites here would be upgraded and a campfire circle would be established, but there would be no major redesign of the road or campground layout. New vault toilets would be provided. One campsite would be redesigned for disabled visitors, with new barrier-free toilets. Potable water would be available.

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2. Three types of campgrounds would be provided in the park – limited service, rustic, and backcountry. Limited-service campgrounds would all be in the modern subzone and would be accessible on surfaced roads; rustic campgrounds would be in the rural subzone and could be reached on unsurfaced gravel roads; backcountry campgrounds and campsites would be accessible only by foot or horseback. The following facilities would be provided:

limited service	rustic	backcountry
hardened sites	unhardened sites	designated sites
fire rings or grates	fire rings or grates	fire grates where fires allowed
picnic tables	picnic tables	no picnic tables
potable water	no water*	no water*
vault toilets or low-volume flush toilets	vault toilets	pit toilets

*Untreated water might be available in nearby streams.

The existing Lower Lehman Creek campground would be removed because it is in a sensitive riparian area. The area would be recontoured and revegetated with native species.

Wheeler Peak Pullout/Trailhead. As stated earlier, the Wheeler Peak pullout/trailhead would be the culmination of the tour and the last interpretive stop on the Wheeler Peak Scenic Drive. It would also serve as an origination point for hiking into some of the park's most scenic country, including the bristlecone pine forest, subalpine lakes, glacier, rock glacier, and the summit of Wheeler Peak. A number of facilities would be established or upgraded in this area to interpret the many significant features, to assist visitors in choosing the types of trails and activities suited to their interests, and to support anticipated high levels of use (see the Wheeler Peak Pullout/Trailhead Development Concept Plan).

The existing small parking area on the west side of the road at the summit trailhead would be redesigned, paved, and expanded into a 10-car parking lot. A traffic island would separate parking from the main roadway. Visitors would be able to hike from this trailhead to the summit of Wheeler Peak and also to the Strawberry Creek trail system over a connecting trail along the west flank of Bald Mountain. Orientation exhibits would be placed at the trailhead.

A major pullout (the Wheeler Peak pullout described above) and trailhead would be established approximately 300 feet east of the existing Wheeler Peak trailhead and north of Lehman Creek. A 50-car paved parking area (with space to expand to 75 cars) would be constructed to alleviate problems associated with visitor use in this area. The existing parking lot is undersized and has poor access and inadequate maneuvering space. Many daytime visitors drive into the nearby camping area to park their cars, reducing available parking for campers. The pedestrian crossing from the parking lot to the existing Wheeler Peak cirque trailhead is on a blind corner and is considered dangerous. Random pedestrian circulation is causing environmental damage.

Access to the proposed parking area from Wheeler Peak Scenic Drive would be at a point approximately 300 feet beyond the existing day use parking area. A minimum sight distance of 100 feet in each direction would be maintained at this intersection. The parking area would be built on a site northeast of the existing lot in an open-canopy forest of limber pine, aspen, and spruce. It would include three terraced lots separated by traffic islands planted with subalpine meadow vegetation. The parking area would be screened from the scenic drive with shrubs and trees native to the subalpine zone.

The main pullout/trailhead and restroom facilities (vault toilets) would be consolidated near the new parking area. These facilities would be wheelchair-accessible, and a seating area would be provided with gathering space for groups. The trailhead would be sited to take advantage of the mountain views to the northwest. A paved trail (with a pedestrian crosswalk across Wheeler Peak Scenic Drive) would link the trailhead to the existing system of day use trails in the semi-primitive day use subzone. A new pedestrian bridge would be constructed over Lehman Creek in this area. The existing parking lot, restroom, and trailhead would be removed, recontoured, and revegetated with native species.

The 37-site limited-service Wheeler Peak campground would be retained. This campground would continue to accommodate cars and small RVs. The campsites would be upgraded, but there would be no major redesign of the road or campground layout. A campfire circle would be included, and two sites would be redesigned for use by disabled visitors, with new barrier-free vault toilets. Potable water would be available.

Administrative Facilities. The plan calls for development of a major administrative site near the town of Baker. Most existing and all proposed operational support facilities would be located at this site. The only facilities that would be maintained in the park are those needed to protect resources and those that contribute to visitor understanding of Great Basin. This action would conform with the 1989 *Management Policies* (chapter 9:14), which state that "management facilities will be located outside park boundaries whenever the management functions being served can be adequately supported from such a location."

An 80-acre site in the town of Baker was chosen as the new location for the administrative offices and maintenance facilities required to support increased visitation and associated operating activities and for all housing except that needed to establish a presence in the Lehman Cave area. Development on this site would accomplish several objectives. It would establish an NPS presence in the community of Baker, which would foster improved working relationships and social ties between Park Service staff and local residents. In addition, the town of Baker is currently examining facilities for water and sewage treatment, and it is possible that the Park Service and the town could build a

combined treatment system rather than duplicating systems. Improved treatment systems might increase opportunities for economic development in the town.

The proposed 80-acre Baker site is on the east side of Highway 487 approximately 300 yards north of its intersection with Highway 488 (the existing park entrance road). This site was transferred from the Forest Service to the Park Service as part of the Department of the Interior Appropriations Act of 1991, to be administered as a detached administrative area. The site is a flat expanse of land, with little vegetation except a few cottonwood trees. During the summer, temperatures at the site can reach 115 degrees – an average of 5 to 10 degrees hotter than temperatures at the Lehman Cave interpretive center. However, with some modifications to site conditions (irrigation, planting of shade trees, and creation of greenspace), the microclimate here could be modified to make it a pleasant place to live and work. All buildings would be air-conditioned and sited to maximize solar efficiency.

Initially, the Baker site would have three components – a 3,000-square-foot administrative facility, a 5-acre maintenance compound, and a residential area with six single-family units and 20 to 30 apartment units (see the Baker Administrative Site Development Concept Plan).

The new administration building would include office space for the superintendent, administrative staff, division chiefs, and protection and resource management personnel; two conference rooms; a library; a small laboratory; curatorial and records storage space, other NPS storage space, and natural history association storage space; restrooms; and a lobby. Two interpretive staff offices would be retained at the Lehman Cave interpretive center to support staff needs there, and a superintendent's office/conference room, interpretive workroom, and protection staff office would be provided at the new Great Basin visitor center.

All present maintenance functions would be relocated from the park to the new 5-acre maintenance compound. The compound would include a 2,500-square-foot building with office space, a planning and break room, a paint room, and plumbing, electrical, and carpentry shops; a 10,000-square-foot vehicle storage building with automotive and heavy equipment service bays and a welding and machine shop; and a 3,000-square-foot warehouse with heated and unheated space for materials and flammables storage. The compound would also include outdoor storage, a boneyard, a hazardous materials storage area, and a fire cache. The entire site would be landscaped with berms and vegetation that incorporate fencing to provide security and visual screening from nearby residential areas. Only one maintenance structure would remain in the park, in the Lehman Cave area; it would house the existing fire cache, fire truck, and emergency generator. The other buildings in the maintenance area would be removed, and their sites recontoured and revegetated.

Six new single-family housing units and 20 to 30 apartment units would be constructed at the 80-acre Baker site to meet the projected park housing needs in the next 10 years. Four housing trailers in the park would be removed and replacement housing would be provided at the Baker site. The remaining nine housing units in the park would not be removed until they were no longer functional. Nonfunctional permanent housing would be replaced by housing at the 80-acre Baker site, except for the few housing units determined essential for in-park security and emergency response. As houses within the park were removed, the Park Service would recontour and revegetate the disturbed sites.

All new housing would be low-profile and designed to enhance views toward the park and nearby mountain ranges. Because there are few facilities in Baker for social and recreational functions, a community playground would be built near the housing area. To mitigate the effects of the summer heat, all structures would have central air conditioning and be sited to maximize the warming effects of winter sun and minimize the heating effects of summer sun. The housing area would be carefully designed and laid out in relation to other proposed facilities to make it a pleasant living environment for both permanent and seasonal employees. Landscaping would be a central part of the design and would include shade trees, turf, and vegetated berms that would serve as windbreaks.

In cooperation with the state of Nevada and the town of Baker, the Park Service would develop a new sewage treatment plant in the Baker vicinity. Funding for construction and operational costs might be shared between the state and federal government to provide a facility that would serve both the needs of the park and the community of Baker. A new wastewater system might be developed to carry effluent from the new Great Basin visitor center and Lehman Cave facilities, the housing area in the park, and the Lehman Flats campground to the proposed sewage treatment plant in the Baker vicinity. The existing park sewage treatment ponds

2 Summit Trailhead

- Redesign trailhead to accommodate 10-car paved parking area

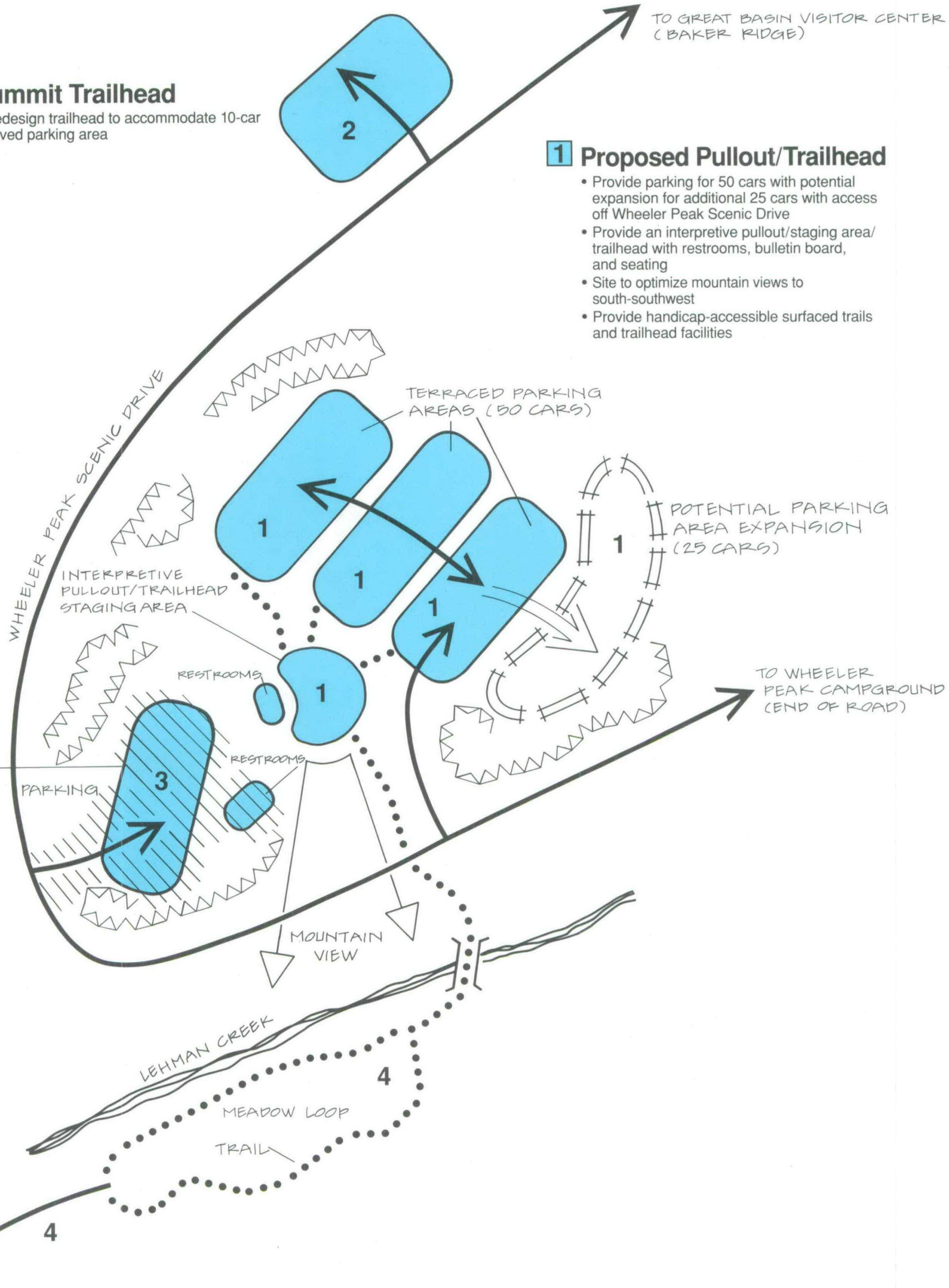
1 Proposed Pullout/Trailhead

- Provide parking for 50 cars with potential expansion for additional 25 cars with access off Wheeler Peak Scenic Drive
- Provide an interpretive pullout/staging area/ trailhead with restrooms, bulletin board, and seating
- Site to optimize mountain views to south-southwest
- Provide handicap-accessible surfaced trails and trailhead facilities

3 Remove existing parking area and restroom, and restore area

4 Day Use Trails

- Trails to bristlecone pine forest/alpine lakes/ glacier/rock glacier



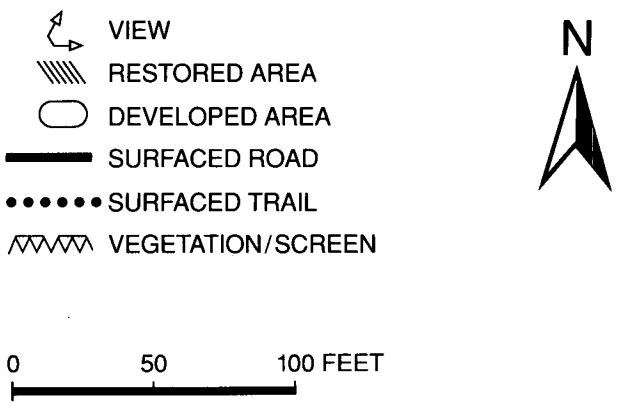
ON MICROFILM

DEVELOPMENT CONCEPT PLAN
WHEELER PEAK PULLOUT/TRAILHEAD

GREAT BASIN NATIONAL PARK

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would be removed following construction of the new treatment facility. The gravel access road to the ponds would be removed and restored to natural conditions.

In cooperation with the state of Nevada and the town of Baker, the Park Service would drill a water well or wells in the Baker vicinity to provide water for the Baker site. Funding and operational costs might be shared by the state and federal government to build a facility and distribution system to provide water to both the park and the community of Baker.

An additional 100,000-gallon water tank would be installed to provide for increased water needs at the Great Basin visitor center, Lehman Cave interpretive center, campgrounds, and park housing area. This would double the existing storage capacity to 200,000 gallons, providing a greater peaking capacity for the water supply to meet anticipated demands. The existing access road to the water storage tanks would be retained.

Water, electricity, and sewage lines would be extended below ground from the proposed sewage treatment facility in the Baker vicinity to the facilities at the 80-acre Baker site (orientation center, administration building, maintenance compound, and housing area). Within the park, water, sewage, and electricity lines would be extended below ground from the existing Lehman Cave development to the new cave ticket sales kiosk and restroom, the Great Basin visitor center, and the Lehman Flats campground.

Rural Subzone

The rural subzone would be accessible by two-wheel-drive or four-wheel-drive vehicles along designated gravel access roads. It would provide rustic camping areas and trailhead access into the park's semi-primitive and primitive subzones. The rural subzone would include the upgraded unsurfaced roads leading into the Strawberry Creek area in the northernmost part of the park and along the eastern park boundary at Snake Creek, Big Wash, and Lexington Arch. Small areas in the southern and southwestern sections of the park including Big Spring Wash, Highland Ridge, and Decathon Canyon would also be included in this subzone. No off-road vehicle use would be permitted in rural areas.

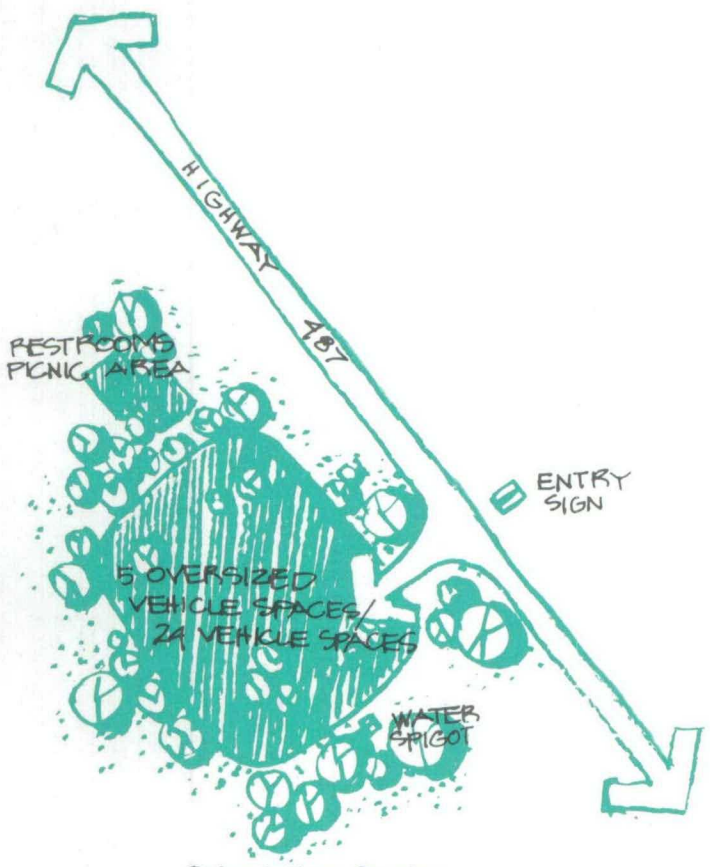
From a visitor's perspective the rural subzone would bridge the gap between frontcountry and backcountry use. Although easily accessible, it would offer a greater degree of solitude and an escape from the heavily used areas in the modern subzone. For those planning more demanding hiking,

DEVELOPMENT CONCEPT PLAN
BAKER ADMINISTRATIVE SITE

GREAT BASIN NATIONAL PARK

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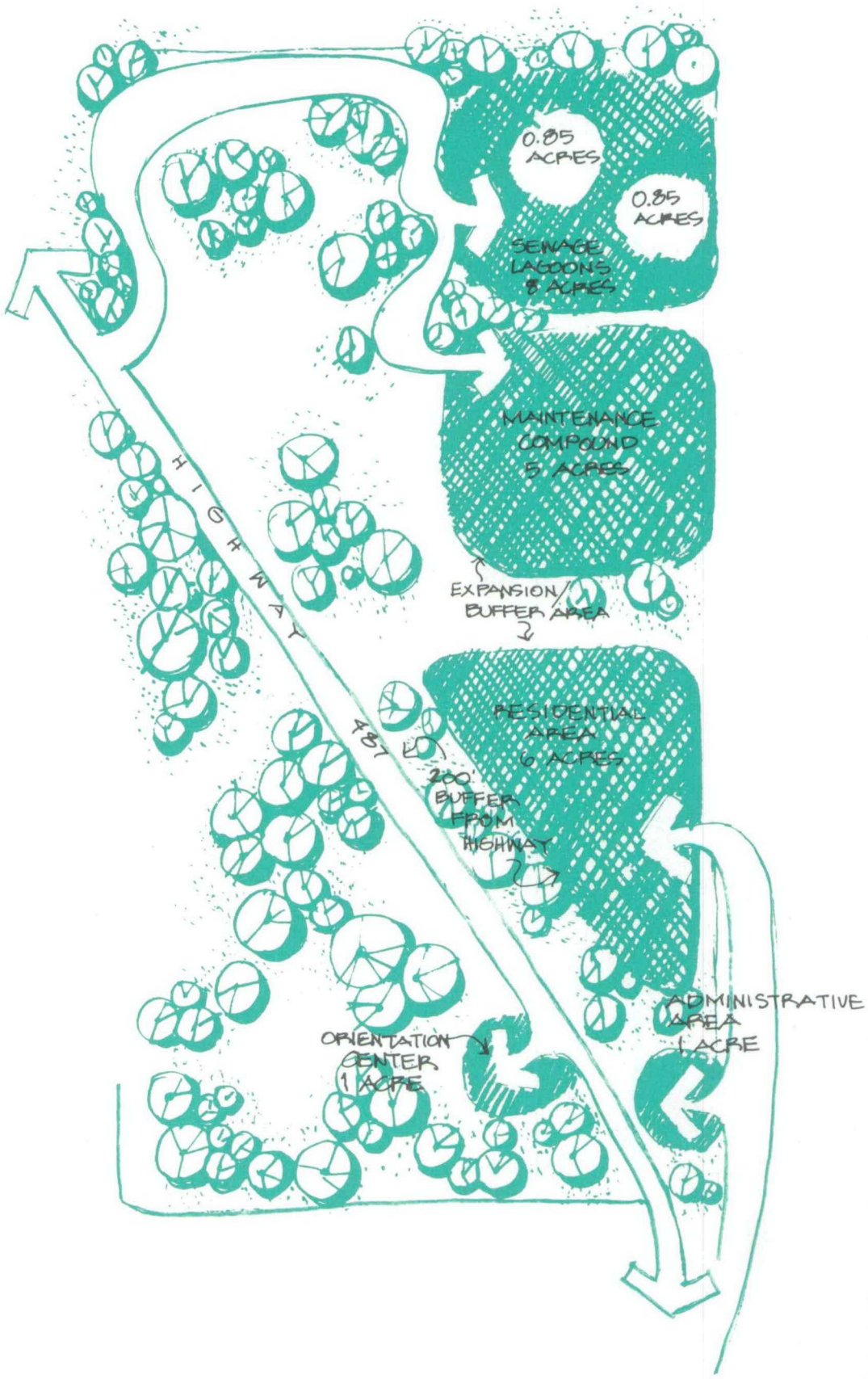




Orientation Center

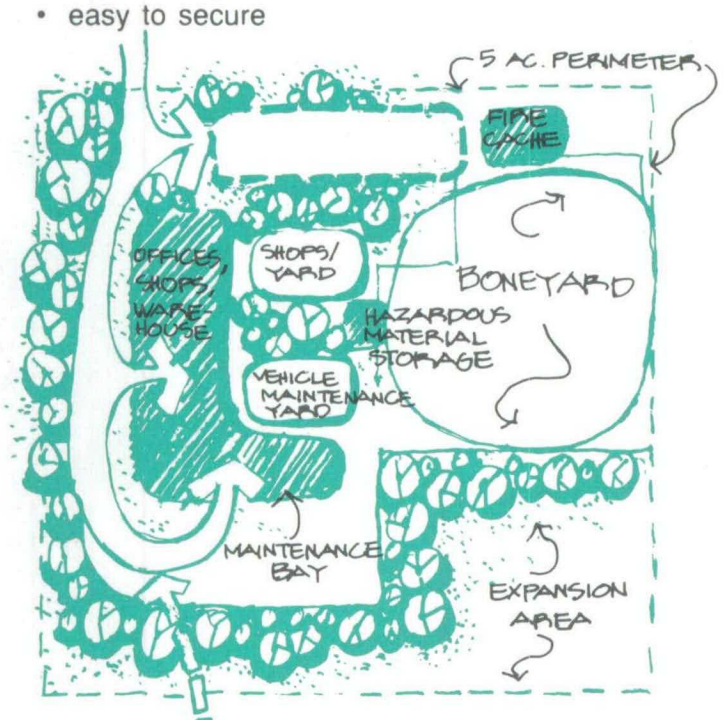
- views to the west
- shade/picnic area
- adapted for oversized vehicles

Site Development Layout



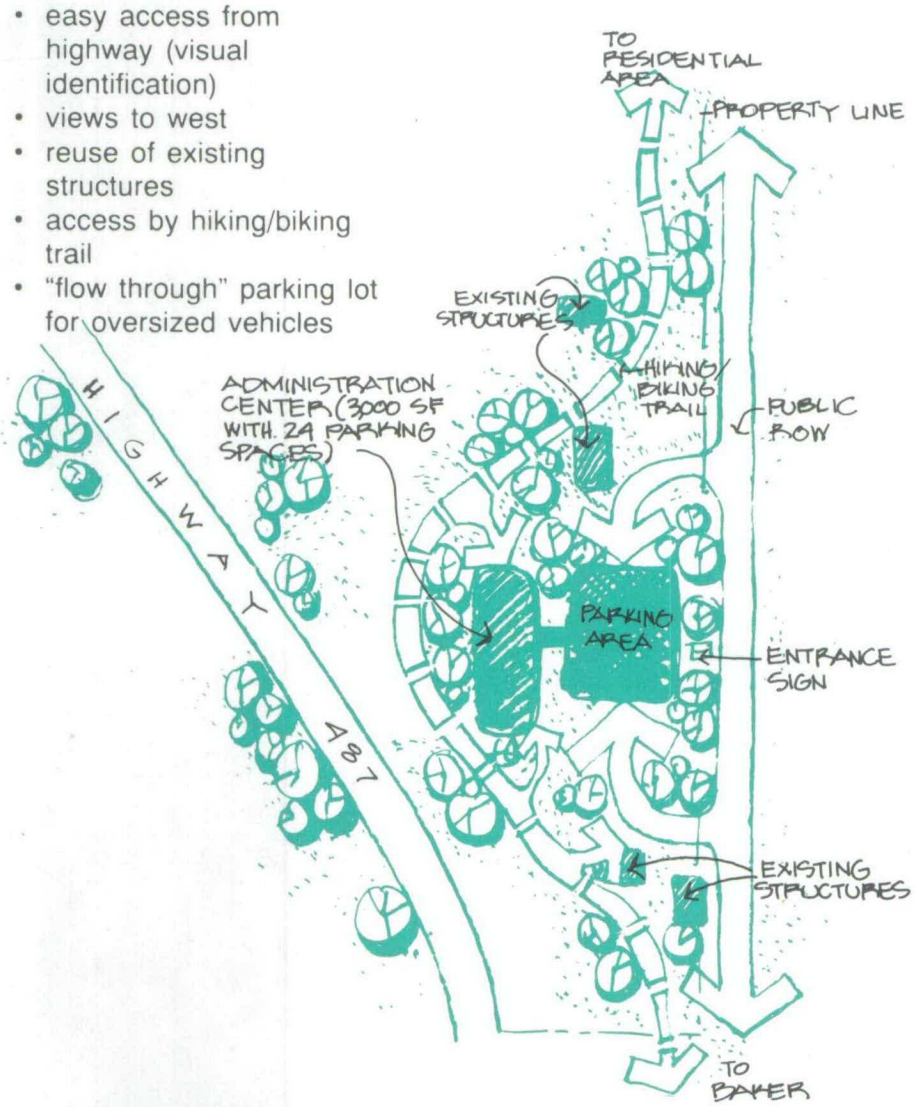
Maintenance Compound

- isolation of noise/ proximity of functions
- out of viewshed/ vegetation screening
- expansion potential
- easy to secure



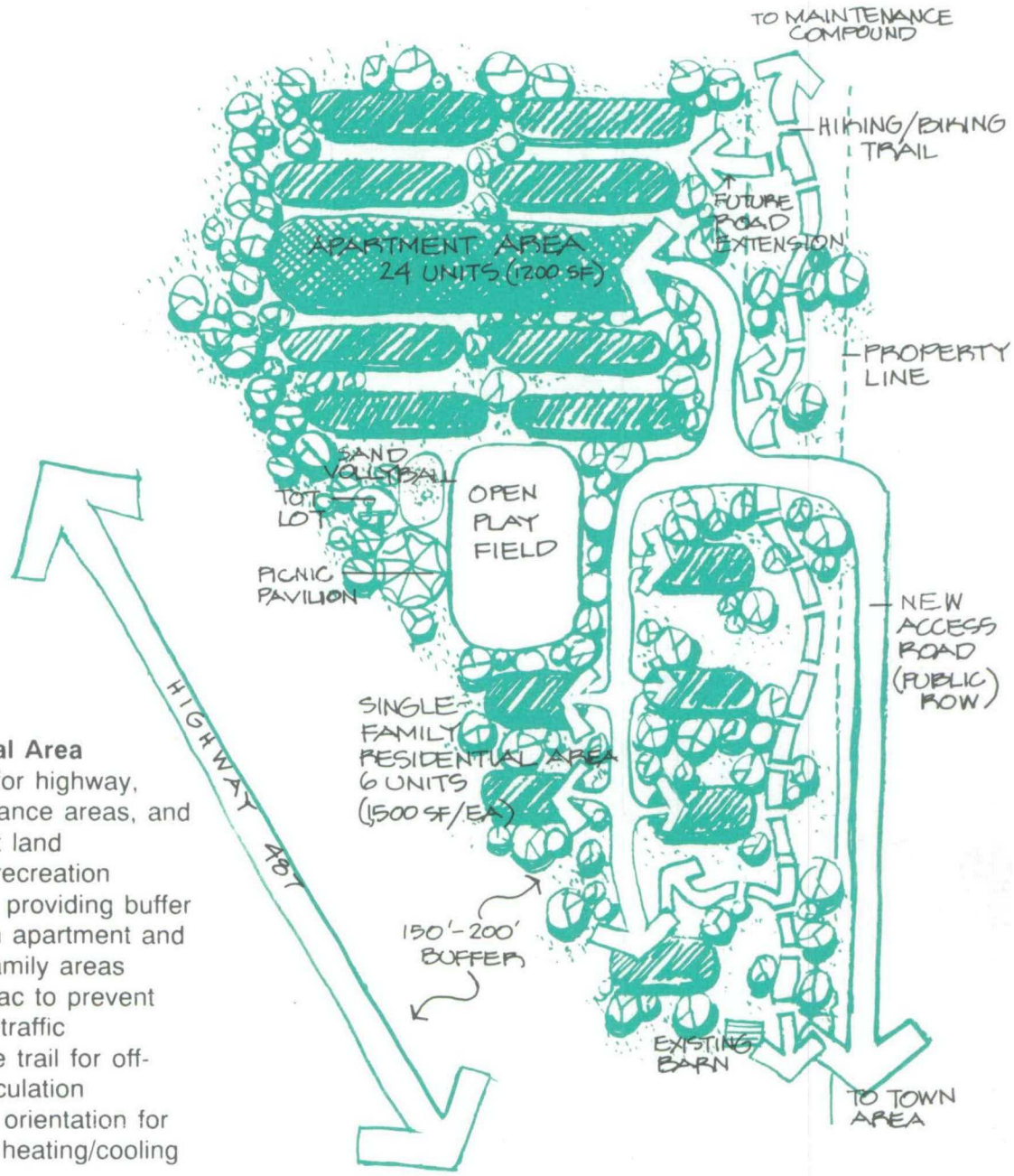
Administration Area

- easy access from highway (visual identification)
- views to west
- reuse of existing structures
- access by hiking/biking trail
- "flow through" parking lot for oversized vehicles



Residential Area

- buffers for highway, maintenance areas, and adjacent land
- shared recreation facilities providing buffer between apartment and single-family areas
- cul-de-sac to prevent through-traffic
- hike/bike trail for off-road circulation
- building orientation for passive heating/cooling



backpacking, or horseback riding experiences, the rural subzone would provide "base camps" for such excursions.

Strawberry Creek, Snake Creek, Big Wash, and Lexington Arch would be accessible by gravel roads on NPS rights-of-way (BLM and Forest Service roads would provide four-wheel-drive access to Big Spring Wash and Highland Ridge). These four areas would have trailhead parking, and some would include rustic campsites, campgrounds, and horse corrals. Campsites and campgrounds would include picnic tables, fire grates, and vault toilets. Campsites would be surfaced with crushed limestone to reduce washout and provide site identification, and they would have some type of perimeter definition to limit damage to the surrounding environment (for example, edging materials such as recessed timbers, sensitively placed rocks, or other materials that would encourage visitors to limit their activities to the defined area). Corrals would be constructed of timber poles and include water troughs and primitive mangers for hay and feed.

Interpretive media in the rural subzone would be limited to information shelters in campgrounds, orientation exhibits at trailheads, and interpretive exhibit panels and signs at other selected locations. Campground shelters would provide general parkwide orientation, detailed orientation to the campground and immediate vicinity, and space for posting information of interest to visitors. Trailhead orientation exhibits would provide the information needed to plan safe, enjoyable, and educational hiking and horseback riding experiences.

The Park Service would obtain rights-of-way from the Bureau of Land Management and Forest Service for access along the Strawberry Creek, Snake Creek, Big Wash, and Lexington Arch approach roads to the park boundary. The rights-of-way would extend 200 feet on each side of the road centerline. The Park Service would be responsible for upgrading and maintaining these roads.

Strawberry Creek. Strawberry Creek has traditionally been used by visitors from the Great Basin region who enjoy rustic car camping experiences. These types of experiences would be maintained by designating and providing perimeter definition at the seven existing rustic campsites along Strawberry Creek. Each campsite would have a picnic table, fire grate, and vault toilet. The campsites would not be fenced from livestock grazing.

A new rustic group campground would be established at the west end of Strawberry Creek. It would include picnic tables, fire grates, and two vault toilets as well as a 10-car gravel parking area, a corral, and a trailhead providing access to Upper Strawberry Creek, Windy Canyon, Blue Canyon, and the northern portion of the Osceola ditch trail (the Osceola tunnel interpretive trail). An information shelter would be installed in the campground, and an orientation exhibit at the trailhead. A separate 10-car gravel parking area and trailhead would be constructed in the Strawberry Creek area to provide access to the southern portion of the Osceola ditch trail for hikers only. All of the trails in the Strawberry Creek vicinity would be in the semi-primitive subzone. Horseback riding in this section of the park would be confined to Strawberry Creek, Windy Canyon, Blue Canyon, and the Osceola tunnel interpretive trail.

The 6-mile access road into the Strawberry Creek area would be upgraded from dirt to two-wheel-drive gravel from US 6/50.

Snake Creek. Snake Creek is another area that has traditionally been used by people who prefer rustic camping. Ten rustic campsites would be designated along the creek, and each would have perimeter definition, a picnic table, a fire grate, and a vault toilet. The campsites would not be fenced.

A new six-site rustic cluster campground would be developed at the Shoshone campground at the west end of Snake Creek. Off-road parking and walk-in campsites would be provided. The campsites would have defined perimeters, and six picnic tables, six fire grates, and two vault toilets would be included.

The Johnson Lake and Dead Lake trailheads would be redesigned, and each would include 10-car gravel parking and an orientation exhibit. A corral would be constructed at the Johnson Lake trailhead. These trailheads would provide access to the Baker Lake trail system.

The 12-mile dirt access road into the Snake Creek area would be upgraded to a gravel two-wheel-drive road from Highway 487.

Big Wash. The proposed Big Wash trailhead would be on Forest Service right-of-way land about a mile east of the park boundary where the access road ends and the existing trail begins its descent into the wash. The Park Service would establish a cooperative agreement with the Forest

Service for use of this land and would develop a 10-car gravel parking area, a corral, and a trailhead with an orientation exhibit. Hikers and horseback riders would be able to reach the southern portion of the park from this trailhead. Trailhead development would be contingent upon the Park Service obtaining an easement for the portion of the trail that crosses private land before it reaches the park boundary (see the "Semi-Primitive Subzone, Big Wash" section).

The 9-mile Big Wash access road would be upgraded and maintained by the Park Service as a two-wheel-drive gravel road from Utah Highway 21.

Lexington Arch. Lexington Arch is a limestone natural bridge in the extreme southeastern part of the park that is proposed as a day use destination. The existing 11-mile dirt entry road would be upgraded and maintained by the Park Service as a two-wheel-drive gravel road, and a 10-car gravel parking area and Lexington Arch trailhead would be developed 0.8 mile east of the park boundary through a cooperative agreement with the Forest Service. An orientation exhibit would be included at the trailhead.

Big Spring Wash and Highland Ridge. Access to these two remote areas in the southern part of the park would be by four-wheel-drive vehicle along BLM and Forest Service roads. The Park Service would provide informal parking, trailhead orientation, and corrals at access points within the park boundary.

The road through Decathon Canyon crosses the extreme southwestern boundary of the park. This portion of the unmaintained road would remain open to backcountry users traveling to Highland Ridge and to hunters wishing access to Forest Service lands farther up the canyon.

Semi-Primitive Day Use Subzone

The roadless semi-primitive day use subzone would provide opportunities to view significant park features in a largely natural setting. Trails would permit access to such prime natural resources as subalpine lakes, a bristlecone pine forest, a permanent glacier, a rock glacier, and a large limestone arch. Visitors could take ranger-guided interpretive walks or explore these areas on self-guiding interpretive trails of varying degrees of difficulty.

To protect sensitive resources, only hiking and picnicking would be permitted in this subzone. Horseback riding, camping, and open fires would be prohibited. In addition, because use would be relatively high in this subzone and visitors would be able to view and study many of the resources that the park was established to preserve, grazing would be prohibited to ensure quality visitor experiences and protection from the hazards associated with human/livestock contacts. Facilities in this subzone would be limited to unstaffed interpretive kiosks, interpretive exhibit panels, and low-profile directional and safety signs. Publications about the park's features and life zones would also be available.

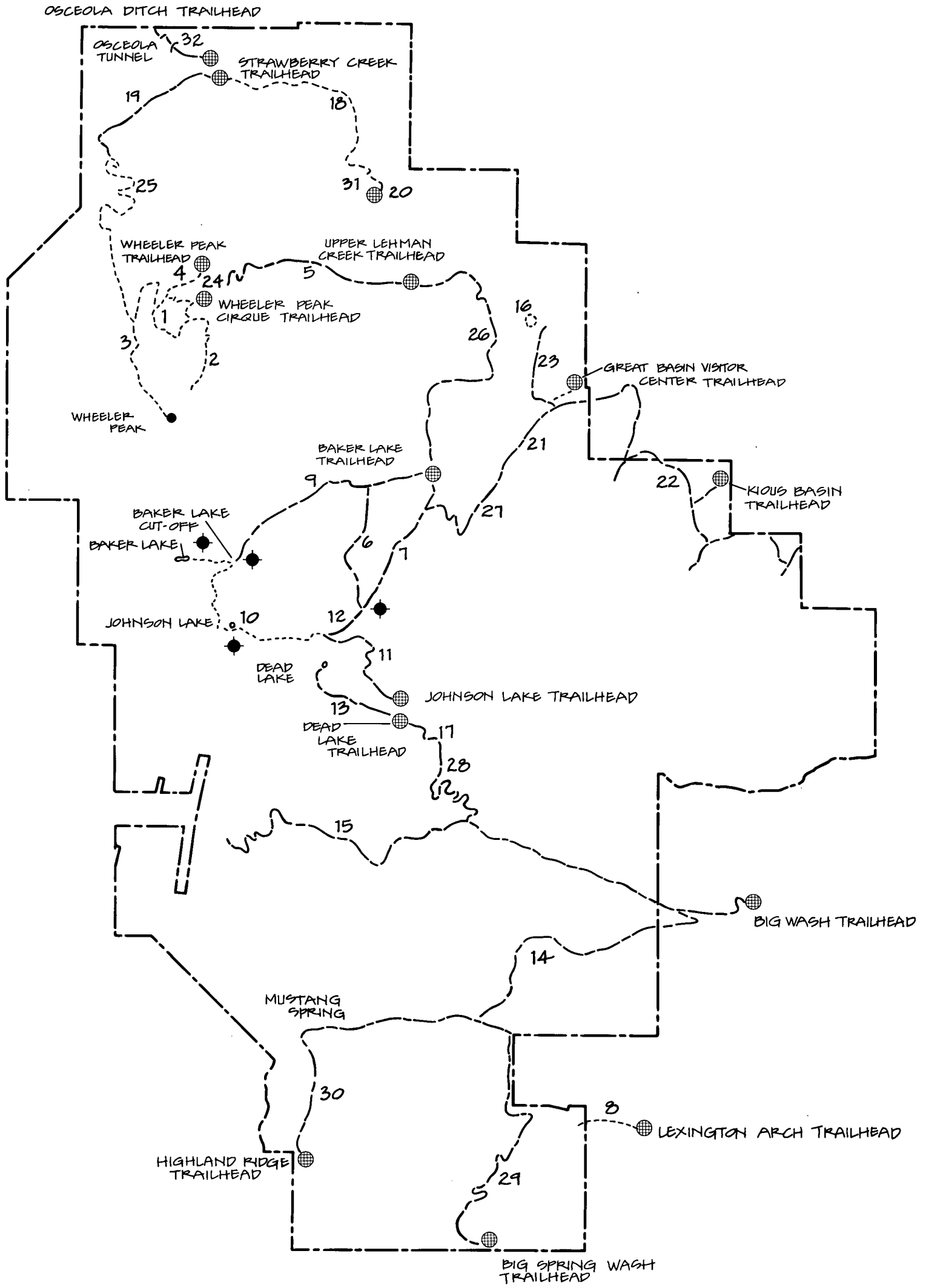
The existing and proposed trails in the semi-primitive day use subzone are shown on the Trails – Proposed Action map in the "Semi-Primitive Subzone" section.

Wheeler Peak Day Use Area. Access into the Wheeler Peak day use area would be provided at the summit and Wheeler Peak trailheads. In addition, a trail through the semi-primitive subzone would connect the Upper Lehman Creek campground with this area. Trails in the day use area would lead to the bristlecone pine forest, the three subalpine lakes, the glacier and rock glacier, and the top of Wheeler Peak. This area would be heavily used and would require continuing maintenance and resource protection activities. Approximately 1.5 miles of the existing trails would be rehabilitated, 3.1 would be reconstructed, and 0.9 would be maintained in this area, and one new 0.1-mile trail would be constructed.

Bald Mountain Cutoff Trail (0.9 mile) – This gently sloping trail begins at the Wheeler Peak trailhead and links with the Wheeler Peak trail. It is in satisfactory condition and would be maintained.

Alpine Lakes Loop Trail (0.6 mile) – This moderately sloping trail is accessible from the Wheeler Peak trailhead. It winds through a spruce forest to Stella and Teresa lakes. The trail would be rehabilitated and converted to a hard-surfaced interpretive trail using crushed granite, limestone, or similar materials. New exhibit panels along the trail would interpret the more significant aspects of the subalpine environment.

Bristlecone/Glacier Trail (1.0 mile) – This trail begins at the Teresa Lake juncture and leads to the bristlecone forest, rock glacier, and glacier. Fairly steep slopes and rocky scree require moderately strenuous hiking. The trail would require both rehabilitation and reconstruction. It would be hardened using crushed granite, limestone, or similar materials from Teresa Lake through the bristlecone forest, and a cairn-marked earth or rock-surfaced trail would lead from the bristlecone pine

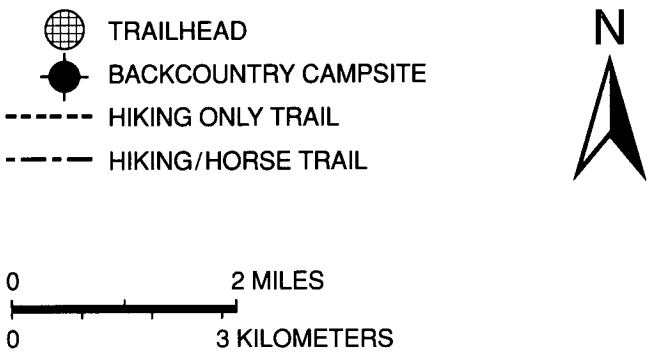

OSCEOLA DITCH TRAILHEAD
OSCEOLA TUNNEL
32
STRAWBERRY CREEK TRAILHEAD
19
18
25
31
20
WHEELER PEAK TRAILHEAD
4
24
UPPER LEHMAN CREEK TRAILHEAD
5
WHEELER PEAK CIRQUE TRAILHEAD
1
3
2
WHEELER PEAK
16
26
23
GREAT BASIN VISITOR CENTER TRAILHEAD
BAKER LAKE TRAILHEAD
21
9
22
KIOUS BASIN TRAILHEAD
BAKER LAKE CUT-OFF
BAKER LAKE
6
7
27
JOHNSON LAKE
10
12
11
DEAD LAKE
JOHNSON LAKE TRAILHEAD
13
DEAD LAKE TRAILHEAD
17
28
15
BIG WASH TRAILHEAD
14
MUSTANG SPRING
30
8
LEXINGTON ARCH TRAILHEAD
HIGHLAND RIDGE TRAILHEAD
29
BIG SPRING WASH TRAILHEAD

ON MICROFILM

TRAILS
PROPOSED ACTION
GREAT BASIN NATIONAL PARK

UNITED STATES DEPARTMENT OF THE INTERIOR
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	Existing, Reconstructed, or Rehabilitated Trails	Proposal Miles	Needing Reconstruction	Needing Rehabilitation
1	Alpine Lakes Loop Trail	0.6	0.0	0.6
2	Bristlecone Ice Field	1.0	0.5	0.5
3	Wheeler Peak Trail	2.0	1.6	0.4
4	Bald Mountain Cutoff Trail	0.9	0.0	0.0
5	Lehman Cr. Trail	3.2	1.5	1.7
6	South Fork Baker Creek Trail	1.6	0.8	0.8
7	Timber Creek Trail	2.2	2.2	
8	Lexington Arch Trail	1.0	1.0	0.0
9	Baker Lake Trail	4.7	0.0	4.7
10	Johnson – Baker Lake Trail	1.4	1.4	
11	Johnson Lake Trail	3.3	2.1	1.2
12	Snake Creek Divide Trail	0.6	0.6	
13	Dead Lake Trail	1.7	1.7	
14	South Fork of Big Wash Trail	3.8	0.7	3.1
15	North Fork of Big Wash Trail	12.3	12.3	
16	Lehman Nature Trail	0.1	0.0	
17	Shoshone Trail	1.0	1.0	
18	Osceola Ditch Trail	5.9	5.9	
19	Upper Strawberry Creek Trail	2.3	2.3	
20	Osceola Interpretive Trail	0.1	0.1	
21	Pole Canyon Trail	3.2	3.2	
22	Kious Trail Group	6.6	6.6	
23	Old Baker Creek Trail	0.8	0.8	
	Totals	60.3	46.3	
	Proposed New Trails	**Miles**		
24	Meadow Loop Trail (Wheeler Peak Area)	0.1		
25	Strawberry Cr. – Wheeler Peak Link	4.7		
26	Lehman Creek – Baker Creek Link	3.1		
27	Pole Canyon – Baker Cr. Link	1.6		
28	N. Fk. Big Wash – Snake Cr. Link	2.1		
29	Big Spring Wash – Lexington Arch Link	5.2		
30	South Fork of Big Wash Trail	5.7		
31	Mahogany Shrub/Mt. Moriah Trail	0.2		
32	Osceola Tunnel Nature Trail	1.0		
	Total	23.7		

forest to the rock glacier and glacier. New exhibit panels would be provided along this trail, dealing with the natural history and life cycle of bristlecone pines. A self-guiding publication would interpret the rock glacier and glacier portions of the trail.

Wheeler Peak Trail (2.0 miles) – This steep trail leads from the Wheeler Peak trailhead to Stella Lake and the summit of 13,365-foot Wheeler Peak. The trail would be rehabilitated and reconstructed to establish a cairn-marked unsurfaced trail, which would be interpreted through self-guiding publications.

Wheeler Peak Meadow Loop Trail (0.1 mile) – A new barrier-free paved/boardwalk trail would be built through the spruce-fir, aspen, and remnant meadow margin next to the Wheeler Peak parking area. This trail would have secluded places where people could sit, birdwatch, and enjoy the scenery. Exhibit panels would provide interpretation of natural resources visible along the trail route.

Lexington Arch Day Use Area. The Lexington Arch limestone natural bridge is the most visited feature in the southern part of the park. The 1.0-mile trail leading from the parking area to Lexington Arch and a ¼-mile area including and surrounding the arch would be designated semi-primitive day use to protect this natural feature. The trail, which winds through a riparian area to the arch, would be reconstructed and upgraded to an unhardened hiking trail to accommodate increasing levels of use. Exhibit panels would be developed to interpret Lexington Arch, focusing on its geologic origins and physical dimensions.

Semi-Primitive Subzone

The semi-primitive subzone would contain most of the park's established backcountry trails and would provide access to some of its most scenic backcountry areas. This subzone would attract visitors seeking to explore the more remote areas of the park with some direction provided. Well-marked hiking and equestrian trails would permit people to travel from the park's northernmost to southernmost reaches; self-guiding publications would provide interpretation for all of the trails in the backcountry system. The semi-primitive subzone would be entirely roadless, and developments would be limited to low-profile directional and safety signs and a few designated campsites with pit toilets and fire rings.

The proposed semi-primitive trail system would include a total of 77.5 miles of trails. It would incorporate 53.9 miles of existing backcountry trails in the Strawberry Creek, Lehman

Creek, Baker Lake/Johnson Lake, Kious Basin, and Big Wash areas as well as many old jeep trails and tracks that extend from the boundary into the park's canyons and high country. Approximately 11.5 miles of the existing trails would be rehabilitated and 42.4 miles would be reconstructed, as proposed in the 1989 backcountry trails study and described in the introduction to the "Visitor Use and Development" section. In addition, seven new trail segments totaling 23.4 miles would be constructed to link existing trails, tracks, and interpretive features, and five or six backcountry camping areas would be designated. Following is a brief description of the existing park trails, from north to south, and the actions recommended for them. The trails are shown on the Trails – Proposed Action map.

Strawberry Creek. Existing trails in the Strawberry Creek area provide access into the northern portions of the park's backcountry. A proposed trailhead at the west end of the creek would provide access for hikers and horseback riders to Upper Strawberry Creek, Windy Canyon, Blue Canyon, and the Osceola tunnel interpretive trail (the tunnel interpretive trail is described in the "Proposed Trails" section below). A second trailhead would provide hiking access to the portion of the Osceola ditch that winds south and east from Strawberry Creek. The existing Strawberry Creek trails would be rehabilitated or reconstructed.

Lehman Creek. The Lehman Creek trail extends from the trailhead at the Upper Lehman Creek campground to the Wheeler Peak trailhead. This moderately steep trail follows the course of Lehman Creek and is available for hiking and horseback riding. It would be reconstructed.

Baker Lake. The Baker Lake trail system is accessible from the Baker Lake trailhead at the end of the Baker Creek road and from the Shoshone campground trailhead in Snake Creek. It is a loop trail system for hikers, with a return by way of Johnson Lake. Features along the trail system include Baker Lake, Pyramid Peak, Johnson Lake, and mining relics and moldering cabins long since abandoned by early settlers. Portions of the loop follow Baker Creek and Timber Creek and in areas above timberline afford distant views of the basins and ranges outside the park. This trail system would also be upgraded and improved.

To provide for horseback riding in this area, a corral and/or hitch rail would be placed within reasonable walking distance of Baker Lake. Because of the sensitivity of fragile subalpine resources in the vicinity, horses would not be allowed near the lake proper. For the same reason, horseback riders would have to enter and return from the Baker Lake area on the same trail, as they would not be permitted to continue on past the Baker Lake cutoff to Johnson Lake.

Kious Basin. This trail system, composed largely of old jeep trails and tracks, begins at the Kious Basin trailhead parking area and runs up moderately steep terrain into the basin. From there one trail extends southeast along the hillside to Young Canyon, Rudolph Canyon, and Mahogany Spring, and the other goes northwest to Can Young Canyon and the Grey Cliffs campground and corral. These trails would be designated for both hiking and horseback riding. Self-guiding publications would interpret the area's unique geology, vegetation, and scenery. The trails would be upgraded, but would remain dirt-surfaced. They would all be within the present park boundary.

An old four-wheel-drive trail extends across two sections of Forest Service land just outside the eastern park boundary, connecting the northwest Kious Basin trail segment with the proposed Great Basin visitor center site at Baker Ridge. These two sections are recommended for transfer to the Park Service under the proposed action. If the 1.2-mile segment of the trail on Forest Service land was transferred to NPS jurisdiction, a new trail link would be established there.

Snake Creek. Two existing jeep trails lead from the vicinity of the Shoshone campground to points of interest such as Johnson Lake and Dead Lake. A third trail leads to the ridge to the south of Snake Creek. These three trails, which are currently closed to vehicle use, would receive major reconstruction or would be relocated to be maintainable as hiking and horseback riding trails.

Big Wash. The trail along the North Fork of Big Wash is washed out and barely discernible in some locations. It was a four-wheel-drive route that traversed the park east-west and exited south of the Mt. Washington summit. The South Fork trail, which is maintained, leads to a mine north of Lexington Arch. These trails are currently closed to four-wheel-drive use. The North Fork trail would be reconstructed or relocated to improve its condition.

A portion of the access trail from the proposed Big Wash trailhead to the park boundary crosses private land. The Park Service would seek to acquire an easement for that

portion of the trail from the owner of the property. When the easement was acquired, trail improvements would be made.

Proposed Trails. The following new trails would be constructed in the semi-primitive subzone to link existing trails and provide north-south access through the park.

Strawberry Creek/Wheeler Peak (4.7 miles) – This trail would make it possible to hike from Strawberry Creek to the summit of Wheeler Peak. The trail would pass through mixed conifer forest along the western escarpment of Bald Mountain and would provide sweeping views of Spring Valley.

Lehman Creek/Baker Creek (3.1 miles) – This trail would provide hiking access between Upper Lehman Creek campground and Baker Lake trailhead. The trail would traverse pinyon-juniper forest on the slopes to the west of Lehman Cave.

Pole Canyon/Baker Creek (1.6 miles) – This trail would link the Kious Basin trail system with the Baker Lake trail system, making it possible to hike from the Kious Basin trailhead to the Baker Creek loop. The trail would traverse pinyon-juniper forest from the upper reaches of Pole Canyon to Timber creek.

North Fork of Big Wash/Snake Creek (2.1 miles) – This trail segment would link the Shoshone trailhead to the North Fork of Big Wash. It would cross rugged terrain in mixed conifer forest.

Big Spring Wash/Lexington Arch (5.2 miles) – This trail would link the Big Spring Wash trailhead with an extensive system of trails in the southern portion of the park. It would cross moderately sloping terrain in an aspen/mountain mahogany forest.

South Fork of Big Wash/Highland Ridge (5.7 miles) – This trail would link the Highland Ridge trailhead to Big Wash Canyon. It would traverse mixed conifer forest.

Osceola Tunnel Nature Trail (1.0 mile) – This trail would extend from a trailhead in Strawberry Creek along a segment of the Osceola ditch to the Osceola tunnel. Self-guiding publications would be developed to interpret tunnel construction and engineering, water diversion, and the history of the site.

Backcountry Camps. Five or six backcountry camps would be designated: one at Johnson Lake, one at Baker Lake, one below Baker Lake (with a corral and/or hitchrail), one at Timber Creek, and one or two at as-yet-unspecified areas.

They would have tent pads with perimeter definition and would be sited to avoid sensitive resources. Wood fires would be prohibited in alpine and subalpine areas. If camping demand exceeded the number of campsites, the park would issue overnight camping permits for some of these areas to regulate use.

On-site interpretive developments in the semi-primitive subzone would be limited to low-profile directional, safety, and resource protection signs. A backcountry trail guide would be developed to provide information about and interpretation of the resources associated with backcountry trails. Depending on the depth of interpretation to be provided, this might be a single publication or several smaller guides. The trail guide(s) would include route maps, safety information, and interpretation of specific features such as bristlecone pines, alpine vegetation, and abandoned mining operations.

Primitive Subzone

This subzone, which would include large areas in the central and southern parts of the park, would remain essentially free of human influence. There would be no roads, no established or maintained trails, and no visitor facilities. Visitors would travel on foot into this subzone and would rely on orienteering skills to explore and discover the park's backcountry. Camping would be permitted, but no campsites would be designated and no campfires would be allowed. Orientation and interpretive media would be limited to backcountry trail guides, maps, and other carry-along materials. This subzone would attract people seeking solitude and challenge.

The Mt. Washington access road, which leads into the primitive subzone on the west side of the park, would be gated at the boundary, and no public vehicular access would be provided beyond this point.

Research Natural Area and Protected Natural Area Subzones

The research and protected natural area subzones would be managed the same as the primitive subzone except that grazing would be prohibited to protect sensitive alpine plant species. The research natural area subzone would include the magnificent stand of bristlecones pines in the southwestern part of the park. The protected natural area subzone would encompass large areas of fragile alpine tundra. Management actions in both of these subzones

would focus on resource protection and monitoring. No roads or other developments, except low-standard trails, would be allowed. Visitor experiences in these areas would be similar to those in the primitive subzone, except that camping would be prohibited.

Special Use Zone

The special use zone would continue to contain the few facilities within the park boundary that are operated and maintained by interests other than the Park Service. These include a 30-foot-high television relay tower and associated concrete structure near Cedar Spur (in the east-central part of the park) operated by the White Pine Television District and the radio repeater on Bald Mountain operated by the Forest Service through an informal agreement with the Park Service. With Park Service permission, Forest Service personnel hike or helicopter into the repeater site.

Limits of Acceptable Change Program

The park would implement a *limits of acceptable change* (LAC) program in which park staff would identify desired resource conditions and use levels within the various subzones of the park and would implement actions to achieve those conditions. After actions were implemented, the program would focus on monitoring activities and conditions in areas of heaviest use (in the modern, rural, and semi-primitive day use subzones) as well as backcountry use in the semi-primitive and primitive subzones. If monitoring indicated a need, the use level for a given subzone might be adjusted.

Although the park staff would identify most of the desired park conditions through the LAC program, the proposed action recommends actions that would achieve or sustain desired conditions or levels of activity in specific locations. At Lehman Cave, the daily capacity would not exceed the desired condition of 20 tours of 30 people, or 600 people per day, and only guided tours would be provided. As stated earlier, the size of Lehman Cave (narrow chambers and low ceilings) and the number of delicate features within easy reach of visitors preclude a self-guiding tour option for the cave. Unless research indicated otherwise, guided tours would be continued and the cave capacity of 600 people per day would not be exceeded. To accommodate the desired number of visitors at the cave and to eliminate the overflow parking that occurs along the access road on peak days, parking space at Lehman Cave would be expanded to 100 vehicles, and the parking lot would be relocated away from the interpretive center. This action would also reduce the impacts of the existing parking lot on visitors' views of the Snake Valley basin from the Lehman Cave interpretive center. The 100-vehicle capacity would not be exceeded.

The proposed action also sets the following desired limits for other parking areas and campgrounds in the park.

The desired initial limit of the new Great Basin visitor center parking area would not exceed 50 vehicles. This would accommodate existing demand (average 1989 weekend demand). Any additional parking beyond the initial development would not exceed a total of 75 vehicles.

The desired initial limit for the Wheeler Peak pullout/trailhead parking area would not exceed 50 vehicles, which would also accommodate existing demand. Expansion of existing parking to 50 vehicles would reduce the overflow roadside parking that occurs on many weekdays and most weekend days. Any additional parking beyond the initial development would not exceed a 75-vehicle total because of the sensitive nature of the resources at this site and the lack of suitable land for parking expansion. If the parking demands in this area exceeded the 75-vehicle capacity and it was determined through the LAC process that the resources could sustain additional use, some form of shuttle transportation would be implemented. If the LAC process determined that the area could not sustain additional use, the numbers of visitors would be restricted.

The desired limit for the parking areas associated with the Wheeler Peak Scenic Drive interpretive pullouts would not exceed 10 vehicles each (except for the park entrance and Kious Basin pullouts). This expanded parking capacity would accommodate existing demand and reduce the overflow parking that occurs during average use periods. However, even with the expanded parking areas, some pullouts could reach capacity during peak holiday weekends, requiring visitors to continue on to other pullouts or activities. Although the pullout parking areas would be slightly larger and more formalized than existing areas, the net effect of the proposals is expected to be an improvement rather than a deterioration in both resource conditions and visitor experiences.

The desired limit for campsites in the park would not exceed 180 sites, including group campsites. Most of the existing 119 campsites within the park are on the gentler slopes along stream corridors in the Strawberry, Lehman, Baker, and Snake creek areas. To limit impacts on these riparian areas – which have been identified as having exceptional resource value – and to avoid impacts associated with development on hillsides and steep slopes, the number of campsites in the park would be increased by no more than 40 percent. At present, campground capacity is exceeded on

an average of 12 to 15 weekends between mid-April and mid-October. Even with a 40 percent increase in the number of campsites, this capacity could fall short of meeting demands. To provide for the camping needs of Great Basin visitors, the Park Service would cooperate with and encourage the private sector to provide camping facilities outside the park. The development of such facilities would also likely contribute to the local economy.

Access for the Disabled and Elderly

Under the proposed action, barrier-free facilities would be provided at the following locations along Wheeler Peak Scenic Drive: the park entrance pullout, desert shrub pullout, Kious Basin pullout, riparian shrub pullout, contemporary ranching pullout, pinyon/juniper pullout, mahogany shrub/Mt. Moriah overlook, aspen/Lehman Creek pullout, spruce fir/Wheeler Peak cirque overlook, and the Wheeler Peak pullout/trailhead. Other new wheelchair-accessible facilities would include the Great Basin visitor center on Baker Ridge, the orientation center and administration building in Baker, the trail between the Lehman Cave ticket sales kiosk and interpretive center and the front entrance to the interpretive center, the paved interpretive trail and viewing platform at the mahogany shrub/Mt. Moriah pullout, the paved meadow loop trail adjacent to the Wheeler Peak trailhead, two campsites at the Lehman Flats campground, one campsite each at the Baker Creek and Upper Lehman Creek campgrounds, and two campsites at the Wheeler Peak campground.

The park maintenance division would undertake minor accessibility improvements (better signing, curb cuts, parking space striping, ramps, and restroom alterations) throughout the park. Any new visitor or employee facilities and any modifications to existing facilities would comply with pertinent laws and regulations, including the Architectural Barriers Act of 1968 (42 USC 4151 et seq.) and the Rehabilitation Act of 1973 (29 USC 792 et seq.). Where possible, the Park Service would provide facilities and interpretive programs for sensory- and learning-impaired visitors. Information on the locations of accessible facilities and programs would be furnished at the Baker orientation center and Great Basin visitor center.

Concession Services

A relatively small concession would continue to operate in the Lehman Cave interpretive center. The concession would provide limited food service and souvenir sales.

Commercial use licenses would continue to be issued for tour group operators. Additional commercial use licenses might be issued for vehicle towing and road service, supplying firewood to campgrounds, backcountry horse trips, or other activities to serve park visitors. These commercial use licenses would not be limited in number but would be issued on a case-by-case basis.

Pollution Prevention

In compliance with the Pollution Prevention Act of 1990 (PL 010-508), the park would encourage recycling by placing receptacles for aluminum and other materials at campgrounds, visitor centers, and other appropriate locations. In addition, renewable sources of energy and energy-efficient technology would be used in all new developments where appropriate and cost-effective.

NATURAL RESOURCE MANAGEMENT

Great Basin National Park comprises only a portion of the much larger ecosystem centered around the South Snake Range. The park would be managed as an integral part of this larger ecosystem, and full consideration would be given to the potential effects of actions inside and beyond park boundaries. The Park Service would work closely with the Forest Service, Bureau of Land Management, state and local governmental bodies, and adjacent private landowners to manage this ecosystem to maintain the greatest degree of biological diversity and ecosystem integrity within the provisions of the enabling legislation. Park staff would continue to inventory the extent of plant and animal diversity and to identify forces that might affect that diversity. Endangered and sensitive species would be protected and, where possible, restored to their natural ranges.

The Park Service would strive to maintain the highest degree of integrity of the air, water, biological, and geological resources in the park by establishing a resource baseline to determine the present condition of these resources, monitoring changes to resource conditions, and identifying and, if possible, mitigating the sources of changes. Scientific research in the park would be encouraged to increase knowledge about the natural processes, objects, and organisms present.

Man-Caused Influences on Natural Resources

The park is and to a lesser degree would continue to be adversely affected by domestic livestock grazing and mining. It is also susceptible to major environmental factors such as global warming, regional acid rain deposition, and radiation fallout over which the Park Service has little control.

Domestic Livestock Grazing. As indicated in the "Planning Issues and Concerns" section, the continuation of domestic livestock grazing within the park is a complex issue. The authorizing legislation (sec. 3(e)) states that grazing will be permitted to the same extent as was permitted on July 1,

1985, but it prefaces that authorization by stating that grazing will be subject to such limitations, conditions, or regulations as the secretary of the interior may prescribe. In addition, section 3(f) provides for negotiations between the grazing permittees and the Park Service for the exchange of all or part of their grazing allotments for allotments outside the park. The Park Service would develop and use various sound range management techniques, consistent with NPS policies and guidelines, to minimize grazing's adverse effects on exceptional resources such as riparian areas and rare and sensitive plant species. To protect riparian areas the Park Service would experiment with and use a combination of methods to lessen livestock grazing's effects. These methods would include fencing certain sections of riparian habitat, establishing salting and watering sites away from streams, and using various means of adverse conditioning to discourage livestock from staying close to streams.

In the foreseeable future, grazing would continue in the park, except in the semi-primitive day use, protected natural area, and research natural area subzones. In general, these subzones contain many sensitive species but very little available forage and are thus poorly suited for grazing. Exceptions are the drainages of Pine and Ridge creeks, which are at lower elevations and are currently grazed by domestic sheep. In these subzones, domestic livestock would only be permitted where it was necessary to move them from one area of an allotment to another or to provide them with access to water. The allotment management plans would specify stock driveways and water sources that could be used in these subzones.

Grazing over the years has affected the composition of native vegetation, contributed to the introduction of nonnative plant species, and polluted or otherwise disturbed streams and riparian areas. In areas of the park where grazing was allowed, these effects would continue into the future. Under the proposed action the Park Service would develop and use various techniques involving fire and vegetation management to minimize grazing's adverse effects on exceptional resources such as riparian areas and rare and sensitive plant species. These actions would only mitigate adverse effects; they would not prevent them.

To reduce the recurring conflicts between visitors and livestock, methods would be used to separate cattle and sheep from park visitors and from sensitive resources. Methods would include fencing campgrounds in the modern subzone, placing tighter controls on stock movements, and encouraging cattle to use suitable areas away from visitor gathering areas by salting, constructing water troughs, and other range management techniques.

To protect sensitive plants as well as the Bonneville cutthroat trout, grazing would be prohibited in all areas zoned as protected natural areas and research natural areas. These are primarily areas with limited forage above 10,500 feet in elevation, but they also include the watersheds of Pine and Ridge creeks on the west side of the park. Endangered and sensitive plant species outside protected natural areas would be protected from the effects of grazing by tightening control of livestock movements, limiting permitted grazing areas, and possibly fencing off some critical resource areas.

The Park Service is preparing a rangeland analysis and seven allotment management plans for the park, to be completed in 1992. The plans would prescribe methods for managing each of the grazing allotments in the park. To protect riparian zones, wet meadows, and other sensitive and important resource areas from the effects of grazing, the Park Service might use vegetation management methods to increase natural forage in areas with less sensitive resources. If forage production increased in the future, thus increasing the carrying capacity of the range within the park, no additional livestock beyond the current numbers would be allowed on the grazing allotments in the park.

Any grazing allotments in the park that were vacated for any reason by the recognized permittee of record would be reallocated consistent with sound rangeland management principles or would be permanently withdrawn from domestic livestock grazing if in the best interest of resource protection and visitor use.

Mining and Mineral Exploration. The Park Service regulates mining claims under 36 CFR 9A by requiring every operator to prepare a plan of operations before commencing any mining or nonmining operations on any claim. A plan of operations provides the Park Service with specific information about the proposed mining activity and the exact locations that will be mined. The information requirements in a plan of operations include a map of the area proposed to be mined, a description of the mode of transport and equipment to be used, a timeframe for each phase of the operation, a description of the reclamation plan, an environmental report, and other descriptive elements. After a plan is prepared, the Park Service approves, recommends modifications to, or rejects the plan based on the anticipated impacts of the mining.

There are currently 247 mining claims within the park. Most of these claims are in the immediate vicinity of Mt. Washington and many are in the heart of the ancient bristlecone pine forest. Because this forest is one of the most important biological and scenic resources in the park and a contributing reason for its establishment, the proposed action emphasizes the need to limit and severely restrict the impacts of mining in this area. The Park Service would continue to recognize all valid existing mining claims and to monitor and enforce the regulations governing mining within park boundaries. However, it would not approve any plans of operations for mining within the park if the proposed mineral exploration or mining activities would threaten any scenic or major biological resources on a permanent basis.

The Park Service would continue to examine the validity of all existing mining claims within park boundaries. If a claim was found to be invalid, the Service would recommend to the Bureau of Land Management that the claim be extinguished.

In keeping with the NPS *Management Policies* (chapter 9:4), when park managers sought sources of sand, gravel, and borrow material for administrative use, they would first look outside the park for these sources.

Abandoned Mineral Lands. Past mining and mineral exploration have had adverse effects on the soils, vegetation, topography, and visual quality of the park's backcountry. Abandoned waste rock, mine shafts, exploration pits, and gravel pits exist in many areas. Most of this disturbance is in the most remote portions of the park, and much of it is in areas of great ecological sensitivity (e.g., Johnson Lake, Mt. Washington). Mine tailings and excavated pits are very slow to revegetate, and tailings often leach heavy metals and other contaminants into streams and lakes. Abandoned mines often contain substantial amounts of rusted equipment, cable, and man-made debris, causing visual blight and potential safety hazards. Past mining has also had indirect effects on the park. To reach the mines, four-wheel-drive roads and routes were bulldozed into the landscape. Many of these routes were poorly constructed on excessive grades and now exist as eroded gullies and long-term scars.

Under the proposed action abandoned mining equipment and materials that are not historically significant would be removed. Abandoned adits, shafts, pits, etc., would be backfilled and reclaimed where feasible; any adits and shafts that could not be filled would be netted, grated, or otherwise made safe for visitors following investigation by and in the presence of qualified preservation personnel. Any identified impacts on water quality would be mitigated. Access routes and mining sites would be rehabilitated and revegetated by the park staff as funds were made available. All plans of operations for future mining activity would include requirements to reclaim the sites.

Fish and Wildlife

The Park Service would continue to cooperate with the Nevada Department of Wildlife in managing fish and wildlife. The park's management direction for specific species would be as follows.

Bonneville Cutthroat Trout. The Park Service, in cooperation with the Nevada Department of Wildlife, would reestablish Bonneville cutthroat trout into selected streams on the east side of the park. East-side streams would be selected on the basis of habitat suitability and the relative difficulty of removing existing nonnative fish species. Any competing nonnative fish species present in the streams selected for reintroduction would have to be eliminated to assure survival of the reintroduced trout and to protect the genetic integrity of the population. Special fishing regulations might be necessary to protect Bonneville cutthroat during and after their reestablishment. These regulations would be developed in cooperation with the Nevada Department of Wildlife. In addition, the impacts of grazing activities in the watershed would be carefully monitored to ensure that the fish would not be jeopardized.

The populations of Bonneville cutthroat trout in Pine and Ridge creeks on the west side of the park would be protected from man-caused influences. These drainages would be zoned as protected natural areas, and domestic livestock grazing would be prohibited in the drainages containing cutthroat populations to minimize adverse effects on the aquatic and riparian habitats of the streams. In addition, the Park Service would actively work with the Nevada Department of Wildlife to establish regulations that would ensure protection for the Bonneville cutthroat trout in these streams and others in which they were reintroduced.

Stocking of Nonnative Fish Species. The Park Service would not permit stocking of nonnative fish species in the waters of the park. However, existing fish species remaining from past stocking activities would not be eliminated, except in streams selected for the reintroduction of Bonneville cutthroat trout.

Rocky Mountain Bighorn Sheep. The Park Service does not expect the Rocky Mountain bighorn sheep herd within the park to survive at current nonviable population levels. Also, research has shown that bighorn sheep reintroductions are rarely successful where bighorns are placed on ranges that they must share with domestic livestock. If the herd died off, the Park Service would not attempt to reestablish Rocky Mountain bighorn sheep until the problem of the incompatibility of this species with domestic livestock could be solved.

Elk. Unless research provided additional data indicating that elk are not native to the South Snake Range, elk would be protected and allowed to establish a viable herd.

Mule Deer. Mule deer populations in the park would be allowed to fluctuate naturally in response to environmental factors such as natural predation and varying range conditions. If populations increased to the extent that ranchers outside the park experienced serious crop loss, the Park Service would cooperate with the Nevada Department of Wildlife, as it has in the past, to establish hunting seasons on lands adjacent to the park to control deer numbers.

Native Predators. Native predators such as coyotes, bobcats, and mountain lions are important to the ecological balance of the park. All native predators would be strictly protected within the park boundaries. Because many predators routinely range beyond the park boundary, the Park Service would work with surrounding land management agencies to protect predators and ensure that predator populations are maintained at natural levels.

Threatened, Endangered, and Sensitive Species

Park management would be proactive in reestablishing and protecting habitat for all threatened and endangered species. Management would continue to cooperate with the Forest Service, the Nevada Department of Wildlife, the Peregrine Fund, and other agencies to reestablish the peregrine falcon. Existing Bonneville cutthroat trout populations and their habitat would be strictly protected, and additional populations would be reestablished in the most suitable streams on the east side of the park. Riparian areas along these streams, which are critical to the species' survival, would receive increased protection because various management techniques would be used in these areas to reduce or mitigate the effects of livestock grazing. In all alpine areas (designated as protected natural area subzones) domestic livestock grazing would be prohibited to protect the rare plant species and rare endemic plants that grow there. Persons managing livestock herds would be required to recognize and avoid these areas as a stipulation of their grazing privileges.

The park would continue to identify all state listed threatened, endangered, rare, declining, sensitive, or candidate species native to and present in the park along with their critical habitats. These species would be given special consideration in all future planning activities and in the management of special uses and activities such as grazing and mining.

Nonnative Plant Species

A number of introduced plant species exist within the park. Examples include knapweed, dandelion, clover, cheatgrass, and numerous other grasses. These species would be eradicated or controlled if they threatened to spread or compete with park resources and if control was feasible. Care would be taken that programs to manage nonnative species did not result in significant damage to native species.

Wildland Fires

Through interagency agreements, the Park Service would continue to provide support to the Forest Service, Bureau of Land Management, and Nevada Division of Forestry by responding in the initial attack on all wildland fires on public lands close to the park and participating in all firefighting activities on public lands in the region. In addition, other agencies might provide resources as needed to control wildfires within the park. The park would continue to maintain wildland firefighting equipment and a fire cache for personnel within the park near the Lehman Cave interpretive center.

The Park Service would develop a wildland fire management plan for the park. This plan would probably include provisions for prescribed natural fire and prescribed burning.

Cave Management

A cave management plan would be prepared to provide recommendations for preservation and management of all caves and cave resources in the park. As a first step, all caves would be located and inventoried to determine their biotic and abiotic components, significance, and sensitivity to human influences. Based on the findings of the inventory, the plan would prescribe actions for the management of caves to ensure visitor safety and provide protection against vandalism and for the long-term monitoring of cave resources.

Issues concerning the use and management of Lehman Cave would be addressed in a separate visitor impact study, which would be incorporated into the final cave management plan. The visitor impact study would determine acceptable

use levels and the most appropriate means of perpetuating this nationally significant cave (see the "Other Studies and Plans" section for details).

Water Resources and Water Rights

Baseline water quality data would be gathered from all streams and lakes in the park. Measurements would include both biotic and abiotic elements relating to water quality. The baseline data would be used to monitor streams for possible future disturbances and to locate and mitigate present and future impacts in park watersheds.

To the degree feasible, the actions proposed in the plan would be accomplished using water rights currently held by the United States. If additional water was needed, rights would be obtained in accordance with state law. All rights to water diverted to or used on park lands for grazing or other permitted activities would be perfected in the name of the United States.

Air Quality

Great Basin National Park is a class II clean air area as designated under provisions of the Clean Air Act (42 USC 7401 et seq.). The Clean Air Act established maximum allowable increments beyond baseline concentrations of sulfur dioxide, nitrogen dioxide, and particulate matter that cannot be exceeded. These increments would allow modest industrial growth in the vicinity of the park. Because of the outstanding resources to be preserved in the park and their possible susceptibility to air pollution impacts, park managers would work with the state of Nevada to seek redesignation of Great Basin as a class I area. With class I designation, the park and its air quality related values – visibility, plants, animals, water quality, and cultural and other resources – would be given additional protection from air pollution impacts.

Section 118 of the Clean Air Act requires all federal facilities to comply with existing federal, regional, state, and local air pollution control laws and regulations. Great Basin managers would work with the Nevada Division of Environmental Protection to ensure that all in-park activities met the requirements of the *Nevada Air Pollution Control Implementation Plan*.

Air pollution, even at concentration levels below national ambient standards, can harm vegetation, degrade visual quality, and diminish visitors' enjoyment. Great Basin National Park was established to preserve outstanding resources and significant geological and scenic values. The vitality, significance, and integrity of those resources depend on good air quality. Park managers would actively cooperate in all regional efforts to maintain pristine air quality and remedy any existing air pollution effects.

CULTURAL RESOURCE MANAGEMENT

The objective of cultural resource management in Great Basin National Park would be to protect and interpret the park's archeological, historical, and ethnographic resources. Treatment of historic properties described below would be undertaken in accordance with Park Service policies and the park's cultural resource management plan in consultation with the Nevada state historic preservation officer, the Advisory Council on Historic Preservation, and other interested persons as appropriate pursuant to 36 CFR 800.

Three historic sites in the park's modern zone were listed on the National Register of Historic Places in 1975 as locally significant resources – the Lehman orchard, Lehman aqueduct, and Rhodes cabin. Under the proposed action one additional site – the Osceola (east) ditch – would be nominated to the National Register. Several other resources appear to meet the National Register criteria, and determinations/nominations would be needed for these. The Park Service would undertake a program of identification and evaluation of other resources under the register criteria. This evaluation would be undertaken in consultation with the Nevada state historic preservation office.

The Lehman orchard, planted in the mid-1880s by Absalom S. Lehman, the discoverer and early developer of Lehman Cave, represents early agricultural and horticultural development in the Snake Valley to meet the need for food in the area's scattered mining camps. The orchard once covered more than 7 acres, but in recent times it had been reduced to a few remnant fruit trees. Under the direction of the park's 1990 *Orchard Management Plan*, the orchard has now been expanded to 40 trees. An exhibit panel interpreting the orchard is proposed in the immediate vicinity of the Lehman Cave interpretive center.

The Lehman aqueduct, a 2-mile irrigation ditch and wooden flume constructed by Lehman during the 1880s, is representative of early agricultural irrigation efforts in Snake Valley. Lehman built the ditch and flume to transport water from Lehman Creek and several other nearby water sources to his orchard and homestead below the mouth of the cavern. Portions of the flume have been reconstructed, and sections of the ditch have been restored or given other preservation/stabilization treatment near the present Lehman nature trail. Under the proposed action the remains of the flume and ditch would be preserved, and additional

interpretation would be provided at the Lehman Cave interpretive center.

The Rhodes cabin, which has been moved from its original location, restored, and placed on a concrete foundation, is currently being used to house interpretive exhibits. Constructed in the 1920s to provide accommodations for visitors to Lehman Caves National Monument, the log cabin is on the northeast side of the present Lehman Cave visitor center. Under the proposed action the cabin would continue to be given preservation treatment and used adaptively to house interpretive exhibits concerning Rhodes and the cabin's original purpose.

The Osceola (east) ditch is recommended for nomination to the National Register because of its significance as an engineering work and its association with hydraulic placer mining operations in the Snake Range. Constructed in 1889-90, the ditch extended some 18 miles on its north-northwesterly course, conveying water from Burnt Mill Canyon, Hill, Strawberry, Lehman, Sage, and Weaver creeks on the east side of the range to Osceola on the west slope. Sections of the ditch were wooden flumes. The Stella Lake rock dam was built as a component of the ditch to increase the lake's storage capacity and the summer flow of Lehman Creek. Some 10 miles of the ditch, including remnants of wooden flumes and a 600-foot tunnel, are within the park boundary. Under the proposed action an interpretive trail would be developed from Wheeler Peak Scenic Drive to the ditch to illustrate the ditch's historical significance and general operation. At the end of the trail a small portion of the deteriorated wooden flume and ditch excavation would be rehabilitated and rewatered. This feature would be managed and interpreted as an outstanding cultural feature.

A 600-foot-long tunnel – one of the Osceola ditch's most significant engineering features – is near the northern boundary of the park in Strawberry Creek Canyon. The tunnel, which would be in the semi-primitive subzone, would be given preservation/stabilization treatment (Spring Valley side opening only), and an interpretive loop trail would be constructed in Strawberry Creek Canyon to include the tunnel site, with a trailhead orientation exhibit at the west end of Strawberry Creek and a self-guiding publication focusing on the construction history and engineering significance of the ditch. Except for these two interpretive areas, the ditch would be left as is, with no action taken to preserve or remove it. This would constitute an adverse effect under 36 CFR 800.9 (b)(4). The Park Service would consult with the state historic preservation officer and the Advisory Council to develop appropriate mitigating measures. The resource's surface and subsurface remains would deteriorate naturally and eventually be reclaimed by natural processes.

The Johnson mill and mine sites are representative of early 20th century mining ventures in the area of the park. The Johnson mill, along the Johnson Lake trail about ¼ mile below the lake, consists of a partially collapsed, two-story log ore-processing mill and log structure, both of which probably date from between 1910 and the early 1930s when the Johnson tungsten mine above the lake was developed. The Johnson mine, at Johnson Lake, consists of four partially collapsed log structures southeast of the lake, an in-place cableway and collapsed cableway terminal structure above the lake, an unstable adit and a partially collapsed stope in the mountainside, a rock dam at the southeast end of the lake, various test pits, and considerable refuse scatter and mining machinery remnants. Evaluation of this site under National Register criteria is underway. The nonhistoric refuse scatter would be removed, but the historic mining debris and machinery remnants would be left in place. This would be accomplished under the supervision of a historical archeologist.

Although many of the historic sites in the park are not of National Register caliber, they have some historical and interpretive value. Among the more accessible resources that might be encountered by day hikers is the Wheeler Peak triangulation station site atop the mountain summit. The site includes remnants of rock foundations from the original U.S. Coast and Geodetic Survey structures, which were built during the late 1870s and 1880s to conduct observations during the agency's 2,500-mile geodetic arc of triangulation between the Atlantic and Pacific coasts along the 39th parallel of latitude. This site would also be left to deteriorate naturally and would be interpreted at the park visitor center and in a park pamphlet of the area.

Throughout much of the park's backcountry there are scattered sites and remains of small mining ventures, isolated cabins or cabin groups that are collapsing or deteriorating, and extant remnants of historic relics such as wagons. A high priority is to complete archeological surveys and evaluations and to seek a determination of the sites' eligibility based on the National Register criteria. Sites eligible for the register would require consultation with the state historic preservation officer under section 106 of the National Historic Preservation Act of 1966 before any undertaking that might affect them.

Possible actions at sites posing danger to visitors could include closing and sealing mine shafts, adits, tunnels, stopes, and test pits; removing hazardous structures and nonhistoric debris; returning sites to natural conditions; and removing artifacts. Safety priorities would be based on the degree of hazard and visitor accessibility.

Less than 2 percent of the park has been systematically surveyed for archeological resources. To date, most of the surveys have been conducted in the vicinity of the Baker Creek cave system, Lehman Cave, the park entrance and Lehman Flats, Baker Ridge, and the Baker guard station (the proposed orientation center/administration site).

The known prehistoric sites, which span the Paleo-Indian, Great Basin Desert Archaic, Parowan Fremont, and Western Shoshone periods, include 16 artifact scatters, one lithic scatter, nine rock art sites, and four caves. In addition, more than 40 prehistoric isolated finds have been identified. Funding would be sought for further archeological studies, and a comprehensive parkwide inventory of archeological resources would be completed to evaluate their contextual significance and interpretive value. Until this data base was developed, cultural resources that have already been evaluated under National Register criteria A, B, and C would also be evaluated for their significance and possible nomination to the National Register under criterion D. This evaluation would be carried out in consultation with the Nevada state historic preservation officer. In addition, areas to be affected by ground disturbance and development would be surveyed, and archeological clearance obtained, before initiation of such projects. This would include archeological testing to determine the nature and extent of the archeological resources to be affected. After testing, every effort would be made to avoid adverse impacts on resources. If adverse impacts could not be avoided, a plan for mitigation of those impacts would be developed in consultation with the state historic preservation officer and the Advisory Council on Historic Preservation. Mitigation would normally involve data collection through controlled surface collection of artifacts, excavation of buried remains, mapping of features, and production of a report. An ethnographic overview and parkwide ethnographic survey would also be produced.

Efforts would be made to educate park visitors about the importance of preserving the park's cultural resources and the penalties for vandalism and/or unauthorized collection of artifacts. Notices would be placed in interpretive media and discussed in park interpretive programs.

The present park museum collection consists primarily of objects relating to the history of Lehman Cave and Absalom Lehman. It is proposed to expand this collection to include items that contribute to the understanding and interpretation of the principal themes of Great Basin National Park. A scope of collection statement has already been prepared; a collection management plan would also be completed to guide the expansion of the collection. The state historic preservation officer would be asked to comment because Great Basin is a new park with a small existing collection that would likely increase substantially.

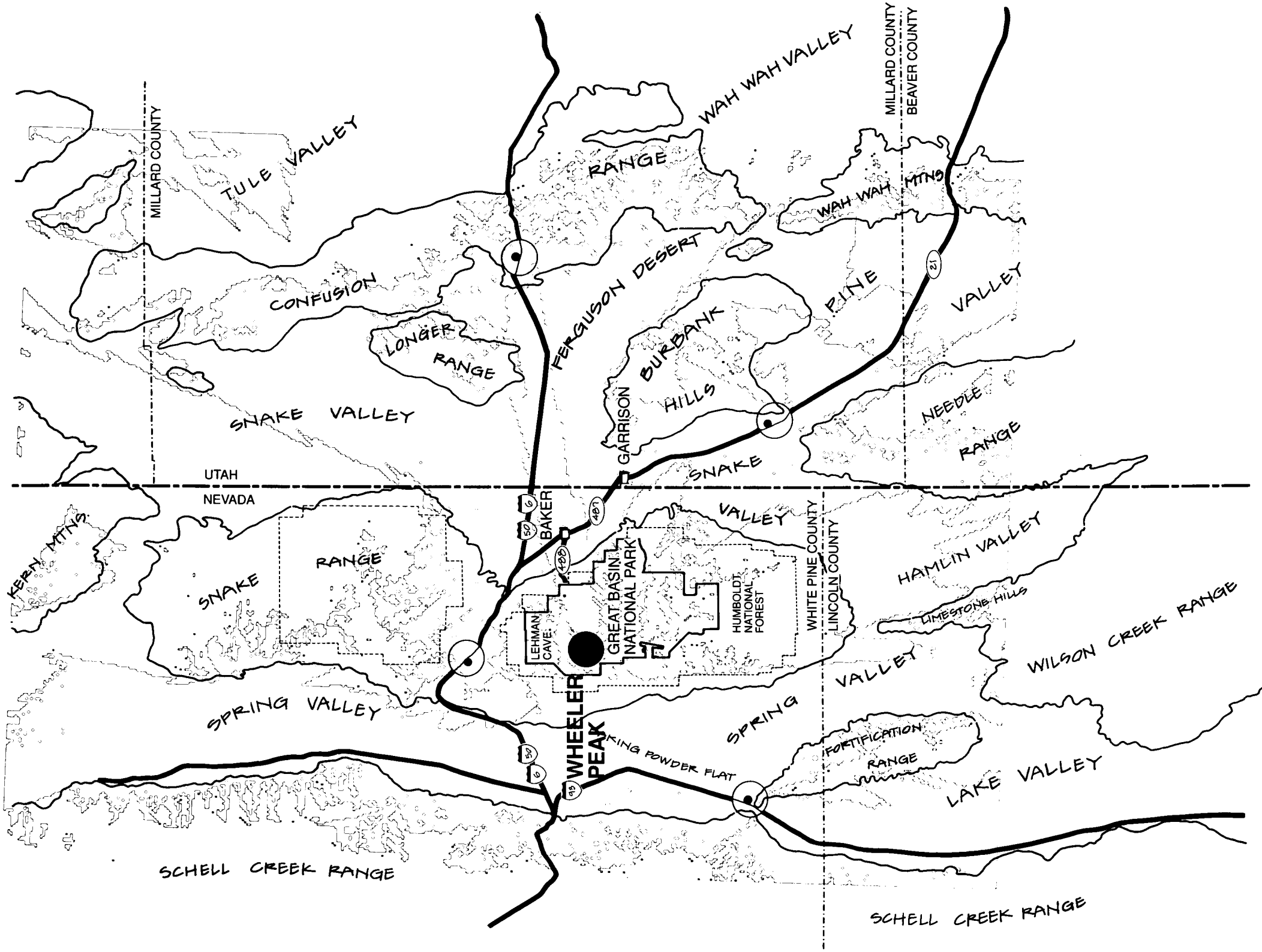
LAND PROTECTION AND BOUNDARY ADJUSTMENTS

Public Law 99-565 established Great Basin National Park to provide protection for a portion of the South Snake Range. Although the lands within the park boundary provide exceptional representation of the range portion of the Great Basin physiographic region, no basin lands are included. Further, none of the basin environments – including adjacent Spring Valley and Snake Valley – received any protection or special consideration under PL 99-565.

Spring Valley and Snake Valley Basins

The views of and across the Spring Valley and Snake Valley basins are extremely important to the Great Basin visitor experience. From a number of park viewing areas people can see nearly 100 miles, with commanding vistas of the valley basins and the mountains ranges beyond. Both daytime and nighttime views are spectacular from the park and from strategic entry points into the South Snake Range. These views are also critical in fulfilling the park's purpose "to preserve and interpret a representative segment of the Great Basin physiographic region possessing outstanding resources and significant geological and scenic values" (PL 99-565). The Snake Valley and Spring Valley basins constitute "the other half" of this region, representing an invaluable scenic resource. If Great Basin National Park is to be more than just a name, the integrity of the views associated with these two basin landscapes must be preserved in perpetuity.

A computer-generated graphic analysis was completed as part of this planning effort to identify lands outside the park that would be visible from the critical viewing areas identified to date. This included lands in the Snake Valley visible from the park's primary visitor use areas on the east side of the South Snake Range (the Great Basin visitor center on Baker Ridge, the Lehman Cave interpretive center, the mahogany shrub/Mt. Moriah overlook, and the aspen/Lehman Creek pullout); lands in both the Snake and Spring valleys visible from the four proposed regional exhibit shelters along the main approaches to the park (southeast, east, north, and


MILLARD COUNTY
TULE VALLEY
CONFUSION
RANGE
LONGER
RANGE
SNAKE VALLEY
UTAH
NEVADA
KERN MTNS.
SNAKE
RANGE
SPRING VALLEY
SCHELL CREEK RANGE
WAH WAH VALLEY
RANGE
FERGUSON DESERT
BURBANK
HILLS
GARRISON
SNAKE
VALLEY
BAKER
GREAT BASIN
NATIONAL PARK
LEHMAN
CAVE
HUMBOLDT
NATIONAL
FOREST
WHEELER
PEAK
KING POWDER FLAT
SPRING
VALLEY
MILLARD COUNTY
BEAVER COUNTY
WAH WAH MTNS
PINE
VALLEY
NEEDLE
RANGE
WHITE PINE COUNTY
LINCOLN COUNTY
HAMLIN VALLEY
LIMESTONE HILLS
WILSON CREEK RANGE
FORTIFICATION
RANGE
LAKE VALLEY
SCHELL CREEK RANGE
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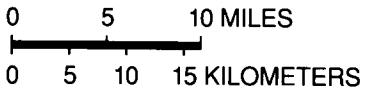
WHEELER PEAK CRITICAL VIEWING AREA

GREAT BASIN NATIONAL PARK

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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southwest) and from the composite viewsheds of two, three, and four shelters; and lands visible from Wheeler Peak, including all exceptional resources associated with the Snake and Spring valley basins. The results of the computer analysis were displayed on 14 viewshed graphics, which are on file at the park. The graphics showing the critical viewing areas from Wheeler Peak and from the composite of all exhibit shelters are included in this section. All lands visible from one or more of the above viewing areas are considered critical to the visitor experience. Because approximately 90 percent of these lands are in federal ownership, it should be possible to provide the necessary protection for the viewsheds.

The Park Service would review, evaluate, and make recommendations to local governments concerning all proposals for major developments or activities that might affect the visual integrity of Spring Valley or Snake Valley. It would maintain a set of 1:250,000 scale USGS maps and associated viewshed maps for use in evaluating potential developments or activities on lands visible from previously described locations, and it would also conduct on-site evaluations as appropriate. Evaluations would start as soon as the development or activity was proposed, and recommendations would be made at each stage of the proposal review process. Grazing, small agricultural developments, and daily ranching activities would not be subject to viewshed evaluation.

Regional Exhibit Shelter Sites

The four proposed regional exhibit shelters would be developed and maintained by the Park Service through a cooperative agreement with the Bureau of Land Management and appropriate state agencies. The park's establishing legislation allows the Park Service to work with other agencies and interests in developing interpretive facilities and programs on lands that are not administered by the Park service.

Baker Ridge Addition

Two sections of Forest Service land (1,280 acres) along the eastern park boundary and adjacent to the proposed Great Basin visitor center would be transferred from the Forest Service to the Park Service. These lands would provide a visual buffer for the proposed visitor center and associated Great Basin observation deck and would also simplify management by incorporating two isolated sections into the national park.


MILLARD COUNTY
TULE VALLEY
WAH WAH VALLEY
MILLARD COUNTY
BEAVER COUNTY
EAST EXHIBIT
RANGE
WAH WAH MTNS
CONFUSION
FERGUSON DESERT
PINE
VALLEY
LONGER RANGE
BURBANK HILLS
GARRISON
SOUTHEAST EXHIBIT
SNAKE VALLEY
NEEDLE RANGE
UTAH
NEVADA
SNAKE
VALLEY
BAKER
KERN MTNS.
SNAKE RANGE
NORTH EXHIBIT
LEHMAN CAVE
GREAT BASIN NATIONAL PARK
HUMBOLDT NATIONAL FOREST
WHITE PINE COUNTY
LINCOLN COUNTY
HAMLIN VALLEY
LIMESTONE HILLS
WILSON CREEK RANGE
SPRING VALLEY
WHEELER PEAK
SPRING VALLEY
FORTIFICATION RANGE
LAKE VALLEY
SCHELL CREEK RANGE
SOUTHWEST EXHIBIT
SCHELL CREEK RANGE

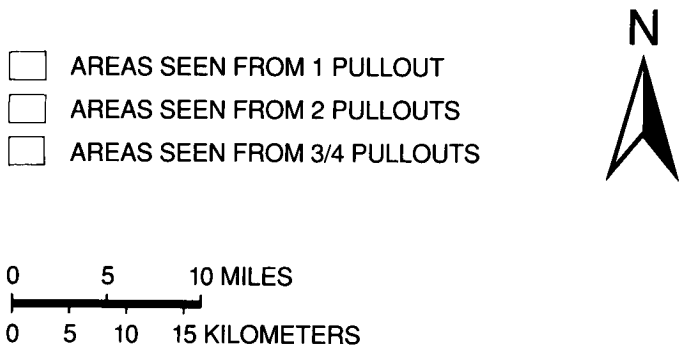
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COMPOSITE CRITICAL VIEWING AREAS FROM EXHIBIT PULLOUTS

GREAT BASIN NATIONAL PARK

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Rights-of-Way, Cooperative Agreements, and Easements

Rights-of-way would be obtained from the Bureau of Land Management and the Forest Service for access to the park along the new park entrance road and the Strawberry Creek, Snake Creek, Big Wash, and Lexington Arch approach roads. The entrance road right-of-way would extend 400 feet on each side of the road centerline; other rights-of-way would extend 200 feet on each side. The exact mileages of the rights-of-way are shown in table 13 in the impacts of the proposed action section. The Park Service would be responsible for upgrading and maintaining the roads within these rights-of-way.

Cooperative agreements would be established with the Forest Service for the development and use of parking area/trailheads at the ends of the Big Wash and Lexington Arch approach roads. An easement would be sought for the portion of the Big Wash trail extending across private land (approximately 3,000 linear feet of trail from the proposed trailhead to the park boundary).

Patented Mining Claims adjacent to the Park Boundary

No patented lands exist in the park, but nine patented claims, representing about 200 acres, delineate the western park boundary adjacent to Mt. Washington. These patented lands create an irregular park boundary that many refer to as the "keyhole," and some of the claims are in prime Mt. Washington bristlecone habitat. Any surface disturbance or facility development associated with mining or commercial activity on patented lands would not only threaten the bristlecones on the claim, but could pose an indirect threat to the biological integrity of the park's bristlecone forest across the boundary. Such activity could also create visual intrusions or landscape scars visible from the park. A major reason for the establishment of Great Basin National Park was to provide protection for the unique bristlecone forest habitat. Because the Park Service has no authority to prohibit or control commercial development on patented claims outside the park when access is not across park land, the general management plan proposes that a long-range Park Service goal should be to submit a recommendation to Congress for a boundary addition in this area and to acquire these claims to ensure preservation of the nationally significant bristlecone resource. Until that time, the Park Service would work with property owners and local, county, state, and other federal officials to ensure protection of resource values.

Unpatented Mining Claims within the Park Boundary

The 247 unpatented mining claims within the park boundary would continue to be examined for validity. If a claim was found invalid, the Park Service would recommend to the Bureau of Land Management that the claim be extinguished. For any claims found to be valid, the Park Service would ensure compliance with the Mining in the Parks Act (16 USC 1901 et seq.) by requiring plans of operations for all mineral activities associated with those claims.

In the long term the general management plan proposes to acquire all valid unpatented mining claims through donations or bargain sales, exchanges, or acquisition from willing sellers. The enabling legislation for the park prevents the Park Service from condemning land or interests in land within the boundary. If it became necessary to purchase a claim without the owner's consent in order to prevent mining operations from adversely affecting important park resources, the Park Service would seek congressional support to amend the enabling legislation to allow condemnation of specific claims and would seek appropriated funds for purchase.

OTHER STUDIES AND PLANS

Flood Studies

A hydrologic examination of the Baker, Lehman, Strawberry, and Snake creek watersheds would be conducted to evaluate the flood hazard potential of those streams. At present, campgrounds in drainages acquired from the Forest Service are along streams, with some sites next to flowing water. The study would evaluate the hazards to visitors in campgrounds and other visitor use areas and would recommend actions to eliminate those hazards.

Lehman Cave Visitor Impact Study

A study would be planned and developed to evaluate the impacts of human presence on the formations and biota within Lehman Cave. At present, little is known about the ability of the cave to withstand human use without significant adverse effects to the geologic formations and the biological elements dependent on the natural cave environment. The study would, at a minimum, evaluate temperature, humidity, light, noise, the gaseous components of the air, and the introduction of foreign nutrients as they relate to human presence in the cave and the resources in the cave environment. The Park Service would use the research to establish acceptable use levels for the cave and to develop mitigating measures to minimize the effects of visitor use on the cave and cave components. Until the study was completed, the maximum daily capacity of the cave would be maintained at 600 people per day. The results of the visitor impact study would be included in the proposed cave management plan.

Cultural Resource Management Plan, Collection Management Plan, and Cultural Studies

A cultural resource management plan would be prepared in conjunction with the natural resource management plan.

The park has a small collection of museum specimens, artifacts, and archival/documentary materials representing the natural and cultural history of the area, and this collection is likely to be augmented by future survey and research efforts. To ensure proper documentation, preservation, and interpretation of the collection, a collection management plan would be prepared in accordance with the standards and guidelines in NPS-28, *Cultural Resources Management Guideline*, and the *NPS Museum Handbook*. The plan would include a scope of collection statement, a description of the collection, and an evaluation with recommendations for storage, preservation, maintenance, and exhibit.

Among the cultural studies needed, according to NPS-28, are archeological identification studies, archeological evaluation and documentation studies, an ethnographic overview and assessment, and ethnographic oral histories and life histories.

Interagency Great Basin Regional Interpretive Plan

The establishing legislation for Great Basin National Park called for cooperative interpretation of the Great Basin physiographic region by federal, state, and local agencies with a presence in the area. After the general management plan was approved, an interagency interpretive plan would be prepared by agency representatives from the five states that comprise the Great Basin physiographic region. The plan would establish and apply site selection criteria and would recommend actions for on-site interpretation of a larger and more complete spectrum of representative sites throughout the region. Two NPS new area studies (1980, 1981) have identified sites with potential for representing the Great Basin theme. The information provided in these studies would serve as a starting point for developing a list of study sites for the interagency interpretive planning effort.

Because these sites would be administered by different agencies and interests, the focus of the interagency effort would be to ensure uniform and coordinated interpretation. Interpretive and visitor use concepts defined in the interpretive plan would be implemented by the agencies or interests administering the selected sites. This coordinated effort would prevent a piecemeal approach to interpretation. Interpretive media (logos, signs, exhibits, audiovisuals, and publications) would be designed to create a "family resemblance" – a continuity of design that could be easily identified by visitors, reinforcing the fact that these sites represent the same system.

Parkwide Sign Plan

A sign plan would be prepared by the Park Service's Western Regional Office with assistance from park staff to establish a common format and appearance for all park signs. Park signs should be compatible with the natural features of the park, yet easily visible from roads or at trailheads. Sign messages should be clear, concise, and quickly understood. Regardless of the message conveyed, each sign should be recognizable as a Great Basin National Park sign. The sign plan should be prepared before the wayside exhibit plan (see below) so that exhibit planners can follow park sign standards.

Wayside Exhibit Plan

A wayside exhibit plan would be prepared by the Harpers Ferry Center to identify the messages and the materials for the proposed wayside exhibits. The exhibit hardware would be compatible with the parkwide sign format.

ALTERNATIVE A – NO ACTION/MINIMUM REQUIREMENTS

Under alternative A there would be no significant changes in present management and visitor use. Actions necessary to meet legislative requirements, protect natural and cultural resources, and address health and safety concerns would be taken, but no new areas of the park would be opened to visitor use and few additional interpretive or recreational facilities would be provided. The primary visitor attractions would continue to be Lehman Cave and the sights, features, and facilities along the existing Wheeler Peak road. Existing weekend camping areas in Strawberry, Baker, and Snake creeks would be maintained. Visitor opportunities in the central and southern parts of the park would be limited. There would be no modifications to the road system.

ZONING RATIONALE

Management zoning under this alternative would reflect minimum changes to existing conditions. The entire Lehman Cave/Wheeler Peak road area would be included in the modern subzone, and the Wheeler Peak day use area would be designated for semi-primitive day use. Existing weekend camping areas would become part of the rural subzone, and existing hiking and horseback riding areas would be placed in the semi-primitive subzone. The remainder of the park would be zoned primitive and open only to visitors willing to take the time and effort to make their way into the backcountry. No areas would be zoned as protected natural and research natural areas. The zoning concept is illustrated on the Alternative A – No Action/Minimum Requirements map.

The acreages of the zones and subzones would be as follows:

park development zone – 939 acres
  modern subzone – 939 acres
natural zone – 76,133 acres
  rural subzone – 4,178 acres
  semi-primitive day use subzone – 1,574 acres
  semi-primitive subzone – 12,356 acres
  primitive subzone – 58,025 acres
special use zone – 10 acres

VISITOR USE AND DEVELOPMENT

This alternative would not promote visitor understanding or exploration of the new national park and surrounding Great Basin physiographic region. Existing uses would be supported, and orientation, information, and interpretation would be provided, but only a few areas of the park would be available for other than backcountry use, and opportunities to learn about its many natural and cultural features would be limited. The following actions would be taken in the park's designated zones and subzones, as illustrated on the Alternative A – No Action/Minimum Requirements map.

Modern Subzone

All major, permanent interpretive and recreational facilities would be included in this subzone. The Lehman Cave visitor center would remain the primary focus of interpretation and the place virtually all first-time visitors would go to obtain information about the park and region. Existing roadside pullouts and trailheads would include interpretive exhibits or panels, and existing interpretive trails, campgrounds, and picnic areas would be maintained. No new visitor center, orientation center, or highway interpretive exhibit shelters would be provided. Visitors would have frequent encounters with one another in this subzone, and opportunities for solitude would be rare.

Park Entrance. The existing 5-mile-long park entrance road outside the park boundary (Nevada Highway 488) would continue to provide access to the park. The Park Service would establish a cooperative agreement with the Bureau of Land Management for use and protection of lands along this road and would seek to acquire easements from private landowners to reduce the possibility of incompatible development on lands adjacent to the road. A desert-shrub wayside pullout would be established on the north side of the road and would include parking for 5 to 8 cars. An entrance sign would be placed at the park boundary, but no parking would be provided near the sign.

Lehman Cave. Inside the boundary, visitors would follow the existing Lehman Cave spur road a short distance to the upper and lower parking lots in front of the Lehman Cave visitor center. The upper lot would be restriped to provide parking spaces for disabled visitors. A 50-car overflow parking area would be constructed on the site of the existing picnic area, and the picnic area would be relocated near that parking area. A new wheelchair-accessible trail (as described in the proposed action) would lead from the overflow parking area to the visitor center.

The visitor center would be retained as the main visitor facility. Administrative offices would be moved out of the

center to a new administration building adjacent to the proposed overflow parking area (see the "Administrative Facilities" section). The interior of the visitor center would be remodeled, although its size and exterior appearance would remain the same. The front door of the building would be made accessible for disabled visitors. Visitor center functions would include park and region orientation, information, and trip planning, interpretation of all major park themes, Lehman Cave ticket sales and tour operation, natural history association sales, and the existing concession operation. Two offices would be provided for interpretive staff. The Park Service would continue to irrigate the lawn areas around the building to provide pleasant places for visitors to relax while waiting to take cave tours.

The Lehman nature trail behind the visitor center would be maintained as an interpretive loop trail. Interpretation of the geology and history of Lehman Cave would be provided through a self-guiding publication. The Rhodes cabin would be adaptively used to house new interpretive exhibits describing its original function as overnight lodging for early Lehman Cave visitors. An interpretive panel would be installed outside the cabin to explain its history. Approximately 40 trees of the Lehman orchard would be reestablished.

Wheeler Peak Road and Pullout/Trailhead. As in the proposed action, the Park Service would upgrade the 12-mile Wheeler Peak road and several existing pullouts to meet safety requirements and improve interpretation. Vehicle size restrictions would be imposed for travel on the road (only vehicles less than 30 feet in length and 8 feet in width), and a 20-site trailer drop-off would be constructed at Lehman Curve to permit visitors pulling trailers to park them and travel on up the Wheeler Peak road. Visitors in oversized RVs would not be permitted past this point.

The mixed conifer/Osceola ditch pullout would include parking for 5 to 10 cars and a short high-standard interpretive trail through the forest; the historic ditch and flume would not be restored, but would be interpreted in exhibit panels. At the mahogany shrub/Mt. Moriah overlook pullout, 5- to 10-car parking and a short barrier-free trail would be developed, but no viewing platform would be incorporated. Selected vistas would be cleared to provide views of Mt. Moriah and the North Snake Range; interpretation would be through exhibit panels. The aspen/Lehman Creek pullout would be upgraded to include paved parking for 5 to 10 cars, a low retaining wall, and viewing areas with interpretive exhibits.

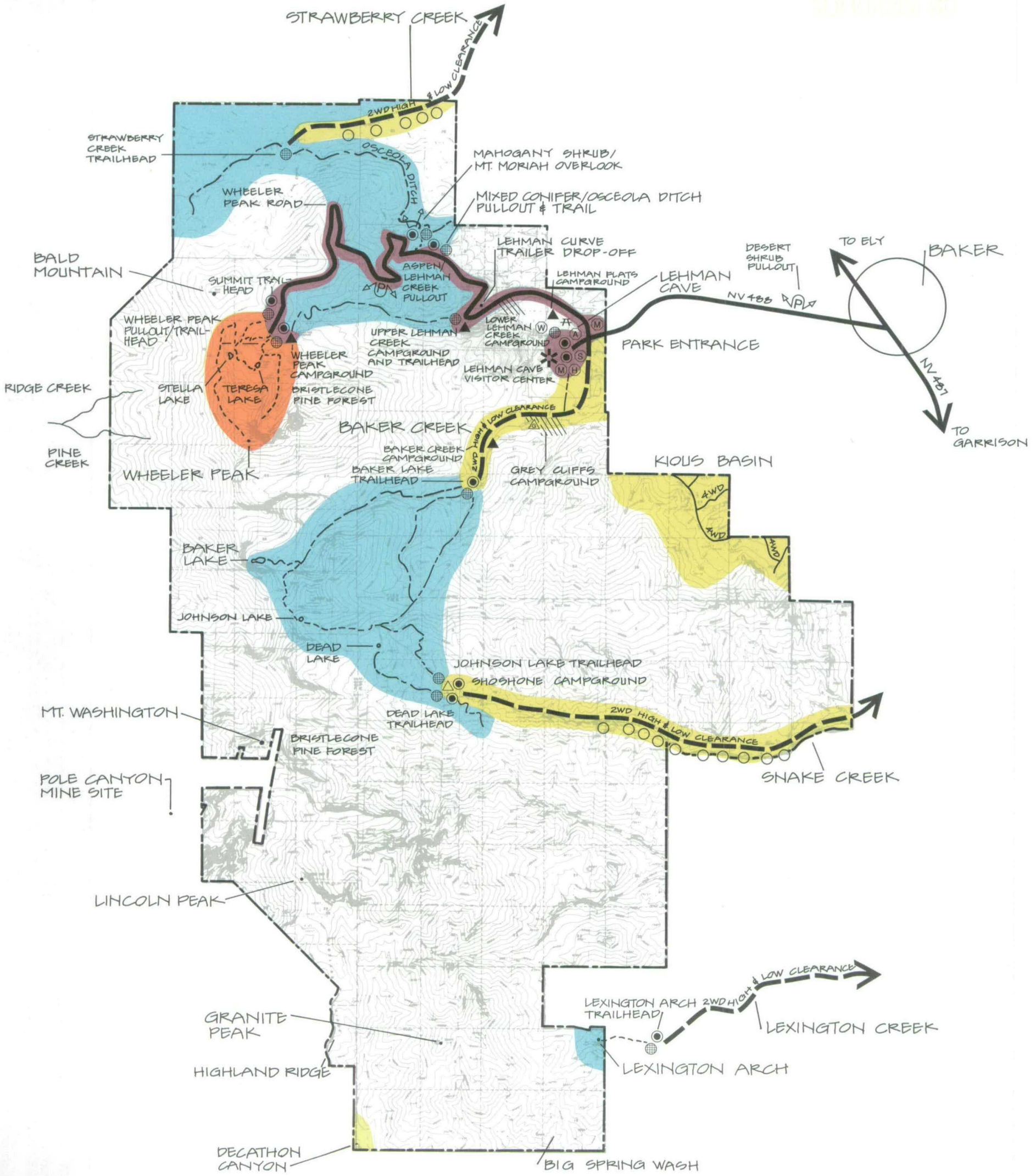
The campgrounds along the Wheeler Peak road would receive the same treatments as described in the proposed action. A new 50-site limited-service campground would be established south of the road above the floodplain in Lehman Flats; potable water and a dump station would be included. The Lower Lehman Creek campground would be removed, and its riparian setting would be restored. The Upper Lehman Creek campground would be maintained, and a trailhead and orientation exhibit would be established there to provide access to the Lehman Creek trail.

The summit trailhead parking area would be formalized, with a traffic island separating it from the roadway. The Wheeler Peak pullout/trailhead would be redesigned as described in the proposed action; parking for 25 cars would be included. The 37-site Wheeler Peak campground would be retained. Two sites would be redesigned for use by disabled visitors, and barrier-free vault toilets would be provided. Potable water would be available.

Administrative Facilities. Administrative functions would be moved to a new building in the park. The size and interior layout for the proposed facility would be similar to that of the Baker facility described in the proposed action (3,000 square feet; office space, two conference rooms, a lobby, a library, curatorial and records space, and restrooms). The new administration building would be built next to the proposed Lehman Cave overflow parking area. A paved access road would lead from the visitor center access road to the administration building. Parking for the facility would be screened from visitor parking by pinyon-juniper vegetation.

The existing maintenance area would be retained. Any required maintenance or materials storage expansion would be accommodated in an enclosed 5-acre area at the existing gravel pit. Access to the gravel pit would be from the Wheeler Peak road.

Existing park housing would also be retained. Three to six additional park housing units and 20 to 25 apartments would be built along an old road alignment on the south side of the existing housing area. Four existing trailers would be removed and replaced with permanent structures. New housing would resemble existing housing in terms of color and use of materials, but design would optimize solar efficiency and emphasize water conservation. Lawn areas around the new residential units would be kept to a minimum, and landscaping would be limited to indigenous plant materials. Because the existing housing area has no indoor or outdoor common space for recreation, housing


STRAWBERRY CREEK
2WD HIGH & LOW CLEARANCE
STRAWBERRY CREEK TRAILHEAD
OSCEOLA DITCH
WHEELER PEAK ROAD
MAHOGANY SHRUB/ MT. MORIAH OVERLOOK
MIXED CONIFER/OSCEOLA DITCH PULLOUT & TRAIL
LEHMAN CURVE TRAILER DROP-OFF
BALD MOUNTAIN
SUMMIT TRAIL-HEAD
ASPEN/ LEHMAN CREEK PULLOUT
LEHMAN PLATS CAMPGROUND
LEHMAN CAVE
DESERT SHRUB PULLOUT
TO ELY
BAKER
NV 488
WHEELER PEAK PULLOUT/TRAIL-HEAD
UPPER LEHMAN CREEK CAMPGROUND AND TRAILHEAD
LOWER LEHMAN CREEK CAMPGROUND
PARK ENTRANCE
WHEELER PEAK CAMPGROUND
LEHMAN CAVE VISITOR CENTER
NV 487
RIDGE CREEK
STELLA LAKE
TERESA LAKE
BRISTLECONE PINE FOREST
BAKER CREEK
2WD High & LOW CLEARANCE
TO GARRISON
PINE CREEK
WHEELER PEAK
BAKER CREEK CAMPGROUND
BAKER LAKE TRAILHEAD
GREY CLIFFS CAMPGROUND
KIOUS BASIN
4WD
4WD
4WD
BAKER LAKE
JOHNSON LAKE
DEAD LAKE
JOHNSON LAKE TRAILHEAD
SHOSHONE CAMPGROUND
MT. WASHINGTON
DEAD LAKE TRAILHEAD
2WD HIGH & LOW CLEARANCE
BRISTLECONE PINE FOREST
SNAKE CREEK
POLE CANYON MINE SITE
LINCOLN PEAK
LEXINGTON ARCH TRAILHEAD
2WD HIGH & LOW CLEARANCE
LEXINGTON CREEK
GRANITE PEAK
HIGHLAND RIDGE
LEXINGTON ARCH
DECATHON CANYON
BIG SPRING WASH

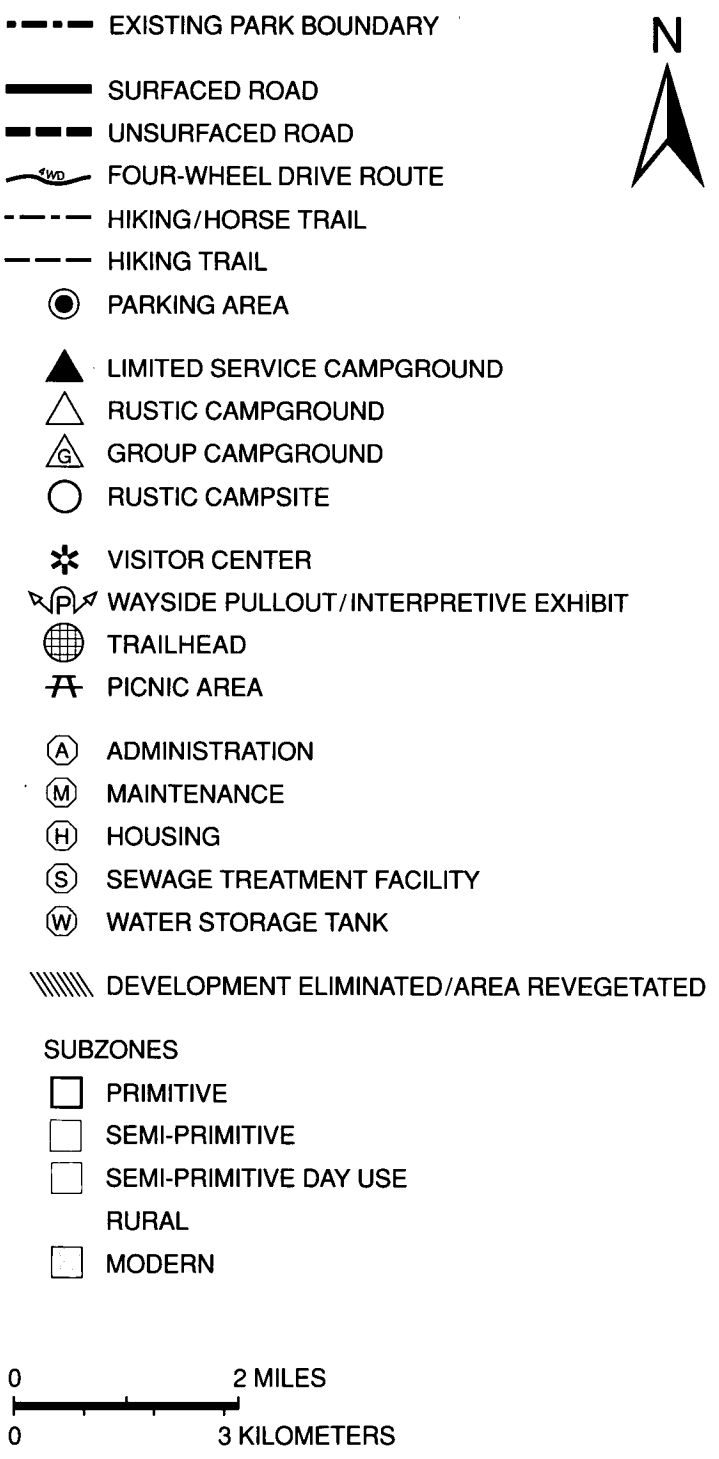
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ALTERNATIVE A/MINIMUM REQUIREMENTS (NO ACTION)

GREAT BASIN NATIONAL PARK

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units would be clustered around common lawn areas, which would serve as recreation areas for park staff and their families. The existing sewage ponds east of the housing area would be retained, and expanded if necessary, in their present locations. A gravel road from the Baker Creek road would continue to provide access to the sewage ponds. The water storage area would continue to be accessible by a gravel road from the proposed parking area access road. A second 100,000-gallon water storage tank would be added to the system. This would provide a greater peaking capacity for the water supply to handle future park and visitor demands.

Water, electricity, and sewage lines would be extended below ground to proposed facilities – within the housing expansion area, to the proposed administration building, to the proposed maintenance expansion at the gravel pit, and to the proposed Lehman Flats campground (water and sewer only).

Rural Subzone

Under alternative A, Strawberry Creek, Baker Creek, Kious Basin, Snake Creek, the Lexington Arch trailhead, and a small area in Decathon Canyon would be included in the rural subzone. The Decathon Canyon lands would be zoned rural to allow traditional public access to adjacent Forest Service lands. The Park Service would establish a cooperative agreement with the Forest Service and Bureau of Land Management to use and maintain roads leading to Strawberry Creek, Snake Creek, and the Lexington Arch trailhead. The Park Service would not maintain roads leading to Kious Basin or Decathon Canyon. No formal rights-of-way would be established on any of these road corridors.

Existing campgrounds, campsites, and trailheads in rural subzone areas would be maintained for secluded overnight camping and to provide access to the backcountry. Interpretive media would be limited to low-profile signs, information shelters in campgrounds, and orientation exhibits at trailheads. Visitors would have moderately frequent encounters with one another in this subzone, but the rural setting would offer more opportunities for solitude than in the modern subzone.

Strawberry Creek. Campground development in this area would be limited to the designation of five rustic campsites along the creek with perimeter definition, picnic tables, fire grates, and vault toilets. A trailhead, trailhead orientation exhibit, and parking would be developed at the west end of the Strawberry Creek road, providing access to the northern

portion of the park's backcountry. No group campground, interpretive trail, or corral would be provided.

Baker Creek. Three of the four loops at the existing Grey Cliffs campground would be removed; the upper loop would be converted for group camping, with six paved pull-ins, 12 picnic tables, six fire grates, two vault toilets, and an information shelter. No potable water or electricity would be provided. The limited-service Baker Creek campground and the trailhead providing access to Baker Lake would be maintained; an information shelter would also be installed at this campground. The Baker Creek road would remain a gravel road, with a 10-car gravel lot and orientation exhibit at the Baker Lake trailhead. Corrals would not be provided in the Baker Creek area, and there would be no trailhead at Grey Cliffs.

Kious Basin. Designated roads in the existing system of old jeep roads and tracks in Kious Basin would be available for four-wheel driving in high-clearance vehicles. Based on NPS management policies, off-road four-wheel driving would be prohibited in the park.

Snake Creek. Ten rustic campsites would be designated along Snake Creek, and a new six-site rustic campground would be established in the Shoshone campground area. Information shelters would be installed in both areas. The Johnson and Dead Lake trailheads would be redesigned to include 10-car parking and orientation exhibits. No corral would be provided at the Johnson Lake trailhead.

Lexington Arch. A 10-car parking area, trailhead, and orientation exhibit for the Lexington Arch trail would be constructed about 1 mile from the park boundary. The Park Service would establish a cooperative agreement with the Forest Service and Bureau of Land Management to maintain access to this developed area.

Semi-Primitive Day Use Subzone

The semi-primitive day use subzone would include the Wheeler Peak day use area only. Hiking trails would provide access to the significant features in the area, including the bristlecone pine forest, subalpine lakes, glacier, rock glacier, alpine tundra, and Wheeler Peak. Interpretive exhibit panels and low-profile directional and safety signs would be provided. Visitors would have moderate to frequent contacts with one another in this subzone, and opportunities for solitude would be rare.

Trail maintenance, rehabilitation, reconstruction, and interpretation would be carried out in the Wheeler Peak area, as described in the proposed action. Of the 4.5 miles of existing trails, 0.9 mile would be maintained, 1.5 miles would be rehabilitated, and 2.1 miles would be reconstructed or relocated. One new trail would be constructed – the 0.1-mile barrier-free Wheeler Peak meadow loop trail described in the proposed action. This trail would be routed through spruce forest, meadow, and streamside areas, and wayside exhibit panels would provide interpretation of natural resources along the trail route. Orientation exhibits would be established at all trailheads for the Wheeler Peak trail systems. Visitors could take ranger-guided interpretive walks or explore these areas on self-guiding interpretive trails of varying degrees of difficulty.

Semi-Primitive Subzone

Under alternative A the semi-primitive subzone would include the Strawberry Creek/Osceola ditch vicinity, the area containing the Lehman Creek trail, the land circumscribed by the Baker Lake/Johnson Lake trail systems, and a small parcel around Lexington Arch. Well-marked trails for hiking and horseback riding would be maintained in these areas, and visitors could also travel overland. Contacts in this subzone would be low compared to the more developed areas, and opportunities for solitude would be good.

Development in the semi-primitive subzone would be limited to improvements to existing trails and construction of a 1.0-mile interpretive trail from Strawberry Creek to the Osceola ditch tunnel. The trail to Lexington Arch would be upgraded to provide for hiking access to this significant feature. No backcountry camps would be built. A total of 30 miles of existing trails would be rehabilitated or reconstructed, as described in the proposed action. This would include 9.4 miles to be rehabilitated, and 20.6 miles to be reconstructed or relocated.

On-site interpretive developments in the semi-primitive subzone would be limited to low-profile directional, safety, and resource protection signs. A self-guiding publication would be developed for the Lexington Arch trail, dealing with the feature's geologic origins and physical dimensions. A backcountry trail guide or guides would be developed for the Baker Lake and Johnson Lake trail systems.

Primitive Subzone

The primitive subzone would encompass the majority of the park. There would be no visitor facilities and no on-site interpretive media in this subzone. Orientation, information, and interpretation would be through maps and other carry-along published materials. People seeking the highest degree of challenge and physical commitment would visit the

primitive subzone. Contacts would be rare, and opportunities for solitude would be great.

No maintained access or designated roadside parking areas would be provided at Big Wash, Big Spring Wash, or the Highland Ridge trailhead. Visitors could hike or drive to the park boundary on unmaintained roads. The Mt. Washington access road would be gated at the park boundary, and no public vehicular access would be provided beyond this point.

Special Use Zone

The special use zone would continue to contain the 30-foot-high television relay tower and associated concrete structure near Cedar Spur operated by the White Pine Television District and the radio repeater on Bald Mountain operated by the Forest Service.

Access for the Disabled and Elderly

Barrier-free facilities would include the desert-shrub pullout on the entrance road; the paved trail from the overflow parking area at Lehman Cave to the visitor center and the newly accessible front entrance; the paved trail at the mahogany shrub/Mt. Moriah overlook; the Wheeler Peak pullout/trailhead and parking area and the adjacent paved meadow loop trail; and two campsites at the Wheeler Peak campground.

Concession Services

The small concession would continue to operate in the Lehman Cave visitor center, providing limited food service and souvenir sales.

Commercial use licenses would continue to be issued for tour group operators. Additional commercial use licenses might be issued for vehicular towing and road service, supplying firewood to campgrounds, backcountry horse trips, or other activities to serve park visitors. These licenses would not be limited in number but would be issued on a case-by-case basis.

NATURAL RESOURCE MANAGEMENT

Under alternative A, natural resources would be managed as described in the proposed action, with the following differences.

Grazing Management – The Park Service would not significantly alter the existing distribution of livestock but would, to the extent possible, mitigate continuing impacts to riparian areas, meadows, and other sensitive resource areas. Areas above 10,500 feet in elevation would not be zoned as protected natural areas, and the Mt. Washington area would not be zoned as a research natural area. Grazing in these areas would continue to be permitted.

Fish and Wildlife Management – The Park Service would actively protect the Bonneville cutthroat trout in the streams in the northwest section of the park, but it would not reestablish the cutthroat in the streams on the east side of the park or prohibit grazing in the drainages where trout currently exist.

CULTURAL RESOURCE MANAGEMENT

Under alternative A cultural resource management actions would be the same as under the proposed action, except that there would be no rehabilitation or rewatering of the historic Osceola ditch and flume.

LAND PROTECTION

As stated in the proposed action, there is a potential for mining or commercial activity on patented lands (200 acres) outside the park boundary in the Mt. Washington vicinity, which would threaten the bristlecones on the claims and pose a direct threat to the park's prime bristlecone forest. A major reason for the establishment of Great Basin National Park was to provide protection for this unique forest habitat. Because the Park Service has no authority to prohibit or control commercial development on patented claims, a long-range Park Service goal should be to submit a recommendation to Congress for a boundary addition in this area and to acquire these claims on a willing-seller basis to ensure the preservation of the nationally significant bristlecone resource. Until that time, the Park Service would work with property owners and local, county and state officials to ensure protection of resource values.

Cooperative agreements would be established with the Forest Service and Bureau of Land Management to maintain and use the Strawberry Creek, Snake Creek, and Lexington Arch approach roads and to provide a trailhead and parking area at Lexington Arch.

ALTERNATIVE B – BACKCOUNTRY EMPHASIS

Alternative B would provide a higher degree of protection for natural and cultural resources in the park than any of the other alternatives. All park administration, maintenance, housing, and visitor center facilities would be relocated out of the Lehman Cave area to the town of Baker, and development in other park areas would be minimized. Actions proposed in this alternative would fulfill legislative mandates and provide for the health and safety of visitors and staff while promoting resource preservation and protection in large areas of the park.

ZONING RATIONALE

Under alternative B the modern subzone would be smaller than in the proposed action, and more of the central and southern portions of the park would be placed in the primitive and special protection subzones. Adequate staff and funding would be provided to carry out this preservation emphasis and to encourage backcountry use in the central and southern portions of the park. Large areas would be designated as protected natural areas and research natural areas.

The acreages in each zone and subzone would be as follows:

park development zone – 939 acres
  modern subzone – 939 acres
natural zone – 77,983 acres
  rural subzone – 1,850 acres
  semi-primitive day use subzone – 1,441 acres
  semi-primitive subzone – 17,344 acres
  primitive subzone – 45,741 acres
  protected natural area subzone – 9,334 acres
  research natural area subzone – 2,273 acres
special use zone – 10 acres

These acreages include the approximately 1,850 acres of land along the western park boundary adjacent to Mt. Washington that are proposed for inclusion within the park boundary (see the "Land Protection and Boundary Adjustments" section). The zoning concept is illustrated on the Alternative B – Backcountry Emphasis map.

VISITOR USE AND DEVELOPMENT

This alternative would concentrate visitor use in the northern part of the park. Except for Lexington Arch, areas south of Snake Creek would be trailless and accessible to only the most hardy. There would also be fewer opportunities to camp in the rural areas of the park, but more opportunities for hiking and horseback riding in the backcountry. Organized activities would continue to be accommodated at Lehman Cave and along the Wheeler Peak road. Orientation, information, and interpretation would be provided at the new visitor center in Baker and in the park's developed areas. Actions proposed under this alternative are illustrated on the Alternative B – Backcountry Emphasis map.

Modern Subzone

Most of the major visitor use and administrative developments would be relocated out of the park to the 80-acre site in Baker. This site and the remaining facilities in the Lehman Cave area and along the Wheeler Peak road would be included in the modern subzone. Most visitors would spend their time in this subzone, viewing and learning about the park's significant features. Facilities would be heavily frequented, and there would be few, if any, opportunities for solitude. The following specific developments and informational and interpretive facilities would be included in the modern subzone.

Highway Exhibits. As in the proposed action, visitors' first information about Great Basin National Park would be provided at interpretive exhibit shelters on the major highways leading to the park. These exhibit shelters would introduce visitors to the Great Basin physiographic region, identify major topographic features visible from the shelters, highlight the significance of the park, and provide directions to the park and the new visitor center in Baker. The general locations for the exhibits would include US 93 southwest of the park (southwest exhibit shelter), US 50 on Sacramento Pass (north exhibit shelter), US 50 just west of the Confusion Range (east exhibit shelter), and US 21 southeast of the park (southeast exhibit shelter).

Great Basin Visitor Center/Administration Building. This new facility would replace the Lehman Cave visitor center as the park's primary interpretive/visitor contact site. It would be a full-service visitor center and would incorporate cave interpretation, Great Basin interpretation, orientation and information, and campground permit functions. All administrative functions would also be housed in this building (see the "Administrative Facilities" section for a more detailed description of this building).

The proposed visitor center would be built on the 80-acre Baker site on the west side of Highway 487. A paved access road would lead to a 75-car 10-bus/RV parking lot with a passenger drop-off area. Parking for administrative staff would be separated from visitor parking. The building would be sited to take advantage of views to the park.

The lobby area of the visitor center would provide information, orientation, and trip-planning services to permit visitors to familiarize themselves about the park and region. However, the primary attraction in the center would be a film that would accomplish the following:

Provide a basic understanding of the Great Basin physiographic region and the park's significance as part of this landform.

Convey the message that the park is a mountain island in a desert sea (island biogeography).

Illustrate the responses of humans, plants, and animals to the stresses of this harsh environment.

Show visitors how their own actions may be contributing to global warming and how the park serves as an indicator of this trend.

The film would be presented in the 75-seat auditorium, and its message would be complemented by providing in-depth treatment of selected aspects of the Great Basin story in the nearby exhibit area. The following subjects would be the focus of interpretation:

natural history
- life zones and major habitats
- island biogeography
- climatic change
- glacial geology
- bristlecone pines
- threatened species
- topographical points of interest
- Lehman Cave
- geologic formation of the cave
- cave decorations
- interrelationship between the cave and the surface
- cave life

cultural history
- native Americans in the Great Basin (past and present)
- frontier settlement
- ranching and agriculture
- mining (past and present)
- Lehman Cave
- early inhabitants and discovery of the cave
- human impacts on the cave/cave conservation

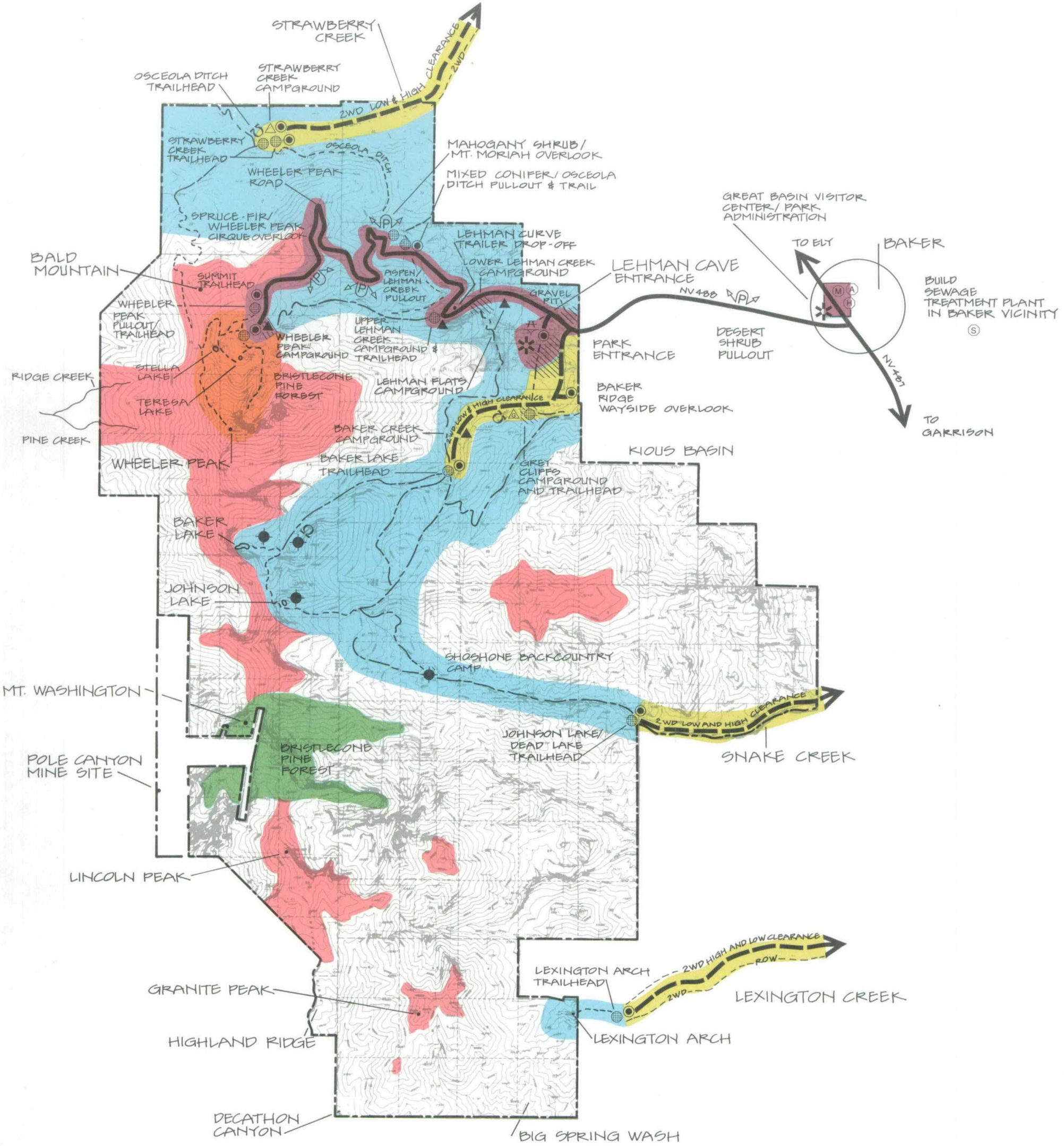
Park Entrance. The existing park entrance road outside the park boundary (Highway 488) would continue to provide access to the park. The Park Service would establish a cooperative agreement with the Bureau of Land Management for use and protection of lands along this road and would seek to acquire easements from private landowners to reduce the possibility of incompatible development on lands adjacent to the road. A desert-shrub wayside pullout would be established in this right-of-way. It would be on the north side of the road and would include parking for 5 to 10 cars. A park entrance sign would be placed at the boundary, but no parking would be provided near the sign.

The park entrance road would be realigned at the existing Wheeler Peak road intersection to form a gradual curve. The Baker Creek road would intersect the Wheeler Peak road at the Wheeler Peak road intersection.

Lehman Cave. The existing Lehman Cave visitor center would be removed and replaced by the new visitor center in Baker. Access to Lehman Cave would be on a proposed ½-mile paved road extending south from the Wheeler Peak road. The proposed road would require construction of a small bridge across Lehman Creek. It would end at a new 70-car/30-RV parking lot, which would be designed in two levels stepped down the hillside to minimize their visual impact. The parking lot would be built on previously disturbed land near the existing picnic area. This area is in a pinyon-juniper forest setting, and islands of native vegetation would be incorporated into the parking lot; some seating and shade structures would be provided. Parking for oversized vehicles would be separated from car parking by vegetation and topography.

A picnic area with 12 to 15 tables and a cave ticket sales kiosk/staging shelter with attached restroom facilities would be constructed on the west side of the parking lot. The kiosk would include a service window and would be staffed during peak visitor use periods. The staging shelter would function as an informal gathering space for cave tours.

A new 1,000-foot paved barrier-free trail would begin at the ticket kiosk/staging shelter, wind through the pinyon-juniper


STRAWBERRY CREEK
OSCEOLA DITCH TRAILHEAD
STRAWBERRY CREEK CAMPGROUND
2WD LOW & HIGH CLEARANCE
2WD
STRAWBERRY CREEK TRAILHEAD
OSCEOLA DITCH
WHEELER PEAK ROAD
MAHOGANY SHRUB/ MT. MORIAH OVERLOOK
MIXED CONIFER/ OSCEOLA DITCH PULLOUT & TRAIL
SPRUCE-FIR/ WHEELER PEAK CIRQUE OVERLOOK
LEHMAN CURVE TRAILER DROP-OFF
GREAT BASIN VISITOR CENTER/ PARK ADMINISTRATION
TO ELY
BAKER
BALD MOUNTAIN
SUMMIT TRAILHEAD
LOWER LEHMAN CREEK CAMPGROUND
LEHMAN CAVE ENTRANCE
ASPEN/ LEHMAN CREEK PULLOUT
GRAVEL PIT
NV 488
BUILD SEWAGE TREATMENT PLANT IN BAKER VICINITY
WHEELER PEAK PULLOUT/ TRAILHEAD
UPPER LEHMAN CREEK CAMPGROUND & TRAILHEAD
WHEELER PEAK CAMPGROUND
PARK ENTRANCE
DESERT SHRUB PULLOUT
STELLA LAKE
RIDGE CREEK
BRISTLECONE PINE FOREST
LEHMAN FLATS CAMPGROUND
BAKER RIDGE WAYSIDE OVERLOOK
NV 487
TERESA LAKE
2WD LOW & HIGH CLEARANCE
TO GARRISON
BAKER CREEK CAMPGROUND
PINE CREEK
KIOUS BASIN
WHEELER PEAK
BAKER LAKE TRAILHEAD
GREY CLIFFS CAMPGROUND AND TRAILHEAD
BAKER LAKE
JOHNSON LAKE
SHOSHONE BACKCOUNTRY CAMP
MT. WASHINGTON
2WD LOW AND HIGH CLEARANCE
JOHNSON LAKE/ DEAD LAKE TRAILHEAD
SNAKE CREEK
POLE CANYON MINE SITE
BRISTLECONE PINE FOREST
LINCOLN PEAK
2WD HIGH AND LOW CLEARANCE
ROW
2WD
LEXINGTON ARCH TRAILHEAD
LEXINGTON CREEK
GRANITE PEAK
LEXINGTON ARCH
HIGHLAND RIDGE
DECATHON CANYON
BIG SPRING WASH

ON MICROFILM

ALTERNATIVE B
BACKCOUNTRY EMPHASIS
GREAT BASIN NATIONAL PARK

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forest, pass the Rhodes cabin, and end next to the Lehman Cave entrance. The trail would incorporate seating areas and handrails. Cave access would continue to be through a man-made corridor; however, the natural cave entrance would be restored and interpreted. The first room in Lehman Cave would have barrier-free access.

The historic Rhodes cabin would be adaptively used to display new interpretive exhibits describing its original function as overnight lodging for early Lehman Cave visitors. An interpretive panel would be installed outside the cabin to inform visitors about its history. The historic Lehman orchard has recently been restored and expanded to approximately 40 trees (based on the 1990 *Orchard Management Plan*), and a water-conserving drip irrigation system installed. The orchard would be interpreted in exhibit panels along the trail to Lehman Cave. Trail access to the orchard would not be provided. The Lehman nature trail near the cave entrance would be upgraded. Interpretation of the geology and history of Lehman Cave and the history of the Rhodes cabin would continue to be provided on the trail through a self-guiding publication.

After all cave interpretation and administration functions were consolidated in Baker, the Lehman Cave visitor center and associated two-level parking lot and entrance road would be removed, and the areas recontoured and revegetated. The existing restaurant and gift sales concession would not be retained as part of the park operation.

Wheeler Peak Road. As in the proposed action, the Wheeler Peak road would be upgraded to reduce safety hazards and improve roadside pullouts. Road work would be limited to widening road shoulders and stabilizing certain portions of the roadbed. Vehicle size restrictions would be imposed for travel on the road (only vehicles less than 30 feet in length and 8 feet in width), and a 20-site trailer drop-off would be constructed at Lehman Curve to permit visitors pulling trailers to park them and travel on up the Wheeler Peak road. Visitors in oversized RVs would not be permitted past this point.

Several interpretive pullouts with exhibit panels would be established along the Wheeler Peak road, and some would include trailheads. Campgrounds would also be provided in two locations. These campgrounds would be fenced with timber pole fencing to separate sheep and cattle grazing from camping activities. All trailhead pullouts would incorporate orientation exhibits, and all campgrounds would have information shelters.

Interpretive Pullouts – All proposals for the Wheeler Peak road pullouts would be the same as under the proposed action. The mixed conifer/Osceola ditch pullout would be improved, and a paved interpretive trail constructed, to expand interpretation of the mixed conifer forest and the historic Osceola ditch. A portion of the ditch and wooden flume would be reconstructed, and exhibit panels along the trail would interpret both the life zone and the cultural feature. Parking for 5 to 10 cars would be included. At the mahogany shrub/Mt. Moriah overlook a new paved barrier-free interpretive trail and viewing platform would highlight the surrounding stand of mountain mahogany and the views of Mt. Moriah and the North Snake Range. Exhibit panels would provide interpretation. Parking for 5 to 10 cars would also be included. The aspen/Lehman Creek pullout would offer views of the Lehman Creek drainage and the upper portion of Wheeler Peak, and interpretive panels would address related natural history themes. This upgraded pullout would include 5- to 10-car parking and viewing areas that would permit visitors to see up and down the drainage as well as across the Snake Valley basin. The new spruce-fir/Wheeler Peak cirque overlook would include a 5- to 10-car paved parking area built over a retaining wall and a viewing area looking into the Wheeler Peak cirque. Interpretive panels would be placed on the retaining wall here to discuss the cirque and the spruce-fir forest. The Wheeler Peak pullout, built in connection with the Wheeler Peak trailhead, would be the last pullout along the road. It would include interpretive exhibit panels describing all of the life zones and significant points of interest in surrounding areas.

Campgrounds – A new 100-site limited-service campground would be established at Lehman Flats. As in the proposed action, this campground would include an amphitheater, paved back-in sites with tent pads, picnic tables, and fire rings. Potable water and low-volume flush toilets would be available, and a dump station would be provided. Water, sewer, and electrical hookups would be installed at the site used by the campground host. Electricity would be extended to the amphitheater and toilets.

The 24-site limited-service Upper Lehman Creek campground and trailhead would be retained. Potable water and four new vault toilets would be provided. The Lower Lehman Creek campground would be removed, and the sites recontoured and revegetated.

Wheeler Peak Pullout/Trailhead. The summit and Wheeler Peak trailheads would be modified as described in the proposed action, except that the new Wheeler Peak trailhead parking lot would only provide space for 40 cars. A 10-car parking lot would be established at the summit trailhead, and a traffic island would separate it from the main roadway; informational signs would be installed. New parking at the Wheeler Peak trailhead would be in two terraced lots in the forest northeast of the existing lot. These lots would be accessible from the Wheeler Peak road at a point approximately 300 feet beyond the existing day use parking area. They would be separated by traffic islands and screened from the main road with shrubs and trees native to the subalpine zone. All facilities at the trailhead would be wheelchair-accessible; they would include a seating area with gathering space for groups, a picnic area, orientation and interpretive exhibits, and a comfort station. A paved trail, crosswalk, and pedestrian bridge over Lehman Creek would link the parking facilities to the trails in the semi-primitive day use subzone. The existing parking area, restroom, and trailhead would be removed, and the sites recontoured and revegetated.

The existing Wheeler Peak campground would be removed, and the 37 sites would be restored to natural conditions.

Administrative Facilities. All administrative functions would be relocated from the Lehman Cave visitor center to the proposed visitor center/administration building on the 80-acre site in Baker. The building would be approximately 8,000 to 10,000 square feet and would include a lobby and sales area, an auditorium, exhibit space, restrooms, all staff offices, conference rooms, a library, curatorial space, records space, and storage. Parking for 25 staff vehicles would be provided in the lot separated from visitor parking.

All maintenance facilities and functions, including the fire cache and fire truck, would be relocated to a 5-acre maintenance compound at the Baker site. As in the proposed action, this compound would include a 2,500-square-foot building with office, support rooms, and shops; a 10,000-square-foot vehicle storage building; a 3,000-square-foot warehouse; and outdoor storage space. The emergency generator in the park would be relocated behind the Lehman Cave ticket sales kiosk/staging shelter.

All housing would also be relocated out of the park, and 11 to 15 new single-family houses and 25 to 30 apartment units would be built at the Baker site. The new residential area would be designed as described in the proposed action and would include a community playground.

The existing sewage treatment ponds in the park are inadequate to handle the demands of increasing visitation and necessary support services and are visible from several major viewing points in the park. In cooperation with the state of Nevada and the town of Baker, the Park Service would develop a new sewage treatment plant in the Baker vicinity. Funding for construction and operational costs might be shared by the state and federal government to provide a facility that would serve the needs of the park and the community of Baker. A new wastewater system would be developed to carry effluent from the Lehman Cave facilities and the Lehman Flats campground to the proposed sewage treatment plant in the Baker vicinity. The existing park sewage treatment ponds and gravel access roads would be removed following construction of the new treatment facility, and the areas would be restored to natural conditions.

Water wells would be drilled at the Baker site to provide water to the 40 residences, the maintenance facilities, and the visitor center/administration building. The water storage system in the park would be maintained at its existing 100,000-gallon storage capacity.

An underground electrical distribution system would provide power to the Baker site.

Following relocation of all functions to the Baker site, the existing housing, maintenance, and visitor center areas, the sewage lagoons, and the gravel pit in the park would be reclaimed and restored to natural conditions.

Rural Subzone

The rural subzone would be less extensive under this alternative than under the proposed action, and the focus would be on access for hiking and horseback riding rather than overnight camping. There would be no designated campsites in the rural subzone in the southern half of the park. Contacts in this subzone would be fairly frequent, but there would be some opportunities for solitude.

Five park areas would contain rural subzone developments – Strawberry Creek, Baker Creek, the lower reaches of Snake Creek and Lexington Creek, and a small portion of Decathon Canyon. Gravel roads would provide access to these areas. All rural subzone destinations except Decathon Canyon would have trailheads – some with horse corrals – and areas in the northern part of the park would include rustic campgrounds. All trailheads would incorporate orientation exhibits, and all campgrounds would have information shelters. Campsites would be surfaced with crushed limestone and have some type of perimeter definition to limit damage to the surrounding environment. Corrals would be constructed of timber poles and would include water troughs and primitive mangers for hay and feed.

The Park Service would obtain rights-of-way from the Bureau of Land Management and Forest Service for access on the Strawberry Creek, Snake Creek, and Lexington Arch approach roads to the park boundary. The rights-of-way would extend 200 feet on each side of the road centerline. The Park Service would upgrade and maintain the roads.

Strawberry Creek. Existing campsites along the access road into Strawberry Creek would be removed, and the areas revegetated. All camping in this part of the park would be confined to a new 15-site cluster campground at the west end of the creek. The campground would have 15 picnic tables, 15 fire grates, and three vault toilets. A backcountry trailhead, orientation exhibit, corral, and 10-car gravel parking area would be included in this development to provide access to Upper Strawberry Creek, Windy Canyon, Blue Canyon, and the new Osceola tunnel interpretive trail. A separate 10-car gravel parking area and trailhead would be constructed in the area to provide access to the southern portion of the Osceola ditch trail for hikers only. All of the trails in the Strawberry Creek vicinity would be in the semi-primitive subzone. Horseback riding would be confined to Strawberry Creek, Windy Canyon, Blue Canyon, and the Osceola tunnel interpretive trail.

The 6-mile Strawberry Creek access road would be upgraded from dirt to two-wheel-drive gravel from US 6/50.

Baker Ridge/Baker Creek. The Baker Ridge/Baker Creek area would be designated as part of the rural subzone. It would include two campgrounds, several trailheads, and a new wayside overlook on Baker Ridge. The overlook would be accessible from the Baker Creek road along a gravel road leading to a 15- to 20-car gravel parking lot. A picnic area with 8 to 10 tables would be established in the pinyon-juniper forest nearby. A hardened barrier-free trail with resting places would provide access from the parking area to the overlook. The overlook would be in a saddle on Baker Ridge, offering distant views of basins and ranges and closer views of the northern portion of the Snake Range. An exhibit cluster containing two to four interpretive panels would be developed for the site. Exhibits would focus on the Great Basin story and the topographic, natural, and cultural features visible from the site.

Three of the four loops at the existing Grey Cliffs campground would be removed; the upper loop would be converted for group camping, with a gravel access road, six pull-ins, 12 picnic tables, six fire grates, and two vault toilets. No potable water or electricity would be provided. A trailhead and corral would be developed in the Grey Cliffs area for hiking and equestrian access to the Baker Creek and Baker Lake trail systems.

The existing 32-site limited-service Baker Creek campground would continue to accommodate tent, RV, and trailer camping, and the gravel campground roads would be maintained. Four new vault toilets would be provided. Potable water would be available.

A 10-car gravel parking area would be constructed at the existing Baker Lake trailhead. This trailhead would provide access for hikers and horseback riders to the Baker Lake, Lehman Creek, and Baker Creek trail systems.

The Baker Creek road would be maintained as a two-wheel-drive gravel road.

Snake Creek. Approximately 1½ miles of the existing 12-mile dirt access road within the park boundary would be upgraded to a two-wheel-drive gravel road. This road would end at a new 15-car gravel parking lot and backcountry trailhead providing access to Johnson Lake, Dead Lake, and the Baker Lake trail system. Camping would not be permitted on Snake Creek under this alternative. Existing campsites and the roadway between the parking lot and the Shoshone backcountry campground would be allowed to revegetate and would be included in the semi-primitive subzone.

Lexington Arch. The existing 11-mile dirt entrance road to Lexington Arch would be upgraded to a two-wheel-drive gravel road and maintained by the Park Service. A 10-car gravel parking area and trailhead would be established on the road about a mile east of the park boundary. The trailhead would provide hiking access to the arch, which would be included in the semi-primitive subzone.

Decathon Canyon. The road through Decathon Canyon crosses the extreme southwestern boundary of the park. The portion of this unmaintained road that crosses NPS land would remain open to hunters wishing access to Forest Service lands farther up the canyon. The road would be gated where it reenters the park at the north end of the canyon.

Semi-Primitive Day Use Subzone

As in the other alternatives, the semi-primitive day use subzone would encompass the Wheeler Peak day use area, where a system of hiking trails would provide access to the subalpine lakes, bristlecone pine forest, glacier, rock glacier, and Wheeler Peak. Interpretive exhibit panels and low-profile directional and safety signs would be provided. Contacts here would be moderately frequent, and visitors would have few opportunities for solitude.

Trail maintenance, rehabilitation, reconstruction, and interpretation would be carried out in the Wheeler Peak area as described in the proposed action. Of the 4.5 miles of existing trails, 0.9 mile would be maintained, 1.5 miles would be rehabilitated, and 2.1 miles would be reconstructed or relocated. One new trail would be constructed – the 0.1-mile barrier-free Wheeler Peak meadow loop trail described in the proposed action. This trail would be routed through spruce forest, meadow, and streamside areas, and wayside exhibit panels would provide interpretation of natural resources along the trail route. Orientation exhibits would be established at all trailheads for the Wheeler Peak trail systems. Visitors could take ranger-guided interpretive walks or explore these areas on self-guiding interpretive trails of varying degrees of difficulty.

Semi-Primitive Subzone

The semi-primitive subzone would be extensive under this alternative and would encompass large tracts in the northern and central parts of the park. It would include most of the Strawberry Creek/Osceola ditch vicinity, the lands south of Lehman Creek and west of Baker Creek, the large area including the Baker Lake/Johnson Lake trail system and extending southeast to Snake Creek, and the land surrounding Lexington Arch. There would be numerous opportunities to explore these areas on well-maintained trails. A few campsites would be designated. Contacts in this subzone would be infrequent, and visitors would be able to experience its attractions in relative seclusion.

A total of 32.2 miles of existing trails would be rehabilitated or reconstructed, as described in the proposed action. This would include 9.4 miles to be rehabilitated and 22.8 miles to be reconstructed or relocated. Four new trails totaling 10.4 miles would be constructed to link various features and drainages in the northern and central parts of the park – the Strawberry Creek/Wheeler Peak trail, the Osceola tunnel interpretive trail, the Lehman Creek/Baker Creek trail, and the Pole Canyon/Baker Creek trail. These trails and the terrain they would pass through are described in more detail in the proposed action.

The existing Shoshone campground on Snake Creek would be redesigned to function as a backcountry camp. The parking logs and outhouses would be removed, and six sites would be retained. Low-profile signs at the campground would direct hikers to the Johnson Lake and Dead Lake areas, and self-guiding publications would provide interpretation of the significant natural and cultural features along the way. Three additional backcountry campgrounds would be provided in the semi-primitive subzone: one at Johnson Lake, one at Baker Lake, and one below Baker Lake (with a corral). Campsites would have tent pads with perimeter definition. Wood fires would be prohibited at campgrounds in alpine and subalpine areas. If camping demand exceeded the number of campsites, overnight camping permits would be issued for some of the areas to regulate use.

On-site interpretation in the semi-primitive subzone would be limited to low-profile directional, safety, and resource protection signs. Self-guiding publications would be developed to provide information about and interpretation of resources associated with backcountry trails. The publications would include route maps, safety information, and interpretation of cultural and natural features.

Primitive Subzone

Large areas in the central and southern parts of the park would be included in the roadless and trailless primitive subzone. As in the other alternatives, there would be no visitor facilities and no on-site interpretive media in this subzone. Orientation, information, and interpretation would be through maps and other carry-along published materials. People seeking the highest degree of challenge and physical commitment would be attracted to the primitive subzone. Contacts would be rare, and opportunities for solitude would be great.

No maintained access or designated roadside parking areas would be provided at Big Wash, Big Spring Wash, or Highland Ridge. Visitors could hike or drive to the park boundary along unmaintained roads. The Mt. Washington access road would be gated at the boundary, and no public vehicular access would be provided beyond this point.

Research Natural Area and Protected Natural Area Subzones

The research and protected natural area subzones would be managed the same as the primitive subzone except that grazing would be prohibited to protect sensitive alpine plant species. As under the proposed action, the research natural area subzone would include the stand of bristlecone pines in the southwestern part of the park, and the protected natural area subzone would encompass large areas of fragile alpine tundra. Management actions in both of these subzones would focus on resource protection and monitoring. No roads or other developments, except low-standard trails, would be allowed. Visitor experiences in these areas would be similar to those in the primitive subzone, except that camping would be prohibited.

Special Use Zone

The special use zone would continue to contain the 30-foot-high television relay tower and associated concrete structure near Cedar Spur operated by the White Pine Television District and the radio repeater on Bald Mountain operated by the Forest Service.

Access for the Disabled and Elderly

Barrier-free facilities would include the desert-shrub pullout, the hard-surfaced trail to the Baker Ridge overlook and picnic area, the paved trail from the Lehman Cave parking area to the cave entry, the paved trail and viewing platform at the mahogany shrub/Mt. Moriah overlook, the aspen/Lehman Creek pullout, the spruce-fir/Wheeler Peak cirque overlook, and the proposed Wheeler Peak pullout/trailhead and parking area and the adjacent paved meadow loop trail.

Concession Services

The present Lehman Cave concession operation would be removed. Private enterprise would be encouraged to provide similar services in the park vicinity.

Commercial use licenses would continue to be issued for tour group operators. Additional commercial use licenses might be issued for vehicular towing and road service, supplying firewood to campgrounds, backcountry horse trips, or other activities to serve park visitors. These licenses would not be limited in number but would be issued on a case-by-case basis.

NATURAL RESOURCE MANAGEMENT

Natural resources would be managed as described in the proposed action, with the following differences.

Threatened, Endangered, and Sensitive Species – The Park Service would prohibit grazing in all areas with sensitive plant species as well as in the protected natural area and research natural area subzones. This would primarily be the high elevation alpine/subalpine areas above 10,500 feet, but would also include small additional areas at lower elevations.

Fish and Wildlife Management – The Park Service would actively work to reestablish Bonneville cutthroat trout into all streams on the east side of the park that are believed to have historically contained this species. This would require the elimination of all nonnative fish

in all east-side streams and lakes. The Park Service would also actively protect the existing Bonneville cutthroat trout populations in the streams in the northwest section of the park.

If additional research confirmed that elk were once resident to the lands within the park, the Park Service would actively seek to reintroduce this species to the South Snake Range.

CULTURAL RESOURCE MANAGEMENT

Under alternative B cultural resource management actions would be the same as described in the proposed plan.

LAND PROTECTION AND BOUNDARY ADJUSTMENTS

Land protection actions for the Spring Valley and Snake Valley basins and the regional exhibit shelter sites would be the same as under the proposed action. In addition, the following boundary expansion would be undertaken in the Mt. Washington area.

About 1,850 acres would be added to the park along the western boundary adjacent to Mt. Washington, eliminating the irregular boundary alignment referred to as the "keyhole." The present boundary alignment excludes large areas of bristlecone pine near the summit of Mt. Washington and along Lincoln Canyon ridge. The boundary change would provide increased protection for this significant bristlecone stand, including many ancient individual trees. It would also extend protection to significant Rocky Mountain bighorn sheep habitat.

The boundary recommendation would involve the transfer of surface lands from the Forest Service to the Park Service. It would also include the long-range goal of acquiring all of the valid unpatented and patented mining claims on the 1,850-acre parcel to eliminate the potential for mining or commercial activity along this escarpment, which would irreparably damage the bristlecone pine resource in this area and could create intrusions or scars on the landscape that would be visible from the park. Under the park's enabling legislation, the acquisition of valid unpatented and patented claims would be on a willing-seller basis only.

Rights-of-way would be obtained from the Bureau of Land Management and the Forest Service for access to the park along the Strawberry Creek, Snake Creek, and Lexington Arch approach roads. The rights-of-way would extend 200 feet of each side of the road centerlines; their exact mileages are shown in table 18 in the impacts of alternative B section. The Park Service would be responsible for upgrading and maintaining the roads within these rights-of-way.

A cooperative agreement would be established with the Forest Service for the development and use of the parking area/trailhead at the end of the Lexington Arch approach road.

ALTERNATIVE C – ACCESS EMPHASIS

Alternative C would make more areas of the park accessible by car or four-wheel-drive vehicle and would correspondingly reduce the areas set aside for isolated, primitive experiences. Hiking and horse trails would extend into most backcountry areas, and new campgrounds and campsites would be designated. Interpretive opportunities would be expanded in the southern portions of the park, and visitors would have many options for viewing and learning about park resources and the Great Basin physiographic region. Opportunities for solitude would decrease under this alternative, and resource protection activities would be more difficult because of the numbers of visitors in areas with sensitive resources.

ZONING RATIONALE

Under alternative C modern and rural subzone areas would extend along the entire length of the park's eastern boundary, and three semi-primitive day use subzones would be established to encourage visitors to use the northern, central, and southern portions of the park, including the Mt. Washington area. An expanded backcountry trail system in the semi-primitive subzone would allow visitors to traverse the park from north to south. The primitive subzone would be limited to a few remote and isolated areas. No protected natural area or research natural area subzones would be designated. The following acreages would be included in each zone and subzone:

park development zone – 2,000 acres
  modern subzone – 2,000 acres
natural zone – 75,072 acres
  rural subzone – 1,395 acres
  semi-primitive day use subzone – 3,847 acres
  semi-primitive subzone – 47,650 acres
  primitive subzone – 22,180 acres
special use zone – 10 acres

The zoning concept is illustrated on the Alternative C – Access Emphasis map.

VISITOR USE AND DEVELOPMENT

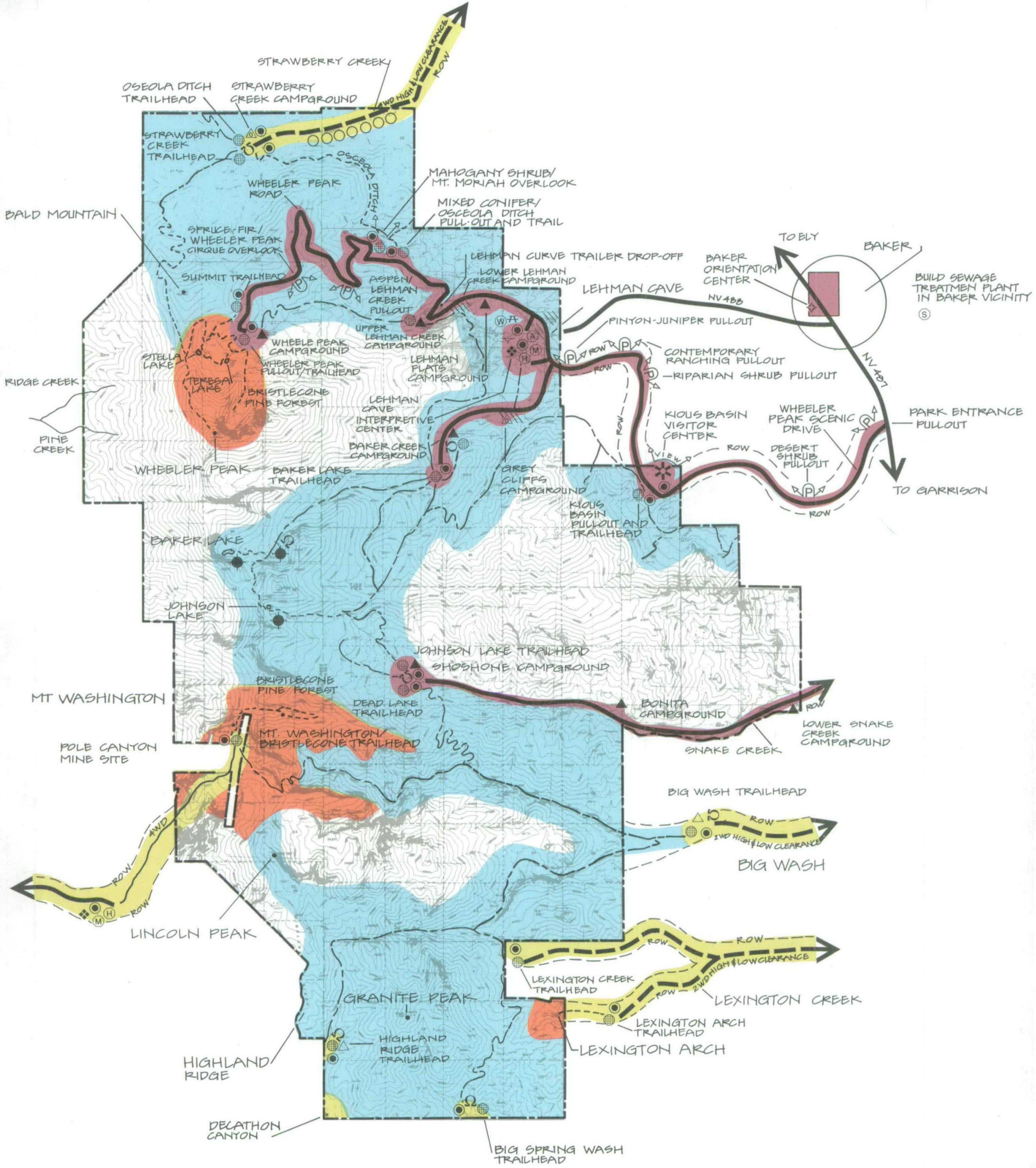
Alternative C would involve the most extensive development of the park. Paved access would be provided into the Kious Basin, Baker Creek, and Snake Creek areas as well as to Lehman Cave and the Wheeler Peak day use area. Access would also be opened to four-wheel-drive vehicles on the west side of the park in the Mt. Washington area. Interpretation and trail access would be expanded, and facilities would be fairly widespread.

Modern Subzone

Development in the modern subzone would be similar to that in the proposed action, except that the new Great Basin visitor center would be in Kious Basin rather than on Baker Ridge and the new Wheeler Peak Scenic Drive would pass through a different part of the basin area. In addition, access into the Snake Creek area would be paved, and camping opportunities there would be expanded. Other actions would include building a Baker orientation center, redesigning the Lehman Cave visitor center, and improving facilities on Wheeler Peak Scenic Drive, in the Wheeler Peak day use area, and in Baker Creek. Most park operations would remain in the park under this alternative; only the sewage treatment ponds would be relocated outside the boundary. The following specific developments and services are proposed.

Highway Wayside Exhibits/Baker Orientation Center. Visitors' first information about Great Basin National Park would be provided at interpretive exhibit shelters on the major highways leading to the park. These exhibit shelters would introduce visitors to the Great Basin physiographic region, identify major topographic features visible from the shelters, highlight the significance of the park, and provide directions to the park and the new orientation center in Baker. The general locations for the exhibits would include US 93 southwest of the park (southwest exhibit shelter), US 50 on Sacramento Pass (north exhibit shelter), US 50 just west of the Confusion Range (east exhibit shelter), and US 21 southeast of the park (southeast exhibit shelter).

The orientation center would be built on a small portion of the 80-acre site west of Highway 487 and north of the existing park entrance road in Baker. The building would be of the same size and configuration as the orientation center described in the proposed action (500 square feet, with a service window and restrooms). Barrier-free access would be provided from a 25-car/5-RV parking lot, and drinking water would be available. The orientation center would offer detailed information about the park and more general information about the Great Basin physiographic region. It would be designed for both staffed and unstaffed operation, and it might also be used to issue camping permits.


STRAWBERRY CREEK
OSEOLA DITCH TRAILHEAD
STRAWBERRY CREEK CAMPGROUND
2WD HIGH & LOW CLEARANCE
ROW
STRAWBERRY CREEK TRAILHEAD
OSCEOLA DITCH
WHEELER PEAK ROAD
MAHOGANY SHRUB/ MT. MORIAH OVERLOOK
MIXED CONIFER/ OSCEOLA DITCH PULL-OUT AND TRAIL
BALD MOUNTAIN
SPRUCE-FIR/ WHEELER PEAK CIRQUE OVERLOOK
SUMMIT TRAILHEAD
LEHMAN CURVE TRAILER DROP-OFF
LOWER LEHMAN CREEK CAMPGROUND
ASPEN/ LEHMAN CREEK PULLOUT
LEHMAN CAVE
NV 488
PINYON-JUNIPER PULLOUT
UPPER LEHMAN CREEK CAMPGROUND
WHEELE PEAK CAMPGROUND
STELLA LAKE
WHEELER PEAK PULLOUT/TRAILHEAD
TERESA LAKE
LEHMAN FLATS CAMPGROUND
CONTEMPORARY RANCHING PULLOUT
RIPARIAN SHRUB PULLOUT
RIDGE CREEK
BRISTLECONE PINE FOREST
LEHMAN CAVE INTERPRETIVE CENTER
KIOUS BASIN VISITOR CENTER
WHEELER PEAK SCENIC DRIVE
PARK ENTRANCE PULLOUT
PINE CREEK
BAKER CREEK CAMPGROUND
WHEELER PEAK
BAKER LAKE TRAILHEAD
GREY CLIFFS CAMPGROUND
DESERT SHRUB PULLOUT
VIEW
TO BLY
BAKER
BAKER ORIENTATION CENTER
BUILD SEWAGE TREATMEN PLANT IN BAKER VICINITY
NV 427
TO GARRISON
KIOUS BASIN PULLOUT AND TRAILHEAD
BAKER LAKE
JOHNSON LAKE
JOHNSON LAKE TRAILHEAD
SHOSHONE CAMPGROUND
BRISTLECONE PINE FOREST
MT WASHINGTON
DEAD LAKE TRAILHEAD
BONITA CAMPGROUND
LOWER SNAKE CREEK CAMPGROUND
SNAKE CREEK
MT. WASHINGTON/ BRISTLECONE TRAILHEAD
POLE CANYON MINE SITE
BIG WASH TRAILHEAD
BIG WASH
4WD
LINCOLN PEAK
LEXINGTON CREEK TRAILHEAD
LEXINGTON CREEK
GRANITE PEAK
LEXINGTON ARCH TRAILHEAD
HIGHLAND RIDGE TRAILHEAD
LEXINGTON ARCH
HIGHLAND RIDGE
DECATHON CANYON
BIG SPRING WASH TRAILHEAD

ON MICROFILM

ALTERNATIVE C
ACCESS EMPHASIS
GREAT BASIN NATIONAL PARK

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE
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- EXISTING PARK BOUNDARY
- RIGHT OF WAY
- SURFACED ROAD
- UNSURFACED ROAD
- FOUR WHEEL DRIVE ROUTE
- HIKING/HORSE TRAIL
- HIKING TRAIL
- PARKING AREA
- LIMITED SERVICE CAMPGROUND
- RUSTIC CAMPGROUND
- GROUP CAMPGROUND
- RUSTIC CAMPSITE
- BACKCOUNTRY CAMPSITE
- VISITOR CENTER
- INTERPRETIVE CENTER
- ORIENTATION CENTER
- WAYSIDE PULLOUT/INTERPRETIVE EXHIBIT
- TICKET SALES KIOSK
- TRAILHEAD
- CORRAL
- PICNIC AREA
- ADMINISTRATION
- MAINTENANCE
- HOUSING
- SEWAGE TREATMENT FACILITY
- WATER STORAGE TANK
- DEVELOPMENT ELIMINATED/AREA REVEGETATED

SUBZONES

- PRIMITIVE
- SEMI-PRIMITIVE
- SEMI-PRIMITIVE DAY USE
- RURAL
- MODERN

N

0 1 2 MILES
0 1 2 3 KILOMETERS

Wheeler Peak Scenic Drive/New Park Entrance. After leaving the orientation center, most visitors would drive 1.9 miles south on Highway 487 to the entrance of Wheeler Peak Scenic Drive. A new 7-mile extension of the existing Wheeler Peak road would become the eastern portion of the scenic drive. This extension would be designed to provide unique interpretive experiences, introducing visitors to a variety of terrains and life zones and arousing their curiosity and anticipation. The scenic drive would pass through three life zones before crossing the park boundary and would provide views of both basin and range environments. Within the park it would provide access to the new Great Basin visitor center at Kious Basin and would continue on to the Wheeler Peak pullout/trailhead. The design of the new scenic drive would be similar to that of the proposed action except that the first 4 miles would be aligned to pass through Kious Basin.

As in the proposed action, the existing entrance road would be gated at the park boundary. Residents living along the road outside the park would still be able to reach their properties on this county-maintained road.

The entire length of the new scenic drive east of the park boundary would traverse public lands, eliminating the need to acquire land or scenic easements. The Park Service would obtain rights-of-way from the Bureau of Land Management and the Forest Service to construct the first 6 miles of the road within an 800-foot corridor on BLM land and to cross slightly over 1 mile of Forest Service land (section 14) just east of where the scenic drive would enter the park. The entire scenic drive would be maintained by the Park Service, with no additional expense or responsibility placed on White Pine County, the Nevada Department of Transportation, the Bureau of Land Management, or the Forest Service.

As in the proposed action, a park entrance pullout would be established near the intersection of the scenic drive and Highway 487. A new entrance sign would be incorporated into the pullout, and interpretive panels would introduce visitors to the life zone concept that would be illustrated along the scenic drive. Five other interpretive pullouts would be established on the scenic drive between Highway 487 and the park boundary – the desert shrub, Kious Basin, riparian shrub, contemporary ranching, and pinyon-juniper pullouts. These barrier-free pullouts would provide interpretation of the surrounding life zones and natural and cultural features. Parking lots sizes and pullout designs would be the same as in the proposed action.

Great Basin Visitor Center. About 4 miles up the scenic drive visitors would come to the east side of Kious Basin. This scenic area of granite outcroppings would provide the site for the new Great Basin visitor center. The new visitor center would serve as the park's primary interpretive facility. It would be a full-service facility, with orientation and trip planning services as well as a wide range of media, including films, audiovisuals, exhibits, and interpretive publications.

The visitor center would be just north of the entrance road in a desert shrub setting. A short paved road would provide access to a 50-car, 5-bus/RV parking area with a passenger drop-off. A paved, barrier-free pathway would lead from the drop-off area to the visitor center entry court. The design and function of the visitor center would be similar to that of the Baker Ridge visitor center in the proposed action – a 5,000-square-foot, barrier-free building with a lobby, auditorium, exhibit space, office and work space, restrooms, and a large viewing deck on the north and east sides. Spaces would be designed and laid out as described in the proposed action.

The lobby area of the visitor center would provide information, orientation, and trip-planning services to permit visitors to familiarize themselves about the park and region. However, the primary attraction in the center would be a film that would accomplish the following:

Provide a basic understanding of the Great Basin physiographic region and the park's significance as part of this landform.

Convey the message that the park is a mountain island in a desert sea (island biogeography).

Illustrate the responses of humans, plants, and animals to the stresses of this harsh environment.

Show visitors how their own actions may be contributing to global warming and how the park serves as an indicator of this trend.

The film's message would be complemented by an in-depth treatment of selected aspects of the Great Basin story in the nearby exhibit area. The following subjects would be the focus of interpretation:

natural history
- life zones and major habitats
- island biogeography
- glacial geology
- bristlecone pines
- threatened species
- topographical points of interest

cultural history
- native Americans in the Great Basin (past and present)
- frontier settlement
- ranching and agriculture
- mining (past and present)

On the outdoor viewing deck visitors would be able to associate the subjects in the Great Basin film and exhibits with the panorama of Mt. Moriah, the northern portion of the South Snake Range, and Snake Valley. A path would connect the viewing deck with the entry court so that visitors could return to the parking area without passing through the visitor center.

The Kious Basin pullout/trailhead would be developed near, but separate from, the visitor center. The pullout/trailhead would be accessible along a separate short spur road from the scenic drive and would include short- and long-term parking, interpretive panels, and trail orientation exhibits. The trailhead would provide access to the proposed Kious Basin trail system, which would be established on existing jeep paths and along hillsides. This trail system would extend across lands outside the park boundary to connect with the Baker Creek trail. The trails would be included in the semi-primitive subzone.

Baker Creek. From the visitor center, people would travel on up the scenic drive to the park boundary. Three interpretive pullouts would be along this section of road. Just inside the park boundary the scenic drive would intersect with the Baker Creek road, which would provide access to the Grey Cliffs campground, the Baker Creek campground, and the Baker Lake trailhead. The entire length of the Baker Creek road would be paved to reduce dust and required maintenance.

Three of the four loops at the Grey Cliffs campground would be removed; the upper loop would be converted for group camping, with a new paved access road, six paved pull-ins, 12 picnic tables, six fire grates, and two vault toilets. No potable water or electricity would be provided.

The 32-site limited-service Baker Creek campground would continue to accommodate tent, RV, and trailer camping. The gravel campground roads would be paved, and four new vault toilets would be provided. Potable water would be available. A corral and trailhead would be constructed at this campground to provide access to the Baker Creek and Kious Basin trail systems.

A paved parking area for 20 cars would be constructed at the Baker Lake trailhead. The trailhead would provide access to the Baker Lake loop system and connecting trails as well as to Lehman Creek, Baker Creek, and Kious Basin.

Lehman Cave. Past the Baker Creek road intersection, the scenic drive would be realigned to create a gradual curve (see the "Road Modifications" section below). Access from the scenic drive to Lehman Cave area would be along a new ½-mile paved access road extending south to a new terraced 70-car, 30-bus/RV parking lot on the site of the existing picnic area. A new picnic area and cave ticket sales kiosk would be included nearby, and a paved barrier-free trail would extend from the parking lot to the interpretive center entrance. The design of these facilities would be the same as described in the proposed action. The existing lower parking lot and entrance road northeast of the visitor center would be removed; the upper lot would be retained for disabled visitors and emergency and service vehicle parking.

As in the proposed action, the existing Lehman Cave visitor center would be redesigned to function solely as a cave interpretive center. Except for two interpretive staff offices, administrative functions would be relocated to a new administration building next to the proposed Lehman Cave parking lot (see the "Administrative Facilities" section). The interpretive center interior would be redesigned to provide adequate space for cave exhibits, an auditorium for films and interpretive programs, a lobby with seating and spaces for book browsing and book sales, an interpretive workroom, and restrooms. The following cave themes would be illustrated using a variety of media:

geologic formation of the cave
cave decorations
human Impacts on the cave/cave conservation
interrelationshIps between the cave and the surface
cave life
early inhabitants and the discovery of the cave

The existing concession facility in the interpretive center would be retained. The exterior of the building would remain unchanged except that the entry area would be redesigned to provide barrier-free access.

Other actions would be the same as in the proposed action, including using the Rhodes cabin to house exhibits on the cabin's early history, reestablishing the historic Lehman orchard, and upgrading the Lehman trail for self-guiding interpretation.

Road Modifications – Baker Ridge/Lehman Cave Area. The changes to the scenic drive in this area would be similar to those under the proposed action. The portion of the drive between the Baker Creek and Lehman Cave spur roads would incorporate segments of the existing Baker Creek and Wheeler Peak roads, but it would be realigned to form a gradual curve and eliminate two 90 degree turns. About ½ mile of new road and a bridge over Lehman Creek would be constructed. These road improvements would simplify the major road configuration in the park and provide an improved park entry experience.

The scenic drive and the Baker Creek and Lehman Cave spur roads, including all associated access roads to developed areas, would be paved. All intersections, entrances, and pullouts would be designed to safely accommodate traffic flows. Following road realignment, all abandoned road sections would be restored to natural conditions.

An old road alignment extending west from the Baker Creek spur road would be paved to provide access to the NPS housing and maintenance areas south of the Lehman Cave interpretive center. The existing housing access road in front of the interpretive center, along with the existing Lehman Cave entrance road and lower parking lot, would be removed and replanted with native species.

Continuation of Wheeler Peak Scenic Drive. Actions to be taken along this road would be the same as in the proposed action, except that the size of some facilities would be increased. Road improvements would be undertaken to reduce safety hazards and improve interpretive pullouts. Vehicle size restrictions would be imposed for travel on the road (only vehicles less than 30 feet in length and 8 feet in width), and a 20-site trailer drop-off would be constructed at Lehman Curve to permit visitors pulling trailers to park them and travel on up Wheeler Peak Scenic Drive. Visitors in oversized RVs would not be permitted past this point.

Interpretive Pullouts – All proposals for the Wheeler Peak Scenic Drive pullouts would be the same as under the proposed action. The mixed conifer/Osceola ditch pullout would be improved, and a paved interpretive trail constructed, to expand interpretation of the mixed conifer forest and the historic Osceola ditch. A portion of the ditch and wooden flume would be reconstructed, and exhibit panels along the trail would interpret both the life zone and the cultural feature. Parking for 5 to 10 cars would be included. At the mahogany shrub/Mt. Moriah overlook a new paved barrier-free interpretive trail and viewing platform would highlight the surrounding stand of mountain mahogany and the views of Mt. Moriah and the northern portion of the Snake Range. Exhibit panels would provide interpretation. Parking for 5 to 10 cars would also be included. The aspen/Lehman Creek pullout would offer views of the Lehman Creek drainage and the upper portion of Wheeler Peak, and interpretive panels would address related natural history themes. This upgraded pullout would include 5- to 10-car parking, a low retaining wall, and viewing areas that would permit visitors to see up and down the drainage. The new spruce-fir/Wheeler Peak cirque overlook would include 8- to 10-car paved parking and a viewing area overlooking the Wheeler Peak cirque. Interpretive panels would be placed on the retaining wall here to discuss the cirque and the spruce-fir forest. The Wheeler Peak pullout, built in connection with the Wheeler Peak trailhead, would be the last pullout along the road. It would include interpretive exhibit panels describing all of the life zones and significant points of interest in surrounding areas.

Campgrounds – A new 125-site limited-service campground would be established at Lehman Flats. This campground would include an amphitheater, paved back-in sites with tent pads, picnic tables, and fire rings. Potable water and low-volume flush toilets would be available, and a dump station would be provided. Water, sewer, and electrical hookups would be installed at the site used by the campground host. Electricity would be extended to the amphitheater and toilets.

The 24-site Upper Lehman Creek campground and trailhead would be retained. Potable water and four new vault toilets would be provided. The Lower Lehman Creek campground would be removed, and the sites recontoured and revegetated.

Wheeler Peak Pullout/Trailhead. The summit and Wheeler Peak trailheads would be modified as described in the proposed action. A 10-car parking lot would be established at the summit trailhead, and a traffic island would separate it from the main roadway; orientation exhibits would be installed. New parking at the Wheeler Peak trailhead would be in two terraced lots in the open canopy forest northeast of the existing lot. These lots would be accessible from Wheeler Peak Scenic Drive at a point approximately 300 feet beyond the existing day use parking area. They would be separated by traffic islands and screened from the main road with shrubs and trees native to the subalpine zone. All facilities at the trailhead would be wheelchair-accessible and would include a seating area with gathering space for groups, a picnic area, interpretive panels and orientation exhibits, and a comfort station. A paved trail, pedestrian crosswalk, and pedestrian bridge over Lehman Creek would link the parking facilities to the trails in the semi-primitive day use subzone. The existing parking area, restroom, and trailhead would be removed, and the sites recontoured and revegetated.

The existing 37-site Wheeler Peak campground would be retained. Two sites would be redesigned for use by disabled visitors, and barrier-free vault toilets would be provided. Potable water would be available.

Snake Creek. Under alternative C the Snake Creek road would be paved from Highway 487 to the Shoshone campground – a distance of 12 miles. Three limited-service cluster campgrounds, each with 10 sites, would be established along the creek – the Lower Snake Creek, Bonita, and Shoshone campgrounds. Picnic tables, fire grates, information shelters, and vault toilets would be provided at the campgrounds. Tent sites would have perimeter definition and paved parking pads. A corral would be provided near the Shoshone campground. Ten-car paved parking areas would be provided at the Johnson Lake and Dead Lake trailheads.

Administrative Facilities. Administrative facilities would be expanded within the park boundary as described in alternative A. A new 3,000-square-foot administration building with office space, two conference rooms, a lobby, a library, curatorial and records space, storage space, and restrooms would be built adjacent to the proposed Lehman Cave parking lot. A paved spur road would lead from the interpretive center spur road to the administration building parking lot. Parking would be screened by pinyon-juniper vegetation.

A new sewage treatment plant would be developed in the Baker vicinity (see below), and the sewage lagoons in the

park would be removed. After these actions were completed, all maintenance facilities (including the fire truck and fire cache) would be relocated to a 5-acre area on the existing sewage lagoon site. The maintenance complex would include a 2,500-square-foot building with office, support rooms, and shops; a 10,000-square-foot vehicle storage building; a 3,000-square-foot warehouse; a 500-square-foot fire cache; and outdoor storage space. The emergency generator would be relocated to a site near the cave ticket sales kiosk and parking lot. The entire maintenance area would be landscaped with berms and vegetation that incorporate fencing to provide security and visual screening from Wheeler Peak Scenic Drive. Access to the area would be along an old road alignment from the Baker Creek spur road. Structures in the existing maintenance area would be removed, and the area reclaimed.

Park housing would be expanded in the existing housing area. Three to six new housing units and 20 to 30 apartments would be built along an old road alignment on the south side of the existing development. Four existing trailers would be removed and replaced with permanent structures. New housing would be designed to optimize solar efficiency and water conservation. Housing units would be clustered around common lawn areas, which would serve as recreation areas for park staff and their families. Access to the housing area would also be on the old road alignment from the Baker Creek spur road.

The existing sewage treatment ponds in the park are inadequate to handle the demands of increasing visitation and necessary support services and are visible from several major viewing points in the park. In cooperation with the state of Nevada and the town of Baker, the Park Service would develop a new sewage treatment plant in the Baker vicinity. Funding for construction and operational costs might be shared by the state and federal government to provide a facility that would serve the needs of the park and the community of Baker. A new wastewater system would be developed to carry effluent from the Kious Basin visitor center, the Lehman Cave interpretive center, the administration, maintenance, and housing facilities, and the Lehman Flats campground to the proposed sewage treatment plant in the Baker vicinity. The existing park sewage treatment ponds would be removed following construction of the new treatment plant, and the proposed maintenance facility would be built on the site.

A water well or wells would be drilled at the Baker site to provide water to the Baker orientation center. An additional 100,000-gallon water tank would be installed at the Cave Spring water storage site in the park to double the existing storage capacity to 200,000 gallons. This would provide a greater peaking capacity for the water supply to meet anticipated demands. The existing road to the water storage tanks would be maintained.

An underground electrical distribution system would provide power to the Baker orientation center and sewage treatment plant as well as the Kious Basin visitor center. Electrical lines in the new park housing area and between the Lehman Cave interpretive center and administration building would be buried.

Rural Subzone

Under alternative C rural subzone areas would serve as gateways to a parkwide trail system in the semi-primitive and semi-primitive day use subzones. Trail access would be established on both the east and west sides of the park, and trailheads would be established in the Strawberry Creek, Big Wash, Lexington Arch, Highland Ridge, and Mt. Washington areas. Campgrounds would also be designated in a number of rural subzone areas. All trailheads would have orientation exhibits, and all campgrounds would incorporate information shelters.

The Park Service would obtain rights-of-way from the Bureau of Land Management and the Forest Service for the Strawberry Creek, Big Wash, North and South Lexington Wash, and Mt. Washington approach roads. These roads would be gravel but would be upgraded to accommodate two-wheel-drive low clearance vehicles. Rights-of-way would extend 200 feet on each side of the road centerline. The roads would be upgraded and maintained by the Park Service.

Strawberry Creek. Seven rustic campsites would be designated along the Strawberry Creek access road. Each campsite would have perimeter definition as well as a picnic table, fire grate, and vault toilet. These campsites would not be fenced. A new rustic group campground and backcountry trailhead with 10-car gravel parking and a corral would be provided at the west end of Strawberry Creek. The campground would have six picnic tables, six fire grates, and two vault toilets. The trailhead would provide access for hikers and horseback riders to Upper Strawberry Creek, Windy Canyon, Blue Canyon, and the new Osceola tunnel interpretive trail. A separate 10-car parking area and trailhead would be constructed in the area to permit access to the southern portion of the Osceola ditch trail for hikers only. All of the trails in the Strawberry Creek vicinity would

be in the semi-primitive subzone. Horseback riding in the area would be confined to Strawberry Creek, Windy Canyon, Blue Canyon, and the Osceola tunnel interpretive trail.

The 6-mile Strawberry Creek access road would be upgraded from dirt to two-wheel-drive gravel.

Big Wash. The 9-mile Big Wash access road would be upgraded for two-wheel-drive access. A 10-car gravel parking lot, corral, trailhead, and 5-site rustic campground would be developed on Forest Service land at the end of the road about a mile from the park boundary. A cooperative agreement would be established with the Forest Service for use of the site. The campsites would have perimeter definition and fire grates, and one vault toilet would be included.

Lexington Arch. Lexington Arch would be developed as a day use destination and would be included in the semi-primitive day use subzone. Access to the Lexington Arch trailhead and to the North Lexington Wash trailhead would be part of the rural subzone. The 11-mile dirt South Lexington Wash entry road would be upgraded to a two-wheel-drive gravel road, and a 10-car gravel parking area and trailhead for the arch would be developed 0.8 mile east of the park boundary. The North Lexington Wash access road would also be established as a two-wheel-drive gravel road with a 10-car gravel lot and trailhead at the park boundary.

Big Spring Wash and Highland Ridge. Access to these two areas would be on unmaintained roads administered by the Bureau of Land Management and Forest Service. The Park Service would provide informal parking, corrals, and trailhead orientation exhibits at the access points to areas inside the park boundary.

The road through Decathon Canyon crosses the extreme southwestern boundary of the park. This portion of the unmaintained road would remain open to backcountry users traveling to Highland Ridge and to hunters wishing access to Forest Service lands farther up the canyon.

Mt. Washington. Alternative C is the only alternative that would provide for public vehicular access to Mt. Washington. The Park Service would obtain rights-of-way from the Forest Service and Bureau of Land Management for use of the existing gravel road from County Road 894 to a 25-acre site adjacent to Lincoln Canyon. This road would be maintained by the Park Service for two-wheel-drive low-clearance vehicles. The 25-acre parcel, which is currently administered by the Forest Service, would be transferred to the Park Service.

A 3,000-square-foot visitor contact/interpretive facility, a 10- to 15-car gravel parking area, and a small NPS support complex would be built at the Lincoln Canyon site. It would be the only visitor contact facility on the west side of the park and would provide information about the park in general as well as interpretation of the bristlecone pine. Interpretive media would include museum exhibits, publications, and possibly audiovisuals. A small maintenance building and yard would be established near the contact facility. A duplex and a single-family residence would also be included, to be occupied on a seasonal basis by maintenance and ranger personnel. Power would be provided by an electric generator. A septic system would handle wastewater, and a well or treated springs would provide potable water.

A new 2.5-mile four-wheel-drive access road would be developed from the interpretive facility to a point intersecting the impassable trace road that connects the Pole Canyon mine with the Mt. Washington summit. A 2.5-mile portion of the trace road would be upgraded to provide four-wheel-drive access to an area just below the Mt. Washington summit. A 10- to 15-car gravel parking area and trailhead would be developed, and a small ranger cabin constructed, in the nearby limber pine forest. The area would be seasonally staffed and open for visitor use during the summer months. The trailhead would provide access to the Mt. Washington semi-primitive day use area.

Semi-Primitive Day Use Subzone

The semi-primitive day use subzone would include the Wheeler Peak, Lexington Arch, and Mt. Washington day use areas, which would all have well-maintained hiking trails providing access to significant features. Trail maintenance, rehabilitation, reconstruction, and interpretation would be carried out in the Wheeler Peak and Lexington Arch areas, as described in the proposed action, and new interpretive trails would be established in the Wheeler Peak cirque area and on Mt. Washington. Information and interpretation would be provided in trailhead orientation exhibits and interpretive exhibits panels along the trails. Semi-primitive day use areas would receive relatively high use, and contacts would be moderate to frequent.

Wheeler Peak Day Use Area. The Wheeler Peak day use area would encompass the system of hiking trails that lead to the alpine lakes, bristlecone pine forest, glacier, rock glacier, and Wheeler Peak. Of the existing 4.6 miles of trails,

0.9 mile would be maintained, 1.5 miles would be rehabilitated, and 2.2 miles would be reconstructed or relocated. One new trail would be constructed – the 0.1-mile barrier-free Wheeler Peak meadow loop trail described in the proposed action. This trail would be routed through spruce forest, meadow, and streamside areas, and exhibit panels would provide interpretation of natural resources along the trail route. Orientation exhibits would be established at all trailheads for the Wheeler Peak trail system, and new interpretive exhibit panels would be developed for the bristlecone and Teresa Lake trails. A self-guiding publication would provide interpretation of the features along and visible from the Wheeler Peak trail.

Lexington Arch Day Use Area. The 1.0-mile Lexington Arch hiking trail winds through a riparian area from the trailhead to Lexington Arch and beyond to link with the backcountry trail system. This trail would be upgraded to an unhardened medium-standard hiking trail to accommodate increasing levels of visitor use. New interpretive exhibit panels would be developed to interpret the arch.

Mt. Washington Day Use Area. A new 1.0-mile interpretive loop trail would be constructed through the bristlecone pine forest on the east side of Mt. Washington. This trail would lead from the Mt. Washington trailhead to the summit of Mt. Washington and then east down a ridgeline through an impressive stand of bristlecone pines. An orientation exhibit would be established at the trailhead, and new interpretive exhibit panels would be produced for the trail.

Semi-Primitive Subzone

This alternative would entail the largest acreage of semi-primitive subzone lands, including most of the Strawberry Creek/Osceola ditch vicinity, the lands south of Lehman Creek and west of Baker Creek, the area including the Baker Lake/Johnson Lake trail system, much of Kious Basin, and large tracts in the central and southern parts of the park. Existing and proposed trails in this subzone would provide plentiful opportunities to discover the park's backcountry on foot or on horseback. Camping would be permitted, and a few backcountry campsites would be designated. Visitors would have relatively infrequent contacts with one another and would travel along the trails in relative seclusion.

A total of 53.9 miles of existing trails in the semi-primitive subzone would be maintained, rehabilitated, or reconstructed, as described in the proposed action. This would include 11.5 miles to be rehabilitated, and 42.4 miles to be reconstructed or relocated. The portion of the existing Big Wash trail west of the proposed trailhead and east of the confluence of the north and south forks of Big Wash crosses private land. The Park Service would seek to obtain a trail easement from the owner of this property.

Seven new trails totaling 23.4 miles would be constructed to link various features and drainages in the park – the Strawberry Creek/Wheeler Peak trail, the Osceola ditch nature trail, the Lehman Creek/Baker Creek trail, the Pole Canyon/Baker Creek trail, the North Fork of Big Wash/Snake Creek trail, the Big Spring Wash/Lexington Arch trail, and the South Fork of Big Wash/Decathon Canyon trail. These trails and the terrain they would pass through are described in the proposed action.

Five or six backcountry campsites would be provided in the semi-primitive subzone: one at Johnson Lake, one at Baker Lake, one below Baker Lake with a corral for horse use, and two or three in as-yet-unspecified areas. These campsites would be have designated tent pads or some type of primitive shelter to concentrate use and reduce impacts. Wood fires would be prohibited in all alpine and subalpine areas. If the camping demand exceeded the number of campsites, the park would issue overnight camping permits for some of these areas to regulate use.

On-site interpretation in the semi-primitive subzone would be limited to low-profile directional, safety, and resource protection signs. Self-guiding publications would be developed to provide information about and interpretation of resources associated with backcountry trails. The publications would include route maps, safety information, and interpretation of cultural and natural features.

Primitive Subzone

Alternative C would designate the smallest amount of primitive subzone acreage, including areas in the west-central part of the park, south of Kious Basin, and southeast of the Mt. Washington day use area. There would be no visitor facilities and no on-site interpretive media in this subzone. Orientation, information, and interpretation would be through maps and other carry-along published materials. People seeking the highest degree of challenge and physical commitment would be attracted to the primitive subzone. Contacts would be rare, and opportunities for solitude would be great

Special Use Zone

The special use zone would continue to contain the 30-foot-high television relay tower and associated concrete structure near Cedar Spur operated by the White Pine

Television District and the radio repeater on Bald Mountain operated by the Forest Service.

Access for the Disabled and Elderly

Barrier-free facilities would include the new orientation center in Baker, all pullouts along the eastern portion of Wheeler Peak Scenic Drive, the new visitor center in Kious Basin, the paved trail from the Lehman Cave parking area to the interpretive center, the interpretive center itself, the paved trail and viewing platform at the mahogany shrub/Mt. Moriah overlook, the aspen/Lehman Creek pullout, the spruce-fire/Wheeler Peak cirque overlook, the proposed Wheeler Peak trailhead and parking area and the adjacent paved meadow loop trail, and two campsites at nearby Wheeler Peak campground.

Concession Services

The Lehman Cave concession operation would remain in its present location in the Lehman Cave interpretive center and would continue to provide limited food service, souvenir sales, and book sales.

Commercial use licenses would continue to be issued for tour group operators. Additional commercial use licenses might be issued for vehicular towing and road service, supplying firewood to campgrounds, backcountry horse trips, or other activities to serve park visitors. These licenses would not be limited in number but would be issued on a case-by-case basis.

NATURAL RESOURCE MANAGEMENT

Natural resources would be managed as described in the proposed action, with the following differences.

Grazing Management – Areas above 10,500 feet in elevation would not be zoned as protected natural areas, and grazing would continue to be permitted.

Fish and Wildlife Management – The Park Service would actively seek to reestablish the Bonneville cutthroat trout in all streams on the east side of the park that are believed to have historically contained this species. This would involve the elimination of all nonnative fish in all east-side streams and lakes in the park. The Park Service would also continue to actively protect the existing Bonneville cutthroat trout populations in streams in the northwest section of the park.

Because of potential conflicts with cattle grazing on existing allotments within the park, the Park Service would not actively seek to establish an elk herd in the park. If it could be demonstrated that elk would not cause adverse competition for forage and that their presence would not contribute to erosion or poor range conditions, elk would be allowed to move into the park on their own.

CULTURAL RESOURCE MANAGEMENT

Under alternative C cultural resource management actions would be the same as in the proposed action.

LAND PROTECTION

Land protection actions for the Spring Valley and Snake Valley basins, the regional exhibit shelters, the rights-of-way, cooperative agreements, and easements, and the patented lands adjacent to the southwestern park boundary would be the same as in the proposed action; rights-of-way mileages are shown in table 20 in the impacts of alternative C section. In addition, the following actions would be taken in the Kious Basin and Mt. Washington/Lincoln Canyon areas.

Kious Basin Trail Connection

The proposed trail connecting Pole Canyon with Kious Basin would cross Forest Service land. The Park Service would establish a cooperative agreement with the Forest Service for NPS management and maintenance of this portion of the trail corridor.

Lincoln Canyon/ Mt. Washington Contact Facility

Alternative C proposes to develop a visitor contact/ interpretive facility, parking, and a small NPS support complex (maintenance and housing) on a 25-acre site near Lincoln Canyon along the lower southwest side of Mt. Washington. This site is currently administered by the Forest Service. Negotiations would be pursued with the Forest Service, Bureau of Land Management, and the General Services Administration to include the site in the park boundary to be administered by the Park Service as a detached unit of Great Basin National Park.

ALTERNATIVES CONSIDERED BUT REJECTED

No other planning alternatives were identified during the scoping process for Great Basin. However, several options for management and use within the park were considered but rejected.

SNOWMOBILING, MOUNTAIN BIKING, AND HANG GLIDING

Great Basin contains a number of exceptional resources, and it provides important opportunities for solitude and contemplative experiences. The plan focuses on perpetuating these experiences to encourage a greater understanding and appreciation of the park and the Great Basin region. Snowmobiling would cause noise, pollution, and wildlife disturbance along tracks and in the backcountry. Mountain biking would greatly increase erosion and could result in wildlife disturbance and conflicts with hikers and horseback riders along trails. Hang gliding, which has become a popular spectator sport, would likely generate crowds and related crowd control problems. For these reasons and because the large amount of public land surrounding the park (more than 85 percent of the lands in the region) provides suitable terrain and ample opportunities for more active recreational uses, it is proposed that only low-impact activities be permitted in the park and that snowmobiling, mountain biking, and hang gliding be prohibited.

DOGS IN THE BACKCOUNTRY

To preserve the solitude associated with backcountry experiences and to reduce the potential for conflicts between dogs and wildlife (as well as visitors and horses), dogs would not be permitted in the semi-primitive day use, semi-primitive, primitive, protected natural area, and research natural area subzones. Dogs would be allowed on leashes in the modern and rural subzones.

AERIAL TRAM OR HIGH-STANDARD ROAD ACCESS TO THE MT. WASHINGTON SUMMIT

All actions that would result in excessively large numbers of visitors having access to the fragile and unique bristlecone pine forest on Mt. Washington were rejected. Both an aerial tram and a high-standard road would be extremely detrimental to the bristlecone pines and would intrude on the pristine visual qualities associated with this rugged western escarpment. Construction of such a road on the escarpment would also cause excessive damage to the physical and biological resources in the area.

COMPLETE ELIMINATION OF GRAZING

Because section 3(e) of the park's enabling legislation authorized grazing on lands within the park, this activity was not identified as an issue in the Great Basin *Alternatives Workbook*. However, more than 200 write-in responses to the workbook (out of a total of 1,200) suggested that grazing was incompatible with the purpose of the park and should be eliminated. Although the option of eliminating grazing was not considered during planning, recommendations are included in the "Natural Resource Management" sections of the proposed action and alternatives for closely regulating grazing and reallocating or permanently withdrawing any allotments that are vacated in the future.

INCREASED CAMPSITE CAPACITY

Because of the park's predominately steep terrain, existing campgrounds are located on gentler slopes adjacent to or along stream corridors. A substantial number of former Forest Service campgrounds and campsites exist in these riparian areas, particularly on the east side of the park where visitor use has traditionally been concentrated. To prevent further impacts to these areas (riparian areas are designated in the plan as having exceptional resource value) and to avoid the negative impacts associated with building campsites in the floodplain or on hillsides and steep slopes, it was determined that a ceiling of 265 campsites and two groups campgrounds should be established as the park's acceptable upper limit. Options to go beyond a 265 campsite total within the park were rejected.

The proposed action and alternatives recommend the following increases in campsites over existing conditions (119 sites): proposed action – 35 percent (161 campsites plus two group campgrounds); alternative A – 38 percent (165 campsites plus one group campground); alternative B – 44 percent (172 campsites plus one group campground); and alternative C – 123 percent (265 campsites plus two group campgrounds). Most of the increases would be in the proposed Lehman Flats campground, which would be located in one of the few areas in the northern part of the park that is flat and outside the floodplain. The 123 percent increase under alternative C – 125 sites at the Lehman Flats campground and modest increases in the number of campsites at Snake Creek, Big Wash, and Highland Ridge – represents the upper limits for the Lehman Flats site and the other campgrounds in the floodplain. If this 265-campsite capacity proved inadequate to meet demand, the Park Service would encourage private enterprise to develop campgrounds outside the park to serve the visiting public.

LEHMAN CAVE TOUR CAPACITY

A cave tour capacity of 600 people per day (20 tours of 30 people each) was established as part of this planning effort, and no options were considered that would exceed that capacity. Cave tour capacity is based on studies and observations by the park staff over several years, which indicated that numbers above 600 people per day have negative effects on resources and visitor experiences.

The option of initiating self-guiding tours in Lehman Cave was also rejected. Managers of many cave parks, especially those with large caverns, have adopted self-guiding systems in response to rapid increases in visitation. However, because of the small size of Lehman Cave and the large number of delicate features within easy reach of visitors, this option is not feasible.

TABLE 2: SUMMARY OF PROPOSED ACTION AND ALTERNATIVES

Topic	Proposed Action	Alternative A	Alternative B	Alternative C
MANAGEMENT ZONING	Zone the park to provide a balanced range of recreational opportunities; zone the Wheeler Peak Scenic Drive corridor, Kious Basin, Baker Ridge, Lehman Cave, the Wheeler Peak day use area, and the Baker Creek and Lexington Arch areas for relatively high levels of visitor use (modern and semi-primitive day use); designate rural subzones on Strawberry and Snake creeks and along the access roads to Big Wash and Lexington Arch; place the largest amount of land, including all backcountry trail corridors, in the semi-primitive subzone; designate fragile alpine areas and the Mt. Washington bristlecone pine forest as protected or research natural areas; include the remainder of the park in the primitive subzone.	Zone the park to reflect existing uses; designate modern and semi-primitive day use subzones in the Lehman Cave and Wheeler Peak areas, small rural subzones in Strawberry Creek, Baker Creek, Kious Basin, and Snake Creek, and semi-primitive subzones in the northern and central parts of the park; place the remainder of the park in the primitive subzone.	Zone the park to focus on primitive and backcountry uses; limit the modern and semi-primitive day use subzones to the Lehman Cave and Wheeler Peak areas; place Strawberry Creek, Baker Creek, and the Snake Creek and Lexington Arch access roads in the rural subzone; designate semi-primitive areas in the northern and central parts of the park; provide protection for alpine areas and the Mt. Washington bristlecone pine forest by including them in the protected or research natural area subzones; zone the largest portion of the park, including most of the lands below Snake Creek, as primitive.	Zone the park to make more areas accessible by car or 4WD vehicle; include the Snake Creek area in the modern subzone along with the Wheeler Peak Scenic Drive corridor, Kious Basin, Baker Ridge, Baker Creek, and Lehman Cave; zone three areas for semi-primitive day use, including the Wheeler Peak day use area, the Mt. Washington area, and Lexington Arch; place Strawberry Creek and the access roads at Big Wash, Lexington Arch, and Mt. Washington in the rural subzone; zone extensive areas of the park, including the expanded trail system, as semi-primitive; designate a few remote and isolated areas as part of the primitive subzone.
VISITOR USE AND DEVELOPMENT				
Access				
• Wheeler Peak Road/ Scenic Drive	Develop Wheeler Peak Scenic Drive by rehabilitating 12 miles of the existing Wheeler Peak road and constructing a new 9-mile eastern extension (park entrance road); construct a trailer drop-off at Lehman Flats; restrict access on the existing entrance road (Nevada 488) at the park boundary.	Maintain Nevada 488 as the main park entrance road; rehabilitate the Wheeler Peak road; construct a trailer drop-off at Lehman Flats.	Same as alternative A	Same as the proposed action except that the new park entrance road would be aligned to pass through Kious Basin
• Baker Creek Road	Pave the existing Baker Creek road and connect to the new Wheeler Peak Scenic Drive.	Maintain the Baker Creek road as a gravel road (2WD accessible).	Same as alternative A	Same as the proposed action
• Strawberry Creek, Snake Creek, Big Wash, and Lexington Arch Roads	Upgrade the Strawberry Creek, Snake Creek, Big Wash, and Lexington Arch roads from dirt to gravel (2WD accessible).	Grade the Strawberry Creek, Snake Creek, and Lexington Arch roads to make them accessible to 4WD and 2WD high-clearance vehicles; take no action on the Big Wash road.	Same as the proposed action except that no action would be taken on the Big Wash road	Same as the proposed action except that the Snake Creek road would be paved
• Big Spring Wash and Highland Ridge Access Roads	No action (4WD access to park boundary on BLM and USFS roads as at present)	Same as the proposed action	Same as the proposed action	Same as the proposed action

Topic	Proposed Action	Alternative A	Alternative B	Alternative C
• Mt. Washington Access Road	No action (4WD access to park boundary on BLM and USFS roads as at present); gate road at park boundary.	Same as the proposed action	Same as the proposed action	Upgrade the access road from County Road 894 to the Lincoln Canyon development site from dirt to gravel (2WD accessible); upgrade the road from the Lincoln Canyon site to the base of Mt. Washington for 4WD access.
Major Visitor Facilities				
• Great Basin Visitor Center	Construct a new Great Basin visitor center on Baker Ridge with direct access from Wheeler Peak Scenic Drive; include a 50-vehicle paved parking area, picnic area, barrier-free pathway, entry court, lobby, auditorium, exhibit space, large viewing deck, and restrooms.	No action	Construct a new Great Basin visitor center/administration building on an 80-acre site near Baker, with 75-vehicle parking.	Construct a new Great Basin visitor center in Kious Basin, with 50-vehicle parking.
• Lehman Cave Visitor Center/Interpretive Center	Convert the existing Lehman Cave visitor center to an interpretive center focusing on the cave story; construct a new 100-vehicle paved parking area, cave ticket sales kiosk/shelter, picnic area, and wheelchair-accessible trail to the interpretive center; retain the existing upper parking lot for visitors with disabilities and for service and emergency vehicles only; remove the lower parking lot.	Rehabilitate the existing Lehman Cave visitor center to accommodate both the Great Basin and cave story presentations; construct a new 50-vehicle overflow parking area, picnic area, and wheelchair-accessible trail to the visitor center; retain the existing upper and lower parking lots in front of the building.	Remove the Lehman Cave visitor center; construct a new 100-vehicle parking area, cave ticket sales kiosk/shelter, picnic area, and wheelchair-accessible trail to the cave entrance; remove the existing upper and lower parking lots.	Same as proposed action
• Orientation/Information Center	Construct an orientation center on an 80-acre site near Baker, with 30-vehicle parking.	Continue to provide orientation and information at the Lehman Caves visitor center.	Provide orientation and information at the new Great Basin visitor center on an 80-acre site near Baker.	Same as proposed action
• Mt. Washington Visitor Contact Station	No action	No action	No action	Construct a visitor contact station at the base of Mt. Washington (Lincoln Canyon) on west side of the park, with 15-car gravel parking.
Other Developments				
• Regional Exhibit Shelters	Construct four regional exhibit shelters along the major highways leading to the park to interpret both the Great Basin physiographic region and the park.	No action	Same as proposed action	Same as proposed action
• Interpretive Pullouts	Develop 11 interpretive pullouts along the length of Wheeler Peak Scenic Drive to interpret both the basin and range environments; establish short interpretive trails at two of the pullouts; provide paved parking for 15 to 20 cars at the park entrance pullout, parking for 5 to 10 cars at the remaining pullouts.	Provide five interpretive pullouts along the park entrance and Wheeler Peak roads with 5- to 10-car parking.	Provide six interpretive pullouts along the park entrance and Wheeler Peak roads with 5- to 10-car parking.	Same as the proposed action

Topic	Proposed Action	Alternative A	Alternative B	Alternative C
• Trailheads and Trails				
Wheeler Peak Pullout/Trailhead	Establish a major trailhead for the Wheeler Peak day use area, with a new 50-vehicle paved parking area, interpretive/orientation displays, seating, and restrooms; incorporate the final Wheeler Peak Scenic Drive interpretive pullout into the trailhead development.	Same as the proposed action except 25-vehicle parking would be provided	Same as the proposed action except 40-vehicle parking would be provided	Same as the proposed action
Other Trailheads	Establish or formalize trailheads with parking at Kious Basin, Baker Ridge, Baker Creek (two), Upper Lehman Creek, summit, Strawberry Creek (two), Snake Creek (two), Big Wash, Lexington Arch, Big Spring Wash, and Highland Ridge; include corrals at Baker Creek (two), Strawberry Creek, Snake Creek, Big Wash, Big Spring Wash, and Highland Ridge.	Establish or formalize trailheads with parking at Baker Creek, Upper Lehman Creek, summit, Strawberry Creek (two), Snake Creek (two), and Lexington Arch; provide no corrals.	Establish or formalize trailheads with parking at Baker Creek (two) Upper Lehman Creek, summit, Strawberry Creek (two), Snake Creek, and Lexington Arch; include corrals at Baker Creek and Strawberry Creek.	Same as the proposed action except that no trailhead would be established at Baker Ridge and only one corral would be provided at Baker Creek; in addition, a trailhead would be established at Mt. Washington.
Trails	Rehabilitate or reconstruct 60 miles of existing trails and construct 24 miles of new trails to interpret significant features and life zones and to provide access to and through the park's backcountry north to south; designate 64 miles of trails for hikers and horseback riders, 20 miles for hikers only; total trail miles – 84.	Rehabilitate or reconstruct 36 miles of existing trails and construct 1 mile of new trail; designate 31 miles for horse/hiker use, 6 miles for hikers only; total trail miles – 37.	Rehabilitate or reconstruct 38 miles of existing trails and construct 10 miles of new trails; designate 30 miles for horse/hiker use, 18 miles for hikers only; total trail miles – 48.	Same as the proposed action, except that 1 additional mile of trail would be built in the Mt. Washington area; total trail miles – 85.
• Campgrounds:				
Grey Cliffs	Eliminate three loops and convert the fourth for group camping; include a new paved access road, six paved pull-in sites, a campfire circle, and vault toilets.	Same as the proposed action except that there would be no paving	Same as alternative A	Same as the proposed action
Baker Creek	Retain 32 limited-service sites (tent, small RV, and trailer camping; one site for disabled visitors) with gravel roads and pull-ins; include a campfire circle and new vault toilets.	Same as proposed action	Same as the proposed action	Same as the proposed action except that the roads and pull-ins would be paved
Upper Lehman Creek	Retain 24 limited-service sites (tent, small RV, and small trailer camping; one site for disabled visitors); provide a campfire circle and new vault toilets.	Same as the proposed action	Same as the proposed action	Same as the proposed action
Lower Lehman Creek	Eliminate the campground and revegetate the site.	Same as the proposed action	Same as the proposed action	Same as the proposed action
Lehman Flats	Construct and pave 50 new limited-service campsites and an access road (two sites for disabled visitors); include an amphitheater, water system, dump station, and low-volume flush toilets.	Same as the proposed action	Same as the proposed action except 100 sites would be constructed	Same as the proposed action except 125 sites would be constructed

Topic	Proposed Action	Alternative A	Alternative B	Alternative C
Wheeler Peak	Retain 37 limited-service sites (tent camping and small RVs only; two sites for disabled visitors); include a campfire circle and new vault toilets.	Same as the proposed action	Eliminate the campground.	Same as the proposed action
Strawberry Creek	Designate 7 rustic campsites along the creek; establish 1 rustic group campground with vault toilets.	Designate 5 rustic campsites along the creek.	Establish a 15-site rustic cluster campground with vault toilets.	Same as the proposed action
Snake Creek	Designate 10 rustic campsites along the creek; establish 6 rustic cluster campsites at the west end.	Same as the proposed action	Eliminate all campsites along the creek and revegetate.	Establish 3 new paved limited-service campgrounds (10 sites each).
Backcountry campsites	Establish 5 to 6 backcountry campsites (one with a corral).	Establish no backcountry campsites.	Same as the proposed action except that the locations might be different	Same as alternative B
• Administrative Facilities	Construct an administration building, maintenance compound, and residential area on an 80-acre site near Baker; relocate all maintenance and most administration and staff housing to this site; remove existing maintenance buildings and housing units (except those necessary for protection) in the Lehman Cave area and revegetate the sites.	Construct a new administration building next to the Lehman Cave overflow parking area and relocate most functions there; retain and expand the existing maintenance and housing areas.	Construct a visitor center/administration building, maintenance compound, and residential area on an 80-site near Baker and relocate all functions there; remove the existing visitor center and maintenance and housing structures in the park and revegetate the sites.	Same as alternative A except that all maintenance functions would be relocated to a new maintenance complex on the existing sewage lagoon site
Concession	Retain the food and souvenir concession at the Lehman Caves interpretive center.	Same as the proposed action	Remove the concession operation from the park.	Same as the proposed action
NATURAL RESOURCE MANAGEMENT				
Man-Caused Influences				
• Domestic Livestock Grazing	Continue to allow domestic livestock grazing in accordance with the enabling legislation, except in the semi-primitive day use, protected natural area, and research natural area subzones (alpine areas above 10,500 feet, the Wheeler Peak and Mt. Washington areas, and Pine and Ridge creeks); institute management methods to separate visitors and livestock and to protect sensitive species.	Same as proposed action except grazing would continue above 10,500 feet, in the Pine and Ridge creek drainages, and around Mt. Washington (there would be no protected or research natural area subzones)	Same as proposed action except that grazing would also be prohibited in all areas with sensitive plant species	Same as proposed action except grazing would continue above 10,500 feet (there would be no protected natural area subzone)
• Mining Claims within the Park	Continue to examine the validity of all existing claims; review mining plans of operations based on the Mining in the Parks Act and promulgating regulations (36 CFR 9A).	Same as the proposed action	Same as the proposed action	Same as the proposed action
Fish and Wildlife				
• Bonneville Cutthroat Trout	Reestablish Bonneville cutthroat trout into selected streams on east side of park; protect existing populations on the west side of the park.	Protect existing Bonneville cutthroat populations, but do not reestablish them in streams on east side of park.	Reestablish Bonneville cutthroat in all streams on east side of park that historically contained them.	Same as alternative B
• Fish Stocking	Do not permit fish stocking in the park.	Same as the proposed action	Same as the proposed action	Same as the proposed action

Topic	Proposed Action	Alternative A	Alternative B	Alternative C
• Rocky Mountain Bighorn Sheep	Make no attempt to reestablish Rocky Mountain bighorn sheep.	Same as the proposed action	Same as the proposed action	Same as the proposed action
• Elk	Protect elk and allow them to establish a viable herd.	Same as the proposed action	If it is proved that elk were once resident on lands within the park, actively work to reintroduce this species.	Same as the proposed action
• Mule deer	Allow deer populations to fluctuate naturally within the park.	Same as the proposed action	Same as the proposed action	Same as the proposed action
• Native predators	Protect predators and ensure that predator populations are maintained at natural levels within the park.	Same as the proposed action	Same as the proposed action	Same as the proposed action
• Threatened, Endangered, and Sensitive Species	Take an active part in reestablishing and protecting habitat for all threatened, endangered, and sensitive species.	Same as the proposed action	Same as the proposed action	Same as the proposed action
CULTURAL RESOURCE MANAGEMENT				
National Register Sites				
• Lehman Orchard	Preserve the orchard and interpret it from the vicinity of the Lehman Cave interpretive center.	Same as the proposed action	Same as the proposed action	Same as the proposed action
• Lehman Aqueduct	Preserve existing remains and provide additional interpretation at the Lehman Cave interpretive center.	Same as the proposed action	Same as the proposed action	Same as the proposed action
• Rhodes Cabin	Preserve and adaptively use the cabin to house new exhibits concerning Rhodes and the cabin's original purpose.	Same as the proposed action	Same as the proposed action	Same as the proposed action
Sites Recommended for Nomination				
• Osceola Ditch (adjacent to Wheeler Peak Scenic Drive)	Reconstruct and rewater a portion of the wooden flume and ditch excavation and interpret it as an outstanding cultural feature.	Same as the proposed action except that there would be no restoration or rewatering of the ditch and flume	Same as the proposed action	Same as the proposed action
• Osceola Ditch Tunnel (Strawberry Creek)	Preserve, stabilize, and interpret the tunnel.	Same as the proposed action	Same as the proposed action	Same as the proposed action
Unevaluated Sites	Evaluate under National Register criteria. Treatment would be determined in consultation with the Nevada state historic preservation office and the Advisory Council on Historic Preservation in accordance with 36 CFR 800.	Same as the proposed action	Same as the proposed action	Same as the proposed action
All Potential Archeological Sites	Prepare a comprehensive parkwide inventory; survey areas to be affected by development and complete consultation process before construction.	Same as the proposed action	Same as the proposed action	Same as the proposed action

Topic	Proposed Action	Alternative A	Alternative B	Alternative C
LAND PROTECTION				
Spring Valley and Snake Valley Viewsheds	Review, evaluate, and make recommendations to local governments concerning all major proposed developments or activities that might affect the visual integrity of the two valleys.	No action	Same as the proposed action	Same as the proposed action
Mt. Washington Addition	No action	No action	Add 1,850 acres to the park along the western boundary adjacent to Mt. Washington.	No action
Baker Ridge Addition	Add 1,280 acres along the eastern park boundary adjacent to the proposed Great Basin visitor center on Baker Ridge.	No action	No action	No action
Rights-of-Way, Cooperative Agreements, and Easements	Obtain rights-of-way from the BLM and Forest Service for access to the park along the new park entrance road and the Strawberry Creek, Snake Creek, Big Wash, and Lexington Arch approach roads; establish cooperative agreements with the Forest Service for development and use of the parking area/trailheads at Big Wash and Lexington Arch; seek an easement for the portion of the Big Wash trail that crosses private land.	Establish cooperative agreements with the BLM and Forest Service to maintain and use the Strawberry Creek, Snake Creek, and Lexington Arch trailhead approach roads.	Obtain rights-of-way from the BLM and Forest Service for access to the park along the Strawberry Creek, Snake Creek, and Lexington Arch approach roads; establish a cooperative agreement with the Forest Service for the Lexington Arch trailhead.	Same as the proposed action except that two rights-of-way would be obtained for Lexington Arch; in addition, a cooperative agreement would be established with the Forest Service for the Pole Canyon/Kious Basin trail connection, and the Park Service would seek transfer of a 25-acre Forest Service site below Mt. Washington for development as a visitor contact station.
Patented Mining Claims adjacent to the Park Boundary	Submit a recommendation to Congress for a boundary addition to acquire the patented claims on the west side of the park near Mt. Washington to ensure preservation of the nationally significant bristlecone pine resource.	Same as the proposed action	No action (add the approximately 1,850 acres to the park that contain the patented claims)	Same as the proposed action

TABLE 3: SUMMARY OF ALTERNATIVE ZONING ACREAGES

Zone/Subzone	Proposed Action	Alternative A	Alternative B	Alternative C
Park Development	1,148	939	939	2,000
Modern	1,148	939	939	2,000
Natural	77,204	76,983	77,983	75,072
Rural	2,341	4,178	1,850	1,395
Semi-Primitive Day Use	1,574	1,574	1,441	3,847
Semi-Primitive	28,486	12,356	17,344	47,650
Primitive	33,196	58,025	45,741	22,180
Protected Natural Area	9,334	0	9,334	0
Research Natural Area	2,273	0	2,273	0
Special Use	10	10	10	10
Totals	**78,362**	**77,082**	**78,932**	**77,082**

TABLE 4: SUMMARY OF ALTERNATIVE TRAIL MILEAGES AND TYPES

	Trail Mileages for Each Alternative			
	Proposed Action	**Alternative A**	**Alternative B**	**Alternative C**
Existing trails that would be maintained or upgraded and maintained	60	36	38	60
New trails that would be constructed	24	1	10	25
Total trail mileage	84	37	48	85
	Trail Types for Each Alternative			
Horse/Hiker	64	31	30	64
Hiker Only	20	6	18	21

TABLE 5: SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Impact Topic	Proposed Action	Alternative A	Alternative B	Alternative C
BIOLOGICAL AND PHYSICAL RESOURCES				
Bristlecone Pine Forests	The proposed action would provide increased protection to all bristlecone stands in the park. Vehicular access to the Mt. Washington stands would be eliminated; trails in the Wheeler Peak stand would be improved; all other known stands would be in the protected natural area subzone.	Alternative A would provide increased protection to the Mt. Washington and Wheeler Peak stands. Vehicular access to the Mt. Washington stands would be eliminated; trails in the Wheeler Peak stand would be improved. Other stands would not be zoned as protected natural areas.	Same as the proposed action	Alternative C would provide increased visitor access to the Mt. Washington stand, which could cause additional impacts. Trails in the Wheeler Peak stand would be improved; other stands would not be zoned as protected natural area zones.
Riparian Areas and Water Quality	Domestic livestock grazing would continue to adversely affect riparian areas and water quality, but to a lesser degree than at present. Development would be removed from approximately 2 acres of riparian habitat. The construction of new bridges would eliminate approximately ¼ acre of riparian habitat.	Domestic livestock grazing would continue to adversely affect riparian areas and water quality. Development would be removed from approximately 2 acres of riparian habitat. No additional developments would be placed in riparian areas.	Domestic livestock grazing would continue to adversely affect riparian areas and water quality, but to a lesser degree than at present. Development would be removed from approximately 2 acres of riparian habitat. No additional developments would be placed in riparian areas.	Same as the proposed action
Alpine/Subalpine Areas	Alpine/subalpine areas would receive increased protection. New development would be limited to trails, and domestic livestock grazing would be prohibited in areas above 10,500 feet in elevation.	No development would be placed in alpine/subalpine areas. Domestic livestock grazing would continue.	Same as the proposed action	Improved access and new development in subalpine areas around Mt. Washington would attract more visitors to the sensitive meadows and high elevation vegetation communities, which could cause additional impacts.
Rare and Sensitive Plant Species	Proposed actions would provide increased protection to rare and sensitive plant species by prohibiting grazing above 10,500 feet and limiting the impacts from mining and recreational use.	Grazing would continue above 10,500 feet and would likely have an adverse effect on high elevation sensitive species. Increased protection would be provided by limiting the impacts from mining and recreational use.	Same as the proposed action	Grazing would continue above 10,500 feet and would likely have an adverse effect on high elevation sensitive species. Increased protection would be provided by limiting the impacts from mining. A greater number of visitors would be attracted to habitat occupied by rare and sensitive species around Mt. Washington, which could cause additional impacts.
Peregrine Falcons	The Park Service would actively seek to reestablish peregrine falcons and would provide additional protection for their habitat. There would be no developments near peregrine habitat on the west side of the park.	Same as the proposed action	Same as the proposed action	Peregrine falcon habitat would be adversely affected by proposed developments and uses on the west side of the South Snake Range.

Impact Topic	Proposed Action	Alternative A	Alternative B	Alternative C
Bonneville Cutthroat Trout	Habitat for the existing Bonneville cutthroat trout population would be further protected by zoning it as protected natural area and eliminating grazing within the subzone. Trout populations would be reintroduced into east-side streams, expanding their range.	There would be no additional protection for the existing Bonneville cutthroat population and no reintroductions of populations in the historic range on east side of the park.	Same as the proposed action, except that trout reintroductions into east-side streams would be more extensive	Little additional protection would be provided to the existing Bonneville cutthroat population; grazing would continue to be permitted in trout habitat and would be controlled through management techniques. Trout populations would be reintroduced into all east-side streams, expanding their range.
Biological Diversity	There would be few direct effects on biological diversity. The fire management plan might contain provisions to allow natural fires to burn, which would help assure a diversity in habitats.	Same as the proposed action	Same as the proposed action	Same as the proposed action
Caves	The total number of developments on areas with the potential for underlying caves would decrease. More developments would be removed from these areas than would be constructed on them.	More developments would be built on areas with the potential for underlying caves, which would increase direct effects and possible future effects.	The total number of developments on areas with the potential for underlying caves would decrease. Some developments would be removed from these areas, and no new developments would be constructed on them.	The total number of developments on areas with the potential for underlying caves would increase. More developments would be built on these areas than would be removed from them.
Air Quality	Impacts on air quality would be minor.	Same as the proposed action	Same as the proposed action	Same as the proposed action
Vistas	Most NPS operational developments would be removed from the park, improving vistas in and of those areas.	No NPS developments would be removed from the park. Existing developments would continue to intrude on vistas.	All NPS operational developments would be removed from the park, improving vistas in and of those areas.	Most existing developments would remain in the park, and new developments would be constructed, resulting in additional impacts on vistas.
Floodplains and Wetlands	Two campgrounds would be removed from apparent floodplains (floodplains have not yet been mapped). New road alignments would require construction of two bridge crossings over apparent creek floodplains and associated riparian wetlands. Design of the bridge crossings would minimize the effects on these areas.	Two campgrounds would be removed from apparent floodplains. No additional developments would be constructed in floodplains or wetlands.	Same as alternative A	Same as the proposed action
Soils	About 124 acres of soils would be disturbed (36% BLM, 7% USFS, 57% NPS); 27 acres would be rehabilitated and revegetated. Grazing management actions would reduce the potential for soil erosion in areas above 10,500 feet and in riparian areas.	About 24 acres of soils would be disturbed (1% USFS, 99% NPS); 7 acres would be rehabilitated and revegetated. There would be little change in the potential for soil erosion.	About 73 acres of soils would be disturbed (23% BLM, 7% USFS, 70% NPS); 36 acres would be rehabilitated and revegetated. The impacts of grazing management actions would be the same as for the proposed action.	About 183 acres of soils would be disturbed (30% BLM, 9% USFS, 61% NPS); 21 acres would be rehabilitated and revegetated. There would be little change in the potential for soil erosion.
CULTURAL RESOURCES	Proposed actions would generally upgrade the preservation, protection, and interpretation of historic and archeological resources in the park.	Same as the proposed action	Same as the proposed action	Same as the proposed action

Impact Topic	Proposed Action	Alternative A	Alternative B	Alternative C
HUMAN ENVIRONMENT				
Livestock Grazing Permittees	Permittees would be required to restrict grazing livestock to certain locations but would be assured the continued availability of grazing allotments in the park.	There would be no impacts on grazing permittees.	Same as the proposed action	Same as the proposed action
Mineral Interests	Miners would face increased regulation. Economic impacts would be minimal.	Same as the proposed action	Same as the proposed action	Same as the proposed action
Residents and Private Property Owners	There would be a substantial reduction in traffic volumes and noise along the existing entrance road and an increase in traffic and noise south of Baker near the new scenic drive. Landowners adjacent to the park might be prevented from constructing certain types and levels of developments if those developments would affect the park's exceptional resources.	Traffic on the existing entrance road would increase as park visitation increased. Landowners adjacent to the park might be prevented from constructing certain types and levels of developments if those developments would affect the park's exceptional resources.	Same as alternative A	Same as the proposed action
Regional Economy	Actions would have a positive impact on the regional economy, but the actual economic benefit would be small.	Same as the proposed action except that the economic benefit would be smaller	Same as alternative A	Same as the proposed action, except that the economic benefit would be somewhat larger
Local Visitors	Opportunities for many traditional recreational uses would continue to be provided. Some consumptive and other recreational activities (for example, hunting, tree cutting, unrestricted four-wheel driving, undesignated camping, trapping, commercial harvesting, prospecting, and collecting) would be prohibited or more closely regulated than in the past.	Same as the proposed action	Same as the proposed action except that the upper reaches of Snake Creek would be closed to vehicular use	Same as the proposed action, except that Snake Creek would become a major developed area and the Snake Creek road would be paved, which would change the traditional experience in that drainage
Other Visitors	Visitor understanding and appreciation of the park would increase and a greater diversity of recreational opportunities would be provided.	Only limited new services, access, and interpretive programs would be provided for visitors.	Opportunities to explore the park's backcountry would be expanded. Few additional frontcountry services would be provided.	Same as the proposed action, except that more areas would be accessible by car and more frontcountry services would be provided
MANAGEMENT				
Park Management and Operations	Substantial increases in law enforcement, resource management, and maintenance staffing and funding and slight increases in interpretive personnel and funding would be required.	Moderate increases in law enforcement and resource management staffing and funding and slight increases in maintenance and interpretation staffing and funding would be required.	Substantial increases in maintenance staffing and funding, moderate increases in law enforcement and resource management, and slight increases in interpretation would be required.	Substantial increases in law enforcement, resource management, maintenance, and interpretive staffing and funding would be required.
U.S. Forest Service and Bureau of Land Management	There would be few impacts on these agencies.	Same as the proposed action	Same as the proposed action	Same as the proposed action



AFFECTED ENVIRONMENT

REGIONAL CONTEXT AND SOCIOECONOMIC PROFILE

Great Basin National Park is in the southern portion of the Snake Range in east-central Nevada. The park lies entirely within White Pine County, Nevada, just west of the towns of Baker, Nevada, and Garrison, Utah. It is centrally located in a four-county region that includes White Pine and Lincoln counties in Nevada and Millard and Beaver counties in Utah. The Utah border is only 12 miles east of the park boundary. The two largest towns within a relatively short distance of the park are Ely, Nevada, about 65 miles northwest, and Delta, Utah, about 90 miles east. Other major population centers within a six-hour drive of the park include Salt Lake City, Utah, 250 miles northeast, and Las Vegas, Nevada, 300 miles south-southwest.

ACCESS AND TRANSPORTATION

The entrance to Great Basin National Park is about 5 miles south of US 6/50 on Nevada Highway 487 in the town of Baker. Although the park is in a relatively isolated part of the region, it is served by a well-maintained road system and is easily accessible by automobile. US 6/50 is the major east-west thoroughfare through the region. It departs from Interstate 70 in Utah, heads west through Delta, and passes through the Snake Range just north of the park. US 6/50 splits in Ely; US 50 heads due west across the state, and US 6 goes southwest to Tonopah, Nevada. US 93 is a major north-south route through the region that runs north from Las Vegas, passes through Spring Valley and Ely west of the park, and continues north to Twin Falls, Idaho. Highway 487 runs south from US 6/50 through the Snake Valley, which borders the park on the east. Nevada Highway 487 ends at the state line, where Utah 21 continues through Garrison, Utah.

Nevada Highway 488 is the primary entrance road for the park and also serves several private residences and businesses just outside the park boundary. Numerous improved and unimproved dirt roads and four-wheel-drive trails lead from the main arteries that surround the park across Snake and Spring valleys, providing access to Humboldt National Forest, a number of privately owned lands, inactive mines, and the small communities of Shoshone and Minerva. Most of these routes are closed at the park boundary; exceptions are the Snake Creek, Strawberry Creek, Baker Creek, and Lexington Creek access roads.

Commercial and charter airlines serve Yelland Field in Ely, where car rentals are available. Sierra Nevada Stage Lines has bus service to Ely. There is no commercial rail transportation into the region at present.

LANDOWNERSHIP AND USE

The four-county region surrounding the park (Lincoln, White Pine, Millard, and Beaver) totals 28,941 square miles. To date, no comprehensive land use map exists for this region. However, a telephone survey of land-managing agencies in Nevada and Utah enabled the planning team to determine land use and landownership for 97.7 percent of the lands within the region. The survey indicated that 92.1 percent of the lands are federally owned and managed, and the majority are under the jurisdiction of the Bureau of Land Management. The remaining 5.6 percent of the lands are privately owned and include residential and commercial property, agricultural land, and patented mines. Table 6 summarizes land use and landownership for the four county region. The major land uses on both public and private lands are agriculture, ranching, grazing, hunting, fishing, forestry, recreation and tourism, mining, and oil and gas development.

Table 6: Landownership in White Pine, Lincoln, Millard, and Beaver Counties

Federal Lands	**92.1%**
National Park Service	0.4%
Bureau of Land Management	78.0%
U.S. Forest Service	7.1%
U.S. Fish and Wildlife Service	4.2%
State and Local Government	1.0%
Department of Defense/Army Corps of Engineers	1.0%
Tribal Lands	0.4%
Privately Owned Lands	**5.6%**
Agriculture, residential, commercial, patented mines	
Other – information unavailable	**2.3%**

Agriculture, Ranching, and Grazing

Small ranches and farms occur throughout the region, with Millard County leading in alfalfa, barley, wheat, corn, and potato production. Most of the 40,000 acres of private land around the park are used for grazing and alfalfa production. Livestock grazing is important to the regional economy, and there are 15 ranches in operation. All public lands in and around the park are divided into grazing allotments, and the area relies heavily on federal rangelands. The U.S. Forest Service and National Park Service administer seven allotments in and around the park. The heaviest cattle and sheep grazing occurs from June through October.

Mining/Oil and Gas Leasing

During the past 120 years, many mineral commodities have been extracted from mines in the northern portion of the four-county region. Tungsten and gold have been the highest yielding commodities. Lesser amounts of silver, lead, zinc, and copper have been extracted, along with small quantities of garnet, marble, and quartzite used as decorative stone. Beryllium, fluorspar, gypsum, and leasable salines such as sodium and potassium have also been removed by small mining operations. There are currently seven mining districts and a limestone quarry in the Snake Range and 15 patented claims or claim groups covering approximately 1,000 acres in the park vicinity.

Beginning in the late 1860s and extending until the park's creation, prospecting and mining occurred in several areas of the park. Numerous claims were filed around Mt. Washington, in upper Strawberry Creek, and in upper Snake Creek. Some of these claims were filed as recently as the 1950s. None of the mines in the park produced enough high-quality ore to be commercially successful, although several resulted in extensive exploratory excavations.

Geologists have determined that the Snake and Spring valleys have favorable subsurface environments for the formation of oil and gas resources. Therefore, oil and gas lease applications cover all of Spring Valley and most of Snake Valley. There have been no reported discoveries of oil or gas to date, although exploration and drilling activities have been occurring for some time in both valleys.

Forestry

No large-scale commercial timbering occurs in the South Snake Range, but forest products are used by local residents and commercial operators. Residents and operators cut Christmas trees and gather down and dead wood for firewood. Local people occasionally cut junipers for fence posts and harvest pinyon nuts. The most heavily used forest lands in the area are near Sacramento Pass, where access is easiest, and near the Utah border, where slopes are gentle.

Special Use Permits

A number of Forest Service and Bureau of Land Management special use permits have been issued in the park vicinity for road building, powerline easements, microwave stations, telephone relay stations, pipelines, small water diversions, and reservoirs. Currently, a major east/west transmission corridor with two 230KV lines goes through the Sacramento Pass area.

Recreation and Tourism

Visitors to the Great Basin region can find basic services in Baker, Nevada, a small community that supports two motels with 21 rooms, three restaurants, a general store, and a gas station. The towns of Ely, Delta, and Beaver (119 miles east in Utah) provide a greater range of services including motels, restaurants, gasoline and automotive services, grocery and convenience stores, clothing stores, and banks. The nearest medical services are in Ely.

Following are the some of the major recreational attractions within a 100-mile radius of Great Basin National Park (see the Recreational Opportunities map for locations).

Nevada

Cave Lake State Park (15 miles south of Ely) – boating, fishing, camping, and picnicking

Spring Valley State Park (18 miles east of Pioche) – 65 acres of surface water; boating, camping, and picnicking

Echo Canyon State Recreation Area (12 miles east of Pioche) – boating, camping, fishing, and picnicking

Cathedral Gorge State Park (2 miles south of Panaca) – high walls of gray/tan eroded bentonite formations; camping, picnicking, and hiking

Kershaw-Ryan State Park (3 miles south of Caliente) – cliffs and canyons

Ward Charcoal Ovens State Historic Site (near Ely) – stone beehive ovens from early charcoal production

Beaver Dam State Park (35 miles northeast of Caliente) – mountain setting of pine forests and cliffs; hunting, fishing, camping, and hiking

Utah

Fish Springs National Wildlife Refuge (23 miles east of Calleo on the Pony Express Trail) – 18,000 acres of marshland; excellent for birdwatching

Minersville State Park (12 miles west of Beaver) – 1,100-acre reservoir; boating and camping

Other attractions within a 100-mile radius of the park include Fort Deseret, Gunnison Massacre National Monument, the territorial statehouse in Fillmore, the old Cove Fort, the old Frisco mining town, and the old Pony Express route. Within a day's drive are Red Canyon in Dixie National Forest, Cedar Breaks National Monument, and Bryce Canyon National Monument.

Hunting and fishing are major activities throughout the four-county region. Mule deer, elk, and grouse are hunted in the mountains; pronghorn antelope, chukar, and quail are found in desert and foothills areas. Trout fishing occurs in most major perennial streams, and bass fishing is popular at reservoirs in the region. There are 28 public and private campgrounds in a 110-mile radius of Great Basin National Park with a combined total of 788 sites.

POPULATION

Regional patterns of population growth and change reflect differences among regions in their ability to attract and retain people as both producers and consumers. Population growth for the four-county region surrounding Great Basin National Park can be put into perspective by comparing the region's population index with indexes for Nevada and Utah.

The following observations can be drawn from this information:

From 1975 to 1987 the region's population increased by 16 percent, significantly less than the Nevada increase (62 percent) and the Utah increase (36 percent).

From 1980 to 1985 the region's population increased by 21 percent compared to a 16 percent increase for Nevada and a 12 percent increase for Utah.

Between 1985 and 1987 the region's population decreased by 2,000 residents.

The four-county region remains sparsely populated. In 1987 the region had a population density of 1 person per square mile, as compared with 91 persons per square mile for Nevada and 198 persons per square mile for Utah as a whole.

TABLE 7: POPULATION AND POPULATION INDEXES – 1975-1987

Year	Nevada (000)	Utah (000)	Region (000)	Nevada Index	Utah Index	Region Index
1975	619.8	1,233.9	24.8	100.0	100.0	100.0
1976	646.8	1,272.4	24.8	104.4	103.1	100.0
1977	678.1	1,316.4	24.1	109.4	106.7	97.2
1978	719.3	1,364.2	25.0	116.1	110.6	100.8
1979	765.1	1,416.1	24.8	123.4	114.8	100.0
1980	809.9	1,472.6	25.6	130.7	119.3	103.2
1981	845.8	1,515.6	26.9	136.5	122.8	108.5
1982	878.1	1,558.8	27.5	141.7	126.3	110.9
1983	896.9	1,596.0	28.4	144.7	129.3	114.5
1984	916.6	1,623.8	30.0	147.9	131.6	121.0
1985	936.5	1,645.1	30.9	151.1	133.3	124.6
1986	967.4	1,664.3	30.0	156.1	134.9	121.0
1987	1007.3	1,680.0	28.9	162.5	136.2	116.5

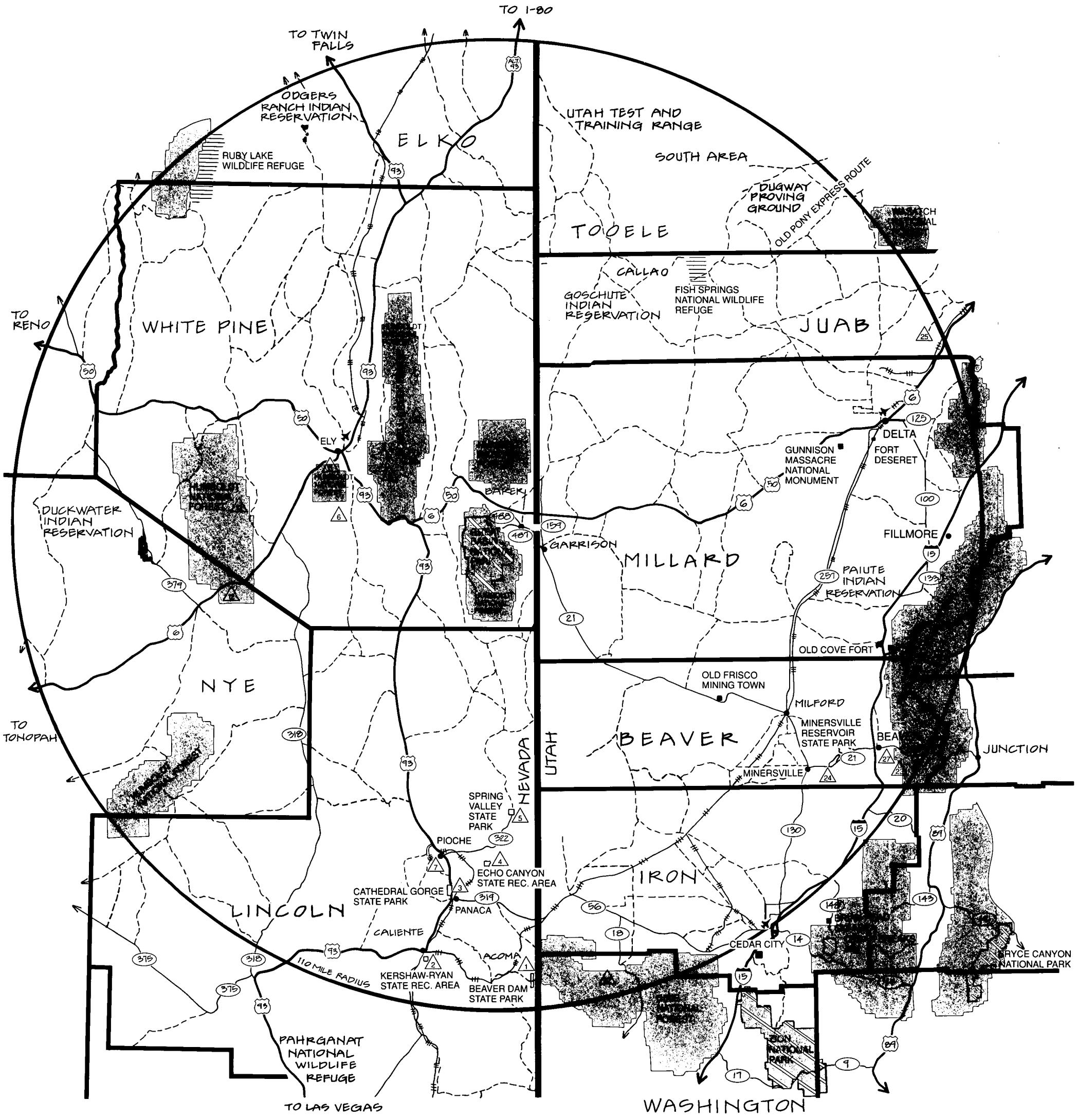
ECONOMY

From the early 1900s the Great Basin region supported a stable mining and agricultural economy. Gold, silver, and copper mining flourished for approximately 70 years until falling mineral prices, increasing foreign competition, and increasing operating costs brought about its decline in the 1970s. Agriculture grew along with the mining industry, as settlers established small farms and ranches to provide food for the mining operations scattered throughout the region. Although the lifestyles associated with mining and ranching continue, the economic focus of the region has diversified to a point where mining and agriculture are no longer the only mainstays of the economy.

Three factors have been considered in evaluating current economic conditions and trends in the four-county Great Basin region – total personal income, per capita income, and employment. For consistency of analysis, all income and industry earnings figures have been converted to 1989 dollars.

Total Personal Income

The growth and change of total personal income is a measure of the vitality of a region's economy. Increases over time in real (inflation adjusted) total personal income serve

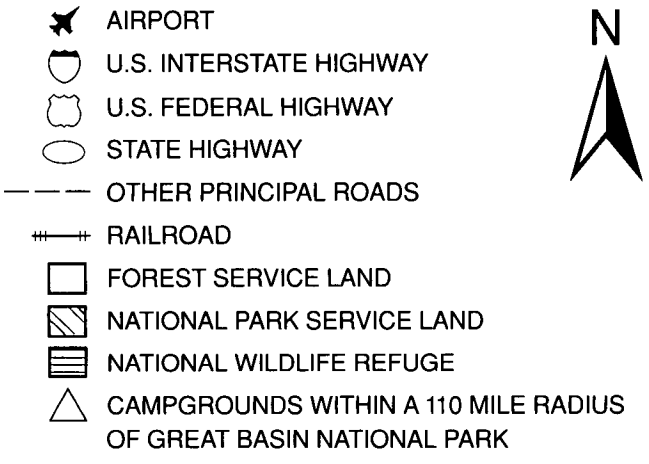

TO I-80
TO TWIN FALLS
TO RENO
TO TONOPAH
TO LAS VEGAS
ODGERS RANCH INDIAN RESERVATION
RUBY LAKE WILDLIFE REFUGE
ELKO
UTAH TEST AND TRAINING RANGE
SOUTH AREA
DUGWAY PROVING GROUND
OLD PONY EXPRESS ROUTE
TOOELE
CALLAO
GOSCHUTE INDIAN RESERVATION
FISH SPRINGS NATIONAL WILDLIFE REFUGE
JUAB
WHITE PINE
ELY
DELTA
FORT DESERET
GUNNISON MASSACRE NATIONAL MONUMENT
FILLMORE
DUCKWATER INDIAN RESERVATION
BAKER
GARRISON
MILLARD
PAIUTE INDIAN RESERVATION
OLD COVE FORT
OLD FRISCO MINING TOWN
MILFORD
MINERSVILLE RESERVOIR STATE PARK
MINERSVILLE
BEAVER
JUNCTION
NYE
UTAH
NEVADA
SPRING VALLEY STATE PARK
PIOCHE
ECHO CANYON STATE REC. AREA
CATHEDRAL GORGE STATE PARK
PANACA
LINCOLN
CALIENTE
ACOMA
110 MILE RADIUS
KERSHAW-RYAN STATE REC. AREA
BEAVER DAM STATE PARK
IRON
CEDAR CITY
BRYCE CANYON NATIONAL PARK
PAHRGANAT NATIONAL WILDLIFE REFUGE
WASHINGTON

ON MICROFILM

RECREATIONAL OPPORTUNITIES
GREAT BASIN REGION
GREAT BASIN NATIONAL PARK

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

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NSP = NEVADA STATE PARK
CITY = CITY PARK
USP = UTAH STATE PARK
FS = US FOREST SERVICE
PRIV = PRIVATELY OWNED
BLM = BUREAU OF LAND MANAGEMENT

NEVADA CAMPGROUNDS

	TYPE	NAME	NEAREST TOWN	# SITES
1	NSP	BEAVER DAM STATE PARK	CALIENTE	52
2	NSP	KERSHAW-RYAN STATE RECREATION AREA	CALIENTE	12
3	NSP	CATHEDRAL GORGE	PANACA	22
4	NSP	ECHO CANYON RESERVOIR	PIOCHE	34
5	NSP	SPRING VALLEY	PIOCHE	42
6	NSP	WARD CHARCOAL OVENS	ELY	6
7	CITY	PIOCHE RV	PIOCHE	10
8	NSP	CAVE LAKE STATE RECREATION AREA	ELY	20
9	BLM	CLEVE CREEK	ELY	6
10	FS	TIMBER CREEK	ELY	6
11	FS	WARD MOUNTAIN	ELY	22
12	FS	CURRANT CREEK	CURRANT	7
13	FS	WHITE RIVER	CURRANT	4
14	BLM	GARNET HILL	ELY	3
15	BLM	ILLIPAH RESERVOIR	ELY	8
16*	PRIV	KOA OF ELY	ELY	140
17*	PRIV	LANES RANCH MOTEL	ELY	15
18*	BLM	MEADOW VALLEY	ELY	6
19*	PRIV	PIONEER RV LODGE	ELY	8
20*	PRIV	RAINBOW RV PARK	ELY	10
21*	PRIV	VALLEY VIEW RV PARK	ELY	68

UTAH CAMPGROUNDS

22	FS	HONEYCOMB ROCKS	ENTERPRISE	23
23	FS	KENTS LAKE	BEAVER	17
24	USP	MINERSVILLE	BEAVER	29
25	BLM	LITTLE SAHARA REC AREA	OASIS	84
26	BLM	SIMPSON SPRINGS	VERNON	20
27	PRIV	BEAVER CANYON	BEAVER	105

*CAMPGROUNDS LOCATED IN ELY, NEVADA, VICINITY ARE NOT SHOWN ON MAP

as an indicator of overall regional economic growth. Economic growth for the four-county region can be evaluated by comparing the region's income index with similar indexes for Nevada and Utah. Table 8 compares these indexes.

TABLE 8: TOTAL PERSONAL INCOME – 1975-1987

Year	Nevada Deflated (000$)	Utah Deflated (000$)	Region Deflated (000$)	Nevada Index	Utah Index	Region Index
1975	7,126,637	10,397,583	199,186	100.0	100.0	100.0
1976	7,740,339	11,204,487	193,730	108.6	107.8	97.3
1977	8,473,750	11,975,247	200,262	118.9	115.2	100.5
1978	9,624,426	12,891,184	213,260	135.0	124.0	107.1
1979	10,254,820	13,413,702	205,711	143.9	129.0	103.3
1980	10,681,483	13,522,100	221,543	149.9	130.1	111.2
1981	11,055,362	13,873,875	230,004	155.1	133.4	115.5
1982	10,956,163	14,091,124	224,892	153.7	135.5	112.9
1983	11,142,838	14,407,024	241,614	156.4	138.6	121.3
1984	11,728,389	15,195,057	276,117	164.6	146.1	138.6
1985	12,366,729	15,691,913	301,888	173.5	150.9	151.6
1986	13,087,681	15,996,969	286,416	183.6	153.9	143.8
1987	13,819,826	16,007,808	270,177	193.9	154.0	135.6

Table 8 provides the following information:

From 1975 to 1987 the region's personal income increased by 36 percent in real terms. This is significantly less than the Nevada increase (94 percent) and the Utah increase (54 percent).

From 1982 to 1985 total personal income in the region increased by 34 percent in real terms compared to a 13 percent increase for Nevada and a 11 percent increase for Utah.

Between 1985 and 1987 the region's total personal income decreased by $31.7 million.

TABLE 9: SOURCES OF EARNED INCOME BY PLACE OF WORK – 1987 (1989 DOLLARS)

Source	Nevada (000$)	Utah (000$)	Region (000$)	Nevada Percent	Utah Percent	Region Percent
Farm	63,236	212,634	22,954	0.5	1.3	8.5
Other	56,924	42,413	1,148	0.4	0.3	0.4
Mining	347,841	340,080	24,480	2.6	2.1	9.1
Construction	1,118,909	1,041,248	24,053	8.3	6.5	8.9
Manufacturing	640,359	2,619,005	8,446	4.7	16.4	3.1
Transp./Pub. Util.	963,921	1,353,090	46,326	7.1	8.5	17.1
Trade	1,945,187	2,518,142	26,801	14.4	15.8	9.9
Fin./Ins./Real Est.	622,546	893,191	4,430	4.6	5.6	1.6
Service	5,776,796	3,572,509	64,845	42.6	22.4	24.0
Government	2,011,745	3389,659	46,760	14.8	21.2	17.3
Total	**13,547,464**	**15,981,970**	**270,244**	**100.0**	**100.0**	**100.0**

Table 9 shows the sources of earned income by place of work in 1987. Comparison of the sources for the four-county region indicates that the region's economy is much more natural resource dependent than either Nevada or Utah as a whole, particularly in terms of agriculture, mining, and electrical power generation. The region's manufacturing sector is less developed than Utah's and its service sector is less developed than Nevada's.

Per Capita Income

Per capita income serves as a general indicator of the economic well-being of area residents. While increases over time in real (inflation adjusted) total personal income serve as an indicator of overall regional economic growth, increases in real per capita income indicate that individual well-being has improved in the region. The region's per capita income figures, as shown in table 10, represent a weighted average based on the population of the four counties.

TABLE 10: PER CAPITA INCOME – 1975-1987

Year	Nevada Deflated	Utah Deflated	Region Deflated	Region /NV	Region /UT
1975	11,498	8,427	8,032	69.9%	95.3%
1976	11,967	8,806	7,812	65.3%	88.7%
1977	12,496	9,097	8,310	66.5%	91.3%
1978	13,380	9,450	8,530	63.8%	90.3%
1979	13,403	9,472	8,295	61.9%	87.6%
1980	13,189	9,182	8,654	65.6%	94.2%
1981	13,071	9,154	8,550	65.4%	93.4%
1982	12,477	9,040	8,178	65.5%	90.5%
1983	12,424	9,027	8,508	68.5%	94.2%
1984	12,796	9,358	9,204	71.9%	98.4%
1985	13,205	9,539	9,770	74.0%	102.4%
1986	13,529	9,612	9,547	70.6%	99.3%
1987	13,720	9,528	9,349	68.1%	98.1%

The table 10 figures indicate the following:

Between 1975 and 1987 the region's real per capita income tended to remain below both Nevada's and Utah's, averaging 33 percent less than Nevada's, 6 percent less than Utah's, and 25 percent less than the U.S. as a whole.

During the period from 1982 to 1985 the region's real per capita income increased relative to Utah's and exceeded the state average for Utah in 1985.

Between 1985 and 1987 the region's per real capita income decreased by $526.

Employment

The service industries, retail trade sector, and local, state, and federal governments are the region's principal employers, with over two-thirds of the nonagricultural wage and salary work force. The transportation and public utility sector accounts for an additional 10 percent of the work force, and mining and construction split 10 percent. Table 11 and figure 1 summarize employment by major industry for the four-county region.

TABLE 11: REGIONAL EMPLOYMENT – 1982/1985/1987

Sector	1982 Jobs	1985 Jobs	1987 Jobs
Farm	1,700	1,639	1,634
Other	87	85	94
Mining	650	733	645
Construction	617	2,818	741
Manufacturing	610	468	413
Transp./Pub. Util.	591	976	1,109
Trade	2,373	2,673	2,531
Fin./Ins./Real Est.	441	417	437
Service	2,518	3,025	3,083
Government	2,300	2463	2,506

Analysis of regional employment figures indicates four major changes in the region's economy between 1982 and 1987:

a 357 percent increase in the construction sector between 1982 and 1985; this construction activity has since subsided, and employment has returned to near 1982 levels

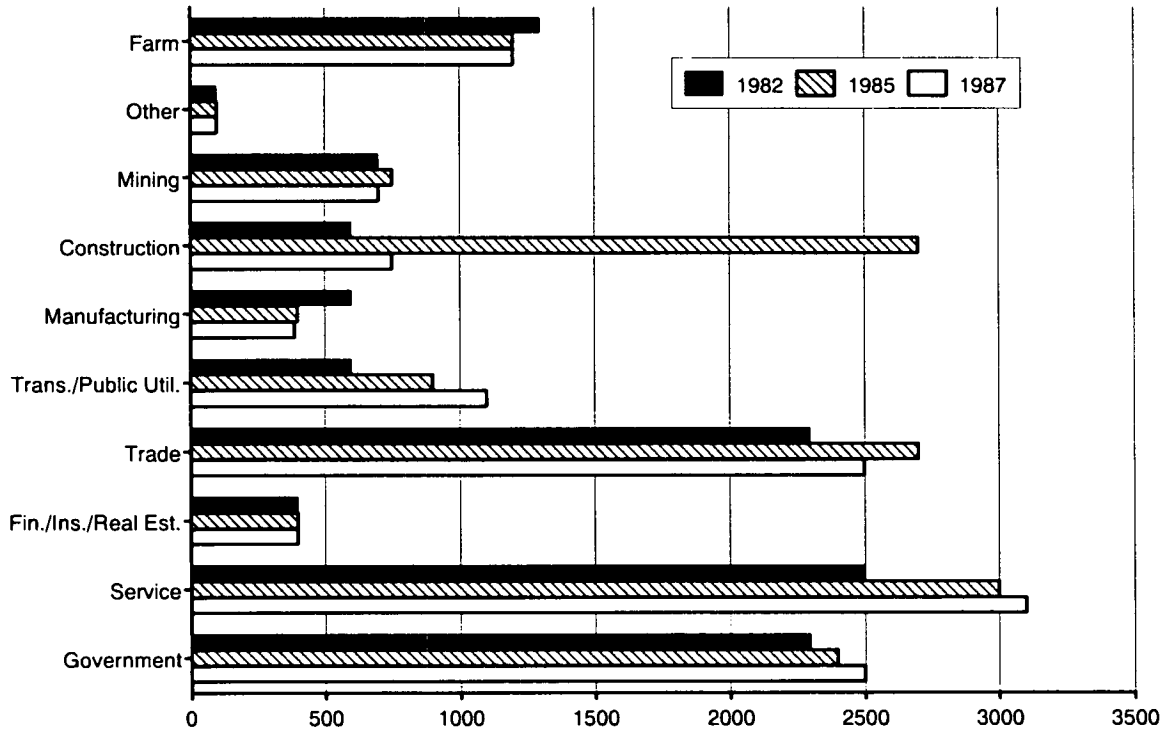
a 32 percent decline in the manufacturing sector, primarily in the primary metal industries

an 88 percent expansion of the transportation and public utilities sector, primarily in the electrical services industry

a 22 percent increase in the service sector, primarily due to increased business services

A fifth change in the region's economy has been the establishment of Great Basin National Park. However, since the park was not established until 1986, the data are not current enough to fully reflect this change.

REGIONAL EMPLOYMENT BY MAJOR INDUSTRY



PARK ENVIRONMENT

NATURAL ENVIRONMENT

Climate

Great Basin National Park lies in a cold desert climate. Cold deserts are characterized by cold, harsh winters, low precipitation scattered fairly evenly throughout the year, and great extremes in both daily and seasonal temperatures. Typically, winters are cold and relatively dry with occasional snow or rainfall from storms coming predominately from the west off the Pacific Ocean. Because of the rain shadow effect created by the Sierra Nevada range, only the strongest storms contribute much precipitation. Summers are generally hot and dry with frequent mountain thunderstorms. There is a wide elevation range within the park and a corresponding range of mean temperatures and rainfall. Higher elevations have much greater annual precipitation and lower mean annual temperatures.

Air Quality and Visual Resources

Air quality in the vicinity of the park is excellent at the present time. Until it was shut down, the single major stationary source of air pollution was the copper smelter at McGill, Nevada, approximately 35 miles northwest. At present, the Intermountain Power Project coal-fired power plant at Lynndyl, Utah, 100 miles northeast of the park, is the nearest major air pollution source. Future sources could include several proposed coal-fired power plants, including the White Pine County plant (1,500 mW), to be located near Ely, Nevada, 35 miles northwest of the park, the Thousand Springs plant (2,000 mW), 150 miles north, the Harry Allen plant (2,000 mW), 140 miles south, and a plant (unknown mW) to be located next to the existing Gardner power plant on the Moapa Indian Reservation, 135 miles south of the park. A number of hazardous waste incinerators are also proposed, the closest of which would be located on the Utah-Nevada border on the Goshute Indian Reservation, 50 miles north of the park.

The park also has exceptional visual quality. The central southwest, including eastern Nevada, generally has the best visual quality anywhere in the United States. Mean standard visual ranges greater than 120 miles are noted throughout the year, with the best visibility occurring during the winter (for example, the median visual range at Great Basin during the winter of 1987 was 182 miles; Air Resource Specialists, 1986, 1988). These visibility data are confirmed by data regarding fine particles, which play a major role in visibility impairment. The lowest average fine mass concentrations nationally occur in an area extending from northern California and southern Oregon to the Four Corners region, including eastern Nevada (Cahill, Eldred, and Feeney 1986).

Although the present visual quality at Great Basin is excellent, even slight increases in air pollutant concentrations could cause major decreases in visibility. Similarly, night sky vistas could be significantly diminished by artificial light or visibility-reducing pollutants at developments in the park vicinity. The park (and previously Lehman Caves National Monument) has been monitoring visibility for several years. From 1982 to 1987 park staff operated a manual teleradiometer, a 35mm camera, and a fine particulate (dichotomous) sampler. The teleradiometer and camera recorded the visibility from the park to four targets – Mount Moriah (18 miles), Conger Mountain (30 miles), Notch Peak (44 miles), and Peak 8070 (37 miles) – three times a day. In 1987 the teleradiometer was replaced with an automated visibility monitoring station. Under the auspices of the NPS visibility monitoring and data analysis program, this station is also part of the interagency monitoring of protected visual environments (IMPROVE) program.

In addition to monitoring the visual range observable from the park, since 1985 the park (and formerly Lehman Caves National Monument) pas operated a national atmospheric deposition program (NADP) sampler. This site collects precipitation samples, which are analyzed for pH, conductivity, and chemical composition. Since the automatic air quality camera reveals only the presence of particulate pollution, the NADP samples are extremely important for revealing nonvisible air pollutants.

Topography, Geology, and Soils

The landscape of the South Snake Range is one of contrast. In the central portion are mountains, heavily timbered at mid elevations, that extend above timberline and are capped by alpine vegetation. Rising to over 12,000 feet, some of the summits are broad and rounded, others are glaciated with sharp, jagged peaks. Creek valleys are generally steep and narrow. At the southern end of the range many of the creeks lie in deep canyons. Surrounding the range on both the east and west sides are broad, flat, sparsely vegetated valleys. These valleys were once the floors of two separate lakes that have now evaporated.

Igneous and sedimentary rocks of varying ages form the South Snake Range. Some of the park, including the main developed area around Lehman Cave, is underlain by limestone deposits containing numerous caves. Quartzites and quartz monzonites form the base of the range and often are exposed at the surface.

The park has a geologic history representative of the eastern Great Basin. The mountains of western Utah as well as the South Snake Range contain large amounts of limestone, which was deposited on the floor of a warm, shallow sea during the Paleozoic era (between 600 and 245 million years ago). Fossil remains of marine organisms are occasionally present in the park's limestone formations.

Conditions changed in the Mesozoic era (between 245 and 67 million years ago) when the Great Basin region was uplifted and the former sea floor emerged as land and was gradually eroded. As the South Snake Range was elevated, it formed a large dome-shaped structure. Sedimentary formations in the upper section of Paleozoic rocks were stretched, eventually detaching from the rising dome and sliding down the sides, forming low-angle thrust faults.

Beginning about 45 million years ago and extending until 17 million years ago, volcanism dominated much of the Great Basin, and huge eruptions of ash and lava flows changed the landscape. Although volcanic rocks illustrate an important part of Great Basin's geologic history, none occur within the park boundary. There are some tertiary volcanics at the extreme southern end of the South Snake Range, about 10 to 12 miles south of the park.

Seventeen million years ago marked the end of volcanism and doming of the South Snake Range and the beginning of a change in geologic forces. At that time the earth's crust in what is now western Utah and most of Nevada began to uplift and stretch in reaction to a new stress. The crust cracked into great north-south aligned faults, which still move and continue to shape the Great Basin today. The geophysical causes of this new mode of deformation are still being debated, but the result – the alternating ranges and valleys that make up the Great Basin landscape – is obvious. The South Snake Range, which is the backbone of the park, is bound on its east and west sides by faults. Earthquakes attest to the movement along these faults that continues to elevate the range in relation to the adjacent Snake and Spring valleys.

Geologic processes of fairly recent times placed the finishing touches on the park's landscape. Erosion of the South Snake Range accompanied uplift, tearing down the mountains and depositing rocky debris as alluvium in the valleys and along the toes of the mountain slopes. The groundwater present in limestone formations dissolved some of the rock, forming solution caverns such as Lehman Cave and refilling parts of the caverns with crystalline deposits of great beauty.

During the cool, moist Pleistocene epoch, when large pluvial lakes filled the east and west margins of the Great Basin, the water level of Lake Bonneville on the east margin rose so high that it flooded several of Utah's valleys and reached its maximum westward extent in the Snake Valley, only 5 miles northeast of the park. To the west a much smaller but very deep lake filled Spring Valley. Today these valleys are composed of pluvial lake deposits and alluvium. The gentle hills approaching the base of the South Snake Range are primarily old alluvial deposits of varying origins.

The cool climate of the Pleistocene provided sufficient snowfall in the South Snake Range for alpine glaciers to form. Many of the high mountain valleys were deepened and scoured by moving ice. The glaciers also left behind jagged cirques, moraines, and small mountain lakes, providing an alpine appearance seemingly out of place in the arid region. The remnant glacier and rock glacier in the Wheeler Peak cirque are reminders of this climatic change.

A systematic soil survey has not been completed for Great Basin National Park. In general, the soils of the region reflect the moderate complexity of the parent material. They are fairly deep where formed over alluvium and quite shallow on hillsides. Most are excessively well drained. At elevations above timberline, soils are very poorly formed and often exist only in isolated pockets protected from the erosive effects of wind. The various soils, particularly those formed from limestone, often have specific plant communities associated with them.

Water Resources and Water Quality

The park has numerous small permanent and intermittent streams originating at higher elevations in the South Snake Range. The larger streams are on the east side of the park because of the more gradual elevation gradient and larger catchment basins on that side. Many of the smaller streams disappear into the ground before flowing out of the park. The larger streams usually flow out of the park and into the valleys on either side. There they evaporate, percolate into

the substrate, or are channelled into irrigation ditches for use in valley ranches.

Baker and Lehman creeks are the two largest drainages in the park. The mean annual water yields on these creeks are 6,177 and 3,576 acre feet, respectively. Most of the water in the larger park streams is used by surrounding ranchers for stock watering or agricultural uses. The South Fork of Big Wash has been identified by the Park Service as being eligible for designation as part of the national wild and scenic rivers system.

There are six subalpine lakes in the park near the crest of the South Snake Range. All of these lakes are small and shallow, and all are on the east side of the range. The lakes receive most of their water from springs and subsurface water flow. During spring runoff the lakes rise to their highest levels and the water flow outs and into the permanent streams. After the runoff the lakes decrease in size through evaporation and subsurface seepage.

Because of the geological complexity of the area, the characteristics of groundwater flows are largely unknown; however, it is obvious these flows are significant and play an important role in hydrologic transport. There are numerous springs in the park, some of which hold surprisingly large quantities of water. In addition, there are many large springs on both sides of the South Snake Range in Spring and Snake valleys. These springs are obviously linked by groundwater flows to the catchment basins of the South Snake Range. The groundwater flows are also critical in the formation and maintenance of the numerous limestone caves within the park.

Both Spring and Snake valleys contain substantial underground aquifers with very large groundwater reserves.

The water quality of the streams of the park has not been extensively studied. Data gathered recently by the Environmental Protection Agency indicate that the water quality of the park's alpine and subalpine lakes is exceptionally good and it is likely that the high elevation streams possess similarly pure water. Lower elevation streams flow through riparian zones subjected to grazing, and it is suspected that water quality in these streams is degraded. The extent of this degradation is not known. Research and monitoring activities are currently underway at the park to obtain this information.

Water Rights

Most of the water that originates in the park is allocated by the state of Nevada for use by private individuals for agriculture and livestock watering on the ranches in Snake and Spring valleys. In general, the major uses for water and most points of diversion for taking water are outside the park boundary. Because of this, and with few exceptions, water flows through the park before being diverted, leaving the park's streams with naturally occurring water flows. One exception is lower Snake Creek, where water is diverted within the park and piped for about 3 miles across a permeable streambed, leaving the lower portion of the natural stream channel dry for much of the year.

Nevada's water law in based on the doctrine of prior appropriation. Under this doctrine, the entity that first diverts water for a beneficial use has the prior right to use the water, against all other appropriators that may wish to use the water later. The federal government may also hold federal reserved water rights, which arise from the purposes for which the land is reserved. When the federal government reserves land for a particular purpose, it also reserves, by implication, enough water unappropriated at the time of the reservation as is necessary to accomplish the purposes for which Congress or the president authorized the land to be reserved, without regard to the limitations of state law.

Within the park, water for visitor and administrative uses in the headquarters area is provided by an appropriative water right for Cave Spring – the same right that provided for the use of water to meet visitor and administrative needs at the former Lehman Caves National Monument. This water right was decreed in a 1934 adjudication, at which time the surface water rights in the Lehman and Baker Creek stream systems were determined.

The act that established Great Basin National Park specified that no new federal reserved water rights were created with the creation of the park. Reserved rights are limited to those associated with the initial establishment of Humboldt National Forest and Lehman Caves National Monument. Reserved water rights for national forest purposes apply on all former national forest lands reserved from public domain, which constitute most of the park.

Sufficient water for all wildlife, stock, and visitor needs would likely not be provided through the exercise of reserved water rights. Therefore, appropriative water rights would likely be required for these types of uses. Water systems in three of the campgrounds that the Park Service acquired from the Forest Service are fed by springs in the Baker/Lehman

Creek system. No rights were claimed for these springs in the 1934 adjudication, and it appears that no new surface water rights will be granted in this fully appropriated stream system. The extent of groundwater appropriation is not known.

Following a 1988 Nevada Supreme Court decision, federal agencies' water right applications for land management functions that are recognized as beneficial uses under Nevada law (for example, recreation, stock watering, and wildlife watering) will be treated on equal basis with applications by private landowners. To date, the Park Service has not applied to the state for water rights for these uses.

The extent of water appropriation in basins other than Lehman and Baker creeks will not be known until the rights in these basins are adjudicated.

Vegetation

The evolution of the vegetation in the park is linked to the geologic history of the area. About 130 million years ago the western half of North America was a level plain largely covered by a shallow sea, with tropical forests on dry land. The climate was warm and moist, and tropical plants requiring a warm frost-free environment thrived. About 100 million years ago, the epicontinental sea withdrew, and there was a general uplift of the Great Basin region. This uplift caused three phenomena that had a drastic effect on the earlier tropical vegetation: a general cooling of temperature, often interrupted by warmer periods; a progressive drying due to the increasing rain shadow effect of the rising Sierra Nevada and Cascade ranges; and fluctuations between wet glacial-pluvial and warm-dry periods, especially during the Pleistocene epoch. As part of this transition to a drier and more continental climate, temperate climate plants gradually replaced those dependent on a moister maritime climate. Many of the plants migrated from Eurasia.

Between 55 million and 25 million ago, in the northern part of the Great Basin the dominant vegetation community at lower elevations was the conifer-deciduous forest and above 4,000 feet was the montane conifer forest. In contrast, the semiarid and arid conditions of the southern Great Basin produced oak woodland, chaparral, thorn forest, and other semidesert vegetation.

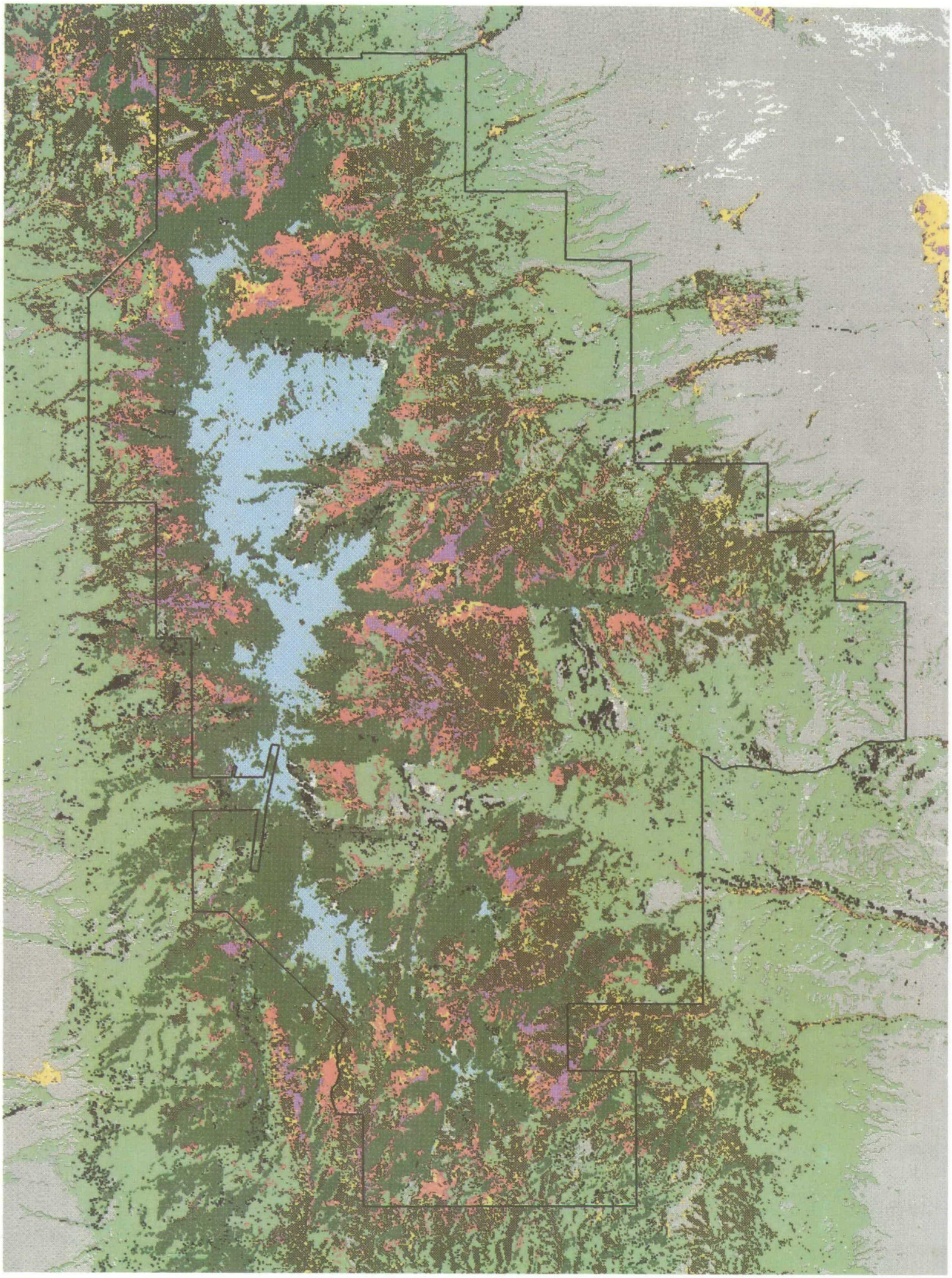
Between 20 million and 5½ million years ago, southern Great Basin vegetation expanded into the central and northern Great Basin, eliminating the pure conifer forests from the mountain slopes and leaving oak/conifer woodlands; chaparral covered the lowlands. At the end of this period temperatures were distinctly higher than at present, but by 5 million years ago both temperatures and precipitation were similar to those of today. Between 4 and 2 million years ago a cooling trend began, leading to the ice ages of the Pleistocene. The flora of the Great Basin then was one of savanna and grassland, with riparian, semiarid woodland, and chaparral communities.

The Great Basin flora at the beginning of the Pleistocene was similar to that of today. There were four major glacial advances during the Pleistocene, and well-preserved geomorphic features, glacial moraines, cirques, and other glacial deposits in the area today show that glaciation was extensive in the South Snake Range. Also during this time a series of pluvial lakes formed within the valleys of the Great Basin; Lake Bonneville in western Utah and Lake Lahontan in northwestern Nevada were the largest. Conifer forests became established on some lower mountain slopes and in the parts of valleys not covered by lakes. During the warm interglacial periods shrubland and grassland communities expanded; some lowland trees died and some migrated into the uplands.

Toward the end of the Pleistocene, during a relatively warm interval from about 7,000 to 4,000 years ago, the climate became drier, the glaciers melted, many streams and rivers ceased their flow, and the evaporation of lakes exceeded the inflow, which may have caused elevational and latitudinal depression of the vegetation zones (migration downslope and to the south). Throughout the Great Basin region, the net effect of vegetational and geologic history was to produce the present high mountain "islands" of montane subalpine and alpine vegetation surrounded by low desert "seas" of sparse northern desert vegetation.

The vegetation types in and near the park today are described and illustrated on the Vegetation map. Each type consists of one or more vegetation communities, which are described separately. All information was derived from LANDSAT data on file at the National Park Service's Geographic Information System Division in Denver, Colorado.

Salt Desert Scrub/Shrub (1% of the park). This vegetation type is found on more saline soils on the valley floors that surround the park. There is very little salt desert scrub within the park, but it is widespread in the Great Basin physiographic region. It consists of two plant communities.



ON MICROFILM

VEGETATION
GREAT BASIN NATIONAL PARK

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

148 • 20056 • DSC • SEPT 91

SALT DESERT SCRUB

NORTHERN DESERT SCRUB

PINYON-JUNIPER WOODLAND AND FOREST

MOUNTAIN SCRUB

DECIDUOUS FOREST AND SCRUB

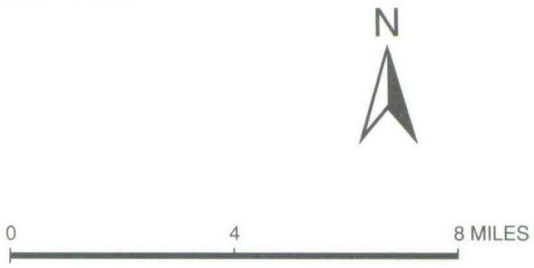
MIXED ASPEN-CONIFER FOREST

CONIFEROUS FOREST

ALPINE TUNDRA

GRASSLAND

NON-VEGETATED



Winterfat – a community dominated by a single species, winterfat. This species is a small, low-growing gray green shrub with many slender flexible branches that often forms relatively dense communities in the Great Basin. The foliage and branches are an important food source for deer, rabbits, and domestic livestock.

Salt Flat – a community of very sparse vegetation and large amounts of bare ground. Salt flat communities are usually in or encircling playas where salt accumulations are extremely high. The species present are usually stunted but include shadscale, tumbleweed, winterfat, and greasewood.

Northern Desert Scrub/Shrub (5% of the park). Like the salt desert scrub, this vegetation type occupies the floors of valleys surrounding the park; however, northern desert scrub continues up the lower alluvial slopes of adjacent mountains and exposed slopes and can extend to over 11,000 feet in elevation. It includes several communities of sagebrush as well as shadscale and greasewood.

Black Sagebrush-Shadscale – a mixture of straw-colored and gray green, very low growing woody shrubs, forming an open cover and composed of black sagebrush and shadscale. This community is widely scattered from 6,600 to 11,500 feet in elevation on extremely arid, lower alluvial plains and higher mountain slopes where soils are shallow, well drained, and moderately saline to moderately alkaline.

Wyoming Big Sagebrush-Greasewood – an almost continuous cover of grayish green vegetation interspersed with yellow green woody shrubs of moderate size, composed of Wyoming big sagebrush and greasewood with a few associated grasses and some bare ground between the shrubs. Both shrubs occur in pure stands, but big sagebrush typically dominates to produce the characteristic grey green plant cover found throughout the region. This community covers extensive areas from 8,700 to 10,500 feet on barren, very arid lower alluvial plains and mountain foothills on shallow to deep, fertile, fine-textured, moist, well-drained, moderately saline to moderately alkaline soils.

Wyoming Big Sagebrush – a sparse cover of grayish green and dark brown, low- to medium-sized, evenly spaced aromatic shrubs, primarily composed of Wyoming big sagebrush, black sagebrush, and fuzzyleaf

low rabbitbrush. The Wyoming big sagebrush community occurs from 6,600 to 11,300 feet on dry, arid ridges on very shallow to very deep, fertile, fine-textured, well-drained, and nonsaline soils.

Black Sagebrush – a light brown to dark brown, almost continuous cover of low-growing woody shrubs composed entirely of black sagebrush. This community is normally found from 6,600 to 11,400 feet on drier slopes above the pinyon-juniper community on shallow to deep, fertile, fine-textured, well-drained, and nonsaline soils.

Pinyon-Juniper Woodland and Forest (29% of the park). This vegetation type consists of one plant community that is often subdivided based on the prevalence of juniper within the stand or the density of the pinyon overstory.

Pinyon-Juniper – grey green to yellow green small trees growing in scattered clumps to form a dense closed-canopy forest or an open woodland with a ground cover of small shrubs, herbs, and grasses. The two principal tree species are single-needle pinyon pine and Utah juniper. The pinyon-juniper community occurs from 6,800 to 10,000 feet on warm, dry sites on upper alluvial fans and lower mountain slopes on thin rocky or gravelly soils. There is some variation in the vegetation type from the lower dry foothills to the intermediate slopes to the higher elevations; from lower to higher, there are scattered dwarf Utah junipers, larger Utah junipers intermixed with pinyon pine, and finally almost pure stands of pinyon pine.

Mountain Scrub (18% of the park). The mountain scrub type includes taller shrubs that often intermix with forest stands. This type provides significant food sources and habitat for many native birds and mammals and consists of the following three plant communities.

Mixed Shrub – an almost continuous cover primarily composed of Wyoming big sagebrush, black sagebrush, serviceberry, and snowberry, with other shrubs, grasses, and herbs growing in the openings between the shrubs. The mixed shrub community occurs on slopes from 6,700 to 10,600 feet on shallow to deep, fertile, fine-textured, well-drained, and nonsaline soils.

Mountain Big Sagebrush/Grass – As viewed in the stand, mountain big sagebrush is a moderate-sized shrub with a silvery, flat top. Growing between the shrubs are various low-growing grasses. The mountain big sagebrush/grass community usually occurs on higher, drier slopes from 7,800 to 10,000 feet on very shallow to moderately deep soils.

Mountain Mahogany – a dark green to grey green, open to closed thicket of large shrubs in extensive pure open stands dominated by curlleaf mountain mahogany, with black sagebrush, plains sagebrush or western mugwort, Michaux mugwort, Utah mountain snowberry, and antelope bitterbrush in the understory and with occasional openings containing other shrubs, grasses, and many herbs associated with the aspen forest/scrubcommunity. Mountain mahogany is often found with pinyon pine in the transition zone between the two communities. The mountain mahogany community occurs in lower canyons and on dry mountain slopes and ridges from 7,800 to 10,300 feet on moderately deep soils or rocky substrates. It is generally on more mesic sites than the pinyon-juniper community, which is usually at somewhat lower elevations.

Deciduous Forest and Scrub (8% of the park). This vegetation type consists of riparian vegetation and aspen forest. It is often found near the mountain scrub type but is generally in more moist, less exposed environments.

Aspen Forest/Scrub – aspen trees with leaves colored medium green on top and silver green underneath, consisting of one or more clones of a parent tree and all of its sucker offspring and forming dense continuous stands with many bright white trunks. Wherever openings occur in the aspen forest canopy, scrub vegetation is found that contains various trees, shrubs, grasses, and herbs. The aspen forest/scrub community generally occurs on moist slopes and along rocky to gravelly major perennial stream beds. Aspen is found in riparian communities at higher elevations up to 8,500 feet, where it intergrades with Douglas fir, white fir, and Engelmann spruce; at lower elevations near 7,500 feet there is a general downward shift of species along the major perennial streams, that is, white fir and ponderosa pine extend downward and aspen intergrades with narrowleaf cottonwood down through the pinyon-juniper and into the sagebrush-grass communities. Aspen also occurs in scattered groves on intermediate mountain slopes and in canyons from 8,500 to 10,000 feet on broken rock slides and rock fields; in older stands it intermingles with Engelmann spruce. Finally, aspen is

found in some places at timberline (11,300 feet), occurring as a low shrub and clinging to steep rocky slopes.

Riparian Scrub – various green, lush, water-loving, densely growing, moderate-sized trees and shrubs that take various forms depending on location, including river or red birch, Engelmann spruce, quaking aspen, coyote or narrow-leaf willow, willow shrub, and Booth willow, mixed with red osier dogwood, chokecherry, narrowleaf cottonwood, blueberry or elderberry, and short young trees of Rocky Mountain maple, Engelmann spruce, and Douglas fir. Riparian scrub vegetation occurs from 7,600 to 10,000 feet on fine to coarse alluvial soils in wet substrates with a high water table along the major perennial streams and along the shores of alpine lakes in high mountain meadows.

Mixed Aspen-Conifer Forest (10% of the park). Usually found in the upper reaches of the watersheds between 8,500 and 10,000 feet, this vegetation type represents a transition zone between the wetter riparian areas and pure aspen stands and the higher and drier sites dominated by conifers. In this vegetation type, aspen are found in mixed associations with conifers. The aspen often occur in small pockets that are surrounded by conifers or as understory vegetation in relatively open conifer stands.

Coniferous Forest (17% of the park). Consisting of three vegetation communities, the coniferous forest vegetation type is found at higher elevations and at mid elevations on northern exposures.

Mixed Conifer Forest – a mixture of deep green, medium green, and blue green trees, from tall and fully formed to small and dwarfed at timberline, including Engelmann spruce, limber pine or Rocky Mountain white pine, Great Basin bristlecone pine, and some Douglas fir and white fir, with an understory of various shrubs, grasses, and herbs. The mixed conifer forest occurs from 7,800 to 11,300 feet on sites ranging from dry, rocky, southwest-facing slopes to sheltered and exposed ridges on high mountains up to timberline on moist, cool, shaded north-facing slopes on rocky or coarse soils. At intermediate elevations, white fir usually dominates in canyons and on shady slopes, but Douglas fir dominates in some isolated areas, such as in Lexington Canyon and in upper portions of the Snake Creek drainage. Typically, Douglas fir and white fir are most common in the moister lower elevation sites, and some ponderosa pine also intermix in a few locations, especially in the upper elevation riparian areas.

Spruce Forest – a tall, dense, dark green forest consisting of Engelmann spruce, with some scattered limber pine. Openings in the spruce forest canopy contain shrubs, grasses, and herbs. The spruce forest community occurs on open, exposed rocky slopes from 8,400 to 10,800 feet on moist substrates extending up to timberline. Timberline is abrupt, at elevations between 11,300 feet on the west and 10,800 feet on the east, and vegetation is characterized by leaning, fallen, and dwarfed shrublike forms of Engelmann spruce, with a few limber pine. A few stunted spruce trees are found in the alpine tundra above timberline.

Bristlecone Pine/Limber Pine – dark to medium green Great Basin bristlecone pines occurring in a number of conditions. "Unstressed" trees form open woodlands with understory vegetation or grow together with limber pine or Engelmann spruce, such as on the slopes of Mt. Washington. Single, gnarled "stressed" trees are found in open groves, such as in the Wheeler Peak cirque population, or as low-growing, dwarfed shrublike krummholz at timberline. The understory is often absent. The bristlecone pine/limber pine community occurs just below timberline (from 10,200 to 11,300 feet) in the highest canyons and on high, dry rocky mountain slopes and ridges facing all four points of the compass. The pines generally grow on broken rock fields and boulders composed of limestone. An exception is Wheeler Peak, where the substrate is a jumbled mass of blocky, quartzite boulders.

Alpine Tundra (8% of the park). This vegetation type contains only one community.

Alpine Tundra – variously colored and textured, primarily small low-growing perennial herbs, including woody shrubs like prostrate juniper, mountain currant, cushion plants like pygmy bitterroot and moss campion, sedums like yellow stonecrop and red stonecrop, various lichens, and alpine club moss, covering less than 35 percent of the broken rock scree, talus slopes, and fellfields. Where sufficient soil development has occurred, some shrubs and grasses find a toehold, including Holmgren's buckwheat. Grasses, sedges, and dwarf wildflowers form turf in alpine meadows, including alpine fescue grass, alpine timothy, skyline bluegrass, Sandberg bluegrass, elk sedge, Mountain hare sedge, alpine

tufted phlox, phlox, Nevada primrose on limestone substrates, and dwarf plainleaf buttercup. Occasionally beyond the tree limit are found stunted forms of Engelmann spruce, bristlecone pine, and limber pine. Sometimes dense mats of herbs form along snowmelt seeps and streamsides, containing such plants as the snowbed buttercup and sibbaldia.

The alpine tundra community occurs between 10,000 and 12,300 feet on the highest, driest mountain ridges and slopes and on gentle to steep crests and ridges. Plants generally grow on sites exposed to the wind, where snow is blown away, on gravelly to rocky substrates that do not hold water or allow it to accumulate.

Grassland (3% of the park). The grassland vegetation type includes the grassland/agriculture community.

Grassland/Agriculture – low-growing clumps or mats of yellow green to medium green agricultural and irrigated pasture vegetation, with no overstory and only a few herbs intermingled, containing perennial wheatgrass and other seedings for supplemental spring and fall cattle forage. Around wet seeps and springs, there are grasses and sedges. The mountain meadows contain a combination of grasses, herbs, sedges, and wildflowers. Various species introduced through human activities occur especially along roadsides, including tall wheatgrass, flixweed, halogenten, and field sowthistle. The grassland/ agriculture community occurs between 7,000 and 10,700 feet on gently sloping to almost level land on deep, moist, fertile, fine-textured, and well-drained soils.

Other Unvegetated Areas – Bare Ground/Rock (1% of the park). This category includes steep slopes and rugged mountain crests from 7,000 to 12,600 feet, composed of exposed bedrock or bedrock covered with broken rock scree, with colonies of various dull green, brown and yellow brown lichen occasionally coloring the rock surfaces, and bare ground in other places at the lower elevations.

Rare and Sensitive Plant Species

Because of the isolation of the South Snake Range from other temperate areas, evolutionary processes have produced unique ecotypic variations of plant species. As a result, many rare and endemic plant species are suspected to be in the park. Field surveys have discovered the presence of several rare plants; however, the park has been only partially surveyed and range data is incomplete. In addition, because of the limited amount of botanical study completed to date, many questions remain regarding the appropriate taxonomic classification of many plants.

There are no known federally listed plant species within the boundaries of Great Basin National Park. Candidate species for listing that are or may be present based on the presence of suitable habitat include the snow wavewing (*Cymopterus nivalis*), intermountain wavewing (*Cymopterus basalticus*), Holmgren's buckwheat (*Eriogonum holmgrenii*), tunnel springs beardtongue (*Penstemon concinnus*), Nevada primrose (*Primula nevadensis*), Nachlinger's catchfly (*Silene nachlingerae*), Pennell's penstemon (*Penstemon francisci-pennellii*), and a recently described waxflower (*Jamesia tetrapetala*). A brief description of these species follows.

Snow wavewing is a small perennial herbaceous plant in the carrot family that grows in the subalpine and alpine areas of the park and flowers in July. Its common name suggests the snowy mountainous areas in which it lives. It grows on dry, rocky sites often in very steep terrain. Within the park, known populations are around Pyramid Peak, Mt. Washington, and south along the South Snake Range to about Lincoln Peak.

Intermountain wavewing is a small, white-flowered perennial herbaceous plant also in the carrot family that grows in the pinyon-juniper plant community. It is not known to exist within the park; however, it is documented just to the north of the park boundary in the vicinity of Sacramento Pass. Because of the extensive amounts of pinyon-juniper habitat in the park, it is likely that populations of this species exist.

Holmgren's buckwheat is a small, dense, mat-forming woody perennial in the buckwheat family that grows in the alpine areas of the park and flowers from June to August. Its habitat is rock crevices, quartzite ridges, around limestone boulders, and talus slopes. It is commonly associated with snow wavewing and has approximately the same range within the park.

Tunnel springs beardtongue is a small perennial herbaceous plant. Historically, this species is known to have occurred along Snake Creek within the park at elevations between 7,500 and 8,000 feet. Little is known about this species and recent documentation of its presence or range is lacking. For the purposes of this plan, this species is assumed to still be within the park.

Nevada primrose is a small perennial herbaceous plant in the primrose family that has a unique and very showy purple flower with a bright yellow interior that blooms from late June to August. It primarily occurs along limestone ridges in the high alpine areas of the park, especially around Mt. Washington.

Nachlinger's catchfly is a small perennial herbaceous plant that blooms from late May through June in the high elevations of the park. Its habitat is dry, rocky ridgetops usually on limestone. Within the park it is known to occur along the alpine limestone ridges around Lincoln Peak.

Pennell's penstemon is a herbaceous perennial that occurs in upper Snake Creek and near Teresa Lake in the Lehman Creek drainage. This species grows in a wide elevational band between 7,000 and 11,000 feet. Its habitat is exposed meadows and sunny areas in riparian areas.

The recently described waxflower occurs in rocky crevices between 6,600 and 10,000 feet elevation. Because it has only recently been discovered, its distribution within the park is not known.

Wildlife

Essentially a temperate ecological island in the middle of a cold desert, the South Snake Range supports a wide variety of wildlife not found in the basins to the east and west. Resident large mammal species include mule deer, Rocky Mountain bighorn sheep, mountain lion, bobcat, ring-tailed cat, coyote, fox, skunk, badger, weasel, porcupine, jackrabbit, and beaver. Numerous smaller mammals such as squirrels, mice, and bats are also present.

Bird species are equally numerous. Permanent resident species include Clark's nutcracker, Steller's jay, scrub jay, horned lark, water ouzel, chickadee, sage grouse, blue grouse, sparrow hawk, red-tailed hawk, marsh hawk, and great horned owl. Many other birds are seasonal residents that breed within the park. Most of the bird species inhabit a particular altitudinal or ecological zone for which they are best adapted, but many occupy several different zones at various times of the year.

Threatened and Endangered Wildlife Species

Federally listed threatened and endangered species that occur or may occur within the park include the endangered bald eagle (*Haliaeetus leucocephalus*) and peregrine falcon (*Falco peregrinus*). No critical habitat for these species is known to exist within the park (letter from U.S. Fish and Wildlife Service, 1989; see appendix D).

The bald eagle is considered to be an occasional spring/fall migrant to the park. A 1976 sighting of one mature bald eagle represents the only documented occurrence in the park.

The peregrine falcon migrates along the mountain ranges of Nevada and is considered a spring/fall migrant to the park. No known nests have been located within the park; however, the rocky cliffs along the western boundary of the park around Lincoln Canyon are considered prime habitat for peregrine nesting.

The Nevada Department of Wildlife in cooperation with the U.S. Fish and Wildlife Service, National Park Service, U.S. Forest Service, and Peregrine Fund have initiated a reintroduction program for the peregrine for the South Snake Range. In 1988, three peregrine falcons were raised and released (a process called hacking) just to the west of the park boundary on a cliff face south of Mt. Washington. The immediate goal of the program is to establish a breeding core of falcons in that area. Additional releases are planned for future years.

Several federal candidate species being reviewed by the U.S. Fish and Wildlife Service for consideration as endangered or threatened occur or may occur within the park: the Bonneville cutthroat trout (*Oncorhynchus clarki utah*) (category 2), ferruginous hawk (*Buteo regalis*) (category 2), Swainson's hawk (*Buteo swainsoni*) (category 2), and spotted bat (*Euderma maculatum*) (category 2). State-listed species that are not federal candidate species include Koret's checkerspot (*Euphydryas editha koreti*).

The Bonneville cutthroat trout's historic range was pluvial Lake Bonneville and its tributaries, which covered parts of Utah, Nevada, Idaho, and Wyoming. This subspecies evolved in isolation from other populations of trout during the last 25,000 to 35,000 years. As Lake Bonneville dried up, populations of Bonneville cutthroat became isolated in several mountain stream systems surrounding the Bonneville Basin. Field investigations by the Nevada Department of Wildlife have identified the streams on the east side of the park as part of the trout's recent native range. Because of several factors, including the introduction of competitive alien trout species, the appropriation of water for mining and irrigation, and the overutilization of riparian areas for livestock grazing, these streams no longer support pure populations of Bonneville cutthroat. Instead, many of them are populated with introduced species such as rainbow and brown trout and eastern brook trout (actually a char).

On the west side of the park, Pine and Ridge creeks contain pure populations of Bonneville cutthroat. Somewhat surprisingly, these pure populations are outside of the historic range of the trout and apparently migrated from the streams on the east side of the park through the Osceola ditch, which ran from Lehman Creek around the north end of the South Snake Range to Hub Basin on the west side of the range and carried water for about 10 years in the late 1890s. These populations represent an important source of genetically pure Bonneville cutthroat that can be used for reestablishing this trout into other stream systems within its historic range.

The ferruginous hawk nests in valleys adjacent to the park and is probably resident to the park, although no confirmed nesting sites exist. The Swainson hawk is probably only a seasonal resident as it migrates through the park.

The spotted bat is a very rare species existing only in the western United States. Its exact range is unknown, but individual specimens have been found in areas across Nevada. Although no specimens of this bat have been discovered in the park, suitable habitat exists and it is possible that it is a resident.

The koret checkerspot is a rare butterfly endemic to the South Snake Range. Little is known about the extent of this insect's population or its exact range.

Other Species of Special Concern

Rocky Mountain Bighorn Sheep. Rocky Mountain bighorn sheep were probably extirpated from the South Snake Range in the early 1900s, although records of individual sightings as late as 1971 exist. Before the arrival of Europeans, the sheep were well established and quite numerous in the area. In 1979 and 1980 the Nevada Department of Wildlife transplanted about 20 bighorn sheep from Colorado into an area west of Wheeler Peak in an attempt to reestablish a viable herd. The herd has been monitored regularly since the sheep were reintroduced. Most land that the herd uses for range is west of the park on U.S. Forest Service land. However, a large portion of the herd's summer range and lambing ground is within the park boundary to the west of and along the South Snake Range crest.

In the years since the bighorn sheep reintroduction, the herd has not multiplied as expected. In fact, recent surveys have indicated that the herd may be decreasing in size. Recent research has shown that reintroductions of bighorn sheep are rarely successful when sheep are placed on ranges that they must share with domestic sheep. The bighorn is very susceptible to diseases carried by domestic livestock and competition for forage particularly on winter ranges. As a result, the National Park Service is not optimistic about the future of the current bighorn sheep herd within Great Basin National Park.

Elk. Like the bighorn sheep, elk almost certainly existed within the South Snake Range. Elk were first reported in eastern Nevada in 1859 near Sacramento Pass just northeast of the present park boundary. Within the park, historic records indicate summer occurrences of elk on subalpine ranges to the east of Wheeler Peak and winter occurrences south of Lexington Arch. It is believed that elk were extirpated by early settlers in the late 1800s for food and possibly to reduce competition for forage for domestic livestock.

In 1932 elk were reestablished into the Schell Creek Range of Humboldt National Forest only 8 miles east of the South Snake Range across Spring Valley. Since that time they have established a large self-sustaining herd in the Schell Creek Range. Numerous sightings and evidence of elk have been documented in the South Snake Range since 1960. It is suspected that the elk sighted are transients from the Schell Creek herd. Because of the number of transient elk entering the park, biologists consider it quite likely that elk may in the future establish a resident herd in South Snake Range.

Large Native Predators. Large predators within the park include bobcats, mountain lions, and coyotes. Before the creation of the park, these animals were often hunted for sport or to prevent stock depredations. Current populations of these species within and around the park appear to be self-sustaining and stable.

Floodplains and Wetlands

Most of the creeks and drainages of the park are subject to flash flooding during summer months when thunderstorms can produce large quantities of precipitation in localized areas. There have been no investigations or mapping of floodplains or flash-flood hazard areas within the park; however, the larger park streams are obvious hazards during flood periods. The Baker Creek, Gray Cliffs, Wheeler Peak, and Lehman Creek campgrounds have individual campsites that are quite close to creeks subject to flooding. Many individual informal campsites along Snake Creek and Strawberry Creek are also on creek banks.

Numerous small wetlands exist in the park, typically in subalpine meadows, along lakeshores, and in riparian areas. Isolated wetlands are also associated with the many springs and seeps on mountain slopes. Because of the aridity of the region, these wetlands, even though quite small, are important resources for many forms of life.

CULTURAL RESOURCES

Prehistory

Evidence of aboriginal occupation in the vicinity of Great Basin National Park spans the Paleo-Indian period through the Great Basin Desert Archaic, the Parowan Fremont, and the Western Shoshone periods.

Paleo-Indian (12,000-9000 B.C.). The earliest well-dated sites in the Great Basin fall within the Paleo-Indian period. The Paleo-Indians consisted of small, mobile hunting groups that used large fluted and unfluted projectile points to hunt large Pleistocene fauna for their primary subsistence. Evidence of Paleo-Indian occupation in Smith Creek Canyon in the North Snake Range has been reported. The discovery of a Paleo-Indian point at one of the Baker guard station sites (on the property proposed for NPS administrative use) suggests Paleo-Indian use of the South Snake Range as well.

Great Basin Desert Archaic (9000 B.C-A.D. 500). In response to climatic changes and the disappearance of the larger Pleistocene game animals, prehistoric peoples developed a broader food-gathering pattern using a variety of plant and animal products. During this period, known as the Great Basin Desert Archaic, seed-grinding implements, basketry, netting, fiber and hide moccasins, spears, digging sticks, and shell beads were all employed. Shell beads were acquired in trade with California coastal groups.

Among the excavated sites in the park vicinity that have Desert Archaic components are Danger, Newark, and Kachina caves and Swallow and Amy's shelters. Archaic evidence has been found in the park, including Pinto, Elko, and northern side-notched points.

Parowan Fremont (A.D. 500-1300). The Parowan period covers a time span when the Great Basin was inhabited by peoples employing a sedentary horticultural lifestyle, living in small village communities or farmsteads. The Garrison site, which lies in the sagebrush flats east of the park, is an excavated Fremont village with adobe and jacal structures. Hunting and gathering, which supplemented the cultivation of crops, may be the activities responsible for some of the small artifact scatters in the pinyon-juniper association near the park entrance. Diagnostic features of the Fremont period include gray ware pottery (the most common being Snake Valley gray ware; Snake Valley corrugated postdates A.D. 1100) and a distinctive rock art style, examples of which are found in various rockshelters and caves in the park. Projectile points found at Fremont period sites in the park include Rose Spring, cottonwood triangular, and desert side-notched points.

Western Shoshone (A.D. 1300-Present). At the time of contact with Euro-Americans, the Numic speaking Western Shoshone were dispersed into small kin groups living in seasonally occupied camps or villages near water sources in the vicinity of the park. Two such villages were near the present-day towns of Baker and Garrison. Subsistence activities centered on an annual round of gathering vegetal foods and animal hunts. Distinctive brown ware pottery and small arrow points are indicators of Shoshone occupation in the park area.

History

During the last two centuries the area encompassing Great Basin National Park played a role in many of the phases of American Southwest frontier development. The earliest Euro-American presence in the Great Basin occurred in 1776 with the Spanish expeditions of Domnguez-Escalante and Garcs. The first known Euro-American to pass near the park (via Sacramento Pass) was Jedediah Smith, a fur trapper and trader, mountain man, and explorer, in 1827. The Great Basin received increasing attention during the 1840s as the result of the widely heralded explorations of John Charles Fremont, who gave the region its name, and the reports and experiences of immigrant parties on their way to new homes in California and later of the hordes crossing the Southwest to join the California Gold Rush. First claimed by Spain and then by Mexico in 1821, the park area along with much of the Southwest became American territory in 1848 as a result of the Treaty of Guadalupe Hidalgo ending the Mexican War.

The earliest vestiges of Euro-American civilization in the park vicinity came in the 1850s. During that decade Mormons from the Utah Territory explored the area, made the first documented ascent of Wheeler Peak, and established the first agricultural settlement in Snake Valley at present-day Garrison. The decade also witnessed efforts by Howard R. Egan and James H. Simpson to establish a trail and military wagon road, respectively, across the central route of the Great Basin via Sacramento Pass.

Scientific and government studies and surveys in the region commenced during the 1860s. George M. Wheeler traversed the park vicinity during the late 1860s while conducting initial

investigations that eventually developed into the United States geographical surveys west of the 100th meridian.

John Muir visited the Wheeler Peak area during the late 1870s while he was traveling through the West making observations and collecting data for his writings to promote conservation and protection of America's natural resources.

During the late 1870s and 1880s the U.S. Coast and Geodetic Survey established a triangulation station on Wheeler Peak (remnants of the station structures' rock foundations are extant) as part of its 2,500-mile geodetic connection between the Pacific and Atlantic coasts along the 39th parallel – the first large land-scale trigonometrical survey of the nation.

Mining and agricultural development in the South Snake Range and adjacent Snake and Spring valleys began in the late 1860s. As an outgrowth of the White Pine mining rush, which commenced in eastern Nevada in 1865, mining districts were first established in the South Snake Range in 1869. Eventually six mining districts were created on lands now in the park, and mines producing silver, lead, gold, tungsten, scheelite, and beryllium were developed in the park area. Today the largest and most productive mines, including the St. Lawrence, Hub, Mt. Wheeler, and Osceola placer and lode operations, lie outside the park boundary, but various mines of lesser importance are found in the park. These include the Johnson, Ponderosa, Bonita, and Chapman-Taylor mines, the Pole Canyon adit-east, and the Lincoln Canyon mine/tunnel site. Some 10 miles of the 18-mile Osceola (East) ditch, constructed in 1889-90 to carry water to the Osceola placer mining operations, are in the park, and the ditch is being recommended for listing on the National Register of Historic Places. Throughout the park are the remains of various isolated mining-related cabins or cabin groups, such as the Baker Lake cabin, Tilford Spring cabin, Young Canyon stone house, and St. Lawrence "East" and "South" cabin groups. The Johnson mill, an ore-processing facility in upper Snake Creek Canyon, and the sawmill on the south fork of Big Wash, a lumber-cutting operation, are examples of early mining-related development within the park.

The first permanent settlers entered the Snake and Spring valleys in 1869, establishing ranches and farms to provide fruit, vegetables, meat, dairy products, and other foodstuffs for the growing number of mining settlements in eastern Nevada. During the next several decades the increasing number of ranchers formed the nucleus of fledgling agricultural communities in the park vicinity, including Baker, Garrison, and Burbank. As the area's initial mining activities subsided during the 1870s, the dominant economic activity in the park vicinity became livestock raising, and the South Snake Range provided forage for summer grazing operations for large numbers of cattle and sheep.

Absalom S. Lehman, one of the earliest settlers and ranchers in Snake Valley, discovered what would become known as Lehman Cave in about 1885. During the next six years he began developing, publicizing, and opening the caverns for tours. At the same time he planted an orchard just below the mouth of the cave and constructed a 2-mile aqueduct or ditch to convey water from Lehman Creek and several other nearby sources to his orchard and homestead. The extant remains of the orchard and aqueduct were listed on the National Register of Historic Places in 1975.

During the early 20th century much of the South Snake Range was placed under the jurisdiction of federal land management agencies as a means of protecting and conserving the area's resources. In 1909 Nevada National Forest was established, and a significant portion of the range, including the present park area, came under the administration of the recently established U.S. Forest Service in two land designations in 1909 and 1912. As part of its conservation ethic, the bureau favored a multiple-purpose resource utilization policy under which the land and its resources would serve a variety of regulated economic functions.

In 1922 Lehman Caves National Monument was established by presidential proclamation. Under Forest Service administration, the national monument received increasing visitation during the 1920s, resulting in the construction of new visitor facilities and overnight accommodations. Built in the late 1920s and named for Clarence and Beatrice Rhodes, who served as the Lehman Cave custodians during the 1920s and early 1930s, the Rhodes cabin is a representative example of such accommodations. Although it was moved from its original location and placed on a concrete foundation during the 1960s, the restored log cabin was listed on the National Register in 1975.

The national monument was administered by the Forest Service until 1933 when it was transferred to the National Park Service as part of a major reorganization of the federal government's executive department. The movement to enlarge the national monument and change its designation to national park status, first initiated in 1924, finally achieved

success on October 17, 1986, with the establishment of Great Basin National Park.

Existing Sites and Resources

To date 30 prehistoric and 26 historic sites have been identified and recorded within the boundaries of Great Basin National Park. The prehistoric sites include 16 artifact scatters, one lithic scatter, nine rock art sites, and four caves. In addition, more than 40 prehistoric isolated finds have been identified. The historic sites are related primarily to mining, ranching, and agricultural activities, but several illustrate mapping, logging, and tourist industry themes. Data on these sites and their cultural milieu may be found in four NPS studies:

Archeological Overview of Great Basin National Park, by Krista Deal, 1988

Archeological Survey and Site Assessment at Great Basin National Park, By Susan J. Wells, 1990

Archeological Survey of the Baker Guard Station, Baker, Nevada, by George A. Teague, 1990

Historic Resource Study, Great Basin National Park, by Harlan D. Unrau, 1990

Three historic sites in the park were entered on the National Register of Historic Places in 1975 as having local significance – the Lehman orchard, Lehman aqueduct, and Rhodes cabin. A fourth historic site, the Osceola (East) ditch, is recommended for nomination to the National Register in the *Historic Resource Study*. A component of the ditch system, the Stella Lake rock dam, is recommended for National Register listing as part of the ditch nomination.

Twenty-six of the prehistoric sites were determined to possess significance under criterion D of the National Register (potential to yield scientific information). In addition, 16 of the historic sites were determined to possess components of archeological significance under criterion D.

It is estimated that less than 2 percent of the park has been systematically surveyed to professional standards for cultural resources. Thus, a comprehensive parkwide inventory and survey of cultural resources is needed to evaluate their contextual significance and interpretive value. As further survey work is conducted in the park, it is anticipated that more sites will be identified.

Existing knowledge of ethnographic resources in the park is lacking because ethnographic surveys have not been undertaken. A comprehensive parkwide inventory and survey of ethnographic resources is needed to evaluate their significance and interpretive value.

VISITOR USE AND PARK FACILITIES

VISITOR ACTIVITIES

Most visitors enter the Great Basin region on US 6/50 and then travel south on Nevada Highway 487 to the park entrance road in Baker. An entrance sign near the US 6/50-Highway 487 junction directs visitors to the entrance. The park entrance road (Nevada Highway 488) provides access to the park's primary attractions and to the visitor center at Lehman Cave.

At the visitor center, which was formerly the main facility for Lehman Caves National Monument, visitors can plan trips and obtain information on other regional attractions. A small theater offers audiovisual programs about the Great Basin and Lehman Cave, and an exhibit area provides interpretation of some of the national park's major natural and cultural history themes. A natural history association outlet in the visitor center lobby offers a good list of publications on the park and region.

The visitor center is also the support facility for the Lehman Cave tour operation. The Park Service provides regularly scheduled guided tours of the cave as well as on-site interpretation of the cave and park. Guided tours, with a maximum of 30 people per tour, are scheduled at 1½-hour intervals and run from 8:00 a.m. to 5:00 p.m. each day. In the summer an additional candlelight tour is scheduled at 6:00 p.m. each day. A large portion of the total visitor population (about 74,000 in 1988) take the Lehman Cave tour.

People wishing to spend more time in the park are given directions to the major road-accessible features, which are principally in the more developed northern part of the park. These include the Wheeler Peak road and scenic pulloffs, the three campgrounds along the road, the short trail from the road to the Osceola ditch, and the trail system leading from the Wheeler Peak campground that provides access to the major Wheeler Peak attractions. The present levels of use along the road and at the Wheeler Peak campground exceed the capacity of most parking lots and pullouts.

Other activities include hiking and horseback riding in the central section of the park to such high-elevation backcountry features as Baker and Johnson lakes. Hiking trails are also available in the park's southern reaches, paralleling the stream valleys associated with Snake Creek and the North Fork of Big Wash. A major point of interest near the park's southeastern boundary is Lexington Arch, reportedly the largest limestone arch on earth.

Campers can select from limited-service sites along Lehman Creek to more informal sites along Snake Creek and Strawberry Creek. The latter two areas are especially popular with White Pine County residents; some families have used the same campsites for decades. Backcountry camping and hiking – popular activities in the South Snake Range before the national park was established – continue to attract visitors.

Visitor use during the park's first full year of operation (1988) was approximately double the previous use at Lehman Caves National Monument (approximately 74,000 versus 35,000). In 1989 visitor use decreased by approximately 4 percent to 70,000. In 1990 it decreased again by approximately 8 percent to 65,000. Over at least the last three years, July has been the peak month for visitation, with approximately 14,000 to 16,000 recreational visits. In July, peak day visitation was approximately 850 recreational visits and average daily visitation was approximately 500. Overall use of Great Basin remains low when compared to most other national parks, and it is anticipated that the park's isolation from large population centers and interstate highways will keep visitation relatively low for the foreseeable future.

VISITOR CHARACTERISTICS AND INTERESTS

The following information was excerpted from the 1988 *Visitor Survey, Great Basin National Park* prepared by the National Park Service Cooperative Park Studies Unit and the Department of Forest Recreation Resources at Oregon State University.

Great Basin National Park's visitor population is generally composed of well-educated individuals who frequently visit national park system areas. They consider Great Basin to be a destination park and may spend several days there during a visit. They place a high value on the park's unspoiled environment but would like to see some improvements in facilities (more campsites, better restrooms, more access to potable water, and more garbage cans). They would also like better signing on park roads and trails.

At least two-thirds of the park's visitors fit the following profile:

- They are part of a family group containing two to four persons.
- They are between 30 and 60 years old.
- They have not visited the park before.
- They are from Utah, California, or Nevada.
- They stay in the park for one or more days.
- They have visited other national park system areas during the current year.
- They are employed in a professional or technical position.
- They have had some college training.
- They rate their Great Basin visits to be very good to perfect.

The survey indicates that park visitors value and use the services that are offered, especially orientation and information services and the Lehman Cave tours. They generally express strong desires for expanded interpretive opportunities involving a much broader range of natural and cultural history themes. Frequently mentioned themes include archeology and early man, geology/glaciers, flora and fauna, Great Basin geography, seasonal changes, bristlecone pine ecology, homesteading, and orienteering. Visitors are not interested in commercial tours or concessioner-operated horseback tours. The regular 1½-hour Lehman Cave tours are preferred over shorter or longer cave tours.

Items cited as deficient in the area of interpretation include directional signs on roads and trails, the number of orientation and interpretive exhibits, and park publications. Visitors want more and better maps – maps showing secondary roads and maps of backcountry trails and campsites. They also want more publications on different themes, including grazing history, the Lehman orchard, mining history, ranching, regional orientation, minimum impact camping, and the effects of elevation on plants and animals.

In summary, the survey suggests that visitors are generally very pleased with their experiences at Great Basin National Park but would like more attention focused on basic amenities. They want expanded park interpretation that encompasses the entire Great Basin physiographic region.

EXISTING FACILITIES

Most facilities in the park predate its establishment and were previously part of Lehman Caves National Monument or Humboldt National Forest.

Lehman Cave Developed Area

The Lehman Cave developed area includes the park visitor center and the cave tour facilities. The visitor center is immediately in front of the cave entrance. This 4,000-square-foot facility provides interpretive media, ticket sales and staging for cave tours, book sales, and space for most of the park's administrative functions. Food service and souvenir sales are available on a seasonal basis in the adjoining 1,000-square-foot concession facility. The visitor center has a 40-car parking lot with several recreational vehicle and bus parking spaces. Approximately 400 feet north of the visitor center are a large picnic area and restroom. The picnic area has approximately 25 individual sites.

The cave entrance and exit are excavated tunnels that contain heavy doors to ensure security and maintain a near-natural airflow within the cave. The separate entrance and exit allow one-way cave tours with a minimum of backtracking. The natural entrance to the cave is a near-vertical shaft that has been covered with a concrete structure to prevent people and animals from falling in and to secure the cave from unauthorized entry and vandalism. Inside, the cave is equipped with an electrical lighting system and a hardened surface that allows easy access.

The Rhodes cabin, a historic structure northeast of the Lehman Cave visitor center, is currently used to house exhibits dealing with the history of Lehman Caves National Monument.

Campgrounds

There are four developed campgrounds, several undeveloped and informal campsites, and one overflow campground in the park, all of which were previously on Forest Service land. The four developed campgrounds contain a total of 104 individual campsites. Three of the four campgrounds are in the lower Baker and Lehman Creek drainages close to Lehman Cave; the Wheeler Peak campground is at the base of Wheeler Peak. The campgrounds and campsites are described below.

The Upper Lehman Creek campground is just off the Wheeler Peak road adjacent to Lehman Creek, approximately 1 mile northwest of Lehman Cave. The campground has 24 RV and tent sites and includes treated potable water and vault toilets.

The Lower Lehman Creek campground is immediately below the Upper Lehman Creek campground and is also adjacent to Lehman Creek. It has 11 RV and tent sites, treated potable water, and vault toilets.

The Baker Creek campground is approximately 2 miles southwest of Lehman Cave near the end of the Baker Creek road. It has 32 RV and tent sites. The Park Service provides piped-in water, but the water is not chlorinated or otherwise treated so it is posted as unpotable and must be boiled before use. This campground also has vault toilets.

Located at the upper end of the Wheeler Peak road adjacent to upper Lehman Creek at approximately 10,000 feet in elevation, the Wheeler Peak campground provides high-elevation camping experiences that are unique in the region. The campground contains 37 sites that are suitable for small RVs and tents. Like Baker Creek campground, it has an unimproved water system that provides untreated unpotable water. The campground includes vault toilets.

The Gray Cliffs campground is along Baker Creek below the Baker Creek campground. It was never completed by the Forest Service and currently functions as an overflow campground on busy weekends when the other park campgrounds fill to capacity. The campground has three separate loops and graded vehicle parking spaces. Tent pads and other site developments are limited. There are no tables, fire grates, toilets, water system, or other fixtures. Because it is close to Baker Creek and the surrounding terrain is steep, much of the campground is in a flood hazard area. In addition, fuel loading in the surrounding mature pinyon forest is very high, raising additional safety concerns from wildfire.

There are eight informal campsites scattered along the Snake Creek road. These sites are minimally developed and were established by repeated public use. At the end of the Snake Creek road the Shoshone campground includes picnic tables and fire grates. It is often used by large groups and extended families.

Four campsites similar to those along Snake Creek have been established over time along the upper Strawberry Creek road.

Roads

The park entrance road extends about 5½ miles between the town of Baker and the Lehman Cave developed area. The road is maintained by the state of Nevada and designated as Nevada Highway 488 east of the park boundary. From the boundary, the road is maintained by the National Park Service to its terminus at Lehman Cave. The length of the entrance road within the park boundary is about ¾ mile.

For about 2 miles east of the park, the entrance road passes through privately owned land that is subdivided into separate parcels, many of which are developed as private homes. East of the private land, the road crosses BLM-administered land until it nears the town of Baker, where it again passes through private property for about ¼ mile before intersecting with Nevada 487.

The 12-mile-long Wheeler Peak road provides paved access to the Wheeler Peak cirque and Wheeler Peak campground. From its beginning, where it intersects the park entrance road near the boundary, the road ascends over 3,500 feet to reach the cirque. The road is in fair condition but has no shoulders and very few turnouts or other places for visitors to stop and enjoy the scenery while driving the route. The travel surface is about 22 feet wide.

The Baker Creek road is a well-constructed 3-mile, two-lane gravel road that provides access to the Baker Creek campground and trailhead. This road intersects with the park entrance road approximately ¼ mile east of Lehman Cave and terminates at the Baker Creek trailhead. Because of the area's constant dryness and the fairly high level of traffic along the road, it is very dusty and vegetation along the shoulders is usually covered with a layer of dust.

The Snake Creek road, another gravel road, is about 8 miles long within the park boundary and provides access to Snake Creek valley and the informal campsites along Snake Creek. The road begins on BLM-administered land where it intersects with Nevada 487 approximately 5.3 miles to the south of Baker and ends at the Snake Creek trailhead near the center of the park. In its upper reaches, the road is rough and has minimal gravel surfacing, but regular grading keeps this road passable for passenger cars.

The Strawberry Creek road is a narrow, one-lane, dirt and gravel road that provides access into the Strawberry Creek drainage in the northeastern section of the park. This road is used by few visitors because of its rough condition and its isolation from other park facilities.

The Mount Washington road is a very narrow and steep four-wheel-drive road that was constructed by miners to provide vehicular access to claims around Mt. Washington

and along the ridge to the south of the peak. It begins in Spring Valley, traverses BLM and Forest Service lands, and terminates near the summit of Mt. Washington approximately 3 miles after entering the park boundary. This road is in extremely rough and eroded condition and is impassable even by four-wheel-drive vehicles much of the year.

There are numerous other informal, unmaintained four-wheel-drive roads throughout the park, many of which have been closed to vehicle traffic since the park's establishment.

Trails

There are 56 miles of designated trails within the park. They are accessible from trailheads within the park or from Forest Service lands adjacent to the park. The trails traverse a variety of terrain and provide access to mountain peaks, alpine and subalpine meadows, subalpine lakes, canyons, and high mountain valleys. Approximately 41 miles of existing trails are in poor condition and require major reconstruction to provide for visitor use; 14 miles are in fair condition and require rehabilitation or minor reconstruction. A trail study in 1989 concluded that most of the trails in the park need to be reconstructed.

Administrative Facilities

Most of the park's administrative facilities are consolidated in the northeastern corner in or near the Lehman Cave developed area. Headquarters and administrative offices are in a portion of the visitor center. Employee housing is just south of Lehman Cave. The housing area includes eight houses, two cabins, and four trailers (one leased) for employees and their families; additional seasonal housing is leased on a temporary basis near the town of Baker. The park's maintenance facility, which is also south of Lehman Cave next to the housing area, consists of two buildings, a fire cache, equipment parking, and a storage area. Near the maintenance area, two trailers have been set up for office space.

Utilities

A surface water system from Cave Spring provides potable water to the administrative and visitor facilities in the Lehman Cave area. The spring is covered, and there are two 50,000-gallon storage tanks and a chlorinator associated with the system. Three other smaller water systems provide water to the campgrounds in Lehman Creek, Baker Creek, and the Wheeler Peak area. All of these water systems obtain the water from improved springs. Only the smaller system that serves the Upper and Lower Lehman Creek campgrounds provides chlorinated potable water. Water from the two unchlorinated systems requires boiling or other treatment before drinking.

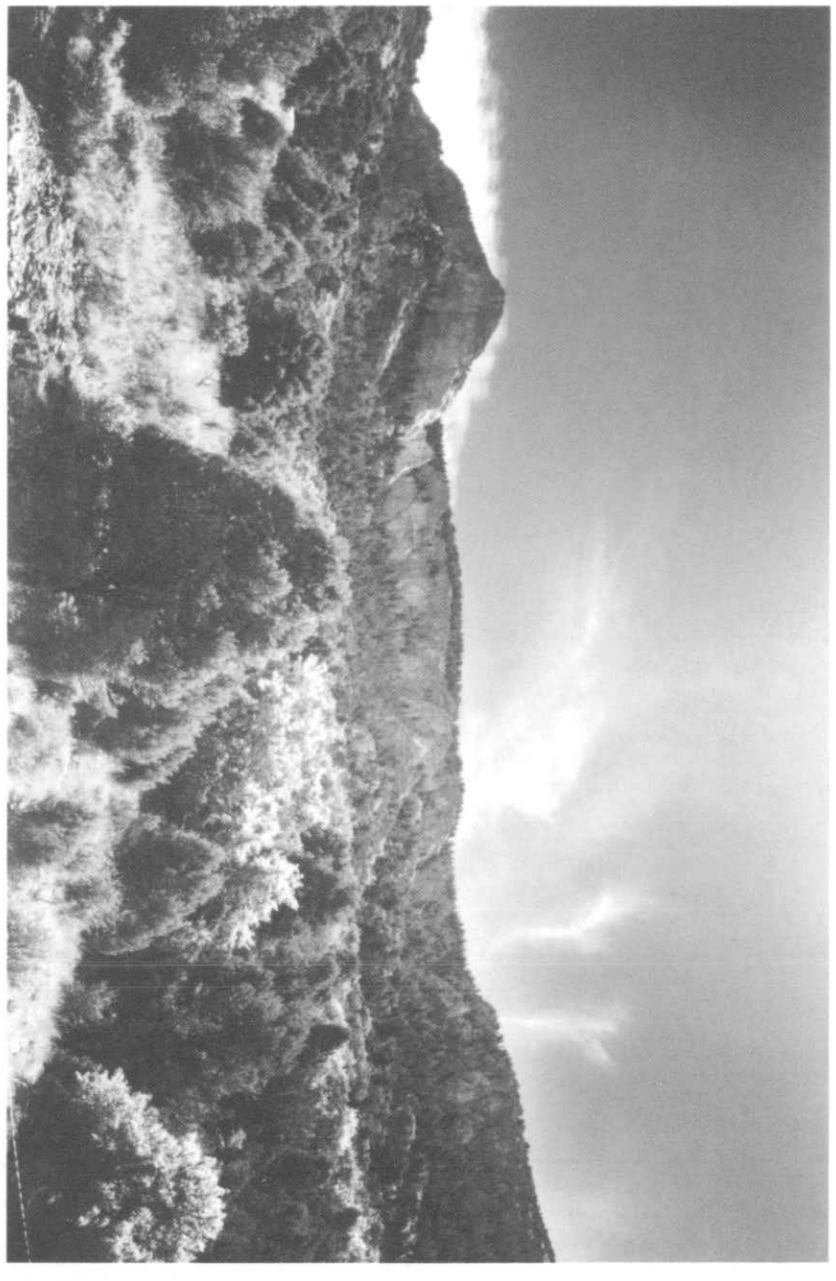
Sewage from the Lehman Cave developed area is treated biologically in a two-cell, lined series of lagoons below the developed area. Sewage from campgrounds is held in sealed vaults and periodically pumped and transported to the sewage lagoons for treatment.

Electrical power and phone service is provided to the Lehman Cave developed area by underground cables. A standby 93.5 kva diesel generator adjacent to the maintenance area provides power to the cave lighting system and administrative offices in the event of a power failure.

Most park housing is heated electrically, with wood burning stoves providing supplemental heat. One residence, the maintenance shop, and the visitor center are heated by oil furnaces, each with its own underground fuel storage tanks. The concession and all of the residence trailers are heated with propane.

The park radio system uses a repeater on Kings Top, about 35 miles east of the park in Millard County, Utah. This site provides excellent radio reception in the parallel valleys and canyons on the east side of the park.

A fire and intrusion alarm system is installed in the visitor center and concession area. The intrusion alarm also protects both cave entrances. Alarm reports are transmitted to the housing area.



ENVIRONMENTAL CONSEQUENCES

IMPACT TOPICS

DERIVATION OF IMPACT TOPICS

To focus the evaluation of potential consequences of the proposed action and alternatives, specific impact topics were identified based on legislative requirements, resource knowledge and information, and concerns expressed by the public and other agencies during scoping (see the "Consultation and Coordination" section). The rationale for the selection of topics is discussed below by major category. The environmental consequences of the proposed action are described by impact topic in the following sections. The consequences of alternatives A, B, and C were fully described and analyzed in the *Draft General Management Plan/Development Concept Plans/Environmental Impact Statement*. In compliance with section 1500.4, title 40, of the *Code of Federal Regulations*, these impacts have not been reprinted in the final plan/EIS.

Biological and Physical Resources

The following biological and physical resources and attributes were selected as impact topics because they were identified as exceptional during planning (see the "Planning Perspective" section for details):

bristlecone pine forests

riparian areas and water quality

alpine/subalpine areas

rare and sensitive plant species that are candidates for listing under the Endangered Species Act

peregrine falcons

Bonneville cutthroat trout

biological diversity

caves

air quality

vistas

Floodplains and wetlands were also selected as a natural resource impact topic because of the ecological significance of these areas and the safety issues involved in attracting visitors to floodplain sites. Soils were selected because of the impacts that would occur from ground-disturbing construction activities.

Cultural Resources

Cultural resources were included as an impact topic because important archeological and historical sites were identified that could be affected by the proposed action and alternatives

Socioeconomic Environment

Several user groups were identified as having the potential to be affected by the proposed action and alternatives:

livestock grazing permittees – the five permittees who are allowed to graze livestock on allotments within the park during the summer months

mineral interests – the owners of mining claims within the park and the owners of patented mining claims that border the park

private property owners – the owners of parcels of private property along the park's existing entrance road, near the park addition in the town of Baker, and along the boundary outside the park

regional economy – the businesses in and around the town of Baker and in the region

local visitors – local community residents who have traditionally used areas now in the park for recreation, in particular the camping sites along Snake and Strawberry Creek and in other park areas

other visitors – hikers, horseback riders, campers, sightseers, natural history observers, cave visitors, anglers, spelunkers, and other regional and national visitors

IMPACT TOPICS DISMISSED FROM FURTHER CONSIDERATION

Other Endangered and Protected Species

Several endangered, protected, and candidate animal species identified in the "Planning Perspective" section are not known to be present or are only occasional transients in the park. These species – the bald eagle, Swainson's hawk, ferruginous hawk, and spotted bat – even if present in the park, would not be affected by the proposed action or alternatives and are not in need of any additional protection other than that generally afforded by a national park.

Other Vegetation Types

Other vegetation types identified in the "Affected Environment" section were not included as impact topics because they are widely distributed within the park, do not provide exceptional habitat, or will not be affected by the proposed action or any of the alternatives. These vegetation types, although not as rare or sensitive as those included as impact topics, are important to the overall health of the park ecosystem and would be managed accordingly.

Glacial Features

The glacial features of the park are at the highest elevations and in the more remote areas along the crest of the South Snake Range. Because no development would occur at those elevations as a result of the proposed action or any of the alternatives, these resources were not considered as an impact topic.

BIOLOGICAL AND PHYSICAL RESOURCES

Impacts on Bristlecone Pine Forests

Analysis. Many of the past impacts on the park's bristlecone pine stands would not be considered serious for other vegetation types (e.g., pinyon-juniper, ponderosa pine, aspen); however, because of the extremely long life span of bristlecone pines and the extremely slow rates of growth and recovery after damage, all impacts on bristlecones must be appraised from a longer term outlook.

Reconstruction and improvement of the trail system through the bristlecone pine stand in the Wheeler Peak semi-primitive day use subzone would provide additional definition to the trail tread, thereby protecting the pines from additional soil compaction and trampling caused by off-trail use and the lack of a continuous protective trail tread near their roots.

Closing the Mt. Washington road at the park boundary would provide increased protection for the ancient bristlecones in that area by eliminating public four-wheel-drive access to the Mt. Washington stand. This would reduce the direct impacts of vehicles on the roots and soils surrounding the trees as well as the possibility of vandalism or inadvertent physical damage to individual trees. This stand would be zoned as a research natural area and would be managed in accordance with the Park Service management policies to provide the greatest possible protection and allow only those recreational and other activities that would not detract from the area's research values.

Other bristlecone stands would also benefit from the proposed action. Most of them would be in areas zoned as protected natural areas, which would have positive indirect effects on the trees because these zones would be managed to perpetuate ecological values and minimize human intrusion.

Under the proposed action, domestic livestock grazing would be prohibited in the semi-primitive day use, protected natural area, and research natural area subzones. Although there is little available forage in any of the known bristlecone pine stands and livestock are relatively infrequent visitors to these stands, this action would provide additional protection by eliminating any random livestock activities that might directly affect the mature bristlecone pines or tree seedlings.

Conclusion. The proposed action would provide increased protection for the bristlecone pine stands in the park.

Cumulative Impacts. Within the national park system, there are only four other park areas that contain bristlecone pines (Bryce Canyon, Cedar Breaks, Death Valley, and Florissant Fossil Beds). None of these areas contain trees that are as old or as stressed as those in Great Basin National Park. Lands administered by the Forest Service in the southwestern states of Colorado, New Mexico, Nevada, Utah, Arizona, and California have numerous bristlecone pine stands. Many of these stands are very old and similar to those in Great Basin National Park. Most are not protected from access or from the long-term potential for vandalism or other physical impacts.

Although the proposed action would have a limited cumulative effect on bristlecone pines on a regionwide scale, it would have a positive cumulative impact on the bristlecone pine population in the national park system by ensuring protection of the most outstanding trees in the system. In addition, designating the Mt. Washington stand as a research natural area would permit additional baseline data to be gathered, thereby aiding understanding of the environmental requirements and life history of this species.

Impacts on Riparian Areas and Water Quality

Analysis. During the 1988 grazing season, studies conducted by the Park Service indicated that the influence of domestic livestock grazing on the park's riparian areas was a factor in their undesirable condition. Under the proposed action, livestock grazing would continue to have adverse effects on riparian areas in the short term, primarily because of the reduction of vegetation along stream corridors but also as a result of soil compaction and erosion from trampling, the introduction of nonnative plant species, and the alteration of natural species composition in plant communities.

Water quality in the streams in riparian areas would also continue to be adversely affected through physical/chemical modification caused directly or indirectly by the presence of livestock. Research by Tiedemann (1988) demonstrated a direct relationship between the intensity of grazing in riparian areas and bacterial water quality. In that study, state of Oregon water quality parameters for bacteria were exceeded during the summer on the most intensively grazed watersheds with meadow ecosystems. Sediment, turbidity, and water temperature can also be adversely affected by grazing in riparian areas.

When the rangeland analysis and allotment management plans were completed and methods were devised for effectively managing grazing livestock in riparian areas, conditions in these areas should improve. However, because of the large amount of forage in riparian areas and the strong preference of livestock for these areas, as long as livestock continued to graze in the park, it is unlikely that they would ever be completely eliminated from riparian areas.

The proposed action would remove the Lower Lehman Creek campground, which is in the riparian area of Lehman Creek, and the portion of the Gray Cliffs campground that is in the riparian area of Baker Creek. Removal of a total of 51 campsites along about 600 linear feet of Baker Creek and 200 linear feet of Lehman Creek would eliminate direct and indirect human impacts on approximately 2 acres of riparian lands.

The new eastern extension of Wheeler Peak Scenic Drive would cross the riparian portion of Baker Creek just east of the proposed eastern park boundary. Where the road crossed the creek, construction would destroy approximately 1/4 acre of riparian vegetation and habitat. The proposed new spur road from Wheeler Peak Scenic Drive to the new Lehman Cave parking area would cross Lehman Creek about 3/4 of a mile inside the park boundary. Because Lehman Creek is quite narrow in this area (less than 30 feet across) and the banks on either side are fairly high, less than 1/10 of an acre of riparian vegetation and habitat would be destroyed.

The proposed action would have no adverse effects on the wild and scenic river values of the South Fork of Big Wash.

Conclusion. Domestic livestock grazing would continue to be the major man-caused adverse effect on riparian vegetation and habitat. Future conditions in riparian areas should improve as a result of methods employed to manage livestock in these areas. However, as long as domestic livestock grazing continued, riparian areas would be adversely affected by vegetation reduction, soil compaction, introduction of nonnative species, changing or sustained unnatural species composition, and water quality degradation from fecal contamination, erosion, and siltation. Approximately 1/4 acre of riparian habitat would be removed under the proposed action, and 2 acres of currently disturbed riparian lands would be restored.

Cumulative Impacts. Riparian areas are numerous and extensive in the western United States and the Great Basin. Areas within the park represent only a small proportion of those found locally and regionally. Most of the riparian areas in the western states have been adversely affected by domestic livestock grazing. For example, in 1988 the General Accounting Office reported on four resource areas in two Bureau of Land Management districts in Nevada using information they provided for evaluating riparian conditions. District evaluations indicated that 93, 86, 86, and 68 percent of the riparian habitat in the four resource areas were in poor to fair condition. Because of the apparent damage in many of the riparian areas in the region, any improvement in riparian habitat in the park would have a positive cumulative impact on riparian areas on a local and regional scale.

Impacts on Alpine/ Subalpine Areas

Analysis. The proposed action recommends no development in alpine and subalpine areas other than limited trail and backcountry campsite improvements. All vehicular access to these areas would be eliminated, and existing access roads and routes would be rehabilitated. These actions would have positive effects on the appearance and ecological conditions in alpine and subalpine landscapes.

The known rare and sensitive alpine and subalpine plant species that are candidates for listing under the Endangered Species Act are generally in areas with very sparse vegetation. Although little is known or documented about the effects of livestock grazing on these areas and the rare and sensitive plant species they support, the additional protection afforded by the proposed action (zoning areas above 10,500 feet as protected natural areas, thereby eliminating grazing) would benefit these species and the communities in which they grow.

Conclusion. Limiting development in alpine and subalpine areas, eliminating vehicular access, and zoning the areas to prohibit grazing would afford additional protection to these communities.

Cumulative Impacts. There are few other mountain ranges in the region with large areas of alpine and subalpine vegetation. Because of this, actions taken to protect the alpine and subalpine communities within the park would have a substantial positive cumulative effect on a regional scale.

Impacts on Rare and Sensitive Plant Species

Analysis. Three potential sources of impacts on rare and sensitive plant species in the park have been identified – domestic livestock grazing, mining, and recreational activities. These sources are addressed separately.

Impacts from Domestic Livestock Grazing – The majority of the rare and sensitive plant species inhabit areas above 10,500 feet in elevation in alpine and subalpine communities. Under the proposed management zoning scheme most of these communities would be designated as part of the protected natural area subzone, where domestic livestock grazing would be prohibited. Some individual animals might stray into this subzone and trespass grazing might occur; however, zoning would provide substantially increased protection to plants.

Lower elevation rare and sensitive plant species would also receive increased protection under the proposed action. Methods would be instituted to separate grazing livestock from areas with rare and sensitive plants, and vegetation communities and rare and sensitive plant species would continue to be inventoried and mapped to provide data for management. These actions would aid the long-term preservation and recovery of these plants in lower elevations.

Impacts from Mining – Activities on existing mining claims in the park could have major effects on rare and sensitive plant species through direct excavation, creation of spoil areas, and machine operation and other activities around mines. Much of the habitat for these plants is in the area surrounding Mt. Washington, and approximately 5,000 acres in this area have existing mining claims. Before approving any claimant's plan of operations to allow mining to be initiated, the Park Service would evaluate the proposed mining area for the presence of rare and sensitive plants and would seek to avoid or eliminate adverse effects on sensitive plants in its recommendation.

Impacts from Recreational Use – Most of the known rare and sensitive plant species occur in the alpine and subalpine communities far south of the popular attractions around Wheeler Peak and well removed from heavily trafficked areas. These species are also generally protected from human disturbance by their rocky cliff habitats.

Under the proposed action five backcountry trails would be built or upgraded in alpine and subalpine areas. Trail construction in these areas would remove less than 2 acres of potential habitat for rare and sensitive plant species. During trail planning and construction, the Park Service would identify and avoid all areas where such plants exist. Trail corridors would be less than 6 feet wide. Because visitors would tend to concentrate along trail corridors, the impacts on individual plants and their communities caused by random cross-country travel would be reduced by constructing or improving trails.

Ridges in the Mt. Washington vicinity also provide habitat for rare and sensitive plant species. Under the proposed action the Mt. Washington access road would be closed, thus reducing the potential for impacts on these species and their habitats from vehicle and pedestrian traffic. The inclusion of most rare and sensitive plant habitat in the protected natural area subzone would provide additional protection for the species.

Conclusion. Domestic livestock grazing, mining, and trail construction have the potential to disturb or destroy rare and sensitive plant species. Designating trail corridors, closing the Mt. Washington road, and including plant habitat in the protected natural area subzone would provide additional protection for these species.

Cumulative Impacts. Many of the rare and sensitive species in alpine and subalpine areas of the park are found in few other locations. The actions proposed in the plan would aid in perpetuating individual species and the integrity of their communities and would have a positive cumulative effect on a regional scale over time.

Impacts on Peregrine Falcons

Analysis. Under the proposed action the Park Service, in cooperation with the Forest Service, the Peregrine Fund, and the Nevada Department of Wildlife, would actively work to reestablish the peregrine falcon in the South Snake Range and to maintain a core population of breeding birds in the park vicinity. No developments would be provided in or near the identified peregrine falcon recovery area on the west side of the park, and the Mt. Washington road would be closed, which would substantially reduce the possibility of humans disturbing nesting birds.

Conclusion. Park Service involvement in the peregrine recovery effort would help to reestablish this species in the park and surrounding region. The potential for disturbance of peregrine habitat in the Mt. Washington area would decrease with road closure.

Cumulative Impacts. The positive cumulative effects on migratory species such as peregrine falcons depend on consistent management nationwide. Recovery plans have been developed for many areas of the West, and reintroductions have been attempted in every western state. By supporting the reintroduction of peregrine falcons and reducing human intrusions in the recovery area, the

proposed action would benefit peregrine falcon recovery on a national scale over time.

Impacts on Bonneville Cutthroat Trout

Analysis. The proposed action would provide additional protection for the existing population of Bonneville cutthroat in Pine and Ridge creeks in the northwest corner of the park and help perpetuate this important genetic resource. The drainages in these two creeks would be zoned as protected natural areas and would receive increased protection over and above that afforded riparian areas in general. Domestic livestock grazing would be prohibited in these areas. Sheep grazing in the past has affected these streams to some degree by reducing vegetation cover, eroding streambanks, and directly affecting water quality through fecal contamination and trampling. The proposed action would eliminate these adverse effects.

Reintroducing Bonneville cutthroat trout into waters on the east side of the park would expand their range and help protect the trout by establishing separate populations, thus lessening the probability of a single event such as a flood eliminating the trout from the South Snake Range.

At the present time it is not known what, if any, impacts recreational fishing may be having on the existing populations of Bonneville cutthroat trout. Because of the remote location of the existing west-side habitat, it is likely that the impacts from fishing are insignificant. The proposed action would seek to establish special fishing regulations to protect both the west-side population and any reestablished east-side populations. This would ensure that the impacts from future recreational fishing would be minimized.

Conclusion. The proposed action would enhance the integrity of existing trout habitat and would increase protection for the population as a whole by reintroducing trout on the east side of the park.

Cumulative Impacts. Because of the scarceness of pure populations of Bonneville cutthroat trout on a regional scale, establishing additional populations within their historic range would have an important beneficial cumulative effect on their recovery and preservation.

Impacts on Biological Diversity

Analysis. Identified threats to the biological diversity of the park include invasion of native plant habitats by competitive nonnative species; disturbance and alteration of natural plant communities by domestic livestock grazing, mining, ground-disturbing developments, and human use; development of overly mature plant communities because of the suppression of natural fires; and climatic changes resulting from environmental factors. The proposed action would have only minor effects in reducing these threats except for those associated with fire suppression. Some nonnative species are well established within the park, and it would not be feasible to eliminate many of them. In addition, continued livestock grazing would presumably introduce additional nonnative species into the park in future years. A rangeland rotation system would be established to help decrease the impacts of grazing on the park's biological diversity.

Mining would be controlled through the review and approval process for plans of operations. The plant and animal species that might be affected by any proposed mining activity would be investigated before approval. These investigations and the approval process would minimize but not eliminate potential impacts on biological diversity from mining.

Recreational use would not have a significant effect on biological diversity. Rare and sensitive plant communities would be avoided during trail and campsite planning and construction, and the dispersed use in trailless areas would not be of sufficient magnitude to affect these community types. If backcountry use increased to levels that could affect biological diversity, a permit system would be established.

The development of a fire management plan with prescriptions for allowing natural fires to burn within the park would help to ensure a heterogenous natural landscape with diverse habitats.

Conclusion. There would be few effects on biological diversity as a result of the proposed action. Grazing would continue to affect natural vegetation diversity; however, management methods would be employed to encourage stock to graze in areas with less sensitive resources, thus reducing the present impacts of grazing in some areas. Prescriptions for allowing natural fires to burn would have a positive effect in ensuring natural biological diversity.

Cumulative Impacts. There would be no cumulative impacts on biological diversity as a result of the proposed action.

Impacts on Caves

Analysis. Under the proposed action several developments would be constructed on or near areas with the potential for underlying caves. These include the proposed Great Basin visitor center, short sections of the proposed Wheeler Peak

Scenic Drive, the additional water storage structures near Cave Spring, and possibly the Lehman Flats campground (the proposed campground site is on alluvium of unknown depth that might overlie limestone substrate). Before constructing these facilities, the Park Service would perform seismic investigations to determine if caves were present in the underlying substrate and if so where. This information would be used to develop mitigating measures to eliminate the possibility of adversely affecting caves. If caves were determined to be near the surface and if it could not be assured that the proposed developments would not affect natural cave conditions, including percolation and subsurface water movements, developments would be planned and built elsewhere.

The Great Basin visitor center would be designed to minimally impact the land. Because of the presence of numerous caves in this substrate, the Park Service would conduct a geotechnical investigation to determine the bearing capacity of the substrate and to assure that construction would not impact unknown cave systems. Two possible types of construction include slab on grade or pole type. (The maximum depth of excavation needed for the grade beam would be 2 feet. The depth of excavation required to support pole-type structures could be greater than 2 feet.) Electrical and water system connections would involve extension of existing systems from the existing park housing area. These systems would be incorporated into conduit buried beneath existing and proposed roads to minimize additional damage. The footprint of the building would be kept to a minimum.

Several existing structures would be removed from areas with the potential for underlying caves, including most of the buildings in the employee housing area, four buildings and the boneyard in the maintenance area, the lower parking lot in front of the proposed Lehman Cave interpretive center, the existing park entrance road near Lehman Cave, and approximately three-fourths of the Grey Cliffs campground. Removal of these developments would restore natural water infiltration to these areas and eliminate the possibility of future maintenance or reconstruction activities adversely affecting caves.

No actions are proposed that would adversely affect Lehman Cave beyond present conditions.

Conclusion. The proposed action would involve limited construction on areas with the potential for underlying caves. A larger number of existing facilities would be removed from such areas. No adverse effects on cave resources are anticipated.

Cumulative Impacts. Caves are relatively common in the region. Many neighboring ranges contain caves. Therefore, on a regional or national scale the impacts of the proposed action would be minor.

More facilities in the park would be removed from than constructed on areas with the potential for underlying caves. This would slightly reduce the potential cumulative impacts on the park's cave resources in the future.

Impacts on Air Quality

Analysis. No significant adverse impacts on air quality would result from implementation of the proposed action. Additional visitation and related automobile traffic could cause slight increases in automobile emissions on and near park roads. Dust levels are high at times because of high winds and arid conditions, particularly along the Baker Creek road. This road would be paved under the proposed action, but other unpaved roads (Snake Creek, Strawberry Creek, and Big Wash roads) would likely receive more traffic and experience temporary increases in dust when winds were high.

Building and utility construction would result in temporary localized increases in particulates. Machinery emissions and increased airborne dust from construction activities would decrease air quality in the vicinity of the project sites. Normal conditions would return when construction was completed.

Any prescribed burning in the park would result in temporary decreases in air quality. The Park Service would work with Nevada state agencies to minimize any adverse effects.

Conclusion. The impacts on the park's air quality would be minor.

Cumulative Impacts. The proposed action would have no measurable cumulative effects on regional air quality.

Impacts on Vistas

Analysis. Removing the maintenance area, sewage lagoons, and almost all housing from the prime resource area of the Baker and Lehman creek drainages would substantially improve views from vantage points on Wheeler Peak Scenic Drive and proposed trails on the east side of the South Snake Range in the park. Visitors would no longer have to look down on these intrusive developments.

Removing the lower parking lot and restricting use of the upper lot in front of the Lehman Cave interpretive center would substantially improve views of the portion of the northern Snake Valley that is visible from the front porch of the interpretive center. Visitors would no longer have to look over vehicles and a constant flow of traffic to view the valley below. The proposed new parking area north of Lehman Cave would be visible from several vantage points in the park; however, the parking area would be designed and laid out to use the surrounding pinyon forest to help screen and mitigate its impact on park vistas.

The large east-facing viewing deck at the new Baker Ridge visitor center would provide opportunities to view and experience a dramatic Great Basin scene, which would greatly enhance the story presentation in the visitor center film and exhibits. The visitor center itself would be visible from several vantage points, but it would be designed and sited to minimize its impact on park vistas. The impact of the building on these vistas would be offset by the benefits derived from effectively conveying the Great Basin story to large numbers of visitors in a setting that complements the story presentation.

The proposed eastern extension of Wheeler Peak Scenic Drive would be designed and constructed based on the results of the computer-generated analysis (see appendix E) to minimize its resource impacts and its impacts on views from the new visitor center. Terrain and vegetation would be used to block or screen views of vehicular traffic from the visitor center. In the foreground (0 to 3 miles), vehicles would only be seen in two locations – for a short distance (about 100 yards) approximately 2 miles below the visitor center, and as they crossed Baker Creek (again, about 100 yards) approximately 1.5 miles downslope. Native vegetation would be used to screen the approach and the low-profile bridge at Baker Creek to reduce the visual impact. Visitors might be able to see vehicles turning off Highway 487 at the entrance to the scenic drive about 5 miles away from the visitor center; however, the effects on views would be negligible at this distance. The interpretive experiences associated with the new extension of Wheeler Peak Scenic Drive would offset the impacts of the road views from the visitor center.

Snake Valley and Spring Valley play extremely important roles in the Great Basin visitor experience. A large part of this experience is the unobstructed views across these two vast valley basins looking toward the park from the regional exhibit shelters and toward the basins from within the park. The proposal to promote preservation of the visual integrity of these two basins through NPS review and recommendations concerning development in the region would be a small step in protecting these vital visual extensions of the park. However, because such actions have had limited success in controlling, modifying, or stopping land use decisions that are detrimental to the visual integrity of landscapes, there would still be a high probability that these valleys could be adversely affected by major development actions in the future.

Conclusion. The removal of most of the NPS operational development from the park would greatly enhance views from various vantage points within the park. The interpretive benefits of the eastern extension of Wheeler Peak Scenic Drive and the Great Basin visitor center and viewing deck would outweigh the impacts that these two developments would have on park vistas. Even with NPS actions to ensure preservation of visual integrity of the Spring Valley and Snake Valley basins, views across these basins would likely be compromised over time because of incompatible developments and land uses.

Cumulative Impacts. There would be no cumulative impacts on vistas as a result of the proposed action.

Impacts on Floodplains and Wetlands

The Park Service has developed final procedures for implementing Executive Orders 11988, "Floodplain Management," and 11990, "Protection of Wetlands" (45 FR 35916 as amended on August, 1982 by 47 FR 36718), and these procedures were followed in this planning effort. Alternatives were developed that would avoid or mitigate the adverse impacts associated with all new development in floodplains and wetlands.

Analysis. No floodplains have been mapped along the streams in Great Basin National Park. Because all of the streams are high-gradient streams of relatively small size, it was assumed by the planning team that 100- and 500-year floodplains do not extend far beyond the riparian areas associated with the streams. Most of the wetlands in the park are associated with streams, springs, and seeps. Development in these areas was avoided to the extent possible.

Existing park developments and facilities would have only minor impacts on the apparent floodplains of Baker, Lehman, and Snake creeks. None of the existing permanent park structures are in apparent floodplains, but portions of all developed campgrounds are within the apparent floodplains

of Baker or Lehman creeks. Because of the relatively small size of these streams and their drainage areas and the presence of adequate escape routes, flooding was not considered a significant hazard to human life or property. In addition, flooding events are unlikely to be so unexpected, violent, or devastating that human lives would be placed in immediate or grave danger. The only site within an apparent floodplain that might cause safety hazards is a portion of the Grey Cliffs campground, from which rapid evacuation would be difficult because of the steep terrain on one side.

The proposed action would remove the entire Lower Lehman Creek campground and the portion of the Grey Cliffs campground that presents safety hazards. The Lower Lehman Creek campground would be removed because the high water table during the spring season causes wet and muddy conditions in some of the campsites. Approximately three-fourths of the Grey Cliffs campground across Baker Creek from the Baker Creek road would be removed to eliminate hazards from possible flash floods. A new campground would be built at Lehman Flats to replace the sites removed from the Lower Lehman Creek and Grey Cliffs campgrounds and to provide some additional campsites. The site of the new campground would be well above Lehman Creek and out of its apparent floodplain.

The proposed eastern extension of Wheeler Peak Scenic Drive would cross the apparent floodplain and riverine wetlands of Baker Creek outside the park boundary on land administered by the Bureau of Land Management. The proposed road alignment would minimize the effects on the floodplain and streamside wetlands. The road would cross the creek at a 90 degree angle and would not parallel the creek on either side of the crossing. Because the wetlands are in a narrow corridor, the bridge would be of sufficient span to prevent any fill material from altering the wetlands or affecting the water flows on which they depend. The proposed spur road from Wheeler Peak Scenic Drive to the new Lehman Cave parking area would cross the floodplain of Lehman Creek and its streamside wetlands. Because the creek is quite narrow in this area and the banks are fairly high, it should be possible to build the road and bridge entirely outside the creek's apparent floodplain, with very little damage to associated wetlands. At both of these crossings it is estimated that the total area of affected wetlands would be less than .025 acre. To minimize the effect, the Park Service would keep bridge and culvert approaches short and possibly use retaining walls to limit the amount of fill required for the approaches.

The most significant effect on wetlands would result from management of grazing in riparian areas and the wetlands associated with them. When the grazing management plan was completed and methods were instituted manage livestock in these areas, conditions in riverine wetlands should greatly improve. However, as long as livestock continued to graze in the park, it is unlikely that they would ever be completely eliminated from wetlands.

Conclusion. The proposed action would have generally beneficial effects on wetlands and would remove the creekside campgrounds with the highest risk for human life and safety from flooding. The proposed Wheeler Peak Scenic Drive would be designed and built to minimize its effect on the wetlands and floodplain of Baker Creek, but it would cross the creek and its floodplain in one location outside the park boundary. Domestic livestock grazing would continue to adversely affect the park's wetlands, but to a lesser extent than at present.

Cumulative Impacts. There would be no cumulative impacts on wetlands or floodplains as a result of the proposed action.

Impacts on Soils

Analysis. The proposed developments would cause approximately 124 acres of soil disturbance. Of this total, approximately 45 acres (36 percent) would be on land administered by the Bureau of Land Management, 8 acres (7 percent) on land administered by the U.S. Forest Service, and 71 acres (57 percent) on land within the park or on the Baker administrative site. Most of the soil disturbance would result from construction of roads and parking lots, with lesser amounts resulting from construction or rehabilitation of buildings, trails, campgrounds, sewage treatment facilities, and other developments. Wherever possible, new roads, trails, and other developments would be placed in previously disturbed areas or corridors. Therefore, many of the soils that would be affected have already been disturbed by past trail or primitive road construction, four-wheel drive vehicle use, or other human-caused activities. An estimated 27 acres of previously disturbed soils would be rehabilitated and revegetated.

Approximately 59 percent of new soil disturbance would be in the shadscale-desert shrub vegetation type, with lesser amounts in pinyon-juniper (24 percent), mixed conifer (10 percent), aspen (7 percent), and mountain mahogany (less than 1 percent) types.

The grazing management actions under the proposed action would result in less potential for soil erosion in areas above

10,500 feet elevation and in riparian areas. Proposals to minimize grazing impacts in riparian areas might result in increased soil impacts elsewhere. For example, relocating cattle from streamsides to hillsides would result in decreased soil erosion in riparian areas and a corresponding increase in soil erosion on hillsides.

Conclusion. Approximately 124 acres of soils would be disturbed by developments under the proposed action, and approximately 27 acres of previously disturbed soils would be rehabilitated and revegetated. Thus, there would be a net impact on 97 acres of soils. Most of this impact would be outside the park boundary and would be associated with proposed roads or structures on BLM land or on the Baker administrative site. Grazing would continue to contribute to soil erosion, but actions would be taken minimize soil erosion above 10,500 feet elevation and in riparian areas.

Cumulative Impacts. Over time, domestic livestock grazing would continue to cause some soil erosion. To a lesser degree, recreational activities such as hiking and horseback riding, which would likely increase under the proposed action, would also cause minor amounts of soil erosion along trail corridors.

CULTURAL RESOURCES

The proposed action would establish a more systematic and comprehensive program for the preservation, protection, and interpretation of cultural resources in Great Basin National Park. It would provide for the preservation of cultural resources illustrating the history of the area and for additional efforts directed at management of the park's cultural resources.

All actions would comply with section 106 of the 1966 National Historic Preservation Act as amended (16 USC 470 et seq.) and its implementing federal regulations. Compliance would be in accordance with the programmatic memorandum of agreement between the Advisory Council on Historic Preservation, the National Conference of State Historic Preservation Officers, and the Park Service.

Impacts on Archeological Resources

Analysis. Little is known about the archeological resources in the park, and a comprehensive parkwide inventory and survey of sites is proposed to evaluate their contextual significance and interpretive value.

Where possible, areas with known concentrations of archeological resources would be avoided as construction and development sites. Two exceptions would be the proposed developments in archeological zones at the Baker guard station and Lehman Flats. All significant archeological sites at the Baker guard station have the potential for subsurface deposits; nine of the 11 significant archeological sites at Lehman Flats have similar potential. Proposed development at the guard station and the campground would be designed to avoid these sites. The proposed spur road to the Lehman Cave parking area would be in an area of archeological significance, but this road could also be aligned to avoid areas of significance. Before earth-disturbing activities commenced, archeological testing would be conducted to determine the nature and extent of the archeological resources to be affected. Testing would be carried out in consultation with the state historic preservation officer and the Advisory Council on Historic Preservation, as appropriate, to avoid or minimize effects or, failing that, to mitigate effects.

Other proposed developments, including the current entrance, Mt. Moriah overlook, Osceola ditch interpretive trail, and Great Basin visitor center on Baker Ridge, would not disturb any known significant archeological sites or resources.

Public use of such facilities as campgrounds, picnic areas, trails, and interpretive sites would affect nearby archeological resources. Easily accessible resources would be vulnerable to surface disturbance, vandalism, or theft. New trails could increase the likelihood of archeological sites being disturbed, and resources would be vulnerable to inadvertent or deliberate destruction. Vandalism and inadvertent damage to known archeological resources would be partially mitigated by initiating on-site patrols, monitoring to detect vandalism, illegal collection, and other deterioration, and educating visitors about the value of these resources and the importance of protecting them.

Conclusion. Proposals would generally upgrade the identification, evaluation, preservation, protection, and interpretation of important archeological resources throughout the park.

Cumulative Impacts. Although the proposed action could result in some adverse impacts on archeological zones in the park, the cumulative impacts on a regional scale would be minimal.

Impacts on Historic Resources

Analysis. Preservation/stabilization and interpretation of the three sites listed on the National Register of Historic Places as having local significance (the Lehman orchard, Lehman aqueduct, and Rhodes cabin) and a portion of one site

recommended for listing (the Osceola ditch) would ensure their long-term protection for public enjoyment. All on-site media and devices to interpret these resources would be designed and placed to avoid impacts and minimize the visual intrusion on the historic scene. The Johnson mill and mine and other sites would be evaluated under National Register criteria, and appropriate treatment would be specified based on the eligibility determination. Additional properties meeting National Register criteria would be nominated.

Allowing the majority of the Osceola Ditch to deteriorate naturally would constitute an adverse effect on that resource under 36 CFR 800.

Some historic sites pose potential dangers to visitors. Possible actions to reduce or eliminate such dangers might include closing and sealing mine shafts, adits, tunnels, stopes, and test pits, removing hazardous structures and nonhistoric debris and scatter, returning sites to natural conditions, and removing artifacts. Safety priorities would be based on the degree of hazard and visitor accessibility. Consultation with the state historic preservation officer and the Advisory Council on Historic Preservation would be conducted for historic sites that meet the National Register criteria or are determined eligible for the register pursuant to 36 CFR 800.

The recording of cultural sites and the collection of interpretive artifacts would result in the accumulation of data on the history of the park area. Systematic management of the museum collection would benefit the curation of individual items and the preservation of archeological and historical resources.

Conclusion. Proposals would generally improve the preservation, protection, and interpretation of significant historic resources in the park.

Cumulative Impacts. Throughout the state of Nevada, historical resources, many of which at one time had National Register potential, have deteriorated or been removed. These include cabins, orchards, sawmills, roads, bridges, mining complexes, and ranches. These resources represent disappearing reminders of the state's ranching, mining, lumbering, and grazing history. The increased protection provided to cultural resources under the proposed action would prevent a few of these resources from disappearing.

SOCIOECONOMIC ENVIRONMENT

Impacts on Livestock Grazing Permittees

Analysis. Five individual permittees graze livestock in Great Basin National Park. As required by the park's enabling legislation, the Park Service would continue to allow grazing to the same extent as was permitted in July 1985 and would take no actions to restrict grazing except to further sound rangeland management practices.

The proposed action would have moderate effects on grazing permittees, primarily by requiring them to keep tighter control on the movements of their stock and limiting the areas that stock could use for forage. Some of the campgrounds and visitor use areas would be fenced, but it is unlikely that all sensitive areas (riparian areas, subalpine meadows, and areas above 10,500 feet) would be fenced or otherwise barricaded to keep domestic stock out. This would place a greater burden on permittees to ensure that grazing livestock did not enter these areas.

Conclusion. Current grazing permittees would be assured the continued availability of the grazing allotments in the park. However, they would be required to restrict grazing livestock to certain locations to a greater extent than in the past.

Cumulative Impacts. In recent years, most federal agencies administering public lands have increased requirements and placed additional restrictions on domestic livestock grazing on those lands. In general, grazing restrictions require permittees to move stock more frequently, to keep stock out of certain areas, and to remove stock from areas before the available forage is depleted. The restrictions that would be placed on grazing permittees within the park under the proposed action would add to this cumulative impact.

Impacts on Mineral Interests

Analysis. There are 247 mining claims in the park. All of these claims are unpatented, and most are within five claim groups in the Mt. Washington area. In addition, there are nine patented claims on lands adjacent to the park boundary in the Mt. Washington vicinity.

The precise impacts on mineral interests within the park are difficult to assess because the Park Service has incomplete information on the mineral values and validity of these claims. In addition, it is impossible to predict the future value of the minerals on the claims. The initial field reconnaissance and validity work that the Park Service has conducted in the last three years indicates that there is only low to moderate potential for mineral development. Because there has been no mining activity in the area for many years, the economic impacts on mineral interests as a result

of the proposed action would likely be minimal in the foreseeable future.

Because all of the mining claims within the park are unpatented, the only surface rights that the claimants are entitled to are those incidental to mining. The Park Service has the authority to approve and regulate all surface activities. To initiate any work related to mining, the claimant would have to submit a plan of operations for review and approval by the park superintendent. Before any such plans were approved, the Park Service would conduct validity examinations on all claims. This would have two major effects on the claimants. First, there would be a delay in review and approval of any plan of operations that was submitted. This delay could be as long as one to two years, because the field work would have to be scheduled for the next available field season and the report would require several months to prepare. Second, if it was determined that a claim was invalid, the Bureau of Land Management would initiate procedures to extinguish it. The decision to extinguish a claim would be subject to appeal.

Mining operations cannot be denied without compensation on a valid mining claim with an approvable plan of operations. If a claim was determined to be valid, the Park Service would have to decide whether to allow operations under an approved plan or to purchase the claim at fair market value. For most claims, especially those in the area surrounding Mt. Washington, the decision would be to purchase. NPS purchase of mining claims would eliminate the possibility of future mining and mineral exploration in those areas.

Owners of patented or valid unpatented mining claims outside the boundary who required access across park lands to mine their claims would also have to submit plans of operations for approval by the Park Service. If the Park Service decided not to approve a plan for a patented mining claim, it would have to purchase the property at its appraised value.

Conclusion. The owners of mining claims within the park could be substantially affected if their claims were determined to be valid and they wished to mine; however, the Park Service would be required to purchase any valid claims on which it denied approval of the plans of operations. It is probable that the vast majority of these claims are invalid and would never be mined. Therefore, the economic impacts on mineral interests would be minimal for the foreseeable future.

Cumulative Impacts. Mining is major segment of Nevada's economy, contributing over $240 million dollars in income each year to residents of the state. In White Pine County, mining provides approximately $18 million to its residents' income (U.S. Department of Commerce, 1986 data). None of this reported income is from mining operations occurring within the park. The number of mining claims within the park and the amounts of minerals located within them represent very minor amounts of acreage and known mineral deposits when judged on a local (county) or regional (state) scale. As a result, unless there is a major unknown mineral deposit located within the park, the cumulative impacts of this proposal on mineral interests would be negligible.

Impacts on Residents and Private Property Owners

Analysis. The 15 to 20 private homeowners along the existing entrance road (Nevada Highway 488) would benefit from the increased privacy afforded by relocating visitor traffic to the new Wheeler Peak Scenic Drive. After the scenic drive was opened, traffic volumes along the existing entrance road would decrease dramatically, reducing noise levels and improving safety for residents.

Relocating the park entrance about 2 miles south of the existing entrance on Nevada Highway 487 would not adversely affect commercial interests in Baker. The majority of visitors would still arrive from the north and drive through town to reach the park; however, instead of turning onto the park entrance road in the middle of town, they would pass through the entire town.

The approximately 10 homeowners who live just south of Baker adjacent to Highway 487 would notice substantial increases in traffic volumes and noise levels when the scenic drive was opened. The potential for traffic accidents along this portion of the highway would also increase.

Because of overall increases in park visitation, Baker residents and property owners would come into contact with visitors more frequently. Some might view increased visitation as an economic benefit; others might view it as an intrusion or an invasion of privacy.

Baker residents would have a longer travel distance to the park boundary as a result of the proposed action. Most residents can now reach the park boundary in 10 minutes or less. The proposed action would increase their travel time by another 10 to 20 minutes, depending on their originating point.

The construction of park facilities and the development of a water and sewer system in and near the town of Baker would, to some degree, change the character of the town. The volume of maintenance-related and administrative traffic would increase. Most of this increase would be to the north of the town center, occurring between the Baker administrative site and the present entrance road (Nevada 488). Commercial opportunities along the existing entrance road would decrease, but such opportunities would increase between the town of Baker and the new park entrance road. The construction of park housing at the Baker administrative site would bring more neighbors into the Baker community and increase its size. If the residents of Baker chose to jointly develop a water and sewer system with the Park Service, it would be much less likely that residents' domestic water would be contaminated by neighboring septic systems. It is also likely that there would be direct economic benefits to some of the residents because of jobs created for the construction and maintenance of the Baker administrative site and the sewer and water system.

Owners of property adjacent to the park boundary and close to exceptional resources within the park could expect concern from the Park Service and the public about any development, activity, or proposed activity that threatened resource values. In such an event, the Park Service would work with the property owner and local, county, and state governments to ensure protection of resource values.

Conclusion. The majority of residents and landowners in the Baker vicinity would benefit from the proposed Wheeler Peak Scenic Drive. The reduction in traffic volumes and noise levels along the existing entrance road would improve the quality of life for residents along that road. In addition, the new park entrance would route most visitors all the way through the commercial center of Baker. Overall, residents and landowners would have more frequent contacts with visitors. Some landowners with properties adjacent to exceptional resources in the park might be prevented from constructing certain types of developments on their land because of Park Service efforts to protect those resources.

Cumulative Impacts. There would be no cumulative impacts on residents and private landowners as a result of the proposed action.

Impacts on the Regional Economy

Analysis. In looking at the potential economic impacts of Great Basin National Park on the surrounding region, three types of expenditures were considered – expenditures from construction projects in the park, expenditures from the

TABLE 12: SUMMARY OF IMPACTS ON THE REGIONAL ECONOMY – PROPOSED ACTION

Construction Expenditures (1990 dollars)

	Total Costs ($MM)	Total Business Activity ($MM)	Personal Income and Business Taxes ($MM)	Total Jobs (FTE)
Pre-Park	0	0	0	0
Existing	0	0	0	0
Future				
Region	29.3	54.5	23.2	591
Nonregion	29.3	36.5	15.0	357

Operating Budget Expenditures (1990 dollars)

	Total Budget ($000)	Regional Purchases ($000)	Total Business Activity ($000)	Personal Income and Business Taxes ($000)	Total Jobs (FTE)
Pre-Park	256	170	302	230	10
Existing	1,310	874	1,487	1,124	46
Future	2,027	1,359	2,317	1,793	75

Visitor Expenditures (1990 dollars)

	Total Expenditures ($000)	Total Business Ativity ($000)	Personal Income and Business Taxes ($000)	Total Jobs (FTE)
Pre-Park	746	1,028	497	25
Existing	1,513	2,099	1,013	51
Future				
Stable	1,604	2,224	1,074	54
Enhanced	3,208	4,448	2,148	108

park's operating budget, and visitor expenditures. With the help of an independent contractor, the Park Service used the Forest Service's IMPLAN model to analyze potential economic growth in the Great Basin region as a result of these expenditures. The analysis was conducted for Beaver and Millard counties in Utah and Lincoln and White Pine counties in Nevada. The results describe potential economic growth in terms of total dollars of business activity in the region (total economic impact), number of full-time jobs created, and total value added to the region. Total value added provides a tangible measure of regional benefits in personal income (wages, salaries, profit, interest, rent) and business sales taxes. All economic figures are expressed in 1990 dollars.

Construction – The proposed action would generate an estimated $29,300,000 (net) in construction activity. The magnitude of regional economic benefits would depend on how many projects were awarded to firms in the region, what proportion of needed construction supplies and materials was purchased from businesses in the region, and what proportion of the work force constituted regional residents. For evaluation purposes, two scenarios have been evaluated in this DEIS. The first scenario assumes that all projects would be awarded to firms in the region; the second assumes that all projects would be awarded to firms outside the region.

All construction-related economic benefits would be of a temporary nature and would not result in permanent jobs or long-term growth in the regional economy. The figures here represent the total impact from all construction projects and would be spread over the duration of construction activities. Under the in-region scenario, the total business activity would increase by $54,500,000; this increased activity would result in the equivalent of 591 full-time jobs and an increase of $23,200,000 in personal income and sales taxes. Under the out-of-region scenario, there would be an increase of $36,500,000 in total economic output, resulting in the equivalent of 357 full-time jobs and an additional $15,000,000 in personal income and sales taxes. Actual short-term economic benefits from construction under the proposed action likely would fall somewhere between the two scenarios.

Operating Budget – A more significant long-term influence on the regional economy would result from park operational expenditures. Such expenditures (e.g., payroll, utilities, business services, supplies) would provide annual, recurring benefits to the economy. The extent of those benefits would depend on how much money went to firms or individuals in the region. In 1986, before the area's designation as a national park, the operating budget was $256,000. This level of spending included $170,000 in regional expenditures, resulting in $302,000 in total business activity, an equivalent of 10 full-time jobs, and $230,000 in personal income and sales taxes. A review the park's 1989 operating budget ($1,310,000) indicates that about two-thirds ($874,000) were regional expenditures. These expenditures resulted in an increase of $1,185,000 in business activity creating the equivalent of 36 additional full-time jobs and $894,000 in personal income and sales taxes.

The proposed action would result in an additional $717,000 in annual NPS operating expenditures. This would increase regional expenditures by $485,000 and the total annual business activity by $830,000. An additional 29 full-time equivalent jobs and $669,000 in personal income and sales taxes would be created.

Visitor Expenditures – Regional economic benefits would also be realized from annual expenditures by nonresident park visitors. Two factors would influence the extent of this impact: the number of nonresident visitors drawn to the area by the park itself or by the park as part of a group of regional attractions, and the extent and type of services available.

A 1988 survey of visitors to Great Basin indicated that the average length of visit was one day, the average party size was 4.1 persons, and the average per-party expenditure was $85. Based on these data, the 73,600 visits recorded in 1988 resulted in visitor expenditures of $1,513,000. Although the percentage of nonresident visitors could not be determined from the survey information, for the purposes of this analysis it is assumed that the majority lived outside the region. This level of spending generated a total of $2,099,000 in business activity, creating the equivalent of 51 full-time jobs and $1,013,000 in personal income and business taxes. In 1985, before Great Basin's designation as a national park, 36,300 visits were recorded at Lehman Caves National Monument. This level of visitation resulted in expenditures of $746,000, generating $1,028,000 in total business activity, $497,000 in personal income and taxes, and 25 full-time equivalent jobs.

Under the proposed action, visitor use of the park is expected to stabilize at about 78,000 visits per year. This level of visitation would increase visitor spending by $91,000, resulting in an additional $125,000 in total regional business

activity, the equivalent of 3 full-time jobs, and $61,000 in personal income and business taxes. If the private sector marketed the park as a unique recreational opportunity and expanded visitor services outside the park to capture more visitor clientele, the length of stay and per-party expenditures would likely increase in the area. For the purposes of this analysis, it is reasonable to assume that such activities could double the average length of stay and/or expenditures with a resulting increase in visitor spending by an additional $1,695,000. This level of visitor spending would generate $2,349,000 for regional businesses, 57 full-time equivalent jobs, and $1,135,000 in personal income and business taxes.

Summary – Although some benefits would accrue to the region as a result of park-related expenditures, the overall impact of the park on the regional economy would be small and has for the most part already been realized. In terms of employment, for example, the Great Basin operating budget since the park was established has already added the equivalent of 36 full-time jobs to the region's economy; the proposed action would create an additional 29 full-time equivalent jobs. Since park establishment, increased visitor expenditures have added another 26 full-time equivalent jobs, and an additional 3 full-time equivalent jobs would be created through visitor expenditures under the proposed action. However, local businesses have not yet fully capitalized on the economic potential of the park. If through increased private sector marketing and visitor services, local businesses could stimulate increased visitor expenditures in the area, 57 full-time equivalent jobs would be created. Construction activities could create an additional 357 to 591 temporary full-time equivalent jobs. However, these increases are minimal when compared with what would happen during a "boom" period for the area's economy. When the power-generating plant was being constructed outside of Delta, for example, over 2,000 temporary jobs were created. Nevertheless, in an economy with a static employment base of around 10,000 jobs, 85 to 95 new jobs is an important economic benefit. The total economic output resulting from the proposed action would also be minimal. Spread over the population of the region, the dollar increases attributed to the proposed action would have a minor impact on the regional economy. Even if local businesses fully capitalized on visitor demand for services, real economic benefits would probably only be felt by a small number of residents. Nonetheless, because the regional economy is primarily based on manufacturing, agriculture, and mining and has experienced little economic growth during the past 10 years, economic growth related to the park would continue to help diversify and improve that economy. Even these small levels of increase in employment, personal income and taxes, and total business activity could be considered an important economic benefit.

Conclusion. The proposed action would have a positive impact on the regional economy in that it would create additional jobs, increase the total business activity, and provide additional personal income and sales taxes. However, relative to the rest of the economy, the actual economic benefit would be small and the principal impact has already occurred. Great Basin National Park has not generated, and under the proposed action would not generate, a boom economy.

Cumulative Impacts. There would be no significant cumulative impacts on the regional economy as a result of the proposed action.

Impacts on Local Visitors

Many activities previously enjoyed by local visitors – camping, picnicking, hiking, and horseback riding – would continue to be available in the park. However, some uses that were permitted on lands previously under Forest Service administration would no longer be allowed or would be closely regulated. Examples include hunting, trapping, tree cutting, commercial harvesting of pinyon nuts, prospecting, collecting minerals, plants, and animals, unrestricted four-wheel driving, camping in undesignated sites along roads, snowmobiling, mountain biking, and hang gliding. Policies prohibiting or closely regulating these and similar uses would adversely affect local visitors who have traditionally participated in these activities. These effects would be partially mitigated by the fact that other public lands are available in the area where consumptive uses are permitted.

Local visitors might also object to the increasing number of other visitors that the national park attracts. There would be increased competition for campsites, more crowding at popular visitor attractions, more hikers on backcountry trails, and generally reduced opportunities for solitude. However, the expanded scope of interpretation and the new visitor facilities would increase opportunities for local visitors to learn about and enjoy the park's many natural, cultural, and recreational resources.

Conclusion. The park would continue to provide opportunities for nonconsumptive recreational activities by local visitors; however, some of these activities would be more closely regulated than in the past. Some consumptive uses would be prohibited or allowed only under permit.

Cumulative Impacts. The state of Nevada and the area surrounding the park have a vast amount of public land where consumptive uses and unregulated recreational activities can take place. Therefore, the cumulative impacts of the proposed action on local visitors would be minimal.

Impacts on Other Visitors

Analysis. Most nonlocal visitors in the past came to tour Lehman Cave. Some also visited the Forest Service Wheeler Peak Scenic Area, but very few ventured into other areas of what is now Great Basin National Park.

The proposed action would open new areas for exploration and discovery and would greatly improve orientation, information, and interpretation of the park and its regional setting. Through management zoning, it would establish and maintain a range of experiences – from highly structured and organized to rustic to primitive – permitting visitors to enjoy the park's diverse resources and attractions at their own pace.

Visitors would be made aware of the Great Basin region before they entered the park through interpretation at the four highway exhibit shelters. These shelters and the new Baker orientation center would set the stage for park experiences, allowing visitors to familiarize themselves with the park and region and to plan activities according to their interests.

The new eastern extension of Wheeler Peak Scenic Drive from Highway 487 to the park boundary would provide a more aesthetic and pleasing approach to the park, setting the scene for Great Basin experiences. The 11 interpretive pullouts along the scenic drive (five along the approach and six inside the park) would introduce visitors to all of the region's major life zones and scenic and historic resources.

Films, slide shows, exhibits, and programs in the new Baker Ridge visitor center would provide interpretation of the entire Great Basin physiographic region, broadening the currently narrow interpretive emphasis on caves to encompass a wide spectrum of natural and cultural history themes. The outdoor viewing deck at the visitor center would offer panoramic views of the basins to the north, east, and south, dramatically illustrating this primary park theme. The redesigned Lehman Cave interpretive center would include additional space for in-depth cave interpretation.

Support facilities and services in the new visitor center and interpretive center would enhance visitor experiences. Convenient parking, barrier-free pathways, picnic areas, shade structures, seating, and restrooms would make visits to these facilities more pleasant. At the interpretive center, cave tour ticket sales would be relocated to a kiosk near the new parking area to reduce congestion and eliminate competing uses in the center.

Interpretive and recreational opportunities in other areas of the park would also be enhanced through improved access, upgraded facilities, and an expanded and rehabilitated parkwide trail system. Pullouts and trails along Wheeler Peak Scenic Drive would interpret significant resources and features, and a new staging area at the end of the scenic drive would improve access into the Wheeler Peak day use area. Camping opportunities would be increased at Baker Creek and Lehman Flats. Sites and features in Strawberry Creek, Snake Creek, Big Wash, and Lexington Arch would be opened to two-wheel-drive travel, and more rustic camping and hiking opportunities would be available in these areas. Interpretive panels at all trailheads and campgrounds would provide orientation to specific areas of the park. New barrier-free facilities and modified existing facilities – including two new trails, two campsites, and all pullouts, parking and staging areas, and restrooms – would make more areas of the park accessible to disabled visitors.

Opportunities to explore the park's backcountry would be greatly expanded through the repair and rehabilitation of existing trails and the construction of nine new trail segments, which would link existing trails to provide a parkwide system of trails. Large areas of the park would zoned primitive and reserved for wilderness experiences.

A number of actions in the plan would reduce potential safety hazards or eliminate undesirable conditions in the park. Shoulder widening and road stabilization would improve safety and accessibility at points of interest along the Wheeler Peak Scenic Drive. Relocation and expansion of the Wheeler Peak pullout/trailhead would reduce congestion and pedestrian hazards at the existing trailhead parking area. Paving the Baker Creek spur road would permit easy access to the new Great Basin visitor center and would eliminate the sometimes high amounts of ambient dust in the vicinity. Upgrading roads from dirt to gravel at Strawberry Creek, Snake Creek, Big Wash, and Lexington Arch would allow safe two-wheel-drive access to these areas. Eliminating a portion of the Grey Cliffs campground would reduce potential safety hazards there in the event of the flash flood. Removing equipment and hazardous materials from mines and stabilizing mine shafts would increase safety for backcountry users.

Prohibiting oversized vehicles and RVs from traveling up Wheeler Peak Scenic Drive beyond Lehman Curve would inconvenience visitors in such vehicles who had no alternate means of transportation. However, this prohibition would improve safety for other motorists using the scenic drive.

Conclusion. The proposed action would greatly expand visitor understanding and appreciation of the park and the Great Basin physiographic region by establishing and creating an interpretive experience on the new Wheeler Peak Scenic Drive, opening a new visitor center on Baker Ridge, and generally improving interpretive services throughout the park and region. It would also open many new areas of the park, permitting visitors to choose among experiences ranging from highly structured to rustic to the most primitive.

Cumulative Impacts. There would be no cumulative impacts on other visitors as a result of the proposed action.

MANAGEMENT

Impacts on Park Management and Operations

Analysis. Substantial increases (above 1989 staffing and funding levels) in law enforcement and resource management personnel and funding would be required to

handle the 20 to 25 percent increase in visitation that is projected over the next 10 years

monitor use on the new 7-mile extension of Wheeler Peak Scenic Drive (entrance road)

support increasing use in the Snake Creek, Strawberry Creek, and Lexington Arch portions of the park

monitor increasing backcountry use (approximately 79 miles of trails would be designated and maintained as compared to the 20 miles of currently maintained backcountry trails)

monitor the more remote locations along the park's western boundary

implement the management zoning system and monitor activities

complete a biological inventory and implement a *limits of acceptable change* monitoring program

implement and administer the allotment management plans, water resources management plan, fire management plan, and cave management plan

Substantial increases in maintenance personnel and funding would also be required to repair, upgrade, and maintain the expanded backcountry trail system; the developments associated with the new visitor center, the Lehman Cave ticket sales and interpretive center, and the Wheeler Peak pullout/trailhead; the new and existing campgrounds, campsites, and trailheads; the regional and park interpretive pullouts; the new visitor orientation, housing, and administrative facilities at the Baker site; the expanded water and sewer treatment system; and the additional 37 miles of access roads outside the park boundary. There would be slight increases in travel time (10 minutes) for maintenance workers to get from the proposed maintenance area in Baker to the park's main developed area. From the proposed maintenance area, workers would have slightly shorter travel distances to other visitor use areas on the east side of the park, including Lexington Arch, Snake Creek, and Strawberry Creek.

Slight increases in interpretive personnel and funding would be needed to support interpretive programs and services at the new visitor center and the Wheeler Peak day use area.

Additional personnel would be needed to manage the 40 percent increase in park staff and associated increases in purchasing needs.

Moving most park employees to the Baker administrative site and constructing additional housing there would affect park employees in several ways. Day-to-day contacts and opportunities for social interaction between park employees and Baker community residents would increase, while similar contacts with current park neighbors would decrease. Park employees would be placed closer to the services that the town of Baker offers (the elementary school, community center, restaurant, store, post office, etc.) but farther from the recreational opportunities available in the park (hiking, fishing, cafe, etc.). Because of the higher summer temperatures at the Baker site (as compared to temperatures in the existing park housing area), cooling costs would be higher for employees housed in Baker. Costs would be partially mitigated by incorporating more efficient insulation and heating/cooling devices into the new housing units. Finally, placing the housing area near the town of Baker would increase commuting time for employees working in the park. Using the existing park entrance as a service road, commuting time to the park from the administrative site would be approximately 10 minutes. Administrative personnel who worked in the park's new administrative building would be within walking distance.

Impacts on U.S. Forest Service and Bureau of Land Management Operations

Analysis. The proposed action would add two sections (1,280 acres) of USFS-administered land to the park. These sections are just east of the proposed visitor center on Baker Ridge. Because the two sections are isolated from other USFS-administered land (on the west by Great Basin National Park and on the east by BLM land), this action would increase the overall efficiency of the federal government in managing these lands.

TABLE 13: PROPOSED RIGHTS-OF-WAY THROUGH USFS AND BLM LAND – PROPOSED ACTION

	Approximate Mileage through USFS Land	Approximate Acres of Proposed Right-of-Way	Approximate Mileage through BLM Land	Approximate Acreage of Proposed Right-of-Way
New Park Entrance	—	—	7.3	725
Strawberry Creek Road	0.5	25	2.2	106
Snake Creek Road	1.3	65	4.2	204
Big Wash Road	2.9	144	6.5	315
Lexington Arch Road	3.8	190	7.7	373

The proposed action would also involve NPS acquisition of rights-of-ways along several roads that enter the park and upgrading of these roads where they cross USFS and BLM land before reaching the park. Table 13 indicates the length of these roads and the approximate amount of land that would be involved in the proposed rights-of-way for the park access roads.

When the Park Service assumed responsibility for maintenance on these roads, the Forest Service and Bureau of Land Management would no longer have to spend time and funds to maintain them and could use maintenance resources elsewhere. Both agencies would use these roads for the management of lands adjacent to NPS rights-of-way. Lands within the rights-of-way would still be available for traditional uses, including recreation, grazing, developments, and public and private uses, as long as they did not cause visual intrusions on the rights-of-way.

If validity examinations on existing mining claims in the park indicated that some were invalid, the Bureau of Land Management would be affected because of its role in extinguishing mining claims on public lands. If the park was redesignated as a class I clean air area, as recommended in the proposed action, this could affect certain types of permitted uses on USFS and BLM lands that would be point sources of air pollutants.

Conclusion. There would be few impacts on the Forest Service and Bureau of Land Management as a result of the proposed action. Land transfers and NPS rights-of-way would increase the overall efficiency of public land administration in the Great Basin region.

Cumulative Impacts. There would be no known cumulative impacts on the Forest Service or the Bureau of Land Management as a result of the proposed action.

UNAVOIDABLE ADVERSE EFFECTS

A total of approximately 120 acres of undisturbed or minimally disturbed land would be directly affected by the proposed action. Impacts would range from complete vegetation removal and light excavation, grading, and surfacing to selective tree cutting and brush removal for vista improvement and fuel reduction around structures, campgrounds, and other public use areas. An estimated 25.3 acres currently disturbed by campsites, roads, and buildings would be rehabilitated, for a net acreage of 95 acres adversely affected by the proposed action.

Table 14 summarizes the unavoidable adverse impacts on public lands managed by the Park Service, Bureau of Land Management, and Forest Service as a result of the proposed action. The impacts are in two categories – moderate and severe. A moderate impact is defined as disturbance of vegetation and soils by such activities as foot traffic or installation of utilities; a severe impact is defined as the exclusion of vegetation by paving, building, or removing soil during excavation. Table 15 describes the vegetation communities that would be affected by these actions.

There would continue to be unavoidable impacts on park vegetation from domestic livestock grazing, primarily in riparian areas, wet meadows, and around water troughs and other areas frequented by livestock. Vegetation disturbance would also likely affect wildlife, but it is difficult to quantify those effects or to determine which species would be most affected.

TABLE 14: UNAVOIDABLE ADVERSE IMPACTS BY TYPE OF DISTURBANCE

	Impacts on NPS Land		Impacts on BLM Land		Impacts on USFS Land	
	Moderate	**Severe**	**Moderate**	**Severe**	**Moderate**	**Severe**
Roads and Parking Lots	0	26.2	0	34.9	0	7.8
New Buildings	0	8.1	0	0	0	0
Corrals, Trails, Backcountry Camps	18.3	0	0	0	0	0
Campgrounds (Modern and Rural)	17.3	0	0	0	0	0
Sewage Treatment and Utilities	1.7	0	2.2	8.0	0	0
Rehabilitated Areas	(8.6)	(18.4)	0	0	0	0
Net Impacts	**28.7**	**15.9**	**2.2**	**42.9**	**0**	**7.8**

TABLE 15: UNAVOIDABLE ADVERSE IMPACTS BY HABITAT TYPE (IN ACRES)

	Moderate	**Severe**	**Total**
Pinyon-Juniper	15.3	9.9	25.2
Shadscale-Desert Shrub	8.0	53.0	61.0
Mountain Mahogany	0	0.1	0.1
Aspen	4.2	2.8	7.0
Riparian Shrub	(6.9)	0	(6.9)
Mixed Conifer	10.2	0.7	10.9
Spruce Forest	0	.06	.06
Bristlecone Pine	0	0	0
Alpine	0	0	0

Note: Numbers in parentheses indicate decreases in disturbed acreage

RELATIONSHIP OF SHORT-TERM USES OF THE ENVIRONMENT AND MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The primary short-term uses of the park would include domestic livestock grazing, mining, and recreational use.

Grazing livestock would continue to compete with native species for available forage and would contribute to soil erosion and degradation of riparian areas and aquatic and wetland habitats. They would be likely to introduce additional nonnative plant species into the park and might also introduce ungulate diseases into native wildlife populations. The proposed action would minimize these adverse effects by allowing grazing only in the most resistant areas of the park; however, some adverse effects on long-term productivity could be expected.

Mining in the park has the potential to adversely affect significant amounts of land in the sensitive subalpine and alpine areas surrounding Mt. Washington, although it is impossible to predict the number of claims that might eventually be mined. Under the proposed action, mining plans of operation would not be approved unless actions or mitigating measures were included demonstrating that the mining activities would not result in damage to important park resources. If plans of operations were denied, the Park Service would have to purchase the claims using congressionally appropriated funds. If Congress did not appropriate the funds to acquire the properties, the Park Service might be unable to stop mining operations. If all lands covered by claims were mined, this could total 6,400 acres.

Recreational uses would not have significant effect on long-term productivity.

IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Irreversible commitments of resources include consumption or destruction of nonrenewable resources such as minerals and archeological remains. Under the proposed action, the Park Service would protect all archeological resources to the extent practical; however, nationally significant sites would have first priority, and the protection of other sites would depend on manpower and budget constraints. It is likely that some archeological sites would be subject to damage from vandalism, fire, domestic livestock grazing, or construction activities, resulting in irreversible losses of artifacts and cultural information of regional or local significance.

The proposed action would permit, under certain circumstances, mining of existing valid claims within the park. Any minerals or ore removed from the park would be irreversibly lost.

Irretrievable commitments of resources are uses of renewable resources such as forage or wildlife habitat that may cause them to be lost because the lands providing these resources are allocated for other uses. The bighorn sheep, perhaps the most sensitive resource in the region, is known to be declining in numbers and will almost certainly be lost as a species from the South Snake Range. Domestic sheep grazing is thought to be adversely affecting this species. However, even if grazing were prohibited within the park, it is doubtful that bighorn sheep would recover because a major portion of their habitat lies outside park boundaries where domestic livestock grazing would likely continue.

Although most proposed developed areas could be restored to previous conditions over time, the use of land and financial resources to implement the proposed action would, in the practical sense, be an irretrievable commitment of resources.

ALTERNATIVE A – NO ACTION/MINIMUM REQUIREMENTS

BIOLOGICAL AND PHYSICAL RESOURCES

Impacts on Bristlecone Pine Forests

Analysis. Under alternative A, reconstruction and improvement of the trail system through the bristlecone stand in the Wheeler Peak cirque would provide additional definition to the trail tread, thereby protecting the pines from additional soil compaction and trampling caused by off-trail use and the lack of a continuous protective trail tread near their roots. The Mt. Washington road would be closed at the park boundary, providing increased protection for the bristlecone pines in that area. The potential for direct impacts from vehicles and vandalism or inadvertent damage by visitors would be much less than at present.

Alternative A would not zone the bristlecone stands surrounding Mt. Washington as a research natural area or the other high-elevation bristlecone stands as protected natural areas. The primary consequence of this action would be that livestock grazing would be permitted in bristlecone stands. Although there is little available forage in most of the stands, domestic sheep do enter them occasionally and could have adverse impacts on individual mature trees, seedlings, and the thin soils in these areas.

Conclusion. Alternative A would provide limited additional protection for bristlecone stands. The stands would be partially protected from human damage or vandalism because of their remote locations.

Cumulative Impacts. The cumulative effect on bristlecone pines under this alternative would be negligible.

Impacts on Riparian Areas and Water Quality

Analysis. Alternative A would involve no changes in current grazing management practices in the park; therefore, domestic livestock grazing would continue to have adverse effects on riparian areas through the reduction of vegetation along stream corridors, soil compaction and erosion from trampling, the introduction of nonnative plant species, and the alteration of natural species composition in plant communities. Water quality in the streams in riparian areas would also continue to be adversely affected through physical/chemical modification caused directly or indirectly by the presence of livestock.

The Lower Lehman Creek campground, which is in the riparian area of Lehman Creek, and the portion of the Gray Cliffs campground that is in the riparian area of Baker Creek would also be removed under this alternative. Removal of about 50 campsites along about 600 linear feet of Baker Creek and 200 linear feet of Lehman Creek would eliminate direct and indirect human impacts on approximately 2 acres of riparian lands. There would be no adverse effects on the wild and scenic river values of the South Fork of Big Wash.

Conclusion. Domestic livestock grazing would continue to be the major man-caused adverse effect on riparian areas. Approximately 2 acres in the riparian areas of Lehman and Baker creeks would be restored.

Cumulative Impacts. The cumulative impacts on riparian areas would be negligible.

Impacts on Alpine/ Subalpine Areas

Analysis. No developments other than minor trail and backcountry campsite improvements would be provided in alpine and subalpine areas. The elimination of all vehicular access and the rehabilitation of existing access roads and routes would have positive effects on the appearance and ecological conditions in these areas.

The known rare and sensitive alpine and subalpine plant species are generally in areas of very sparse vegetation. However, because this alternative would not zone alpine and subalpine lands as protected natural areas, some grazing would continue to occur there, possibly causing impacts on rare and sensitive species.

Conclusion. No major developments would be included in alpine and subalpine areas. Domestic livestock grazing would continue and could adversely affect some rare and sensitive plant species.

Cumulative Impacts. There are few other mountain ranges in the region with large areas of alpine and subalpine vegetation. Continuing to allow grazing above 10,500 feet would adversely affect the park's alpine areas in the future.

Impacts on Rare and Sensitive Plant Species

Analysis. Alternative A would have the following impacts on rare and sensitive species.

Impacts from Domestic Livestock Grazing – The majority of the park's rare and sensitive plant species inhabit areas above 10,500 feet in elevation and depend on the alpine/subalpine habitat. Under this alternative domestic livestock grazing would continue to be allowed in all high

elevation areas, which could have adverse effects on species in some locations.

Impacts from Mining – The impacts on rare and sensitive plant species could result from direct excavation, creation of spoil areas, machine operation, and other mining activities. Before approving any claimant's proposed plan of operation, the Park Service would evaluate the area for the presence of such species.

Impacts from Recreational Use - Most of the known rare and sensitive plant species occur in the alpine and subalpine communities far south of the popular attractions around Wheeler Peak and well removed from heavily trafficked areas. These species are also generally protected from human disturbance by their rocky cliff habitats.

Under alternative A no new backcountry trails would be established in alpine and subalpine areas. However, if visitor use in these areas increased, trampling could occur along self-made corridors, resulting in greater impacts on vegetation than if a trail was constructed.

The Mt. Washington road, a major access point to the ridges that contain rare and sensitive plant habitat, would be closed. This would reduce direct human and vehicular impacts on the plants and their habitats in this area.

Conclusion. Rare and sensitive plant species would receive limited additional protection under this alternative. Domestic livestock grazing, mining, and random human travel could adversely affect these species.

Cumulative Impacts. Many of the rare and sensitive species in the alpine and subalpine communities of the park are found in few other locations. In many cases a few individual plants are scattered over a wide area. Therefore, seemingly minor impacts to a few individual plants, like those caused by domestic livestock grazing, could have serious adverse effects on some of these species.

It is impossible to accurately assess the impacts on any of the rare and sensitive park species as a result of this alternative. Given the rugged habitats of most of these species, it is unlikely that domestic livestock grazing could affect an entire species to the point of extinction; however, over time some individual habitats could be adversely affected and some species eliminated from those areas.

Impacts on Peregrine Falcons

Analysis. No development would occur near the identified recovery area for peregrine falcons on the west side of the park. Closing the Mt. Washington road would minimize human presence in the area, reducing the possibility of disturbance to the birds. The Park Service would cooperate in peregrine recovery efforts in the region.

Conclusion. Park Service involvement in the peregrine recovery effort would help to reestablish this species in the park and surrounding region. The potential for disturbance of peregrine habitat in the Mt. Washington area would decrease with road closure.

Cumulative Impacts. Peregrine falcon recovery depends upon nationwide actions. Recovery plans have been developed for many areas of the West, and reintroductions have been attempted in every western state. By supporting the reintroduction of peregrine falcons and reducing the human intrusions in the recovery area, this alternative would benefit peregrine falcon recovery on both a regional and national scale.

Impacts on Bonneville Cutthroat Trout

Analysis. Alternative A would not provide additional protection to the existing population of Bonneville cutthroat in Pine and Ridge creeks in the northwest corner of the park, and domestic livestock grazing could adversely affect much of the aquatic habitat in these two streams. In addition, Bonneville cutthroat would not be reintroduced into waters on the east side of the park. The species would continue to be very susceptible to a random event such as a flood or drought that could destroy the single population that exists.

Conclusion. No actions would be taken that would increase or reduce threats to the Bonneville cutthroat trout within the park.

Cumulative Impacts. If the populations of Bonneville cutthroat trout within the park were lost, this would represent a relatively serious loss of a valuable genotype on a national or regional scale and could hamper efforts to help this species recover.

Impacts on Biological Diversity

Analysis. Threats to the biological diversity of the park include invasion of native plant habitats by competitive nonnative species; disturbance and alteration of natural plant communities by domestic livestock grazing, mining, ground-disturbing developments, and human use; development of overly mature plant communities because of the suppression of natural fires; and climatic changes resulting from environmental factors. Alternative A would

have only minor effects in reducing those threats except for those associated with fire suppression.

Conclusion. There would be few effects on biological diversity within the park as a result of this alternative. Grazing would continue to affect the natural diversity of vegetation of the park. Prescriptions for allowing natural fires to burn would have a positive effect in ensuring natural biological diversity.

Cumulative Impacts. There would be no known cumulative impacts on the biological diversity as a result of this alternative.

Impacts on Caves

Analysis. Several developments would be constructed on or near areas with the potential for underlying caves, including additional park housing near the existing housing area and an expanded maintenance area. New construction would disturb approximately 5 acres with the potential for underlying caves. The Park Service would perform seismic investigations before constructing proposed facilities, and this information would be used to develop mitigating measures to eliminate the possibility of adversely affecting caves. If caves were determined to be near the surface and if it could not be assured that the proposed developments would not affect natural cave conditions, including percolation and subsurface water movements, developments would be planned and built elsewhere. No existing facilities in areas with the potential for underlying caves would be removed under this alternative.

Alternative A would not remove any existing developments from areas with the potential for underlying caves.

Conclusion. This alternative would increase the number of facilities in areas with the potential for underlying caves. Seismic investigation before construction would prevent or mitigate any impacts on cave resources.

Cumulative Impacts. There would be minor cumulative effects on areas with the potential for underlying caves as a result of this alternative.

Impacts on Air Quality

Analysis. Slight increases in automobile emissions would occur as a result of increased visitation, and dust levels would be high at times along unpaved park roads, in particular the Baker Creek road. Building and utility construction would result in temporary localized increases in particulates. Machinery emissions and increased airborne dust from construction activities would decrease air quality in the vicinity of the project sites. Normal conditions would return when construction was completed.

Any prescribed burning in the park would result in temporary decreases in air quality. The Park Service would work with the Nevada state agencies to minimize any adverse effects.

Conclusion. The impacts on the park's air quality would be minor.

Cumulative Impacts. This alternative would not have any measurable cumulative effects on regional air quality.

Impacts on Vistas

Analysis. The sewage lagoons, proposed administration building, maintenance yard, and large residential complex would have a detrimental effect on the views from various vantage points along the Wheeler Peak road, at Wheeler Peak, and from trails on the east side of the South Snake Range. Visitors standing on the front porch of the Lehman Cave visitor center would have to look out over the vehicles in the upper and lower parking lot to view the Snake Valley below.

No specific actions would be taken to protect vistas outside the park. The vistas associated with Spring Valley and Snake Valley would have a very high probability of being compromised over time because of incompatible developments and land uses.

Conclusion. NPS operational and support facilities would continue to detract from views at various vantage points in the park. Incompatible developments and land uses would constitute a major threat to significant vistas outside the park boundary.

Cumulative Impacts. There would be no cumulative impacts on vistas as a result of alternative A.

Impacts on Floodplains and Wetlands

Analysis. Alternative A would remove the entire Lower Lehman Creek campground and the portion of the Grey Cliffs campground that is across the creek from the Baker Creek road. The Lower Lehman Creek campground would be removed because the high water table during the spring season causes wet and muddy conditions in some of the campsites. Approximately three-fourths of the Grey Cliffs campground would be removed to eliminate hazards from possible flash floods. A new campground would be built at Lehman Flats to replace the sites removed from the Lower Lehman Creek and Grey Cliffs campgrounds and to provide some additional campsites. The site of the new campground

would be well above Lehman Creek and out of its apparent floodplain.

This alternative would not involve management measures to separate grazing livestock from riparian areas. Therefore, the existing impacts on riparian wetlands from grazing would continue.

Conclusion. This alternative would have beneficial effects on wetlands in areas where campgrounds were removed and would also reduce safety hazards in these areas. Impacts on wetlands from domestic livestock grazing would continue at present levels.

Cumulative Impacts. There would be few cumulative impacts on wetlands and no cumulative impacts on floodplains as a result of this alternative.

Impacts on Soils

Analysis. The proposed developments would cause approximately 24 acres of soil disturbance. Of this total, 0.13 acres (less than 1 percent) would be on land administered by the Forest Service, and the rest (more than 99 percent) on land within the park. Most of the soil disturbance would result from construction of new buildings and campgrounds, with lesser amounts resulting from construction or rehabilitation of trails, roads, sewage treatment facilities, and other developments. An estimated 7.4 acres of previously disturbed soils would be rehabilitated and revegetated. Most of the new soil disturbance would be in the pinyon-juniper vegetation type. Lesser amounts of disturbance would occur in shadscale, mixed conifer, aspen, and other types.

The grazing management actions proposed in this alternative would likely result in little change in the potential for soil erosion.

Conclusion. The total area of soil disturbed by developments under this alternative would be 24 acres. Most of the disturbance would be on land inside park boundaries and would be associated with new buildings and campgrounds. Grazing would continue to contribute to soil erosion.

Cumulative Impacts. Over time, domestic livestock grazing would continue to cause soil erosion. To a lesser degree, recreational activities such as hiking and horseback riding, which would likely increase, would also cause minor amounts of soil erosion along trail corridors.

CULTURAL RESOURCES

Analysis. Under alternative A cultural resource management actions would be limited. Minimal preservation/stabilization and interpretive treatment would be accorded the three National Register sites; no additional preservation or rehabilitation work would be carried out at the Osceola ditch. The Johnson mill and mine would be evaluated, and appropriate treatment specified based on their National Register eligibility. Additional properties meeting National Register criteria would be nominated. Other sites would be left to deteriorate naturally, consistent with visitor safety requirements and the provisions of federal historic preservation laws and NPS management policies. Sites with historical archeological elements would require consultation with the state historic preservation officer on treatment. The Park Service would seek to avoid adverse effects resulting from new development in the archeological zone at the Lehman Flats campground.

Conclusion. This alternative would not result in any significant additional impacts on cultural resources.

Cumulative Impacts. There would be no cumulative effects on cultural resources as a result of this alternative.

SOCIOECONOMIC ENVIRONMENT

Impacts on Livestock Grazing Permittees

Analysis. Because alternative A recommends no changes in the management of grazing in the park, the actions to be taken would have no effect on grazing permittees.

Conclusion. The actions in this alternative would have no effect on grazing permittees.

Cumulative Impacts. No cumulative impacts are expected as a result of this alternative.

Impacts on Mineral Interests

Analysis. Mining claimants within the park boundary would have to submit plans of operations for review and approval by the park superintendent before initiating any work related to mining. Before such plans were approved, the Park Service would conduct validity examinations on all claims. This would have two major effects on the claimants. First, there would be a delay in review and approval of any plan of operations that was submitted. This delay could be as long as one to two years. Second, if it was determined that a claim was invalid, the Bureau of Land Management would initiate procedures to extinguish it. The decision to extinguish a claim would be subject to appeal.

Mining operations cannot be denied without compensation on a valid mining claim with an approvable plan of operations. If a claim was determined to be valid, the Park Service would

have to decide whether to allow operations under an approved plan or to purchase the claim at fair market value. For most claims, especially those in the area surrounding Mt. Washington, the decision would be to purchase. NPS purchase of mining claims would eliminate the possibility of future mining and mineral exploration in those areas.

Owners of patented or valid unpatented mining claims outside the boundary who required access across park lands to mine their claims would also have to submit plans of operations for approval by the Park Service. If the Park Service decided not to approve a plan for a patented mining claim, it would have to purchase the property at its appraised value.

Conclusion. The owners of mining claims within the park could be substantially affected if their claims were determined to be valid and they wished to mine; however, the Park Service would be required to purchase any valid claims on which it denied approval of the plans of operations. It is probable that the vast majority of these claims are invalid and would never be mined. Therefore, the economic impacts on mineral interests would be minimal for the foreseeable future.

Cumulative Impacts. Unless there is a major unknown mineral deposit in the park, the cumulative impacts of this alternative would be negligible.

Impacts on Residents and Private Property Owners

Analysis. The 15 to 20 private homeowners who live along the existing entrance road could expect slightly increased traffic, traffic noise, and potential for traffic accidents as a result of proposals in alternative A. This could detract from the quality of life for these residents.

Owners of property adjacent to the park boundary and close to exceptional resources within the park could expect concern from the Park Service and public about any development, activity, or proposed activity that threatened exceptional resources. In such an event, the Park Service would work with the property owner and local, county, and state governments to ensure protection of resource values.

Conclusion. Residents along the existing entrance road would experience slightly more traffic and traffic noise as park visitation increased; other landowners would notice little change with the implementation of alternative A. Landowners adjacent to exceptional resources in the park might be prevented from developing their land because of Park Service efforts to protect those resources.

Cumulative Impacts. There would be no cumulative impacts on residents and private landowners as a result of this alternative.

Impacts on the Regional Economy

Analysis. Alternative A would have the following effects on the regional economy.

Construction – Recommended actions would generate $10,000,000 (net) in construction projects. These projects would have short-term economic benefits and would result in no permanent jobs or long-term economic growth. If all of the projects were awarded to firms in the region, total business activity would increase by $14,400,000. This level of economic activity would result in the equivalent of 146 full-time jobs and $5,900,000 in personal income and business taxes. If all projects went to nonregional firms, total economic output would increase by $9,700,000, creating the equivalent of 89 full-time jobs and $3,800,000 in personal income and business taxes. Actual economic benefits from alternative A would fall somewhere between these two scenarios.

Operating Budget – Expenditures from the park's current operating budget would increase by $604,000. Annual expenditures to regional firms or individuals would increase by $427,000, increasing total economic output by $726,000. This level of business activity would create an additional 26 full-time equivalent jobs in the region and $592,000 in personal income and business taxes.

Visitor Expenditures – Visitor use is expected to stabilize at about 78,000 visits per year. This level of visitation would increase visitor spending by $91,000, resulting in an additional $125,000 in total regional business activity, the equivalent of 3 full-time jobs, and $61,000 in personal income and business taxes. If the private sector marketed the park and expanded visitor services to capture more visitor clientele, the length of stay and per-party expenditures could double, with a resulting increase in visitor spending by $1,695,000. This level of visitor spending would generate $2,349,000 for regional businesses, 57 full-time equivalent jobs, and $1,135,000 in personal income and business taxes.

Conclusion. Alternative A would have a small but positive economic impact on the regional economy.

TABLE 16: SUMMARY OF IMPACTS ON THE REGIONAL ECONOMY – ALTERNATIVE A

Construction Expenditures (1990 dollars)

	Total Costs ($MM)	Total Business Activity ($MM)	Personal Income and Business Taxes ($MM)	Total Jobs (FTE)
Pre-Park	0	0	0	0
Existing	0	0	0	0
Future				
Region	10.0	14.4	5.9	146
Nonregion	10.0	9.7	3.8	89

Operating Budget Expenditures (1990 dollars)

	Total Budget ($000)	Regional Purchases ($000)	Total Business Activity ($000)	Personal Income and Business Taxes ($000)	Total Jobs (FTE)
Pre-Park	256	170	302	230	10
Existing	1,310	874	1,487	1,124	46
Future	1,914	1,301	2,213	1,716	72

Visitor Expenditures (1990 dollars)

	Total Expenditures ($000)	Total Business Ativity ($000)	Personal Income and Business Taxes ($000)	Total Jobs (FTE)
Pre-Park	746	1,028	497	25
Existing	1,513	2,099	1,013	51
Future				
Stable	1,604	2,224	1,074	54
Enhanced	3,208	4,448	2,148	108

Cumulative Impacts. There would be no significant cumulative impacts on the regional economy as a result of this alternative.

Impacts on Local Visitors

Analysis. Camping, picnicking, hiking, horseback riding, and many other activities previously enjoyed by local visitors would continue to be available in the park. However, hunting, tree cutting, unrestricted four-wheel driving, camping in undesignated sites along roads, trapping, commercial harvesting of pinyon nuts, prospecting, and collecting minerals, plants, and animals would no longer be allowed. Policies prohibiting or closely regulating these and similar uses would adversely affect local visitors who have traditionally participated in these activities. These effects would be partially mitigated by the fact that other public lands are available in the area where consumptive uses are permitted.

Local visitors might also object to the increasing number of other visitors that the national park attracts. There would be increased competition for campsites, more crowding at popular visitor attractions, more hikers on backcountry trails, and generally reduced opportunities for solitude.

Conclusion. The park would continue to provide opportunities for nonconsumptive recreational activities by local visitors; however, some of these activities would be more closely regulated than in the past. Some consumptive uses would be prohibited or allowed only under permit.

Cumulative Impacts. The state of Nevada and the area surrounding the park have a vast amount of public land where consumptive uses and unregulated recreational activities can take place. Therefore, the cumulative impacts on local visitors would be minimal.

Impacts on Other Visitors

Analysis. Although orientation, information, and interpretation would be improved under this alternative, no new interpretive facilities would be provided to highlight the theme of the Great Basin physiographic region. There would be no regional exhibit shelters, no orientation in the town of Baker, and no new visitor center media or viewing areas in the park. Opportunities to gain a better understanding and appreciation of the park's natural and cultural history would be limited.

No new areas would be opened to visitor use under this alternative, and people would tend to concentrate in existing use areas in the northern part of the park. Some interpretive and recreational facilities would be improved. Administration

would be relocated out of the Lehman Cave visitor center, and the center would be redesigned to include additional information and orientation services and barrier-free access. Existing interpretive pullouts along the Wheeler Peak road would be upgraded, and one new pullout would be established along the park entrance road. Camping opportunities would increase at Baker Creek and Lehman Flats, and campsites would be designated in Strawberry Creek and Snake Creek. Rehabilitated trails would permit access into some of the park's backcountry.

Several actions would reduce potential safety hazards or eliminate undesirable conditions. Shoulder widening and road stabilization would improve safety and accessibility at points of interest along the Wheeler Peak road. Relocation of the Wheeler Peak pullout/trailhead would reduce congestion and pedestrian hazards at the existing trailhead parking area. Eliminating a portion of the Grey Cliffs campground would reduce potential safety hazards there in the event of a flash flood. Removing equipment and hazardous materials from mines and stabilizing mine shafts would increase safety for backcountry users.

Prohibiting oversized vehicles and RVs from traveling up the Wheeler Peak road beyond Lehman Curve would inconvenience visitors who had no alternate means of transportation. However, this prohibition would improve safety for other motorists using the road.

Conclusion. This alternative would provide limited additional services for visitors. It would not open new areas of the park for recreation or exploration, and it would not provide a better understanding of the park and its regional setting.

Cumulative Impacts. There would be no cumulative effects on visitors under this alternative.

MANAGEMENT

Impacts on Park Management and Operations

Analysis. Moderate increases (above 1989 staffing and funding levels) in law enforcement and resources management personnel and funding would be required to handle the 20 to 25 percent increase in visitation that is projected over the next 10 years, monitor the more remote locations along the park's western boundary, implement the management zoning system and monitor activities, and implement and administer the grazing management plan, fire management plan, and cave management plan.

Slight increases in maintenance personnel and funding would be required to maintain the new 50-site Lehman Flats campground, new administration building, and additional park residences. Slight increases in interpretive personnel and funding would be needed to support the modest expansion of interpretive programs in the Wheeler Peak day use area.

Additional administrative personnel would be needed to manage the 22 percent increase in park staff and associated increases in purchasing needs.

Impacts on U.S. Forest Service and Bureau of Land Management Operations

Analysis. This alternative would not add any BLM or USFS lands to the park. The only land outside the boundary that would be affected would be the small site needed to establish a trailhead and parking area for Lexington Arch. This action would be handled through a cooperative agreement with the two agencies.

The management of the grazing allotments that cross jurisdictional boundaries would continue to require close coordination between the Bureau of Land Management, Forest Service, and Park Service.

Conclusion. There would be no impacts on the Forest Service or Bureau of Land Management as a result of this alternative.

Cumulative Impacts. There would be no cumulative impacts on the Forest Service or BLM.

ALTERNATIVE B – BACKCOUNTRY EMPHASIS

BIOLOGICAL AND PHYSICAL RESOURCES

Impacts on Bristlecone Pine Forests

The impacts on bristlecone pines under alternative B would be the same as under the proposed action. Reconstruction and improvement of the trail system in the Wheeler Peak semi-primitive day use subzone would protect the pines in that area from additional soil compaction and trampling. Closing the Mt. Washington road at the park boundary would provide increased protection for the bristlecones there by reducing the direct impacts of four-wheel-drive vehicles on roots and soils as well as the possibility of vandalism or inadvertent physical damage to individual trees. In addition, this stand would be zoned as a research natural area and would be managed to provide the greatest possible protection of its research values. Most other bristlecone stands would be zoned as protected natural areas, which would have positive indirect effects on the trees because these zones would be managed to perpetuate ecological values and minimize human intrusion.

Under this alternative, domestic livestock grazing would be prohibited in the semi-primitive day use, protected natural area, and research natural area subzones. Although there is little available forage in any of the known bristlecone pine stands and livestock rarely enter them, this action would provide additional protection by eliminating any random livestock activities that might directly affect the mature bristlecone pines or tree seedlings.

Conclusion. This alternative would provide increased protection for the bristlecone pine stands in the park.

Cumulative Impacts. This alternative would have a limited cumulative effect on bristlecone pines on a regionwide scale, but it would have a positive cumulative impact on the bristlecone pine population in the national park system by ensuring protection of the most outstanding trees in the system. In addition, designating the Mt. Washington stand as a research natural area would contribute to understanding of the environmental requirements and life history of this species.

Impacts on Riparian Areas and Water Quality

Analysis. Livestock grazing would continue to have adverse effects on riparian areas in the short term, primarily because of the reduction of vegetation along stream corridors but also as a result of soil compaction and erosion from trampling, the introduction of nonnative plant species, and the alteration of natural species composition in plant communities. Water quality in the streams in riparian areas would also continue to be adversely affected through physical/chemical modification caused directly or indirectly by the presence of livestock. When the grazing management plan was completed and methods were devised for effectively separating grazing livestock from riparian areas, conditions in these areas should improve. However, because of the large amount of forage in riparian areas and the strong preference of livestock for these areas, as long as livestock continued to graze in the park, it is unlikely that they would ever be completely eliminated from riparian areas. Methods to separate livestock from riparian areas might also result in additional grazing impacts on vegetation and soils on the open slopes above riparian areas.

This alternative would remove the Lower Lehman Creek campground, which is in the riparian area of Lehman Creek, and the portion of the Gray Cliffs campground that is in the riparian area of Baker Creek. Removal of a total of 51 campsites along about 600 linear feet of Baker Creek and 200 linear feet of Lehman Creek would eliminate direct and indirect human impacts on approximately 2 acres of riparian lands. There would be no adverse effects on the wild and scenic river values of the South Fork of Big Wash.

Conclusion. Domestic livestock grazing would continue to be the major man-caused adverse effect on riparian vegetation and habitat; however, this effect would be less than it is today. Approximately 2 acres of currently disturbed riparian lands would be restored.

Cumulative Impacts. Because of the apparent damage in many of the riparian areas in the region, any improvement in riparian habitat in the park would have a positive cumulative impact on riparian areas on a local and regional scale.

Impacts on Alpine/ Subalpine Areas

Analysis. Proposals to limit development, eliminate vehicular access, and rehabilitate existing roads and routes in alpine and subalpine areas would have positive effects on the appearance and ecological conditions of these areas. Zoning areas above 10,500 feet as protected natural areas, thereby eliminating grazing, would benefit the known rare and sensitive alpine and subalpine species and the communities in which they grow.

Conclusion. Actions proposed in this alternative would afford additional protection for alpine and subalpine communities.

Cumulative Impacts. Because there are few other mountain ranges in the region with large areas of alpine and subalpine vegetation, actions taken to protect the communities within the park would have a substantial positive cumulative effect on a regional scale.

Impacts on Rare and Sensitive Plant Species

Analysis. Domestic livestock grazing, mining, and trail construction could affect rare and sensitive species in the park. However, a number of actions would be taken under this alternative that would reduce or mitigate the effects. These include prohibiting grazing in high elevation areas that contain such species, employing management methods to separate grazing livestock from rare and sensitive plants in lower elevation areas, evaluating mining proposals for their effect on rare and sensitive species, and aligning new trails to avoid all areas where such species exist. In addition, the Mt. Washington road would be closed to vehicular traffic, and most of the park's rare and sensitive plant habitat would be included in the protected natural area or research natural area subzone.

Conclusion. Actions taken under this alternative would generally reduce or mitigate potential impacts on rare and sensitive species, thus affording them additional protection.

Cumulative Impacts. This alternative would aid in perpetuating individual species and the integrity of their communities and would have a positive cumulative effect on a regional scale.

Impacts on Peregrine Falcons

Analysis. The Park Service would actively cooperate in reestablishing the peregrine falcon in the South Snake Range and maintaining a core population of breeding birds in the park vicinity. No developments would be provided in or near the identified peregrine falcon recovery area on the west side of the park, and the Mt. Washington road would be closed, which would substantially reduce the possibility of humans disturbing nesting birds.

Conclusion. Park Service involvement in the peregrine recovery effort would help to reestablish this species in the park and surrounding region. The potential for disturbance of peregrine habitat in the Mt. Washington area would decrease with road closure.

Cumulative Impacts. By supporting the reintroduction of peregrine falcons and reducing human intrusions in the recovery area, this alternative would benefit peregrine falcon recovery on a national scale over time.

Impacts on Bonneville Cutthroat Trout

Analysis. This alternative would provide additional protection for the existing population of Bonneville cutthroat trout in Pine and Ridge creeks in the northwest corner of the park and would help perpetuate this important genetic resource. The drainages in these two creeks would be zoned as protected natural areas and would receive increased protection over and above that afforded riparian areas in general. Sheep grazing in the past has affected these streams by reducing vegetation cover, eroding streambanks, and directly affecting water quality through fecal contamination and trampling. Under this alternative all domestic livestock grazing would be prohibited in the Pine and Ridge creek watersheds, thus eliminating these adverse effects.

This alternative would also provide the most extensive reintroduction of Bonneville cutthroat on the east side of the park. Reintroducing trout into all east side waters would greatly expand their range and help protect the trout by establishing numerous separate populations, thus lessening the probability of a single event such as a flood eliminating the trout from the South Snake Range.

Conclusion. This alternative would enhance the integrity of existing trout habitat and would increase protection for the population as a whole by reintroducing trout on the east side of the park.

Cumulative Impacts. Because of the scarceness of pure populations of Bonneville cutthroat trout on a regional scale, establishing additional populations within their historic range would have an important beneficial cumulative effect on their recovery and preservation.

Impacts on Biological Diversity

Analysis. Identified threats to the biological diversity of the park include invasion of native plant habitats by competitive nonnative species; disturbance and alteration of natural plant communities by domestic livestock grazing, mining, ground-disturbing developments, and human use; development of overly mature plant communities because of the suppression of natural fires; and climatic changes resulting from environmental factors. Alternative B would have only minor effects in reducing these threats except for those associated with fire suppression. A rangeland rotation system would be established to help decrease the impacts of grazing on the park's biological diversity. Mining impacts would be controlled through the review and approval process

for plans of operations. Rare and sensitive plant communities would be avoided during trail and campsite planning and construction. A fire management plan would be developed with prescriptions for allowing natural fires to burn within the park to help ensure a heterogenous natural landscape with diverse habitats.

Conclusion. There would be few effects on biological diversity as a result of this alternative. Grazing would continue to affect natural vegetation diversity, although management methods would be employed to encourage livestock grazing in areas with less sensitive resources. Prescriptions for allowing natural fires to burn would have a positive effect in ensuring natural biological diversity.

Cumulative Impacts. There would be no cumulative impacts on biological diversity as a result of this alternative.

Impacts on Caves

Analysis. This alternative would result in the least amount of construction activity in areas with the potential for underlying caves. No major new developments would be constructed on such areas, and three existing developments would be removed (the Lehman Cave visitor center and adjacent parking areas, all park housing, and the maintenance area).

Conclusion. This alternative would have a net positive effect on areas with the potential for underlying caves because some developments would be removed from these areas and no new developments would be built there.

Cumulative Impacts. Actions under this alternative would reduce the potential cumulative impacts on the park's cave resources. Impacts on a regional or national scale would be minor.

Impacts on Air Quality

Analysis. Slight increases in automobile emissions would occur as a result of increased visitation, and dust levels would be high at times along unpaved park roads, in particular the Baker Creek road. Facility construction would result in temporary localized increases in particulates. Machinery emissions and increased airborne dust from construction activities would decrease air quality in the vicinity of the project sites. Normal conditions would return when construction was completed.

Any prescribed burning in the park would result in temporary decreases in air quality. The Park Service would work with the Nevada state agencies to minimize any adverse effects.

Conclusion. The impacts on the park's air quality would be minor.

Cumulative Impacts. This alternative would not have any measurable cumulative effects on regional air quality.

Impacts on Vistas

Analysis. Removing the Lehman Cave visitor center and existing parking lots, park housing, the maintenance area, and the sewage lagoons from the prime resource area of the Baker and Lehman creek drainages would substantially improve views from vantage points on Wheeler Peak Scenic Drive, Wheeler Peak itself, and various trails on the east side of the South Snake Range in the park. Visitors would no longer have to look down on these intrusive developments. The proposed new parking area and ticket sales kiosk/staging shelter north of Lehman Cave would be visible from several vantage points in the park; however, the parking area would be designed and laid out to use the surrounding pinyon forest to help screen and mitigate its impact on park vistas.

As in the proposed action, the Park Service would promote preservation of the visual integrity of the Spring and Snake valleys through review and recommendations concerning development proposals in the region. However, there would still be a high probability of adverse effects on these valleys as a result of development actions in the future.

Conclusion. Removal of the Lehman Cave visitor center and parking lots and all NPS operational development from the park would greatly enhance views from various vantage points. Even with actions taken to ensure preservation of the visual integrity of the Spring Valley and Snake Valley basins, views across these basins would likely be compromised over time because of incompatible developments and land uses.

Cumulative Impacts. There would be no cumulative impacts on vistas as a result of this alternative.

Impacts on Floodplains and Wetlands

Analysis. Alternative B would remove the entire Lower Lehman Creek campground and the portion of the Grey Cliffs campground that is across the creek from the Baker Creek road. The Lower Lehman Creek campground would be removed because the high water table during the spring season causes wet and muddy conditions in some of the campsites. Approximately three-fourths of the Grey Cliffs campground would be removed to eliminate hazards from possible flash floods. A new campground would be built at Lehman Flats to replace the sites removed from the Lower Lehman Creek and Grey Cliffs campgrounds and to provide

some additional campsites. The site of the new campground would be well above Lehman Creek and out of its apparent floodplain.

The most significant effect on wetlands would result from the separation of grazing livestock from riparian areas and the wetlands associated with them. When the grazing management plan was completed and methods were instituted to separate livestock from these areas, conditions in riverine wetlands should greatly improve. However, as long as livestock continued to graze in the park, it is unlikely that they would ever be completely eliminated from wetlands.

Conclusion. This alternative would have beneficial effects on wetlands and would remove the campgrounds with the highest risk for human life and safety from flooding. Domestic livestock grazing would continue to adversely affect the park's wetlands, but to a lesser extent than at present.

Cumulative Impacts. There would be no cumulative impacts to wetlands or floodplains as a result of this alternative.

Impacts on Soils

Analysis. The developments proposed under alternative B would cause approximately 73 acres of soil disturbance. Of this total, approximately 17 acres (23 percent) would be on land administered by the Bureau of Land Management, 5 acres (7 percent) on land administered by the Forest Service, and 51 acres (70 percent) on land within the park or on the Baker administrative site. Most of the soil disturbance would result from construction of campgrounds and facilities at the Baker site, with lesser amounts resulting from construction or rehabilitation of trails, roads, sewage treatment facilities, and other developments. An estimated 35.7 acres of previously disturbed soils would be rehabilitated and revegetated. Most of the new soil disturbance would be in the pinyon-juniper vegetation type. Lesser amounts of disturbance would occur in shadscale, mixed conifer, aspen, and other types.

The grazing management actions proposed in this alternative would reduce the potential for soil erosion in areas above 10,500 feet elevation and in riparian areas. Proposals to minimize grazing impacts in riparian areas might result in increased soil impacts elsewhere. For example, relocating cattle from streamsides to hillsides would result in decreased soil erosion in riparian areas and a corresponding increase in soil erosion on hillsides.

Conclusion. Approximately 73 acres of soils would be disturbed by developments proposed under this alternative, and approximately 36 acres of previously disturbed soils would be rehabilitated and revegetated. This would result in a net impact on 37 acres of soils. Most of this impact would be on land within the park and would be associated with the proposed Lehman Flats campground; there would also be considerable impact at the Baker site. Grazing would continue to contribute to soil erosion, but this alternative would minimize soil erosion above 10,500 feet elevation and in riparian areas.

Cumulative Impacts. Over time, domestic livestock grazing would continue to cause some soil erosion. To a lesser degree, recreational activities such as hiking and horseback riding, which would likely increase under this alternative, would also cause minor amounts of soil erosion along trail corridors.

CULTURAL RESOURCES

Analysis. Alternative B would establish a more systematic and comprehensive program for the preservation, protection, and interpretation of cultural resources in Great Basin National Park. It would provide for the preservation of cultural resources illustrating the history of the area and for additional efforts directed at management of the park's cultural resources. The three National Register sites – the Lehman orchard, Lehman aqueduct, and Rhodes cabin – and the Osceola ditch would receive preservation/stabilization treatment. The Johnson mill and mine would be evaluated, and appropriate treatment specified based on their National Register eligibility. Additional properties meeting National Register criteria would be nominated. Other sites would be left to deteriorate naturally, consistent with visitor safety requirements and the provisions of federal historic preservation laws and NPS management policies. Some significant archeological resources would be affected by proposed developments at the Baker guard station. However, in consultation with the state historic preservation officer, archeological testing would be would be carried out in an effort to avoid or reduce potential adverse impacts. The impacts of new development in the archeological zone at the Lehman Flats campground would also require consultation with the state historic preservation officer.

Conclusion. This alternative would generally improve the preservation, protection, and interpretation of significant cultural resources in the park.

Cumulative Impacts. Although this alternative would result in some adverse impacts on archeological zones in the park, the cumulative impacts on a regional scale would be

minimal. There would be no cumulative impacts on historic resources.

SOCIOECONOMIC ENVIRONMENT

Impacts on Livestock Grazing Permittees

Analysis. Alternative B would have moderate effects on grazing permittees, primarily by requiring them to keep tighter control on the movements of their stock and limiting the areas that stock could use for forage. Some of the campgrounds and visitor use areas would be fenced, but it is unlikely that all sensitive areas (riparian areas, Bonneville cutthroat habitat, subalpine meadows, and areas above 10,500 feet) would be fenced or otherwise barricaded to keep domestic stock out. This would place a greater burden on permittees to ensure that grazing livestock did not enter these areas.

Conclusion. Grazing permittees would be assured the continued availability of the grazing allotments in the park. However, they would be required to restrict grazing livestock to certain locations to a greater extent than in the past.

Cumulative Impacts. No cumulative effects on grazing permittees would result from this alternative.

Impacts on Mineral Interests

Analysis. Mining claimants within the park boundary would have to submit plans of operations for review and approval by the park superintendent before initiating any work related to mining. Before such plans were approved, the Park Service would conduct validity examinations on all claims. This would have two major effects on the claimants. First, there would be a delay in review and approval of any plan of operations that was submitted. This delay could be as long as one to two years. Second, if it was determined that a claim was invalid, the Bureau of Land Management would initiate procedures to extinguish it. The decision to extinguish a claim would be subject to appeal.

Mining operations cannot be denied without compensation on a valid mining claim with an approvable plan of operations. If a claim was determined to be valid, then the Park Service would have to decide whether to allow operations under an approved plan or to purchase the claim at fair market value. For most claims, especially those in the area surrounding Mt. Washington, the decision would be to purchase. NPS purchase of mining claims would eliminate the possibility of future mining and mineral exploration in those areas.

Owners of patented and valid unpatented mining claims outside the park boundary in the Mt. Washington area would be affected by the proposal to expand the boundary in the "keyhole" area and add approximately 1,850 acres to the park. The impacts on these owners are described in the "Impacts on Residents and Private Property Owners" section.

Conclusion. The owners of mining claims within the park could be substantially affected if their claims were determined to be valid and they wished to mine; however, the Park Service would be required to purchase any valid claims on which it denied approval of the plans of operations. It is probable that the vast majority of these claims are invalid and would never be mined. Therefore, the economic impacts on mineral interests would be minimal for the foreseeable future.

Cumulative Impacts. Unless there is a major unknown mineral deposit in the park, the cumulative impacts of this alternative would be negligible.

Impacts on Residents and Private Property Owners

Analysis. The 15 to 20 private homeowners who live along the existing entrance road could expect slightly increased traffic, traffic noise, and potential for traffic accidents as a result of proposals in alternative B. This could detract from the quality of life for these residents.

All of the patented and valid unpatented claims on the 1,850-acre parcel near Mt. Washington would be acquired as part of the boundary expansion proposed in alternative B. Landowners would initially be approached on a willing-seller basis. In the event this approach was unsuccessful, Congress would have to amend the park's establishing legislation to allow condemnation in acquiring these lands. In either case, landowners would receive fair market value. NPS purchase of these mining claims would eliminate the possibility of future mining and mineral exploration in the "keyhole" area.

Other owners of property adjacent to the park boundary and close to exceptional resources within the park could expect concern from the Park Service and public about any development, activity, or proposed activity that threatened exceptional resources. In such an event, the Park Service would work with the property owner and local, county, and state governments to ensure protection of resource values.

Conclusion. Most surrounding landowners would experience few changes with the implementation of alternative B. Residents along the existing entrance road would notice slightly more traffic and traffic noise. Landowners in the Mt. Washington boundary expansion area would have their land acquired at fair market value. Other landowners adjacent to exceptional resources in the park might be prevented from

developing their land because of Park Service efforts to protect those resources.

Cumulative Impacts. There would be no cumulative impacts on private landowners as a result of alternative B.

Impacts on the Regional Economy

Analysis. Alternative B would have the following effects on the regional economy.

Construction – Alternative B would generate $25,300,000 (net) in construction projects. These projects would provide short-term benefits and would not result in permanent jobs or long-term economic growth. If regional firms were selected for all construction projects, total business activity would increase by $36,900,000. This would result in the equivalent of 400 full-time jobs and $15,700,000 in personal income and taxes. If firms outside the region were selected, total business activity would increase by $24,800,000, creating 242 full-time equivalent jobs and $10,100,000 in personal income and taxes. Actual economic benefits would fall somewhere between the two scenarios.

Operating Budget – Expenditures from the park's operating budget would increase by $657,000. This would increase annual expenditures to regional firms by $454,000 and total economic output by $784,000, creating an additional 27 full-time equivalent jobs and $634,000 in personal income and business taxes.

Visitor Expenditures – Visitor use is expected to stabilize at about 78,000 visits per year. This level of visitation would increase visitor spending by $91,000, resulting in an additional $125,000 in total regional business activity, the equivalent of 3 full-time jobs, and $61,000 in personal income and business taxes. If the private sector marketed the park and expanded visitor services to capture more visitor clientele, the length of stay and per-party expenditures could double, with a resulting increase in visitor spending by $1,695,000. This level of visitor spending would generate $2,349,000 for regional businesses, 57 full-time equivalent jobs, and $1,135,000 in personal income and business taxes.

Conclusion. Alternative B would have a relatively small but positive impact on the regional economy.

Cumulative Impacts. There would be no significant cumulative impacts on the regional economy as a result of this alternative.

TABLE 17: SUMMARY OF IMPACTS ON THE REGIONAL ECONOMY – ALTERNATIVE B

Construction Expenditures (1990 dollars)

	Total Costs ($MM)	Total Business Activity ($MM)	Personal Income and Business Taxes ($MM)	Total Jobs (FTE)
Pre-Park	0	0	0	0
Existing	0	0	0	0
Future				
Region	25.3	36.9	15.7	400
Nonregion	25.3	24.8	10.1	242

Operating Budget Expenditures (1990 dollars)

	Total Budget ($000)	Total Regional Purchases ($000)	Total Business Activity ($000)	Personal Income and Business Taxes ($000)	Total Jobs (FTE)
Pre-Park	256	170	302	230	10
Existing	1,310	874	1,487	1,124	46
Future	1,962	1,328	2,2713	1,758	73

Visitor Expenditures (1990 dollars)

	Total Expenditures ($000)	Total Business Ativity ($000)	Personal Income and Business Taxes ($000)	Total Jobs (FTE)
Pre-Park	746	1,028	497	25
Existing	1,513	2,099	1,013	51
Future				
Stable	1,604	2,224	1,074	54
Enhanced	3,208	4,448	2,148	108

Impacts on Local Visitors

Analysis. Camping, picnicking, hiking, horseback riding, and many other activities previously enjoyed by local visitors would continue to be available in the park. However, hunting, tree cutting, unrestricted four-wheel driving, camping in undesignated sites along roads, trapping, commercial harvesting of pinyon nuts, prospecting, and collecting minerals, plants, and animals would no longer be allowed. Policies prohibiting or closely regulating these and similar uses would adversely affect local visitors who have traditionally participated in these activities. These effects would be partially mitigated by the fact that other public lands are available in the area where consumptive uses are permitted.

Local visitors might also object to the increasing number of other visitors that the national park attracts. There would be increased competition for campsites, more crowding at popular visitor attractions, more hikers on backcountry trails, and generally reduced opportunities for solitude.

Conclusion. The park would continue to provide opportunities for nonconsumptive recreational activities by local visitors; however, some of these activities would be more closely regulated than in the past. Some consumptive uses would be prohibited or allowed only under permit.

Cumulative Impacts. The state of Nevada and the area surrounding the park have a vast amount of public land where consumptive uses and unregulated recreational activities can take place. Therefore, the cumulative impacts on local visitors would be minimal.

Impacts on Other Visitors

Analysis. Because alternative B would emphasize resource protection and would reduce developments inside the park to a minimum, it would best serve people seeking more primitive experiences. All major developments would be in the northern part of the park, and except for Lexington Arch, areas south of Snake Creek would be trailless. Existing attractions at Lehman Cave and Wheeler Peak would still be easily accessible, but the remainder of the park would be reserved for backcountry travelers.

Although the visitor center in Baker would provide interpretation of the Great Basin region, its location near a small commercial and residential area and at the intersection of two main roads would contribute little to the visitor experience. There would be no viewing deck at the facility, and views of the park and the basin environment would be limited. Some interpretive and recreational facilities would be provided in the park. Existing interpretive pullouts along the Wheeler Peak road would be upgraded, and one new pullout would be established along the park entrance road. Camping opportunities, although limited, would be available along the Wheeler Peak road and in Strawberry Creek and Baker Creek. Rehabilitated trails would permit access into large portions of the park's backcountry.

Several actions would reduce potential safety hazards or eliminate undesirable conditions. Shoulder widening and road stabilization would improve safety and accessibility at points of interest along the Wheeler Peak road. Relocation of the Wheeler Peak pullout/trailhead would reduce congestion and pedestrian hazards at the existing trailhead parking area. Eliminating a portion of the Grey Cliffs campground would reduce potential safety hazards there in the event of flash flood. Removing equipment and hazardous materials from mines and stabilizing mine shafts would increase safety for backcountry users.

Prohibiting oversized vehicles and RVs from traveling up the Wheeler Peak road beyond Lehman Curve would inconvenience visitors in such vehicles who had no alternate means of transportation. However, this prohibition would improve safety for other motorists using the road.

Conclusion. This alternative would best serve visitors wanting to explore the park's backcountry. Information, orientation, and interpretive services would be provided at the new visitor center in Baker, and the Lehman Cave/Wheeler Peak area would be maintained for relatively intensive use. The remainder of the park would be reserved for rustic and primitive experiences and would be managed to ensure maximum resource protection.

Cumulative Impacts. There would be no cumulative impacts on visitors as a result of this alternative.

MANAGEMENT

Impacts on Park Management and Operations

Analysis. Moderate increases (above 1989 staffing and funding levels) in law enforcement and resource management personnel and funding would be required to

handle the 20 to 25 percent increase in visitation that is projected over the next 10 years

expand opportunities in the Strawberry Creek and Lexington Arch portions of the park

monitor increasing backcountry use (approximately 56 miles of trails would be designated and maintained as

compared to the 20 miles of currently maintained backcountry trails)

monitor the more remote locations along the park's western boundary

implement the management zoning system and monitor activities

implement and administer the grazing management plan, fire management plan, and cave management plan.

Substantial increases in maintenance personnel and funding would be required to repair, upgrade, and maintain the expanded backcountry trail system, the new 100-site Lehman Flats campground, the Lehman Cave ticket sales kiosk/staging shelter, four regional highway exhibit shelters, and 20 additional miles of access roads outside the park boundary. There would be slight increases in travel time (10 minutes) for maintenance workers to get from the proposed maintenance area to the park's main developed area at Lehman Cave. From the proposed maintenance area, workers would have slightly shorter distances to travel to reach other visitor use areas, including Lexington Arch, Snake Creek, and Strawberry Creek.

Slight increases in interpretive personnel and funding would be needed to support the modest expansion of interpretive programs in the Wheeler Peak day use area.

Additional administrative personnel would be needed to manage the 35 percent increase in park staff and associated increases in purchasing needs.

The impacts of relocating most park housing to the Baker administrative site would be similar to those of the proposed action. Contacts and opportunities for social interaction between employees and Baker community residents would increase, while similar contacts with current park neighbors would decrease. Park employees would be closer to Baker services but farther from recreational opportunities in the park. Cooling costs would be higher; these costs would be partially mitigated by including efficient insulation and heating/cooling devices in the new housing units. Commuting time for employees working in the park would increase to about 10 minutes.

Impacts on U.S. Forest Service and Bureau of Land Management Operations

Analysis. This alternative would add approximately 1,850 acres of Forest Service land west of the park near Mt. Washington and eliminate the "keyhole" in the boundary. This area, which includes the western approaches to Mt. Washington and consists of extremely steep terrain on the upper slopes of the Snake Range, has historically been used for mining. It contains ten patented and numerous unpatented mining claims. The effect of this action on the Forest Service would be to reduce its administrative responsibilities related to mining in an area where mining claims cover most of the land.

This alternative also proposes upgrading and establishing rights-of-way along several existing roads that cross Forest Service and Bureau of Land Management land before reaching the park. The following table indicates the lengths of roads and the amount of land that would be involved in the rights-of-way.

TABLE 18: PROPOSED RIGHTS-OF-WAY THROUGH USFS AND BLM LAND – ALTERNATIVE B

	Approximate Mileage through USFS Land	Approximate Acres of Proposed Right-of-Way	Approximate Mileage through BLM Land	Approximate Acreage of Proposed Right-of-Way
Strawberry Creek Road	0.5	25	2.2	106
Snake Creek Road	1.3	65	4.2	204
Lexington Arch Road	3.8	190	7.7	373

When the Park Service assumed responsibility for maintenance on these roads, the Forest Service and Bureau of Land Management would no longer have to spend time and funds to maintain them and could use maintenance resources elsewhere. Both agencies would use these roads for the management of lands adjacent to NPS rights-of-way. Lands within the rights-of-way would still be available for traditional uses, including recreation, grazing, developments, and public and private uses, as long as they did not cause visual intrusions on the rights-of-way.

Conclusion. There would be few impacts on the Forest Service and Bureau of Land Management as a result of this alternative. Land transfers and NPS rights-of-way would increase the overall efficiency of public land administration in the Great Basin region.

Cumulative Impacts. There would be no known cumulative impacts on the Forest Service or the Bureau of Land Management as a result of the proposed action.

BIOLOGICAL AND PHYSICAL RESOURCES

Impacts on Bristlecone Pine Forests

Analysis. Reconstruction and improvement of the trail system through the bristlecone pine stand in the Wheeler Peak semi-primitive day use subzone would provide additional definition to the trail tread, thereby protecting the pines from additional soil compaction and trampling caused by off-trail use and the lack of a continuous protective trail tread near their roots.

Actions to provide for public vehicular access to Mt. Washington and hiking through the bristlecone pine stand there would to some degree jeopardize the pines by increasing visitation but would also alleviate some existing adverse impacts caused by uncontrolled access and lack of enforcement personnel in the area. Direct and indirect impacts would include damage to the trees, roots, seedlings, and surrounding soils and the potential for vandalism or inadvertent physical damage to individual trees. An NPS presence would be established in the area to reduce or mitigate these impacts. None of the bristlecone stands in the park would receive the additional protection of zoning and management as protected or research natural areas. Because of this and because relatively intensive use would be encouraged, the potential for additional visitor impacts on bristlecones would increase. In addition, livestock grazing would continue to pose threats to these significant resources.

Conclusion. This alternative would provide for increased access to the Mt. Washington bristlecone pine stand, which could have additional impacts on this resource. Ranger personnel would be assigned to the area to reduce or mitigate these impacts. None of the bristlecone stands in the park would receive the additional protection of restrictive management zoning.

Cumulative Impacts. Improving access to the Mt. Washington bristlecone stand could have a negative cumulative impact over time on the bristlecone pine population in the national park system.

Impacts on Riparian Areas and Water Quality

Analysis. The impacts on riparian areas would be similar to those of the proposed action. Livestock grazing would continue to have adverse effects in the short term, primarily because of the reduction of vegetation along stream corridors but also as a result of soil compaction and erosion from trampling, the introduction of nonnative plant species, and the alteration of natural species composition in plant communities. Water quality in the riparian streams would also continue to be adversely affected through physical/chemical modification caused directly or indirectly by livestock.

When the grazing management plan was completed and methods were devised for effectively separating grazing livestock from riparian areas, conditions in these areas should improve. However, as long as livestock continued to graze in the park, it is unlikely that they would ever be completely eliminated from riparian areas. Methods to separate livestock from riparian areas might also result in additional grazing impacts on vegetation and soils on the open slopes above riparian areas.

This alternative would remove the Lower Lehman Creek campground and the portion of the Gray Cliffs campground that is in the riparian area of Baker Creek. Removal of a total of 51 campsites along about 600 linear feet of Baker Creek and 200 linear feet of Lehman Creek would eliminate direct and indirect human impacts on approximately 2 acres of riparian lands. The new eastern extension of Wheeler Peak Scenic Drive would cross the riparian portion of Baker Creek just east of the proposed eastern park boundary. Where the road crossed the creek, construction would destroy approximately 1/4 acre of riparian vegetation and habitat. The proposed spur road from Wheeler Peak Scenic Drive to the new parking area at Lehman Cave would cross Lehman Creek about 3/4 of a mile inside the park boundary. Because Lehman Creek is quite narrow in this area (less than 30 feet across) and the banks on either side are fairly high, less than 1/10 of an acre of riparian vegetation and habitat would be destroyed.

There would be no adverse effects on the wild and scenic river values of the South Fork of Big Wash.

Conclusion. Domestic livestock grazing would continue to be the major man-caused adverse effect on riparian vegetation and habitat. Future conditions in riparian areas should improve as a result of methods employed to separate livestock from these areas. However, as long as domestic livestock grazing continued, riparian areas would be adversely affected. Approximately 1/3 acre of riparian habitat would be removed under this alternative, and 2 acres of currently disturbed riparian lands would be restored.

Cumulative Impacts. Because of the apparent damage in many of the riparian areas in the region, any improvement in riparian habitat in the park would have a positive cumulative impact on riparian areas on a local and regional scale.

Impacts on Alpine/ Subalpine Areas

Analysis. A probable consequence of improving access to the area around Mt. Washington would be increased random foot travel in surrounding alpine and subalpine areas. This would result in some direct adverse impacts on vegetation in these areas. All other vehicular access to alpine and subalpine areas would be eliminated, and existing access roads and routes would be rehabilitated. These actions would have beneficial effects on the overall appearance and ecological conditions of alpine and subalpine communities.

Developments proposed in alpine and subalpine areas, including trails and backcountry shelters, an improved 4-wheel drive road, a ranger station, and a parking lot, trailhead, and associated interpretive trail near the summit of Mt. Washington, would result in some direct adverse impacts on approximately 5 acres of alpine and subalpine vegetation.

The known rare and sensitive alpine and subalpine plant species are generally in areas of relatively sparse vegetation that are rarely subject to domestic livestock grazing. However, because this alternative would not zone alpine and subalpine lands as protected natural areas, some grazing would continue to occur there, possibly causing impacts on rare and sensitive species.

Conclusion. This alternative could have a high level of impact on alpine and subalpine communities. Opening the Mt. Washington area to vehicular access and providing developments in other high country areas could disturb or damage these communities and individual species within them. Domestic livestock grazing could adversely affect rare and sensitive plant species.

Cumulative Impacts. Because there are few other mountain ranges in the region with large areas of alpine and subalpine vegetation, the actions taken in this alternative could have a substantial negative cumulative effect on a regional scale over time.

Impacts on Rare and Sensitive Plant Species

Analysis. Alternative C would have the following impacts on rare and sensitive species.

Impacts from Domestic Livestock Grazing – The majority of the park's rare and sensitive plant species inhabit areas above 10,500 feet in elevation and depend on the alpine/subalpine habitat. Under this alternative domestic livestock grazing would continue to be allowed in all high elevation areas, which could have adverse effects on species in some locations.

Lower elevations rare and sensitive plants species would receive additional protection under this alternative because of methods instituted to separate grazing livestock from such species.

Impacts from Mining – Impacts on rare and sensitive plant species could result from direct excavation, creation of spoil areas, machine operation, and other mining activities. Before approving any claimant's proposed plan of operation, the Park Service would evaluate the area for the presence of such species.

Impacts from Recreational Use – This alternative would provide additional park access near Mt. Washington, which is at the heart of the habitat for most of rare and sensitive species that are candidates for listing under the Endangered Species Act. Although many of these species would be protected from human impacts by their rocky cliff habitats, increased visitor use around Mt. Washington could jeopardize some species because of inadvertent trampling and illegal collecting.

Under this alternative five backcountry trails would built or upgraded in alpine and subalpine areas. Trail construction in these areas would remove less than 5 acres of potential habitat for rare and sensitive plant species. During trail planning and construction, the Park Service would identify and avoid all areas where such plants exist. Trail corridors would be less than 6 feet wide. Because visitors would tend to concentrate along trail corridors, the impacts on individual plants and their communities caused by random cross-country travel would be reduced by constructing or improving trails.

Conclusion. Rare and sensitive plants would receive limited protection under this alternative. Increased visitor use would threaten the habitat of these species around Mt. Washington. Domestic livestock grazing, mining, and trail construction activities also have the potential to impact these species.

Cumulative Impacts. Many of the rare and sensitive species in the alpine and subalpine communities of the park are found in few other locations. In many cases a few individual plants are scattered over a wide area. Therefore, seemingly minor impacts to individual plants, like those caused by

visitor use and domestic livestock grazing, could have serious adverse effects on some of these species. Although it is unlikely that grazing could affect an entire species to the point of extinction, over time some individual habitats could be adversely affected and some species eliminated.

Impacts on Peregrine Falcons

Analysis. This alternative proposes an improved road, visitor contact station, two parking lots, a housing and maintenance area, and an interpretive trail in the peregrine falcon recovery area southwest of Mt. Washington. These developments and the resulting increased human presence could disturb peregrine falcons and potentially interrupt nesting activities. The Park Service would actively work to reestablish the peregrine falcon in the South Snake Range in cooperation with the Forest Service, the Peregrine Fund, and the Nevada Department of Wildlife.

Conclusion. Peregrine falcon habitat would be adversely affected by actions taken in this alternative. Active NPS involvement in the peregrine recovery effort would help to reestablish this species in the park and surrounding region.

Cumulative Impacts. Proposed developments and human use on the southwestern slope of Mt. Washington could decrease the chances for successful reestablishment of peregrine falcons in the South Snake Range. On a national scale the cumulative impacts would be minor. On a regional scale these impacts could be serious.

Impacts on Bonneville Cutthroat Trout

Analysis. Although domestic livestock would continue to be permitted in the Pine and Ridge creek watersheds, the Park Service would provide additional protection for the existing populations of Bonneville cutthroat trout in these areas through management techniques to separate grazing livestock from the creeks. These actions would reduce or eliminate most of the adverse effects of past sheep grazing, including reducing vegetative cover, eroding stream banks, and directly affecting water quality through fecal contamination and trampling.

Reintroducing this trout into all east side waters would greatly expand their range and help protect the trout by establishing numerous separate populations, thus lessening the probability of a single event such as a flood eliminating the trout from the South Snake Range.

Conclusion. This alternative would improve the integrity of existing trout habitat and would increase protection for the population as a whole by reintroducing trout on the east side of the park.

Cumulative Impacts. Because of the scarceness of pure populations of Bonneville cutthroat trout on a regional scale, establishing additional populations within their historic range would have an important beneficial cumulative effect on their recovery and preservation.

Impacts on Biological Diversity

Analysis. Identified threats to the biological diversity of the park include invasion of native plant habitats by competitive nonnative species; disturbance and alteration of natural plant communities by domestic livestock grazing, mining, ground-disturbing developments, and human use; development of overly mature plant communities because of the suppression of natural fires; and climatic changes resulting from environmental factors. Alternative C would have only minor effects in reducing these threats except for those associated with fire suppression. A rangeland rotation system would be established to help decrease the impacts of grazing on the park's biological diversity. Mining impacts would be controlled through the review and approval process for plans of operations. Rare and sensitive plant communities would be avoided during trail and campsite planning and construction. A fire management plan would be developed with prescriptions for allowing natural fires to burn within the park to help ensure a heterogenous natural landscape with diverse habitats.

The one area where actions might have negative effects on biological diversity is the proposed Mt. Washington semi-primitive day use area, where some rare and sensitive species could be jeopardized because of increased visitor use.

Conclusion. There would be limited effects on biological diversity within the park as a result of this alternative. Grazing would continue to affect natural vegetation diversity; however, management methods would be employed to encourage stock to graze in areas with less sensitive resources, thus reducing the present impacts of grazing in some areas. Visitor impacts would increase in the Mt. Washington area, potentially jeopardizing a number of rare and sensitive plants. Prescriptions for allowing natural fires to burn would have a positive effect in ensuring natural biological diversity.

Cumulative Impacts. There would be no cumulative impacts on biological diversity as a result of this alternative.

Impacts on Caves

Analysis. Under this alternative several developments would be constructed on or near areas with the potential for underlying caves. These include the proposed Great Basin

visitor center, short sections of the proposed Wheeler Peak Scenic Drive, and the additional water storage structures near Cave Spring. Before constructing these facilities, the Park Service would perform seismic investigations to determine if caves were present in the underlying substrate and if so where. This information would be used to develop mitigating measures to eliminate the possibility of adversely affecting caves. If caves were determined to be near the surface and if it could not be assured that the proposed developments would not affect natural cave conditions, including percolation and subsurface water movements, developments would be planned and built elsewhere.

The Great Basin visitor center would be designed to minimally impact the land by sitting lightly on limestone substrate. Because of the presence of numerous caves in this substrate, the Park Service would conduct a geotechnical investigation to determine the bearing capacity of the substrate and to assure that construction would not impact unknown cave systems. Two possible types of construction include slab on grade or pole type. (The maximum depth of excavation needed for the grade beam would be 2 feet. The depth of excavation required to support pole-type structures could be greater than two feet.) Electrical and water system connections would involve extension of existing systems from the existing park housing area. These systems would be incorporated into conduit buried beneath existing and proposed roads to minimize additional damage. The footprint of the building would be kept to a minimum.

Several existing structures would be removed from areas with the potential for underlying caves, including four buildings and the boneyard in the existing maintenance area, the lower parking lot at the Lehman Cave interpretive center, the existing park entrance road near Lehman Cave, and approximately three-fourths of the Grey Cliffs campground. Removal of these developments would restore more natural water infiltration to these areas and eliminate the possibility of future maintenance or reconstruction activities adversely affecting any caves.

No actions would be undertaken that would adversely affect Lehman Cave.

Conclusion. This alternative would involve construction of more new facilities on areas with the potential for underlying caves than would be removed. No adverse effects on cave resources are anticipated.

Cumulative Impacts. The cumulative impacts of this alternative would be minor on a regional and national scale.

Impacts on Air Quality

Analysis. No significant adverse impacts on air quality would result from implementation of this alternative. Additional visitation and related automobile traffic could cause slight increases in automobile emissions on and near park roads. Dust levels are high at times because of high winds and arid conditions, particularly along the Baker Creek road. This road and the Snake Creek road would be paved under alternative C, but other unpaved roads would likely receive more traffic and experience temporary increases in dust when winds were high.

Building and utility construction would result in temporary localized increases in particulates. Machinery emissions and increased airborne dust from construction activities would decrease air quality in the vicinity of the project sites. Normal conditions would return when construction was completed.

Any prescribed burning in the park would result in temporary decreases in air quality. The Park Service would work with Nevada state agencies to minimize any adverse effects.

Conclusion. The impacts on the park's air quality would be minor.

Cumulative Impacts. The proposed action would have no measurable cumulative effects on regional air quality.

Impacts on Vistas

Analysis. All existing developments except the sewage lagoons would remain in the park, and some new developments would be built on-site to meet increasing demands. Both existing and new developments would be visible from various vantage points in and around the park.

The new administration building, new maintenance area, and expanded housing area would be visible from Wheeler Peak Scenic Drive and several vantage points on the east side of the park, which would adversely affect views in these areas.

Removing the lower parking lot and restricting use of the upper lot in front of the Lehman Cave interpretive center would substantially improve views of the portion of the northern Snake Valley that is visible from the front porch of the interpretive center. The proposed new parking area north of Lehman Cave would be visible from several vantage points in the park; however, the parking area would be

designed and laid out to use the surrounding pinyon forest to help screen and mitigate its impact on park vistas.

Although the proposed Great Basin visitor center would be inside the park at Kious Basin, it would not be visible from most vantage points in the main visitor use area (the portion of Wheeler Peak Scenic Drive inside the park boundary, the Lehman Cave interpretive center, and hiking trails in the Baker and Lehman creek drainages). The large viewing deck at the visitor center would provide opportunities to view and experience a dramatic Great Basin scene, which would greatly enhance the story presentation in the visitor center film and exhibits.

The proposed eastern extension of Wheeler Peak Scenic Drive would be designed and constructed based on the results of a computer-generated analysis to minimize its resource impacts and its impacts on views from the new visitor center. However, because its alignment would pass through the Kious Basin area, short segments of the road would be visible from the facility. The interpretive experiences associated with the new extension of Wheeler Peak Scenic Drive would offset the impacts of the road views from the visitor center. Terrain and vegetation would be used to the extent possible to block or screen views of traffic from the visitor center and from other areas of the park.

As in the proposed action, the Park Service would promote preservation of the visual integrity of the Spring and Snake valleys through the review and monitoring of development proposals in the region. However, there would still be a high probability of adverse effects on these valleys as a result of development actions in the future.

Conclusion. Retaining and expanding NPS administrative developments within the park would increase the intrusions on views from various vantage points in the main visitor use area. The Kious Basin visitor center would be visible from the new Wheeler Peak Scenic Drive extension, but would not be visible from within the park; several segments of the scenic drive extension would intrude on views from the new visitor center. Even with actions taken to ensure preservation of the visual integrity of the Spring Valley and Snake Valley basins, views across these basins would likely be compromised over time because of incompatible developments and land uses.

Cumulative Impacts. There would be no cumulative impacts on vistas as a result of this alternative.

Impacts on Floodplains and Wetlands

Analysis. Alternative C would remove the entire Lower Lehman Creek campground and the portion of the Grey Cliffs campground that is across the creek from the Baker Creek road. The Lower Lehman Creek campground would be removed because the high water table during the spring season causes wet and muddy conditions in some of the campsites. Approximately three-fourths of the Grey Cliffs campground would be removed to eliminate hazards from possible flash floods. A new campground would be built at Lehman Flats to replace the sites removed from the Lower Lehman Creek and Grey Cliffs campgrounds and to provide some additional campsites. The site of the new campground would be well above Lehman Creek and out of its apparent floodplain.

The proposed eastern extension of Wheeler Peak Scenic Drive would cross the apparent floodplain and riverine wetlands of Baker Creek outside the park boundary. The proposed road alignment would minimize the effects on the floodplain and streamside wetlands. The road would cross the creek at a 90 degree angle and would not parallel the creek on either side of the crossing. Because the wetlands are in a narrow corridor, the bridge would be of sufficient span to prevent any fill material from altering the wetlands or affecting the water flows on which they depend. The proposed spur road from Wheeler Peak Scenic Drive to the new Lehman Cave parking area would cross the floodplain of Lehman Creek and its streamside wetlands. Because the creek is quite narrow in this area and the banks are fairly high, it should be possible to build the road and bridge entirely outside the creek's apparent floodplain, with very little damage to associated wetlands.

The most significant effect on wetlands would result from the separation of grazing livestock from riparian areas and the wetlands associated with them. When the grazing management plan was completed and methods were instituted to separate livestock from these areas, conditions in riverine wetlands should greatly improve. However, as long as livestock continued to graze in the park, it is unlikely that they would ever be completely eliminated from wetlands.

Conclusion. This alternative would have beneficial effects on wetlands and would remove the campgrounds with the highest risk to human life and safety from flooding. Domestic livestock grazing would continue to adversely affect the park's wetlands, but to a lesser extent than at present.

Cumulative Impacts. There would be no cumulative impacts to wetlands or floodplains as a result of this alternative.

Impacts on Soils

Analysis. The developments proposed under this alternative would cause approximately 183 acres of soil disturbance. Of this total, approximately 55 acres (30 percent) would be on land administered by the Bureau of Land Management, 17 acres (9 percent) on land administered by the Forest Service, and 111 acres (61 percent) on land within the park or on the Baker administrative site. Most of the soil disturbance would result from construction of roads and parking lots, with lesser amounts resulting from construction or rehabilitation of buildings, trails, campgrounds, sewage treatment facilities, and other developments. An estimated 21 acres of previously disturbed soils would be rehabilitated and revegetated. The grazing management actions proposed under this alternative would probably result in little change in the potential for soil erosion.

Conclusion. Approximately 183 acres would be disturbed under this alternative, and approximately 21 acres of previously disturbed soils would be rehabilitated and revegetated. Thus, there would be a net impact on 162 acres of soils. Most of this impact would be on land outside the park boundary and would be associated with proposed roads or structures on BLM land. Grazing would continue to contribute to soil erosion.

Cumulative Impacts. Over time, domestic livestock grazing would continue to cause some soil erosion. To a lesser degree, recreational activities such as hiking and horseback riding, which would likely increase under this alternative, would also cause minor amounts of soil erosion along trail corridors.

CULTURAL RESOURCES

Analysis. Alternative C would establish a more systematic and comprehensive program for the preservation, protection, and interpretation of cultural resources in Great Basin National Park. It would provide for the preservation of cultural resources illustrating the history of the area and for additional efforts directed at management of the park's cultural resources. The three National Register sites – the Lehman orchard, Lehman aqueduct, and Rhodes cabin – and the Osceola ditch would receive preservation/stabilization treatment. The Johnson mill and mine would be evaluated, and appropriate treatment specified based on their National Register eligibility. Additional properties meeting National Register criteria would be nominated. Other sites would be left to deteriorate naturally, consistent with visitor safety requirements and the provisions of federal historic preservation laws and NPS management policies. Because the orientation center would be the only park facility built on the Baker guard station site, it is likely that it could be located to avoid any adverse effects on significant archeological resources on the site. In consultation with the state historic preservation officer, testing would be carried out at the Lehman Flats campground and along the Lehman Cave spur road to avoid, minimize, or mitigate effects.

Conclusion. This alternative would generally improve the preservation, protection, and interpretation of significant cultural resources in the park.

Cumulative Impacts. Although this alternative would result in limited adverse impacts on archeological zones in the park, the cumulative impacts on a regional scale would be minimal. There would be no cumulative impacts on historic resources.

SOCIOECONOMIC ENVIRONMENT

Impacts on Livestock Grazing Permittees

Analysis. Alternative C would have moderate effects on grazing permittees, primarily by requiring them to keep tighter control on the movements of their stock and limiting the areas that stock could use for forage. Some of the campgrounds and visitor use areas would be fenced, but it is unlikely that all sensitive areas (riparian areas, Bonneville cutthroat habitat, and subalpine meadows) would be fenced or otherwise barricaded to keep domestic stock out. This would place a greater burden on permittees to ensure that grazing livestock did not enter these areas.

Conclusion. Grazing permittees would be assured the continued availability of the grazing allotments in the park. However, they would be required to restrict grazing livestock to certain locations to a greater extent than in the past.

Cumulative Impacts. No cumulative effects on grazing permittees would result from this alternative.

Impacts on Mineral Interests

Analysis. Mining claimants within the park boundary would have to submit plans of operations for review and approval by the park superintendent before initiating any work related to mining. Before such plans were approved, the Park Service would conduct validity examinations on all claims. This would have two major effects on the claimants. First, there would be a delay in review and approval of any plan of operations that was submitted. This delay could be as long as one to two years. Second, if it was determined that a claim was invalid, the Bureau of Land Management would initiate procedures to extinguish it. The decision to extinguish a claim would be subject to appeal.

Mining operations cannot be denied without compensation on a valid mining claim with an approvable plan of operations. If

a claim was determined to be valid, the Park Service would have to decide whether to allow operations under an approved plan or to purchase the claim at fair market value. For most claims, especially those in the area surrounding Mt. Washington, the decision would be to purchase. NPS purchase of mining claims would eliminate the possibility of future mining and mineral exploration in those areas.

Owners of patented or valid unpatented mining claims outside the boundary who required access across park lands to mine their claims would also have to submit plans of operations for approval by the Park Service. If the Park Service decided not to approve a plan for a patented mining claim, it would have to purchase the property at its appraised value.

Conclusion. The owners of mining claims within the park could be substantially affected if their claims were determined to be valid and they wished to mine; however, the Park Service would be required to purchase any valid claims on which it denied approval of the plans of operations. It is probable that the vast majority of these claims are invalid and would never be mined. Therefore, the economic impacts on mineral interests would be minimal for the foreseeable future.

Cumulative Impacts. Unless there is a major unknown mineral deposit in the park, the cumulative impacts of this alternative would be negligible.

Impacts on Residents and Private Property Owners

Analysis. Private homeowners along the existing entrance road would benefit from the increased privacy afforded by relocating visitor traffic to the new Wheeler Peak Scenic Drive. After the scenic drive was opened, traffic volumes along the existing entrance road would decrease dramatically, reducing noise levels and improving safety for residents.

Relocating the park entrance about 2 miles south of the existing entrance on Nevada Highway 487 would not adversely affect commercial interests in Baker. The majority of visitors would still arrive from the north and drive through town to reach the park; however, instead of turning onto the park entrance road in the middle of town, they would pass through the entire town.

The homeowners who live just south of Baker adjacent to Highway 487 would notice substantial increases in traffic volumes and noise levels when the scenic drive was opened. The potential for traffic accidents along this portion of the highway would also increase.

Because of overall increases in park visitation and because this alternative would increase developments in both the northern and southern parts of the park, Baker residents and property owners would come into contact with visitors much more frequently. Some might view increased visitation as an economic benefit; others may view it as an intrusion or an invasion of privacy.

Baker residents would have a slightly longer travel distance to the park boundary as a result of the proposed action. Most residents can now reach the park boundary in 10 minutes or less. The proposed action would increase their travel time by another 10 to 20 minutes, depending on their originating point.

Owners of property adjacent to the park boundary and close to exceptional resources within the park could expect concern from the Park Service and the public about any development, activity, or proposed activity that threatened resource values. In such an event, the Park Service would work with the property owner and local, county, and state governments to ensure protection of resource values.

Conclusion. The majority of residents and landowners in the Baker vicinity would benefit from the proposed Wheeler Peak Scenic Drive. The reduction in traffic volumes and noise levels along the existing entrance road would improve the quality of life for residents along that road. In addition, the new park entrance would route most visitors all the way through the commercial center of Baker. Overall, residents and landowners would have more frequent contacts with visitors. Some landowners with properties adjacent to exceptional resources in the park might be prevented from developing their land because of Park Service efforts to protect those resources.

Cumulative Impacts. There would be no cumulative impacts on residents and private landowners as a result of the proposed action.

Impacts on the Regional Economy

Analysis. Alternative C would have the following effects on the regional economy.

Construction – This alternative would generate $34,700,000 (net) in construction projects. These projects would provide short-term benefits and would result in no permanent jobs or

long-term economic growth. If all projects were awarded to firms in the region, total business activity would increase by $50,800,000, resulting in an additional 533 full-time equivalent jobs and $21,500,000 in personal income and business taxes. If nonregional firms were used for all projects, total economic output would increase by $34,200,000, creating 322 in full-time equivalent jobs and $13,900,000 in personal income and taxes.

Operating Budget – Alternative C would increase the park's operating budget by $921,000. Annual expenditures to regional businesses would increase by $641,000, resulting in an increase of $1,180,000 in total business activity, 41 full-time equivalent jobs, and $952,000 in personal income and business taxes.

Visitor Expenditures – Under this alternative, visitor use of the park is expected to stabilize at about 78,000 visits per year. This level of visitation would increase visitor spending by $91,000, resulting in an additional $125,000 in total regional business activity, the equivalent of 3 full-time jobs, and $61,000 in personal income and business taxes. If the private sector marketed the park as a unique recreational opportunity and expanded visitor services outside the park to capture more visitor clientele, the length of stay and per-party expenditures would likely increase in the area. For the purposes of this analysis, it is reasonable to assume that such activities could double the average length of stay and/or expenditures with a resulting increase in visitor spending by $1,695,000. This level of visitor spending would generate $2,349,000 for regional businesses, 57 full-time equivalent jobs, and $1,135,000 in personal income and business taxes.

Conclusion. Alternative C would have a relatively small but positive impact on the regional economy.

Cumulative Impacts. There would be no significant cumulative impacts on the regional economy as a result of this alternative.

Impacts on Local Visitors

Analysis. Camping, picnicking, hiking, horseback riding, and many other activities previously enjoyed by local visitors would continue to be available in the park. However, hunting, tree cutting, unrestricted four-wheel driving, camping in undesignated sites along roads, trapping, commercial harvesting of pinyon nuts, prospecting, and collecting minerals, plants, and animals would no longer be allowed. Policies prohibiting or closely regulating these and similar uses would adversely affect local visitors who have

TABLE 19: SUMMARY OF IMPACTS ON THE REGIONAL ECONOMY – ALTERNATIVE C

Construction Expenditures (1990 dollars)

	Total Costs ($MM)	Total Business Activity ($MM)	Personal Income and Business Taxes ($MM)	Total Jobs (FTE)
Pre-Park	0	0	0	0
Existing	0	0	0	0
Future				
Region	34.7	50.8	21.5	533
Nonregion	34.7	34.2	13.9	322

Operating Budget Expenditures (1990 dollars)

	Total Budget ($000)	Regional Purchases ($000)	Total Business Activity ($000)	Personal Income and Business Taxes ($000)	Total Jobs (FTE)
Pre-Park	256	170	302	230	10
Existing	1,310	874	1,487	1,124	46
Future	2,231	1,515	2,667	2,076	87

Visitor Expenditures (1990 dollars)

	Total Expenditures ($000)	Total Business Ativity ($000)	Personal Income and Business Taxes ($000)	Total Jobs (FTE)
Pre-Park	746	1,028	497	25
Existing	1,513	2,099	1,013	51
Future				
Stable	1,604	2,224	1,074	54
Enhanced	3,208	4,448	2,148	108

traditionally participated in these activities. These effects would be partially mitigated by the fact that other public lands are available in the area where consumptive uses are permitted.

Local visitors might also object to the increasing number of other visitors that the national park attracts. There would be increased competition for campsites, more crowding at popular visitor attractions, more hikers on backcountry trails, and generally reduced opportunities for solitude.

Conclusion. The park would continue to provide opportunities for nonconsumptive recreational activities by local visitors; however, some of these activities would be more closely regulated than in the past. Some consumptive uses would be prohibited or allowed only under permit.

Cumulative Impacts. The state of Nevada and the area surrounding the park have a vast amount of public land where consumptive uses and unregulated recreational activities can take place. Therefore, the cumulative impacts on local visitors would be minimal.

Impacts on Other Visitors

Analysis. The impacts of this alternative would be similar to those of the proposed action except that the emphasis would be on easy access and relatively structured activities. Alternative C would open most of the park for exploration and discovery and would improve orientation, information, and interpretation. The park would be zoned to establish a range of experiences, but more areas would be opened to vehicle access and more visitor facilities would be included.

Orientation services would be provided along the major highways providing access to the park and at the new Baker orientation center. At the Baker facility visitors could familiarize themselves with the park and region and could plan activities according to their interests. The new eastern extension of Wheeler Peak Scenic Drive would provide a more pleasing approach to the park and would set the scene for Great Basin experiences. The interpretive pullouts along the scenic drive would introduce visitors to most of the region's major life zones and scenic and historic resources.

The new Kious Basin visitor center would provide interpretation of the entire Great Basin physiographic region, broadening the currently narrow interpretive emphasis on caves to encompass a wide spectrum of natural and cultural history themes. The outdoor viewing deck at the visitor center would offer panoramic views of the basins to the north, east, and south, dramatically illustrating the primary park theme. The redesigned Lehman Cave interpretive center would include additional space for in-depth cave interpretation. Support facilities and services in the new visitor center and interpretive center would enhance experiences and make visits to these facilities more pleasant.

Interpretive and recreational opportunities in other areas of the park would also be enhanced. Pullouts and trails along Wheeler Peak Scenic Drive would interpret significant resources and features, and the new pullout/trailhead at the end of the scenic drive would improve access into the Wheeler Peak day use area. Camping opportunities would be increased at Baker Creek, Lehman Flats, and Snake Creek. Sites and features at Strawberry Creek, Big Wash, and Lexington Arch would be opened to two-wheel-drive travel, and more rustic camping and hiking opportunities would be available in these areas. The Mt. Washington vicinity would be opened for four-wheel-drive access. Interpretive panels at all trailheads and campgrounds would provide orientation to specific areas of the park. New barrier-free facilities and modified existing facilities would make more areas of the park accessible to disabled visitors.

Opportunities to explore the park's backcountry would be greatly expanded through the repair and rehabilitation of existing trails and the construction of eight new trail segments, which would link existing trails to provide a parkwide trail system. Most of the backcountry would be accessible on trails, and only small areas would zoned primitive.

A number of actions in the plan would reduce potential safety hazards or eliminate undesirable conditions in the park. Shoulder widening and road stabilization would improve safety and accessibility at points of interest along the Wheeler Peak Scenic Drive. Relocation and expansion of the Wheeler Peak pullout/trailhead would reduce congestion and pedestrian hazards at the existing trailhead parking area. Paving the Baker Creek spur road and Snake Creek road would permit easy access to these areas and would eliminate the sometimes high amounts of ambient dust in the vicinity. Upgrading roads at Strawberry Creek, Big Wash, and Lexington Arch would allow safe two-wheel-drive access to these areas. Eliminating a portion of the Grey Cliffs campground would reduce potential safety hazards there in the event of the flash flood. Removing equipment and hazardous materials from mines and stabilizing mine shafts would increase safety for backcountry users.

Prohibiting oversized vehicles and RVs from traveling up Wheeler Peak Scenic Drive beyond Lehman Curve would inconvenience visitors in such vehicles who had no alternate means of transportation. However, this prohibition would improve safety for other motorists using the scenic drive.

Conclusion. This alternative would expand visitor understanding of the park and the Great Basin physiographic region by improving access and creating an interpretive experience on Mt. Washington, providing an interpretive experience on the new Wheeler Peak Scenic Drive, opening a new visitor center at Kious Basin, and generally improving interpretive services throughout the park and region. It would also make many more areas of the park accessible to the general public.

Cumulative Impacts. There would be no cumulative impacts on visitors as a result of this alternative.

MANAGEMENT

Impacts on Park Management and Operations

Analysis. Substantial increases (above 1989 staffing and funding levels) in law enforcement and resource management personnel and funding would be required to

handle the 20 to 25 percent increase in visitation that is projected over the next 10 years

monitor use on the new 7-mile extension of Wheeler Peak Scenic Drive (entrance road)

support increasing use in the Snake Creek, Strawberry Creek, Lexington Arch, and Mt. Washington portions of the park and actively manage and protect the proposed visitor use area at the base of Mt. Washington

monitor increasing backcountry use (approximately 79 miles of trails would be designated and maintained as compared to the 20 miles of currently maintained backcountry trails)

implement the management zoning system and monitor activities

complete a biological inventory and implement a *limits of acceptable change* monitoring program

implement and administer the grazing management plan, fire management plan, and cave management plan.

Substantial increases in maintenance personnel and funding would also be required to repair, upgrade, and maintain the expanded backcountry trail system; the developments associated with the new visitor center, the Lehman Cave ticket sales and interpretive center, and the Wheeler Peak pullout/trailhead; the new park developments in the Mt. Washington area; the new and existing campgrounds, campsites, and trailheads; the regional and park interpretive pullouts; the new visitor orientation, housing, and administrative facilities; the expanded water and sewer treatment system; and the additional 43 miles of access roads outside the park boundary.

Moderate increases in interpretive personnel and funding would be needed to support interpretive programs and services at the new visitor center and the Wheeler Peak day use area.

Additional administrative personnel would be needed to manage the 74 percent increase in park staff and associated increases in purchasing needs.

Impacts on U.S. Forest Service and Bureau of Land Management Operations

Analysis. Under this alternative approximately 25 acres of Forest Service land would be transferred to the Park Service for a visitor contact/interpretive center, housing, parking, and a small maintenance complex. This land transfer would have no adverse effects of the Forest Service. The Park Service would maintain the access road and all utilities in the area, and the additional visitors coming to Mt. Washington would not be likely to use adjacent Forest Service lands in large numbers. There would be some benefits for the Forest Service because of the increased ranger and law enforcement presence in the area. Park personnel could assist in responding to forest fires on Forest Service lands, help protect lands from vandalism, arson, or other illegal activities, and provide information for visitors wishing to use Forest Service areas.

This alternative would also involve NPS acquisition of rights-of-ways along several roads that enter the park and upgrading of these roads where they cross Forest Service and BLM land before reaching the park. Table 20 indicates the length of these roads and the approximate amount of land that would be involved in the proposed right-of-ways for the park access roads.

When the Park Service assumed responsibility for maintenance on these roads, the Forest Service and Bureau of Land Management would no longer have to spend time and funds to maintain them and could use maintenance resources elsewhere. Both agencies would use these roads for the management of lands adjacent to NPS rights-of-way.

TABLE 20: PROPOSED RIGHTS-OF-WAY THROUGH USFS AND BLM LAND – ALTERNATIVE C

	Approximate Mileage through USFS Land	Approximate Acres of Proposed Right-of-Way	Approximate Mileage through BLM Land	Approximate Acreage of Proposed Right-of-Way
New Park Entrance	–	–	7.3	725
Strawberry Creek Road	0.5	25	2.2	106
Snake Creek Road	1.3	65	4.2	204
Big Wash Road	2.9	144	6.5	315
Lexington Arch Road	3.8	291	7.7	373
Lincoln Canyon/Mt. Washington Road	5.0	240	1.4	70

Lands within the rights-of-way would still be available for traditional uses, including recreation, grazing, developments, and public and private uses, as long as they did not cause visual intrusions on the rights-of-way.

Conclusion. There would be few impacts on the Forest Service and Bureau of Land Management as a result of this alternative. Land transfers and NPS rights-of-way would increase the overall efficiency of public land administration in the Great Basin region.

Cumulative Impacts. There would be no known cumulative impacts on the Forest Service or the Bureau of Land Management as a result of this alternative.



CONSULTATION AND COORDINATION

SCOPING PROCESS

Public workshops, meetings, a park newspaper, and a workbook of alternatives were included in the scoping process for Great Basin National Park general management plan. Their purpose was to identify all issues and alternatives that should be considered in planning and to keep the public informed throughout plan formulation.

In June 1987 a press release announced the intention of the National Park Service to prepare a general management plan and accompanying environmental assessment for Great Basin National Park. The announcement described the purposes and strategies to be developed, and it announced five public workshops.

PUBLIC SCOPING WORKSHOPS

The National Park Service held a series of public involvement workshops in late July 1987 to gather information concerning the public's needs, desires, and expectations regarding the future of Great Basin National Park. The five workshops were attended by a total of 93 people. Meetings were held on July 27 in Baker, Nevada, with 47 participants; July 28 in Ely, Nevada, with 16 participants; July 29 in Reno, Nevada, with 15 participants; July 30 in Las Vegas, with 7 participants; and July 31 in Salt Lake City, Utah, with 8 participants. At each workshop the team presented highlights of the legislation and the time table of events associated with the plan preparation (specifically noting the milestones where the public would be involved in the process). The public was invited to discuss their ideas and concerns about the issues. Comments were recorded at each meeting and later printed in a pamphlet entitled *Great Basin Public Involvement Issues*. The pamphlet was then sent to everyone on the Great Basin mailing list. A summary of major public concerns follows.

Fish and Fish Stocking. Many people expressed a concern that fishing and fish stocking should continue in the park. However, a few participants felt that fish stocking was inappropriate if it would compete with the reestablishment of native species.

Ranching and Grazing. Almost all regional and local participants wanted grazing to continue and were concerned that the Park Service might attempt to eliminate grazing through overregulation. Several participants felt that grazing is inappropriate in a national park. Most people agreed that some corrective measures are needed to minimize visitor/livestock conflicts and to keep livestock out of the developed campgrounds.

Mining. The opinions expressed about mining in the park ranged from those who wanted to see mining continue and those who wanted to see it prohibited.

Water Rights. Individuals with existing water rights were adamant in their desire to maintain them.

Wilderness. Both pro and con support was expressed regarding wilderness designation in the park.

Wildlife Management. Many local and regional participants were concerned that the legislated closure of the park to hunting will cause the deer population to increase, creating problems of overgrazing and competition with livestock within the park and on ranches adjacent to the park.

Although hunting is prohibited by the establishing legislation, some people suggested that hunting should be allowed in the park and used as a management tool to control deer herds. Others felt that hunting is not an appropriate activity within the park.

Most people agreed that threatened and endangered species should be preserved and protected, but there was no consensus on whether grazing activities conflict with this preservation goal.

Impact of the Park on the Community of Baker. A paramount concern expressed by local residents was that tourism will greatly increase the need for support services such as water, waste treatment, waste disposal, and housing in nearby towns. Many residents were concerned about how local towns and communities will be affected by tourism and where they can get assistance to plan and implement actions to meet future demands.

Many Baker residents expressed their interest in using a parcel of appropriate federal property in Baker (lands withdrawn by the U.S. Forest Service) for community purposes.

Several local participants wanted to see improvements in services, including search and rescue, law enforcement, fire protection, and emergency medical services.

Most local participants wanted to be allowed to collect firewood within the park boundary.

Both local and regional participants wanted the Park Service to hire more local employees and award more contracts to local and regional firms.

Many local and regional people wanted the Park Service to undertake an economic study to determine how the new park will impact local and regional communities.

Park Development. Almost everyone agreed that development should be balanced carefully with need; no one wanted to see the park overdeveloped. There was no clear consensus on whether all NPS development should remain in the park or some be relocated outside the park boundary. Some people wanted a new visitor center with expanded concession facilities.

Many participants felt that the park needs more campgrounds and that the existing campgrounds need improvements such as potable water. Some felt that any additional campgrounds should include full services regardless of whether they are inside or outside the park boundary. There were also some who wanted the campgrounds to remain "just as they are now."

The issue of road access was discussed frequently. Some participants wanted improved road access to open more of the park. Some local residents wanted to continue to have four-wheel-drive vehicle access to backcountry roads in the park. Others wanted existing roads closed to restrict use to only specific areas of the park.

Visitor Use and Interpretation. Almost everyone agreed that interpretation should be expanded to include a broader range of theme topics represented by Great Basin National Park.

Many participants expressed a need to improve prearrival information services so visitors can better plan their trips to the park.

Many people said that the Park Service must develop more effective management strategies to solve problems associated with cave tours. (More people arrive on holiday weekends than can be accommodated on cave tours.) These people also felt that visitors should not be denied the opportunity to experience Lehman Cave. Several participants said that visitors should be encouraged to use other park areas to reduce visitation pressure at the cave and visitor center.

Almost everyone agreed that the trails and trailheads in the park need to be improved and expanded to provide a variety of experiences for the people who visit the park.

Most people favored the idea of offering off-season and winter recreation activities to attract tourists to the park on a year-round basis. Several favored cross-country skiing and the use of snowmobiles as long as they are properly regulated.

There were both pro and con statements regarding all-terrain-vehicle (ATV) use within the park. Several participants wanted to see regulated four-wheel-drive use in the park. Several people also requested that hang gliding be allowed.

Bus concessions to Wheeler Peak, four-wheel-drive tours of Mt. Washington, campground concessions (inside and outside the park), and horseback riding concessions were all mentioned as ways to improve visitor services.

Almost everyone agreed that representative portions of the park should be accessible to disabled visitors.

Park Expansion. The opinions on park expansion ranged from those who wanted no further expansion to those who preferred large-scale expansion to take in the spectrum of representative Great Basin areas, including basin lands at lower elevations. Some participants said that they did not want to see the Forest Service land surrounding the park turned over to the Park Service.

Communications. A paramount concern was the limited public notice given the five public meetings. The participants indicated that the NPS had not adequately "gotten the word out." Most local and regional participants wanted to see more communication between locals and park management. The same concern was expressed that better communication be developed between the park, state, and county government.

Some members of the public wanted to see an advisory commission established. This commission would participate

with the NPS, state, and county in both the management and planning of this new park.

Cultural Resources. Almost everyone expressed a need for the identification, preservation, and interpretation of cultural resources.

SCOPING MEETINGS

In July 1987 the Park Service also sent letters to 13 Nevada state agencies, eight Utah state agencies, four federal agencies, the Ely Colony Tribal Council, and the Duckwater Tribal Council requesting each agency and organization to designate one person to serve as a key contact for this planning effort. Both states, four federal agencies, and the Ely Colony Council provided designated contacts.

Four additional meetings were conducted as part of the scoping process during March 1988. These four sessions included a brief presentation of issues, the planning process, and the schedule. The first meeting was held on March 28 in Salt Lake City. Invited participants included representatives from

Senator E.J. "Jake" Garn's Office
Senator Orrin Hatch's Office
Representative James Hansen's Office
Representative Howard Nielson's Office
Representative Wayne Owens' Office
Utah Governor's Office
Utah Department of Natural Resources
Utah Department of Transportation
Utah Division of Parks and Recreation
Utah Division of Wildlife Resources
Utah Travel Council
U.S. Forest Service (Utah)

The second meeting was held on March 29 in Reno. Participants were invited from

Senator Jacob "Chic" Hecht's Office
Senator Harry Reid's Office
Representative James Bilbray's Office
Representative Barbara Vucanovich's Office

On the same day a meeting was conducted in Carson City. Participants were invited from

Nevada Governor's Office
U.S. Forest Service (Nevada)
Bureau of Land Management (Nevada)
Bureau of Indian Affairs (Eastern Nevada Agency)
Ely Colony Tribal Council
Duckwater Tribal Council
Nevada Commission on Tourism
Nevada Department of Agriculture
Nevada Department of Commerce
Nevada Department of Conservation and Natural Resources
Nevada Department of Education
Nevada Department of Minerals
Nevada Department of Transportation
Nevada Department of Wildlife
Nevada Division of Historic Preservation and Archeology
Nevada Economic Development Commission
Nevada Legislative Council Bureau
Nevada Office of Community Services

On March 30 the fourth meeting was held in Ely. Invited participants included

Ely Colony Tribal Council
Duckwater Tribal Council
Paiute Indian Tribe
White Pine County Board of Commissioners
Baker Town Advisory Board
Bureau of Indian Affairs (Eastern Nevada Agency)

PARK NEWSPAPER

The park newspaper – *The Bristlecone* – has provided periodic updates (summer issue 1988, winter/spring issue 1989) on the status of the general management plan study effort.

ALTERNATIVES WORKBOOK

In October 1988 an *Alternatives Workbook* was released to the public, requesting people's opinions about the preliminary alternatives for the Great Basin general management plan. Four alternatives plus an existing conditions alternative were presented. Approximately 1,500 copies of the workbook were mailed, and 608 responses were received. Initially all responses were due on November 15, 1988; however, because of the interest expressed, the review period was extended to December 2. All responses were subsequently analyzed by the planning team.

In February 1989 a *Summary of Responses to the Alternatives Workbook* was prepared by the planning team and sent to everyone on the Great Basin mailing list. The summary contained two types of response information. The first section summarized responses to questions concerning the recreation opportunity spectrum (ROS) classes (park

zoning scheme), visitor uses, developments, and resource management practices in the park. The second section presented responses from the "Additional Issues and Concerns" section of the workbook, where people were encouraged to use blank space to write any additional comments. Approximately 50 percent of the additional comments were randomly selected for presentation in the summary. Following is a summary of the public's reaction to 38 specific questions asked by the planning team.

The reaction to the alternative zoning schemes was mixed, with no single zoning scheme clearly preferred by the respondents. However, the responses indicated that many people were strongly in support of the concept of zoning a portion of the park as "rural."

Most respondents exhibited strong support for a new visitor center, and more indicated a preference for siting it on Baker Ridge than in Kious Basin. Most proposed developments on the east side of the park, including a campground at Lehman Flats, parking lots at Lehman Cave and Wheeler Peak, a new entrance road, and minor upgrades of gravel roads were also supported. However, proposals to improve access on the south and west sides of the park were not supported; most respondents indicated that these areas should remain relatively inaccessible.

Regarding removing existing facilities, most respondents felt that the Lehman Cave visitor center should not be removed or replaced and the campground at Wheeler Peak should not be converted to a picnic area. However, a majority responded that park housing, administration, and maintenance facilities should be removed from the park and relocated outside the park boundary.

Respondents indicated strong support for protecting and restoring all naturally occurring species, including native predators. Species included Bighorn sheep, peregrine falcons, bald eagles, elk, sensitive plant species, and Bonneville cutthroat trout.

A majority of people felt that the park boundaries should be expanded by 1,200 acres east of the proposed Baker Ridge visitor center and by 1,600 acres in the vicinity of Mt. Washington.

Of the public comments that were not responses to specific workbook questions, the issue receiving the most comments was domestic livestock grazing in the park. The vast majority of commenters supported eliminating grazing from the park either immediately or over time.

ALTERNATIVES CONSULTATION WITH THE CONGRESSIONAL DELEGATION

On April 4, 1989, the planning team presented the Great Basin general management plan alternatives to Senator Reid and Representative Vucanovich and the aides of Senator Bryan and Representative Bilbray in Washington, D.C.

ALTERNATIVES CONSULTATION WITH STATE AGENCIES, COUNTY AGENCIES, AND LOCAL INTERESTS

On April 12, 1989, the planning team presented the alternatives to representatives of the following agencies and groups in a meeting held in Carson City, Nevada:

- Nevada Governor's Office
- Nevada Department of Agriculture
- Nevada Department of Commerce
- Nevada Department of Conservation and Natural Resources
- Nevada Department of Wildlife
- Nevada Division of Environmental Protection
- Nevada Division of Historic Preservation/Archeology
- Nevada Division of State Parks
- Nevada Division of State Lands
- Nevada Economic Development Commission
- Baker Town Advisory Board
- Ely Colony Tribal Council
- White Pine County Board of Commissioners

ALTERNATIVES CONSULTATION WITH FEDERAL AGENCIES DIRECTLY AFFECTED BY THE PLANNING EFFORT

On July 18, 1989, the planning team presented the alternatives to representatives of the following federal agencies in meetings held in Reno and Ogden:

- State Director, Nevada State Field Office, Bureau of Land Management
- Regional Forester, Intermountain Region, U.S. Forest Service
- State Director, Utah State Field Office, Bureau of Land Management

ALTERNATIVES CONSULTATION WITH NATIONAL PARKS AND CONSERVATION ASSOCIATION

During April 1989 members of the planning team met at the park with a representative of the National Parks and Conservation Association to present and discuss the alternatives on site.

ALTERNATIVES CONSULTATION WITH WHITE PINE COUNTY BOARD OF COMMISSIONERS	During April 1989 the superintendent met at the park with a representative of the board of commissioners to present and discuss the alternatives on site.
ENVIRONMENTAL IMPACT STATEMENT NOTICE OF INTENT FILED IN FEDERAL REGISTER	During the spring of 1989 the regional director of the National Park Service's Western Region Office decided that an environmental assessment would not adequately support the Great Basin general management plan effort. In response to this decision, on May 19, 1989, a notice of intent (NOI) was placed in the *Federal Register* to prepare an environmental impact statement for this project.
ALTERNATIVES CONSULTATION WITH THE BAKER ADVISORY BOARD AND THE PARK CONCESSIONER	During the fall of 1989 the superintendent met at the park with a representative of the Baker Advisory Board and the park concessioner to present and discuss the alternatives.
ALTERNATIVES CONSULTATION WITH SENATOR BRYAN	During the fall of 1989 the superintendent met with Senator Bryan at the park to present and discuss the alternatives on site.

CONSULTATION WITH NATIVE AMERICANS

In April 1987 the Ely Colony Tribal Council and the Duckwater Tribal Council were included on the Great Basin mailing list. In June 1987 a press release was sent to the entire mailing list, inviting all addressees to attend one or more of the five public workshops held in July 1987. No one who attended these five workshops identified themselves as representatives of the Ely or Duckwater Tribal Councils.

In July 1987 the Park Service sent letters to the Ely and Duckwater Tribal Councils, requesting that each tribe designate a key contact for this planning effort. On September 10, 1987, the Park Service received a letter from the Ely Colony Tribal Council designating Mr. Peter Ford as its key contact. The Duckwater Tribal Council never responded.

The Park Service sent letters to and made telephone contact with the Ely Colony Tribal Council, the Duckwater Tribal Council, and the Paiute Indian Tribe (Cedar City) inviting them to attend a scoping workshop session in Ely, Nevada, on March 30, 1988. The Ely Colony Council was the only tribal group that sent a representative to the meeting.

The *Alternatives Workbook* was sent to everyone on the mailing list. Because people did not have to identify themselves, it is not known if any of the tribal groups responded.

The Ely Colony Tribal Council was represented at a presentation of the Great Basin alternatives held in Carson City, Nevada, on April 12, 1989.

LIST OF AGENCIES AND ORGANIZATIONS TO WHOM COPIES OF THE DRAFT ENVIRONMENTAL IMPACT STATEMENT WERE SENT

FEDERAL AGENCIES

Advisory Council on Historic Preservation
Department of Agriculture
- Forest Service
  - Elko Ranger District
  - Ely Ranger District
  - Humboldt National Forest
  - Intermountain Region
- Soil Conservation Service

Department of Defense
- Department of the Air Force
- Department of the Army

Department of the Interior
- Bureau of Indian Affairs
  - Eastern Nevada Agency
  - Western Nevada Agency
- Bureau of Land Management
  - Burley District
  - Ely District
  - Utah Field Office
  - Nevada Field Office
- Bureau of Mines
- Geological Survey
- Fish and Wildlife Service
  - Regional Office, Portland, Oregon
  - Reno Field Office

Department of Transportation
- Federal Highway Administration
  - Region 8
  - Region 9

Environmental Protection Agency
- Region 9

U.S. Post Office, Baker
U.S. Post Office, Garrison

NEVADA CONGRESSIONAL DELEGATION

Senator Richard Bryan
Senator Harry Reid
Representative James Bilbray
Representative Barbara Vucanovich

UTAH CONGRESSIONAL DELEGATION

Senator E.J. "Jake" Garn
Senator Orrin Hatch
Representative James Hansen
Representative Bill Orton
Representative Wayne Owens

STATE OF NEVADA

Governor Bob Miller
Senator Virgil Getto
Senator John M. Vergiels
Assemblyman Joseph E. Dini
Assemblyman Mike McGinness
Commission on Tourism
Department of Administration
Department of Agriculture
Department of Commerce
Department of Conservation/Natural Resources
Department of Minerals
Department of Transportation
Department of Wildlife
Division of Environmental Protection
Division of State Lands
Division of State Parks
Division of Water Planning
Economic Development Commission
Legislative Council Bureau, Research Division
Office of Community Services
State Historic Preservation Officer

STATE OF UTAH

Governor Norman Bangerter
Senator Arnold Christensen
Representative H. Craig Moody
Department of Natural Resources
Department of Transportation
Division of Wildlife Resources
Utah Travel Council

COUNTY AND LOCAL GOVERNMENTS

Beaver County Board of County Commissioners
Lincoln County Board of County Commissioners
Millard County Board of County Commissioners
White Pine County Board Of County Commissioners
Baker Town Advisory Board

CHAMBERS OF COMMERCE

Carson City
Cedar City
Great Basin (Baker)
Reno-Sparks
St. George
White Pine

NATIVE AMERICAN GROUPS

Battle Mountain Tribal Council
Duckwater/Shoshone Indian Council
Ely Shoshone Tribe
Paiute Indian Tribe
Pyramid Lake Tribal Council
Reno/Sparks Tribal Council
South Fork Band Council
Wells Band Council

GRAZING PERMITTEES

Dean Baker
John Bidart
David Eldridge
Owen L. Gonder

MINERAL INTERESTS

Thomas Bath (White Marble Claim Group)
Blue Energy Resources, Inc. (Mercury Rover Claim Group)
Robert L. Christiansen (Clara Belle Claim Group)
National Treasure Mines, Inc. (Pole Claim Group)
Reed B. Robison (Robison Claim Group)
Washington Minerals Corporation (Fenkite Claim Group)

ORGANIZATIONS AND BUSINESSES

Baker Service Station
Baker Senior Citizens Center
Border Inn, Baker
Citizen Alert
Dames and Moore Associates
Defenders of Wildlife
Eskdale Community, Garrison
Friends of Nevada Wilderness
Hitchin' Post, Baker
Las Vegas News Bureau
National Parks and Conservation Association
National Geographic Society
Nevada Cattlemen's Association
Nevada Mining Association
Nevada Camera Club, Las Vegas
New White Pine Sportsmen's Club
Outlaw, Baker
Panoramaland, Richfield
School of Natural Order, Baker
Sierra Club
- San Francisco Office
- Southern Nevada Group, Las Vegas
- Toiyabe Chapter, Reno

Silver Jack Motel, Baker
The Nature Conservancy
- Arlington, Virginia, Office
- Great Basin Field Office

The Wilderness Society
The "Y", Baker
Trust for Public Land
Wheeler Service Station, Garrison

LOCAL LIBRARIES

Beaver County Library
Harold E. Lee Library, Brigham Young University
Lincoln County Library
Millard County Library
Southern Utah University Library
White Pine County Library

MAGAZINES AND NEWSPAPERS

Beaver County News, Milford
Color Country Spectrum, Cedar City and St. George
Deseret News-Telegram, Salt Lake City
Ely Daily Times
Humboldt Sun, Winnemucca
Las Vegas Review Journal
Millard County Chronicle, Delta
Motorland Magazine, San Francisco
Ogden Standard Examiner
Provo Herald
Reno Gazette-Journal
Salina Sun
Salt Lake Tribune
San Francisco Chronicle
Tahoe Daily Tribune, South Lake Tahoe
The Daily Spectrum, St. George

RADIO STATIONS

KDXU St. George
KELY East Ely
KHITS Reno
KISN/KLUB Salt Lake City
KLRZ Provo
KNAK Delta
KOA Ely
KRCL Salt Lake City
KREC Cedar City
KROI Sparks
KSOP West Valley
KSUB Cedar City
KWNA Winnemucca

PUBLIC REVIEW OF THE DRAFT EIS/COMMENTS AND RESPONSES

This section includes a summary of comments received through letters and public hearings following the release of the draft plans/EIS in September 1991. All oral and written comments were considered by the National Park Service according to the requirements of 40 CFR 1503.

Record of Public Comment

A notice of availability was published in the *Federal Register* on October 9, 1991 for the Great Basin *Draft General Management Plan/Development Concept Plans/Environmental Impact Statement* (56 FR 50924-50925). Approximately 1,400 copies of the draft were distributed to government agencies, public interest groups, and individuals.

Written comments were accepted through December 31, 1991. In addition, five public hearings were held in Reno, Ely, Baker, and Las Vegas, Nevada, and Salt Lake City, Utah, in November 1991. Notice of the public hearings was included with each copy of the document and by publication in local newspapers.

Public Hearings

The purpose of the public hearings was to receive oral or written testimony on the draft plans/EIS. The team captain from the National Park Service's Denver Service Center served as the hearing officer for all of the hearings. The hearings provided a brief introduction to the plan and the EIS process. Testimony by the public was generally not restricted for scope or length. Transcripts of the hearings were not made, but each substantive comment was manually recorded for the individual testifying. The individuals providing testimony and the concerns or issues they raised are shown in table 21. All of the comments received during the public hearings were also contained or reiterated in written comments to which individual responses are provided. Because of this, no individual responses to the verbal comments are presented. The number of people attending each hearing and the number testifying are indicated below.

Reno hearing (November 18, 1991) – 19 people attended, nine provided testimony

Ely hearing (November 19, 1991) – 14 people attended, three provided testimony

Baker hearing (November 20, 1991) – 17 people attended, five provided testimony

Salt Lake City hearing (November 21, 1991) – nine people attended, six provided testimony

Las Vegas hearing (November 22, 1991) – four people attended, four provided testimony

Written Comments

One hundred thirty-one comment letters were received from governing bodies, government agencies, organized interest groups, and individuals during the comment period. All letters from governing bodies, government agencies, and interest groups are reprinted in this section. Also included are reprints of letters from individuals that raised points needing clarification or that were chosen to represent the range of issues included in the individual letters.

The Park Service's responses to all substantive comments are also included in this section. Some comments called for clarification of information in the draft plans/EIS; others required text modifications, which have been made in the final plans/EIS and identified in the Park Service responses. No responses are provided to comments that only expressed opinions and did not identify a needed text clarification, correction, or modification.

Because all individual letters are not reprinted, table 22 lists all letters received from individuals along with the specific issues and concerns raised in each letter.

TABLE 21: INDIVIDUALS PROVIDING ORAL COMMENTS AND THE ISSUES THEY RAISED

VERBAL COMMENTS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Reno, NV, 11-18-91																																								
JoAnne Garnett			X																X			X			X	X													
Tonia Harvey			X																X						X					X									
Abby Johnson				X								X																	X										
James D. Morefield				X								X																											
Jan Nachlinger				X			X					X																	X										
Tom E. Remington				X																									X										
Marcia Sanderson														X																										
Majorie Sill			X									X					X					X				X			X		X									
Rose Strickland												X																												
Ely, NV, 11-19-91																																								
Julio Costello			X																																				
Trish Hadsall	X		X																X																				X
Ferrel Hansen	X											X																												
Baker, NV, 11-20-91																																								
David Baker	X											X																										X		
Bill Coffman	X					X		X											X						X														X
Daisy Gonder	X											X							X																				
Emerson Gonder	X		X									X																												
Bill Rountree	X				X							X							X																				

1. Access to Mount Washington
2. Air Quality Management
3. Baker Water and Sewer
4. Biodiversity/Alien Species Management
5. Bonneville Cutthroat Trout Management
6. Boundary Changes
7. Bristlecone Pine Protection
8. Campgrounds/RV Use
9. Caves Management and Impacts
10. Cultural Resources
11. Dogs on Trails
12. Domestic Livestock Grazing
13. Elk in Park
14. Environmental Education
15. Hanggliding/Snowmobiling
16. Llama/Horse Use in Park
17. Mining and Mining Claims
18. Native Predator Protection
19. New Entrance Road
20. Park Carrying Capacity
21. Park's Concession
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29. Proposed Regional Interpretive Exhibits
30. Riparian Zone Management
31. Reclamation of Impacted Areas
32. Rocky Mountain Bighorn Sheep
33. Scenic Vistas
34. Sensitive Species Management
35. Snowplowing
36. Socioeconomic Impacts to Baker
37. Trails in Park
38. Water Rights
39. Wilderness Designation
40. Winter Access

VERBAL COMMENTS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
S.L. City, UT, 11-21-91																																								
Dave Brown																								X	X															
Albert Cook											X																													
JoAnne Garrett									X										X						X						X		X							
Tonia Harvvey	X								X										X			X			X	X					X									
Marcia Sanderson		X												X					X			X				X														
Bob Weston											X					X																								
Las Vegas, NV, 11-22-91																																							
Fred Landau			X	X																		X		X		X													
Kathleen O'Rourke														X											X	X														
Martin Stapanian		X																																					X
Rich Metcalf		X																				X				X													X

1. Access to Mount Washington
2. Air Quality Management
3. Baker Water and Sewer
4. Biodiversity/Alien Species Management
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TABLE 22: INDIVIDUALS PROVIDING WRITTEN COMMENTS AND THE ISSUES THEY RAISED

WRITTEN COMMENTS	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Florence Anderson						X						X																X										X		X	
Walter Barbuck																									X												X			
Henry And J. Bernard												X					X																							
Burkhard Bohm																				X																			
Erik Breilid												X																												
Dianna & Danny Brown								X	X										X			X																	
William Burks												X					X	X																						
Mickey Burns												X																X												
Alan Carlton												X																												
Robert Carroll																						X		X														X	
James B. Case																																						X	
Joseph Cepeda						X						X					X																							
Bill Coffman	X																								X														X
Valerie Cohen												X																												
Ronn Coldiron					X														X						X														
Paul Czarnecki																																								
Kent & Donna Dannen											X																													
Charles E. Davis			X																X						X														
Madeline Day												X																												
Karen DeBraal												X																												
Ken Duerig												X																												
Donette Dunaway	X											X													X														
B. Evans												X																												
Mrs. H. Fritz																																				X				
James Fullmer												X																												
JoAnne Garrett																			X							X														
E. William Gates																																								
Jeff Glinski												X																												
Wallace Godfrey												X																												
Owen and P. Gonder	X					X		X				X	X												X														
Wayne and M. Gonder	X											X																												
Robert Grey												X																												
David Guy and M. Long												X																												

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Nancy Hadlock	X													X					X						X											X			
Mark Hall								X																																
Dawn Hansen																																								
Tonia Harvey																			X		X				X	X					X					X				
Steve Haye												X																								X				
Bill Helmer										X		X					X												X								X		
Gary N. Howells, Ph.D						X					X	X															X				X						X		
Steve Hunter												X								X					X														
Eve Iversen											X																													
Sue Jacx														X																										
Kevin Joe																	X											X											
Norman Johnson						X						X					X																						
Rebecca Jones												X																												
Katherine Kaiser			X																X						X														
Georgia S. Knight																																								
Darwin Lambert	X					X																X																	
Samuel D. Loftin								X																																
John Marchese												X																												
Mel Mareiniak			X			X																					X												
Mike Maughlin																																							X	
Jim Mitchell												X																												
Wayne and G. Momerak												X																												
Thomas R. Mongan																																						X		
David Moore																			X						X														
Gerald Moore												X																												
Joe Motter																																								
Bill Netzer						X		X				X																											X	
Jim Notestine						X						X					X																							
Marc Olsen												X																												
Gerald Osborn	X																																							
Randall D. Payne												X					X	X																				X		
Margaret Pense			X																X						X														
Berna Prata												X																												

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John Puhek				X								X					X								X			X												
Lorraine Puhek												X					X											X												
Vikki F. Riddle																																								
Anna Rountree																			X																					
William Rountree	X		X		X														X						X			X												
Gene Rubin												X																												
Michael Schafale																X															X						X	X		
Marylou Schnoes				X					X			X				X	X																			X				
Wilber and V. Scoville								X				X																											X	
Terry Shaw																																						X		
Todd M. Shuman												X																												
M.A. Stapanian, Ph.D																						X																	X
T. and D. Steadman	X				X				X				X						X						X							X							
P. Stoffer and P. Messina												X																												
John Swanson																																							X	
Wilmer W. Tanner							X					X																												
Adam Thomas														X																										
Marty Thomas														X																										
Jeff Wallner						X						X													X															
Carl Weidert						X						X																												
Stan Weidert						X						X																												
Lloyd F. Westphal	X				X										X													X											X
Richard Wiebe				X								X																												
George Wuether						X						X																				X					X			
Andy Zdon	X																																							
David Ziemann						X	X					X																												

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COMMENTS

RESPONSES

Advisory Council On Historic Preservation

The Old Post Office Building
1100 Pennsylvania Avenue, NW, #809
Washington, DC 20004

December 30, 1991

Mr. Stanley T. Albright
Regional Director, Western Region
National Park Service
Western Region
450 Golden Gate Ave, Box 36063
San Francisco, CA 94102

REF: Draft General Management Plan/Environmental Impact Statement, Great Basin National Park, Nevada

Dear Mr. Albright:

On December 9, 1991, we received the referenced document (GMP/EIS) for our review and comments. We commented on a virtually identical document on March 18, 1991. Unfortunately, the most recent version does not address the comments we offered at that time. We believe that this most recent draft continues to provide inadequate consideration of the historic properties within the Park.

Perhaps, the most telling deficiency in this regard is the document's failure to commit to the development of a cultural resource management plan as required under NPS-28. Consequently there appears no opportunity for coordination between the needs of this resource and other resource needs. Management plans are proposed for rangelands and grazing, fires, caves, water resources, backcountry use, and land protection, but not for cultural resources. Although cultural resources may be considered in a resource management action plan, it seems unlikely that the level of consideration or direction for management will differ from the GMP/EIS. This creates an inherent and unnecessary conflict between the management of cultural resources and the management of natural resources within the context of proposed Park development and goals. 1

The GMP/EIS is intended to "...establish the guiding management philosophy for Great Basin National Park and ... provide strategies for addressing issues and achieving management objectives for the next 15 years." However, a management philosophy, strategies and objectives are lacking for cultural resources. The GMP should establish mechanisms for building onto the archaeological Overview and Historic Resource Study; not simply mention them in passing and commit to a management approach that is unresponsive to their findings.

1. A cultural resource management plan is a component of a park's resource management plan. The text has been revised to indicate that a cultural resource management plan will be prepared in conjunction with that document. The text has also been revised to indicate that archeological inventory will be a continuing activity in the park.

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RESPONSES

As indicated in the GMP/EIS, less than 2% of the Park has been inventoried for historic properties. If the results of the 2% inventory are any indication of the population of cultural resources within the Park, planners can anticipate that more than 2000 historic properties are situated within Park boundaries, of which more than 1,950 remain unidentified. If the 2% survey is not appropriate for extrapolations about the larger population, then planning data remains inadequate. In either case, a Cultural Resource Management Plan, as required under NPS-28 and called for under Section 110 (a)(2), is warranted.

The creation of the Great Basin National Park poses a unique opportunity for the Park Service to employ the planning lessons learned at other Parks for the development of a functioning and effective cultural resource management program. The GMP/EIS should establish the foundation for this program, and the directions it will take in the management of this resource. Unfortunately, the document indicates that the Park Service intends to perform limited interpretation and stabilization at four sites. The remaining, perhaps thousands of historic properties, are to deteriorate naturally, except when a Park action requiring consultation under Section 106 is identified. This approach does not promote stewardship of the resource and does not comport with existing statutes, or Park Service policy.

We recommend that the Park Service adopt a more proactive approach in the GMP/EIS for the management of cultural resources at Great Basin. Clearly, additional inventory is needed to estimate and characterize thematically the population of properties within the Park. Evaluation of these properties pursuant to the National Register criteria will also be required to determine their values. Strategies need to be developed that are responsive to the Park's management directions to guide the consideration and management of properties as they are identified.

A cultural resource management plan, therefore, is essential and should include on-going identification and evaluation components, and provide for a computerized data management system that enables relevant variables to be weighed in the management planning and decision-making processes. The plan should establish program goals and mechanisms for coordinating these with other resource management goals. A schedule for program development and accomplishments is needed to provide the basis for justifying personnel and funding needs of the cultural resource management program. Park staffing should include a historic preservation specialist at the Park at least during the initial planning stages to ensure adequate development and implementation of the program. Line-item budget requests for cultural resource management are needed to ensure that the cultural resource program is provided sufficient funding and support to develop and succeed. Otherwise, the development of the Park at the expense of the cultural resources within it becomes a major risk.

For purposes of compliance with Section 106, the cultural resource

COMMENTS

management plan could be implemented through the execution of a Programmatic Agreement tailored to the Park's specific needs. Alternatively, a Programmatic Agreement could be devised for inclusion in the GMP/EIS to evidence compliance with Section 106. Such an agreement would identify the elements and components of the cultural resource management plan, establish schedules for completion of its elements and components, and specify the review procedures for the SHPO, Council, and other interested persons as appropriate in lieu of the normal review process as found at 36 CFR Part 800. Pending the execution of a programmatic agreement for the management of historic properties at the Park, the Park Service is obligated to consult with the Council on a case by case basis for each undertaking that may affect a historic property.

Thank you for requesting our review of the draft GMP/EIS. If you have questions regarding these matters, please contact Alan Stanfill at (303) 231-5320 or FTS 554-5320.

Sincerely,

Claudia Nissley
Director, Western Office
of Project Review

RESPONSES

COMMENTS

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Ely District Office
HC33 Box 150
Ely, Nevada 89301-9408

IN REPLY REFER TO:

1792 (NV-043)

Al Hendricks
Superintendent
Great Basin National Park
Baker, Nevada 89311

Dear Mr. Hendricks:

Listed below are the Ely District BLM comments on the Draft General Management Plan/Development Concept Plans/EIS for the Great Basin National Park. We look forward to working with the National Park Service in the development and management of the Great Basin National Park.

The statements on pages vi, 117 and 166, that there would be few effects on the BLM from implementation of the proposed action, are incorrect and need to be clarified. There will be effects and also opportunities for our agencies to work cooperatively. Effects from the proposed Management Plan on the BLM are highlighted below along with some specific comments.

1

1) The Wheeler Peak Scenic Drive will need ROWs from the BLM. A proposed 800 foot ROW corridor on public land is excessive. Under our existing management authorities the BLM would provide protection from roadside development. ROWs for other roads into the park would also need to be obtained from the BLM. A proposed 200 foot ROW on each side of these roads is also excessive.

2

2) The four proposed Regional exhibit shelters to be developed and maintained by the NPS will need to be authorized through a ROW and a Cooperative Agreement with the BLM. These regional exhibits should be coordinated with BLM Activity Plans, especially Sacramento Pass Campground and the Osceola Ditch Trail. Multiple use of public lands should be an integral part of the interpretation at these Great Basin exhibits.

3

3) Establishment of a class I airshed over the National Park as indicated on page 73, would impact BLM activities on adjacent lands.

RESPONSES

1. Comment noted. The Park Service continues to believe that an 800-foot corridor is desirable for the entrance road and 400-foot corridors are desirable for the other roads. These ROWs were discussed in earlier consultation with the state director of BLM (July 18, 1989), and no concern was expressed at that time. The ROW widths could be adjusted when the cooperative agreement between the Park Service and BLM was negotiated if this continued to be an issue.

2. Comment noted. Planning and construction of the regional exhibit shelters would be coordinated through BLM.

3. The text of the "Environmental Consequences" section of the final plans/EIS has been changed in response to this comment (p. 168).

COMMENTS

4 4) On page 79, a validity examination is proposed to be done by NPS of all existing mining claims within the park. This will affect BLM. The BLM would be the agency to process the extinguishment of the claims and is the agency that would be taken to court if a decision was contested.

5 5) It is stated on page 72 that the NPS will utilize interagency agreements to coordinate firefighting activities with the BLM. These should be instituted as soon as practical for our mutual benefit.

6 6) A boundary addition, stated on page v, is planned for the western Park boundary. It is unspecified whether this would affect public lands. Proposals which include public lands should be coordinated in advance with the BLM.

7) The Interagency Great Basin Interpretive Plan would involve the BLM, as the largest land managing agency within the subject area.

7 8) It is stated on page iv that "...full consideration would be given to the potential effects of actions inside and beyond park boundaries." This would affect the BLM. On pages v, 38 and 75, it is stated that the NPS will work with local governments to preserve the visual integrity of Snake and Spring Valleys. The BLM manages these viewsheds under direction from FLPMA through a visual resource management program which is part of our Land Use Planning and environmental analysis process. Activities on public lands are already subject to a visual resource analysis. It is, therefore, incorrect to imply on page 75 that the public lands in Snake and Spring Valleys receive no protection. It is our understanding that Public Law 99-565 was not intended to provide protection or special consideration to public lands managed by the BLM in Snake and Spring Valleys. The portion of the South Snake Range referred to in the Act establishing GBNP refers to that portion within the established boundaries of the park and not to any portion of the South Snake Range outside the boundaries.

8 9) It is stated on pages v and 72 that the NPS would work with surrounding land management agencies to ensure that populations of predators are maintained at natural levels. This presumably would affect the BLM. It should be explained how this will be accomplished.

9 10) On page 39 the Baker Site excavation and the Fremont Site at the proposed administrative site should be mentioned.

RESPONSES

4. Page 168 of the "Environmental Consequences" section of the final plans/EIS has been changed in response to this comment.

5. Comment noted.

6. No boundary change on the west side of the park is proposed in the plan. It is only stated that such a change is a long-range goal of the Park Service. If a firm proposal was developed in the future that involved federal land, it would be coordinated with BLM.

7. This summary text in the draft plans/EIS only indicates that the park is part of a much larger ecosystem and that actions outside park boundaries may affect park resources and visitors. The Park Service also recognizes that views from the park are a major part of the park visitor's experience. To responsibly manage this ecosystem and its associated scenic values, land management agencies must look beyond administrative boundaries and cooperatively participate in adjacent land management decisions.

The text does not state that the public lands outside the park receive no protection; it only emphasizes that those areas that can be seen from the park are important to the park and that the Park Service would work cooperatively with BLM and others to protect those viewsheds. The Park Service recognizes BLM's visual resource management program but also recognizes that the current land use plan for BLM was prepared before the establishment of the park.

8. The general management plan only establishes this objective for the Park Service. The specific methods for protecting predators are beyond the scope of the plan and are species-specific. More specific information would be included in the park's resource management plan.

9. The text on page 39 of the draft plans/EIS and final plans/EIS summarizes the visitor use and development proposed in the plan. The Fremont site and Baker site are both outside the park boundary, and the Park Service is proposing no visitor developments at these two sites. The effects on archeological resources at the Baker administrative site have been reevaluated, and that section rewritten in the final plans/EIS (see p. 160).

COMMENTS

10

11) It is stated on page 165 that the "action" would increase the overall efficiency of the federal government in managing public lands. If this is referring to the proposed action, this statement is unsubstantiated. If this statement is referring only to the transfer of two sections from the USFS to the NPS, it should be so clarified.

We believe the plan is a positive step toward initiating activities to manage the established area of the park within the intent of NPS objectives. We will be pleased to work with the GBNP to coordinate and implement our mutual objectives. If you have any questions please contact Jacob Rajala, the District Planning and Environmental Coordinator.

Sincerely,

Kenneth G. Walker
District Manager

RESPONSES

10. The text has been changed in response to this comment.

COMMENTS

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON, D.C.

REPLY TO ATTN OF: CEVP

SUBJECT: Review of Great Basin National Park Plans

TO: Al Hendricks
Superintendent
Great Basin National Park
Baker, Nevada 89311

1

1. We have reviewed your draft plans and have identified areas that you should consider in your final revision. There are several military training routes (aircraft) in the area of the park that may effect noise and visual integrity. Identified are Visual Routes (VR) 209 & 1259, Instrument Routes (IR) 293, 285, 310 and Military Operating Areas (MOA) Gandy & Sevier A,B,C & D [see attachment 1: Las Vegas Sectional Aeronautical Chart (area highlighted)].

2. Please note that the IRs and VRs identified on the attached chart are centerline; aircraft can be expected to fly 5 nautical miles either side of centerline. The MOAs are scheduled by Hill Air Force Base, Nevada for tactical training. Attachment 2 identifies points of contact for areas concerned and special operating procedures for those areas.

3. If you have further questions regarding information submitted, please contact Major Ken Miller at (703) 695-6118.

DAVID C. VAN GASBECK
Chief, Environmental Planning Division
Directorate of Environmental Quality

2 Attachments
1. Chart
2. POCs & operating procedures

cc: SAF/MIQ

RESPONSES

1. Comments noted.

COMMENTS

RESPONSES

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, Ca. 94105

January 17, 1992

Al Hendricks, Superintendent
Great Basin National Park
Baker, Nevada 89311

Re: Draft Environmental Impact Statement/
General Management Plan
Great Basin National Park
Baker, Nevada

Dear Mr. Hendricks:

The U. S. Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statement (DEIS) for the General Management Plan for Great Basin National Park near Baker, Nevada. We provide our comments pursuant to the National Environmental Policy Act (NEPA), Section 309 of the Clean Air Act and the Council on Environmental Quality's (CEQ) Regulations for Implementing NEPA. We appreciate the extension of time to January 17, 1992 provided EPA to prepare public comments.

Great Basin National Park is in the southern portion of the Snake Range in east-central Nevada. The park lies entirely in White Pine County, Nevada; Baker, Nevada is the closest town. The 77,000 acre park lies within the Great Basin physiographic region which encompasses more than 90 wide valley basins separated by about 160 long north/south trending mountain ranges.

Among the special features found in the park are Lehman Cave and other limestone caverns, Bristlecone Pine Forests, a rock glacier, remnant glacier and glacial cirque, air quality exceeding highest standards, and visibility often exceeding 120 miles. The proposed General Management Plan will guide visitor use, natural and cultural resource management and general development for the next 15 years.

The DEIS examined the potential effects of three alternatives: A No Action Alternative, an alternative with Backcountry Emphasis and an alternative with Access Emphasis. The proposed action emphasizes increased access to developed and semi-developed areas by upgrading numerous existing roads from primitive to semi-primitive zones, constructing 24 miles of new trails, maintaining or upgrading 60 miles of existing trails, and

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COMMENTS

building a new visitor center and access road. The proposed action also emphasizes increased protection for the Bristlecone Pine Forests by eliminating vehicular access to Mt. Washington stands and alpine/subalpine areas and rare and sensitive plants species by prohibiting grazing above 10,500 feet.

Based on our review of the DEIS, we have classified this document as LO-1, Lack of Objections, Adequate (See enclosed "Summary of Rating Definitions and Follow-up Action"). We suggest, however, that the FEIS contain information in the following areas:

1

1. Discuss specific efforts under consideration to relieve riparian areas from the impacts associated with grazing such as fencing and revegetation with native plant species.

2

2. The DEIS indicates on page 157 that wetlands conditions should improve through implementation of the grazing management plan. It also notes that the proposed Wheeler Peak Scenic Drive would be designed and built to minimize its effect on wetlands and floodplains of Baker Creek, but that the road would cross the creek in one location currently under the outside the park jurisdiction. The FEIS should include acreages and locations of the wetlands within the park that the roadbuilding will affect and describe the measures that will be taken to avoid and minimize those effects.

3

3. Pursuant to Public Law 010-508, Pollution Prevention Act of 1990, "It is the policy of the United States that pollution should be prevented or reduced at the source whenever feasible; pollution that cannot be prevented should be recycled in an environmentally safe manner, whenever feasible; pollution that cannot be prevented or recycled should be treated in an environmentally safe manner whenever feasible, and disposal or other release into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner." We encourage you to include pollution prevention measures in the FEIS for the General Management Plan such as placing glass, aluminum and paper recycling receptacles at the visitor center and at other appropriate locations throughout the park; installing water/energy conserving devices in visitor centers, and using solar energy where possible.

We appreciate the opportunity to review and provide comments on this Draft EIS. Please send a copy of the Final EIS to this office at the same time it is officially filed with our Washington, DC office. If you have any questions, please feel

RESPONSES

1. The text of the "Proposed Action and Alternatives" section has been changed in response to this comment.

2. The text of the "Environmental Consequences" section has been changed in response to this comment.

3. The text of the "Proposed Action and Alternatives" section has been changed in response to this comment.

COMMENTS

RESPONSES

free to contact me at (415) 744-1015, or have your staff contact Kathryn Mazaika of the Office of Federal Activities at (415) 744-1575.

Sincerely,

for Deanna M. Wieman, Director
Office of External Affairs

cc: Stanley Albright, Regional Director, NPS, Western Region

COMMENTS

RESPONSES

SUMMARY OF RATING DEFINITIONS AND FOLLOW-UP ACTION

Environmental Impact of the Action

LO Lack of Objections
The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC—Environmental Concerns
The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

EO—Environmental Objections
The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU—Environmentally Unsatisfactory
The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of environmental quality, public health or welfare. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1—Adequate
EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2—Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3—Inadequate
EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From: EPA Manual 1640, "Policy and Procedures for the Review of Federal Actions Impacting the Environment."

COMMENTS

RESPONSES

United States Department of the Interior

FISH AND WILDLIFE SERVICE
FISH AND WILDLIFE ENHANCEMENT
UTAH STATE OFFICE
2078 ADMINISTRATION BUILDING
1745 WEST 1700 SOUTH
SALT LAKE CITY, UTAH 84104-5110

In Reply Refer To

(FWE)

December 4, 1991

Memorandum

To: Superintendent, Great Basin National Park, Baker, Nevada 89311

From: ACTING Assistant Field Supervisor, Fish and Wildlife Service, Salt Lake City, Utah

Subject: Comments on the Draft General Management Plan/Development Concept Plans/Environmental Impact Statement for Great Basin National Park

We have received your letter of Septemer 16,1991 concerning the subject document. The materials provided have been reviewed and we find nothing of significant concern to Region 6 of the Fish and Wildlife Service. Therefore we will offer no comments.

We would be pleased to address specific issues identified by you if necessary at a later date.

Leon R. Gilbom

COMMENTS

RESPONSES

United States Department of Agriculture | Forest Service | Humboldt National Forest | 976 Mountain City Highway, Elko, Nevada 89801, (702) 738-5171

Reply to: 2310

Date: November 13, 1991

Al Hendricks, Superintendent
Great Basin National Park
Baker, NV 89311

Dear Al:

Enclosed are comments on your draft general management plan from our Ely Ranger District. These comments constitute our response from the forest.

Thank you for the opportunity to comment. We look forward to working with you on your plan in the future.

Sincerely,

JOHN P. INMAN
Forest Supervisor

cc: D-4

Enclosure

COMMENTS

United States Department of Agriculture | Forest Service | Humboldt N. F. Ely Ranger District

Reply to: 2310/1500 Rec. Planning/External Relations Date: 11/06/91

Subject: Ely Review and Comments - Great Basin National Park Draft Mgt/ Dev. Plan

To: Forest Supervisor, Humboldt N.F.

In response to the "Draft" General Management Plan/Development Concept Plans/EIS for Great Basin National Park, I must say that the National Park Service did a very fine job in their planning effort.

Overall, I support their Proposed Action which I generally feel realistically provides for current and expected visitor opportunities, in and out of the National Park for the next 10 to 20 years.

In review, I have several items and issues which I wish to respond to concerning the "Proposed Action":

1. I would support, and realistically appreciate the National Park's need for the approximately 1280 acres, located in Section 14 and 23, T13N, R69E. This area had been an important administrative site for pasturing horses, storing tack and other supplies. Currently the site is fenced for horse pasture. No structures exist on the site, except for the fence. No use has been made of the area for 5 years and none is expected in the foreseeable future.

1

2. I would suggest and recommend that the Highway Interpretive Exhibits (4 in total) proposed also include National Forest Interpretation in the same format and design as proposed by the National Park. This could be a good avenue to continue strengthening our sister agency ties and better serve our customers.

2

3. I would support that the National Forest consider working with the National Park in placing a seasonal employee to work in the Baker orientation center. This person would participate in the "Public Relation Contacts", sell maps, provide direction and take care of other general administrative matters concerning the National Forest, including wood product sales. I don't necessarily see this position as a field-going individual, but at times, may need this person to facilitate some small field project such as posting signs, marking woodcutting areas, completing surveys and collecting other data or information.

3

4. Would suggest that references to Mount Moriah, which the National Park may make reference to in the scenic interpretation, be referred to as "Mount Moriah, in the Mount Moriah Wilderness". The key point we need made is that the area is designated as wilderness. This may help our customers to understand the dynamics of the area, and encourage them to explore and experience this very unique Wilderness area.

RESPONSES

1. The text of the "Proposed Action and Alternatives" section has been changed in response to this comment.

2. Comment noted. Nothing in the text prevents this from occurring. Placing a sentence to that effect is probably too specific for a general planning document.

3. The text has been changed in response to this comment.

COMMENTS

5. We should support the request for roads right-of-way on the roads thru National Forest lands, that access Strawberry Creek, Snake Creek, Big Wash and Lexington Arch. I agree that the roads should be maintained by the National Park Service. I question the right-of-way width of 200 feet on both sides of center line and the requirements that traditional uses would still be allowed "...as long as they did not cause visual intrusions on the right of way.", as indicated on page 166.

4

These areas, and in particular the Lexington Arch and Snake Creek access road, have a large number of Pinyon-Juniper trees, some of which are standing dead, which could be harvested for fuelwood, and other products. With establishment of the National Park, close areas for residents of Baker, Nevada, Garrison, Utah and surrounding settlements and family ranches, have diminished for wood product gathering. I feel we would need to fully assess the impact to these residents by further restructuring uses adjacent to or leading into the National Park.

5

I also question the width of the right-of-way proposed and suggest that 50 to 75' from center line would be sufficient to facilitate the National Park needs.

Would recommend N.P. also look at requesting right-of-way from BLM and N.F. for the Big Spring Wash and Decathon Canyon Road and also provide maintenance to the road system.

6. I support the construction of parking areas/trailheads and corrals, as needed on National Forest lands in Lexington Creek, Big Wash, Highland Ridge (end of road) and Big Springs Wash (near end of road). Suggest that the National Forest and National Park work together on these projects in that all specific locations, design standards are reviewed in the field and agreed to by both agencies.

7. In the past, when the National Forest administered the land now designated National Park, the basic trail system which accessed Wheeler Peak Cirque, Stella Lake, Teresa Lake, and to and from the parking area at the entrance to Wheeler Peak Campground, was named the Solace Loop Trail, in memory of Fred Solace, a National Forest employee who died on the mountain in the 1960's, doing his job. I have received several complaints from family and friends of Fred Solace concerning the removal of the sign naming the trail system.

6

I would recommend that in remembrance of Fred Solace, and his family and friends, that the National Park consider continuing with naming the entire trail loop system, as described, as the "Solace Loop Trail".

8. I question the ability or intent of the National Forest to provide protection to native predators, and ensure that predator populations are maintained at natural levels, as described on page 72. The National Park works with the Nevada Dept. of Wildlife, who regulate wildlife populations, hunting limits and season of hunting. This issue should be worked out between the National Park and the Nevada Department of Wildlife.

7

9. I would seriously question the need or desire to establish a Class I airshed over the National Park. I assume this designation, if approved, would impact a larger geographic zone, including National Forest and BLM

8

RESPONSES

4. See response 1 to the Bureau of Land Management, Ely District Office (p. 217).

5. The intent of the right-of-way is to protect views from the road and the visitor experience of driving it. As long as harvesting fuelwood could be done in a manner that did not significantly harm the view from the road, this type of resource utilization would not be incompatible in the right-of-ways.

6. In general, Park Service policy (*Management Policies*, 9:17) prohibits naming any physical feature or structure after any individual, unless the association between the park and the individual is of transcendent importance or the naming is authorized by Congress.

7. See response 8 to the Bureau of Land Management, Ely District Office (p. 218).

8. Comment noted. See response 3 to the Bureau of Land Management, Ely District (p. 217).

COMMENTS

lands, and may seriously impact existing and proposed industrial development of White Pine County, Nevada, as well as surrounding Utah counties.

9

10. A question concerning Bonneville cutthroat trout in Pine Creek and Ridge Creek needs to be addressed. How will these streams be protected from domestic livestock grazing? Since it is suspected most of the fish are on National Forest lands, and that the National Forest and National Park will jointly manage the Shingle Creek S&G allotment where Pine Creek and Ridge Creek exist, mitigation of this impact is needed in the Environmental Document which is being prepared for the Allotment Management Plan. Eliminating these drainages from livestock use may negatively impact this end and part of the Shingle Creek S&G allotment for all domestic sheep use. Studies will need to be conducted on the National Forest to determine if the current grazingis having detrimental impacts on the trout before eliminating grazing on these streams is considered.

10

What streams on the east side of the National Park would be affected by re-establishment of Bonneville cutthroat trout? In general, I support re-establishment, but would need the National Park to address thru the NEPA process any re-establishment where it would or could affect National Forest lands/streams. By knowing this information in advance it can be included in the NF/NPS AMP's as they are completed.

11

11. Some questions should be addressed about the Park Service's ability to designate Subzones on the National Forest. Semi-Primitive and Rural designations do not appear to have an adverse effect on the current grazing practices on the National Forest however we are not sure what effect may occur to other commodity uses. By designating the upper end of Lexington Creek a Semi-Primitive Day Use subzone the Park Service is trying to exclude livestock from the Lexington Arch Trail. I can understand and support this designation but feel that the Park Service needs to look into how they are planning to keep cattle out of this area. Cattle use has been observed from the Arch down to and including the National Forest.

Other comments:

12

Page 27 The Modern Subzone does not indicate if grazing will be allowed or not. The Modern Subzone designation will not affect the National Forest if sections 14 and 23 are transfered to the Park Service.

13

Page 122 Currently there are a total of 6 allotments which are managed by both agencies, and 1 allotment which is managed solely by the National Forest, and which is entirely National Forest land.

14

Page 122 There is no recent record, within the last 10 years of NF record (1976-1986) that any higher elevation trees, presumably now within the National Park, having ever been permitted for cutting to construct log homes.

15

Page 125 Currant Creek Campground is no longer in existence, and was closed in 1990. Several other popular semi-developed

RESPONSES

9. As a condition of their permit, grazing permittees would be required to keep livestock out of Pine and Ridge creeks within the park boundaries. The GMP only addresses segments within the park. The allotment management plan would address the entire allotment, which extends onto U.S. Forest Service administered land. If the allotment management plan determined that the Forest Service should also eliminate grazing on segments of these streams under their jurisdiction, the Park Service would cooperate to develop appropriate mitigation through the allotment management planning process.

10. Additional research is needed to determine which streams would be chosen for reestablishing Bonneville cutthroat. As a goal, the Park Service would like to reestablish them into all the park streams where they were originally present. However, there are many variables affecting the likely success in any stream or stream segment, and the streams where success is most likely would be chosen for initial attempts. In any event, reestablishing Bonneville cutthroat would be coordinated with the Nevada Department of Wildlife, BLM, and U.S. Forest Service, and appropriate NEPA compliance would be followed for the action.

11. The text of the "Actions Common to All Alternatives" section has been changed in response to this comment. It was not the intent of the Park Service to attempt to control grazing on nonpark lands.

12. Grazing would be permitted in the modern subzone, although certain locations might be fenced to reduce livestock/visitor conflicts.

13. The text has been changed in response to this comment.

14. The text has been changed in response to this comment.

15. The text has been changed in response to this comment.

COMMENTS

campg. nds exist which were not listed, and they are as follows, in same basic format as shown on Page 125:

Type	Name	Nearest Town	# Sites
FS	East Creek	Ely	7
FS	Kalamazoo Creek	Ely	3
FS	Berry Creek	Ely	4

Also, Ward Mountain has a total of 29 sites.

Page 154 May wish to discuss how National Forest Service and National Park Service are using the Humboldt National Forest grazing utilization standards, with the intent to properly manage the grazing resources, and to identify and set up objectives on impacted sites. Objectives for domestic livestock grazing sites will be designed to reach or meet desired future conditions.

16

Page 158 (Second paragraph right side of page) The proposal needs further clarification for their statement "..Other proposed developments, including the park boundary fence,.." I would like to have this discussed further, and expanded in the document to indicate the effects these areas of fencing may have on cattle distribution and movement between the National Park and National Forest land and where the proposed boundary fences are located.

17

Page 159 I would suggest that the statement, "...Park Service would continue to allow grazing to the same extent as was permitted in July 1985 and would take no actions to restrict grazing except to further sound rangeland management practices..." be more specific. Something to the effect that some reductions may be necessary for proper resource protection. These reductions would only occur after several years of utilization and monitoring indicate that a reduction is necessary to meet resource needs. These reductions would be a joint effort with the other affected agencies to ensure that proper use of all affected resources is achieved.

This concludes my comments based on a complete review of the Great Basin Draft Plan. Again, this is a good plan and I support their intent and direction for this piece of land which I hold close to my heart.

Rene P. Demeule

RENE P. DEMEULE
District Ranger

RESPONSES

16. The text has been changed in response to this comment. This was an editorial error; the park has no intention to fence its boundaries.

17. Comment noted. The text carefully paraphrases the enabling legislation and the associated legislative record.

COMMENTS

United States Department of Agriculture | Forest Service | Intermountain Region | 324 25th Street Ogden, UT 84401

Reply to: 1950

Date:

Al Hendricks, Superintendent
Great Basin National Park
Baker, NV 98311

Dear Mr. Hendricks:

The Draft General Management Plan/Development Concept Plans/Draft Environmental Impact Statement for the Great Basin National Park was reviewed by personnel on the Humboldt National Forest. Their comments were sent to you on November 13. A copy of their letter is enclosed.

We, too, compliment you on a good Plan and quality document.

The effects projected to surrounding National Forest land was limited. Coordination in development and maintenance of access facilities leading into the National Park was well covered. Acquisition of two isolated sections of National Forest land is proposed in the preferred alternative. This appears logical and acceptable; however, any exchange will be subject to compliance with NEPA.

18

A portion of the Draft Management Plan which we viewed as needing more clarification and coordination with the National Forest, involves cooperative management of grazing on the six allotments which lie in both jurisdictions. The concept of management subzones, some of which extend beyond the National Park boundary on the the National Forest along road corridors, has restrictions on grazing. Neither the subzones, nor their effect on grazing, was considered in Amendment No. 1 to the Humboldt Forest Plan when it addressed management of the area in coordination with the National Park.

We recommend the Final Management Plan expand on the needed interagency coordination required to manage these corridors, as well as the grazing allotments, to best meet our respective objectives. If the corridors need to be fenced, for example, the effect on cattle movement and grazing management systems must be examined.

Sincerely,

/s/ Ronald A. Bell

GRAY F. REYNOLDS
Regional Forester

Enclosure

RESPONSES

18. See response 11 to the U.S. Forest Service, Humboldt National Forest, Ely Ranger District (p. 229).

COMMENTS

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
1190 AVENUE "E"
ELY, NEVADA
89301

December 19, 1991

Al Hendricks, Superintendent
Great Basin National Park
Baker, NV. 89311

Al;

This letter is in response to the Draft General Management Plan/Development Concept Plans/Environmental Impact Statement for the Great Basin National Park.

19 As you are well aware the SCS has three hydrometeorological data collection stations located along Baker Creek. These data collection stations include Baker Creek #1 at 7950' elevation, Sec. 29, T13N, R69E, Baker Creek #2 at 8950' elevation, Sec 30, T13N, R69E, and Baker Creek #3 at 9250' elevation, Sec. 25, T13N, R69E. All three were established in 1941 and are manually read snow courses. Baker Creek #3 also has a snow depth marker which can be read from the air in case the snow course is inaccessible from the ground.

Baker Creek #3 is also a proposed SNO-TEL site to be equipped with radio telemetry. If SNO-TEL equipment is installed we would like to request special use permits for the use of a helicopter for installation, annual maintenance and emergency repairs. Environmental Impacts would be minimal to non-existent. We would like to have this site classified as a Special Use Zone.

Snow surveys, water supply forecasts and related information are of great interest to everyone. Your past cooperation is greatly appreciated and we look forward to working with you in the future.

Sincerely,

Wayne

A. Wayne Imgard
District Conservationist

RESPONSES

19. This type of monitoring equipment is not prohibited in a natural zone and should not require a special use zone designation. The evaluation of a request for a special use permit would be made on application to the superintendent.

COMMENTS

Location:
District V Headquarters
Cathedral Gorge State Park
Panaca, Nevada 89042
(702) 728-4467

Address Reply to:
DIVISION OF STATE PARKS
P.O. Box 176
Panaca, Nevada 89042

STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF STATE PARKS
December 5, 1991

Al Hendricks
Superintendent
Great Basin National Park
Baker, Nevada 89311

Dear Mr. Hendricks,

Thank you for the opportunity to review the draft of the General Management Plan and Development Concept Plans for Great Basin National Park. My experience and training with Nevada State Parks during the past 14-1/2 years has had a primary emphasis on interpretation, since my first full-time position was the Interpreter for Valley of Fire State Park. For six years I managed the Visitor Center, planned and presented interpretive programs and hikes, and was responsible for long-range planning including resource management and the administrative master plan. I have been the Park Supervisor for Cathedral Gorge State Park for the past five years, and was supervisor at Echo Canyon State Park for 1-1/2 years previous to that. During this time I have researched and written the Master Plans for both these parks, and most recently have been involved in the planning and design process for our new regional Visitor Center (funding authorized by 1990's Question Five on the ballot).

I have been visiting Lehman Cave/Wheeler Park/Great Basin National Park since May, 1976 -- first as a spelunker (member of National Speleological Society until 1979), then as a camper and hiker, with my most recent visit in August of this year. I have hiked many of the "popular" trails, camped in all of the developed campgrounds, and visited Snake Creek (cave) and the Strawberry Creek/Osceola area. My degree is in Recreation, from Arizona State University, and when I lived in Arizona I was active in spelunking, cave conservation (resulting in the passage of the 1974 Cave Protection Law), and wilderness studies and protection.

With this introduction, I wish to register my general agreement with the "Proposed Action" as recommended in the GMP/DC document. There are areas in which I am in disagreement, or feel some alterations as needed; those are listed below, referencing the page in the GMP.

1

pp. 48-49: "50-car, five-bus/RV parking lot"
In my experience with visitor centers and national parks, wonder if parking for only **five** RVs or buses is adequate. There are an increasing number of RV's on the road, and I would recommend a minimum of **ten** RV/bus parking spaces.

p. 51: Lehman Cave recommendations
All of this road relocation and "restoration" seems unnecessary,

RESPONSES

1. Comment noted.

COMMENTS

Hendricks, GMP Comments
page 2

and an expensive undertaking. Once the Baker Ridge Visitor Center has been built, "congestion" should be reduced, "views of the Snake Valley basin" will have been received (and from a much better angle), and "re-establishing ... the historic Lehman orchard" is not (to me) a sound goal since the historic orchard is gone, and it makes little sense to plant new trees and try to pass them off as original or historic.

Deleting the new parking area would eliminate the need for a "cave ticket sales kiosk with attached restrooms," and the 1,000 ft. long paved trail. (comments also under p. 155 and 164)

p. 122 Major recreational attractions listed

2 Echo Canyon State Rec. Area is 12 miles east of Pioche, not 17 as listed.
Spring Valley State Park also offers fishing.
Cathedral Gorge State Park offers camping, picnicking, hiking and general sightseeing/photography opportunities.
Kershaw-Ryan State Park has not had picnicking or camping facilities available since 1984, when these were destroyed by flash floods.
Cave Lake State Park, which is 15 miles south of Ely, is not even listed, yet it provides boating, fishing, camping, picnicking, hiking, and winter snow play activities to over 85,000 visitors yearly.

p. 155 "Impacts on Vistas"

3 Because of the screening effect of the ridge directly behind (west of) the Lehman Cave complex, these support facilities are not visible from any of the vantage points listed, and are not an intrusion upon the landscape.

p. 156 "view of vehicles and traffic"

4 It has never bothered me to look "over vehicles and a constant flow of traffic" — the Lehman Cave Center's front porchh is high enough above the parking lot and road that these are negligible factors in the view. Being able to see traffic coming up Hwy. 488 gives a perspective on the climb out of the valley, which (to me) would make a good interpretive point about basin & range topography.

ibid Snake Valley and Spring Valley viewshed

5 Spring Valley and Snake Valley are but two in the whole of the Great Basin. It is not a vital mission of the NPS to preserve these against "land use decisions that are detrimental to the visual integrity of landscapes." If interpretation's goals are met, visitors crossing other ranges and valleys in Utah and Nevada will apply what they have learned at Great Basin National Park to other areas comprising the Great Basin.

RESPONSES

2. The text has been corrected based on these comments.

3. The text has been clarified by deleting Wheeler Peak from the discussion and changing "existing trails" to "proposed trails." The visibility of the facilities along Wheeler Peak Scenic Drive depends on where they are viewed from. From some locations along its length these facilities are visible.

4. Comment noted.

5. See response 7 to the Bureau of Land Management, Ely District Office (p. 218).

COMMENTS

Hendricks, GMP Comments
page 3

p. 160 "Commercial opportunities along " Highway 488

6 From what I have seen over the past 15 years of visiting the area, there has never been any commercial venture that lasted more than a year along Highway 488. Relocating the park access ("entrance") road to the south would enhance opportunities for extant businesses since there are none to the north of the present turnoff, and many people (unless they are in dire need) bypass these services until their return from the park (when they have discovered that gas and groceries are not available in the park).

7 p. 164 "cave tour ticket sales ... relocated to ... kiosk"
If the Lehman Cave Interpretive Center is to focus on just the cave, what "conflicting uses" would be in the center?

I am concerned about the duplication of efforts — the orientation center in Baker would appear to be a needless expenditure when the Baker Ridge Visitor Center will be the first facility encountered by incoming traffic on the newly rerouted approach road. Diluting the traffic should ease the present congestion at the Lehman Cave Center, and installing an "electronic messenger" type of board in the Baker Ridge Visitor Center to convey the status of cave tours (e.g. "11:00 tour full; next available tour at __:__") would further reduce needless parking and traffic. By offering an expanded schedule of interpretive hikes and talks at locations throughout the park, you should be able to further reduce the dependence on the cave tour as the main visitor event.

I am excited about the proposed developments; it was in the Lower Lehman Campground, during a several-night stay in November of 1976, that I decided to try for a career in Parks, so I have always held a fondness for the Great Basin National Park environs. I hope that my comments will be taken in a positive spirit; I feel that the Lehman Cave complex does not need as many major changes as were presented, given that the Baker Ridge facility will be constructed only a mile away, and that this new facility should relieve the current situation.

Sincerely,

Barbara Burney Rohde
Park Supervisor,
Cathedral Gorge State Park

RESPONSES

6. Comment noted.

7. The text has been changed to indicate these are "competing uses" rather than "conflicting uses." The competing uses are ticket purchasing and waiting for cave tours while other visitors are engaged in education-related activities at the visitor center.

COMMENTS

BOB MILLER
Governor

STATE OF NEVADA

JUDY MATTEUCCI
Director

DEPARTMENT OF ADMINISTRATION
Capitol Complex
Carson City, Nevada 89710
Fax (702) 687-3983
(702) 687-4065

January 8, 1992

Mr. Al Hendricks, Superintendent
Great Basin National Park
Baker, NV 89311

Dear Mr. Hendricks:

Thank you for the extension of the comment deadline for the Draft General Management Plan/Development Concept Plans/Environmental Impact Statement (GMP/EIS) for Great Basin National Park. The development of the Great Basin National Park is extremely important to the State of Nevada and thus we appreciate the extended time for commenting on the EIS. You will find specific agency comments enclosed.

1 The State of Nevada's position is that the development of the Park is inextricably linked to economic development in White Pine County and especially the town of Baker. The State continues to support the placement of the Visitor's Center in downtown Baker. Establishing a sufficiently sized information center, in addition to new housing, park administrative offices and maintenance facilities, will clearly enhance the tourism potential for the town of Baker while serving the needs of the Park Service. By placing the Visitor's Center in Baker, as opposed to Baker Ridge, the Park Service would not have to build an information center in Baker which would duplicate service and manpower requirements.

2 The State also believes the existing entrance road to be adequate for the area's current needs. While the reasons for creating a new entrance are good, we believe the aspects of relocating the entrance, as specified by the Division of State Lands and the Department of Wildlife, are very important and should be considered.

3 Because of the critical interdependency of the park and the surrounding area, we think the EIS falls short in discussing the effects of the park on Baker and White Pine County. We do acknowledge support by the National Park Service for the water and wastewater treatment studies. We believe the Park Service and the State must continue to work closely together with local interests in analyzing and mitigating the impacts of the park on the local community. As you know, the State of Nevada, through the Division of State Lands, has also contributed to this effort by assisting White Pine County and the Baker Town

RESPONSES

1. Comment noted. The rationale for constructing the visitor center on Baker Ridge is included on pages 45-50 of the draft plans/EIS (pp. 47-50 of the final plans/EIS).

2. Comment noted. The rationale for constructing the new entrance road is included on pages 43-45 of the draft plans/EIS (pp. 43-47 of the final plans/EIS).

3. To the extent possible, both the social and economic effects of the proposal on the town of Baker have been evaluated and discussed in the draft plans/EIS. While there is an interdependency between the park and the town of Baker, there are obviously many different possible scenarios for the future of the town and the county that are independent of the park. The Park Service will have only a limited effect in directing these scenarios and therefore cannot predict them. The Park Service believes that there is sufficient mitigation incorporated into the plan to mitigate anticipated impacts.

COMMENTS

Board with a new land use plan for the community of Baker. Regardless, the park has created an impact upon the town of Baker and will continue to do so in the years to come. The EIS must, therefore, show mitigation measures beneficial to both the park and the community.

The State of Nevada, White Pine County and the community of Baker are all very interested in expanding economic development opportunities that will enhance the Great Basin National Park. Obtaining basic infrastructure for the town of Baker is the first important step in achieving a long term future for all concerned. Although funding may not be immediately available to address our mutual concerns, we nevertheless must continue to work together to solve the infrastructure needs for Baker. Accordingly, the State proposes that an interagency task force, composed of the Park Service, the State Clearinghouse (which would include members from Economic Development, Tourism, Commerce, Environmental Protection and Conservation and Natural Resources), the Baker General Improvement District and the White Pine County Commission be assembled. Such a group could develop long term plans to address future funding needs as well as help determine the type and size of sewage treatment and water supply facilities that should initially be developed, which type of facilities would be the most cost effective, and how they could be phased to accommodate the increased number of visitors that will result from the proposed park development and the anticipated private tourist service oriented development in Baker.

4

Thank you again for the opportunity to comment on the GMP/EIS for the Great Basin National Park.

Sincerely,

Danna G. Sturm

Danna G. Sturm, Coordinator
Clearinghouse/SPOC

cc: Affected State Agencies
Brian Harris, Governor's Office
Senator Harry Reid
Leo Penne, Washington Office
White Pine County Commissioners
Baker General Improvement District

RESPONSES

4. Comment noted. If the state of Nevada establishes this task force, the Park Service will participate.

COMMENTS

STATE OF NEVADA
DEPARTMENT OF COMMERCE
OFFICE OF THE DIRECTOR
1665 Hot Springs Road
Carson City, Nevada 89710
(702) 687-4250
Fax (702) 687-4266

BOB MILLER
Governor

LARRY D. STRUVE
Director

JOLENE B. ROSE
Deputy Director

December 30, 1991

MEMORANDUM

TO: Danna Sturm, Coordinator
Clearinghouse/SPOC

FROM: Larry D. Struve

RE: Draft General Management Plan; Development Concept Plans; Environmental Impact Statement Nevada
SAI #88300052 Project: Great Basin National Park

Pursuant to your request of December 24, 1991, I am submitting some suggestions to you, respecting the state's comments on the aforementioned documents prepared on behalf of the National Park Service (NPS) regarding proposed alternative actions to develop the Great Basin National Park.

In a nutshell, the concerns of the Nevada Department of Commerce are focused on those portions of the NPS document identifying and evaluating alternatives for providing the Great Basin National Park with adequate water and sewer service, including options that would allow the NPS and the community of Baker to share water and sewer services.

1 It is my understanding that a "Great Basin water and sewer study" has been prepared, evaluating the condition of the existing water and sewer system(s) and associated facilities in the Park and in the Town of Baker. This study was not available for general public comment and review at the time hearings were held on the aforementioned plans in November, 1991. Because of the importance of water and sewer facilities to accommodate the

RESPONSES

1. The Great Basin water and sewer study is not an action document subject to any requirement for general public review. However, the document was distributed before the hearings on the draft plans/EIS to the Baker General Improvement District and to the state of Nevada.

COMMENTS

increased visitor load expected at the Park, it is recommended that public hearings be held in the Town of Baker and White Pine County on the recommended alternatives for developing shared water and sewer services.

Based on comments appearing in the draft management plan, there appears to be ample justification for the State of Nevada's position that development of the Park is inextricably linked to development in White Pine County and especially the Town of Baker. The financial and environmental effects of the Park's development on the Town of Baker and White Pine County, particularly if a joint water and sewer system is not developed, is inadequately addressed in the Plan, even though there are hints the impacts could be major. For example, See: P. 160, discussing "Impacts on Residents and Private Property Owners" resulting from the "proposed action." 2

The draft document prepared by the NPS regarding proposals for joint water and sewer facilities contains cost estimates for joint waste water treatment and domestic water system development between the NPS and the Town of Baker. However, these cost estimates do not clearly identify what portion of costs can be borne by the federal government and what portion by the Town of Baker. Furthermore, no financial feasability study has been completed, respecting the capability of the Town of Baker to contribute its assigned share of the costs of such a joint project. See: Appendix 1, P. 250, listing the total "utilities" cost to be shared with the Town of Baker in the proposed action at $10,467,600. Cost estimates for "utilities" are set forth for Alternative A on P. 254, for Alternative B on P. 258, and for Alternative C on P. 263. 3

The Nevada Department of Commerce strongly endorses the Clearinghouse suggestion that an interagency task force be established, to develop a long term plan addressing the funding needs of any joint water or sewer projects necessary for development of the Park and adjacent areas in or near the Town of Baker. Until a financial feasability study is completed, the plans for development of the Park should not be considered to be complete.

Thank you for the opportunity to provide these comments.

LARRY D. STRUVE

LDS:dl

RESPONSES

2. The plan proposes that the park's major sewage treatment facility be located near Baker rather than in the park. It indicates that this facility might be a shared facility with the town of Baker if funding issues could be resolved. The EIS adequately assesses the impacts of that proposal. Under the no action/minimum requirements alternative there would be no incremental difference from the status quo. The impacts of this alternative are assessed in the draft plans/EIS.

3. The costs included in the draft plans/EIS were the best estimates of Park Service costs at the time the document was printed. They have been revised. The water and sewer study contains costs conditioned on many factors and assumptions that might change. Thus, the exact costs for cost sharing would have to be determined after decisions were finalized.

COMMENTS

BOB MILLER
Governor

STATE OF NEVADA
DEPARTMENT OF MINERALS
400 W. King Street, Suite 106
Carson City, Nevada 89710
(702) 687-5050
Fax (702) 687-3957

Las Vegas Branch
4220 S. Maryland Pkwy.
Suite 304
Las Vegas, Nevada 89119
(702) 486-7250
Fax (702) 486-7252

RUSSELL A. FIELDS
Executive Director

January 3, 1992

Danna G. Sturm
Nevada State Clearinghouse
Department of Administration
Planning Division
Blasdel Bldg., Room 204
Carson City, NV 89710

Re: SAI #88300052

1 The Nevada Department of Minerals would like to work with the National Park Service in investigating the sites of historical and current mining activity within and bordering Great Basin National Park.

We would like the opportunity to visit abandoned mine openings, mining camps, and mill sites within the Park boundary. We would also like to visit the mining claims adjoining the Park in the Mt. Washington area to log and rank abandoned mine openings and to tour any current mining operation.

For historical purposes, we would like to record the number, type, and degree of danger of abandoned mine openings through written and photographic documentation. We will share this information with the National Park Service along with any other mineral data collected during our visits.

Sincerely,

Bill Durbin

Bill Durbin, Field Specialist
Div. of Abandoned Mine Lands

BD:lc
wp\BD96

RESPONSES

1. Comment noted.

COMMENTS

RESPONSES

STATE OF NEVADA
DEPARTMENT OF WILDLIFE
1100 Valley Road
P.O. Box 10678
Reno, Nevada 89520-0022
(702) 688-1500
Fax (702) 688-1595

BOB MILLER
Governor

WILLIAM A. MOLINI
Director

December 17, 1991

Dana Sturm
Nevada State Clearinghouse
Capitol Complex
Carson City, NV 89710

Dear Dana:

The Department of Wildlife's Regional Habitat Staff has reviewed the National Park Service's "Draft General Management Plan/Development Concept Plans/Environmental Impact Statement" for the Great Basin National Park, and has identified the following concerns. The Nevada Department of Wildlife appreciates the opportunity to comment on this DGMP and DEIS.

We would like to provide you with additional information which we hope will facilitate the decision making process in relation to this draft document, as well as result in a more thorough evaluation of the potential impacts and opportunities concerning wildlife. It is hoped that the end result will be an alternative that minimizes human impacts to wildlife.

Under the Proposed Action, we have serious concerns for two particular species of wildlife that were not discussed in this document in regards to the proposed Wheeler Peak Scenic Drive/New Park Entrance. The proposed access road and attendant developments (parking areas/day use areas/visitor center) are expected to negatively affect both sage grouse and mule deer. Specifically, we have maps dated to 1970 that indicate there are only six known sage grouse strutting grounds in all of Snake Valley in Nevada. Only one of these has been documented as active in the past twenty years (Lexington Bench, 1982). Three sage grouse strutting grounds are designated on the maps, located on the Baker Creek/Lehman Creek bench at T13N, R69E, Sec. 1, T13N, R69E, Sec. 12, and T13N, R69E, Sec. 24/T13N, R70E, Sec. 19.

COMMENTS

Dana Sturm
December 17, 1991
Page 2

1

Under a Cooperative Agreement and Memorandum of Understanding with the United States Bureau of Land Management we have agreed to follow the Western States Sage Grouse Committee Guidelines For Habitat Protection In Sage Grouse Range. This protection includes a two-mile radius of existing habitat to be maintained in natural condition for the protection of sage grouse populations in relation to known sage grouse strutting grounds. The proposed Wheeler Peak Scenic Drive/New Park Entrance, with attendant parking areas and interpretive centers would violate the Western States Guidelines and could result in the extinction of local sage grouse populations. Normally the Bureau gives the Nevada Department of Wildlife two years (winter/spring periods) to evaluate a project proposal in relation to sage grouse.

If the Proposed Action is indeed adopted, we would request to have two years to evaluate sage grouse habitats and propose mitigating measures to protect the sage grouse resource. We assume from the Proposed Action that there is the potential for development on the Baker Creek Bench, and will attempt to evaluate the current use by sage grouse this winter; however, due to mantime commitments and other priorities it may not be possible to conduct a thorough investigation of the area this winter. If the National Park Service is interested in assisting with the evaluation, we would welcome their participation, and suggest we set up a meeting to coordinate our efforts.

The Snake Valley sage grouse population is somewhat isolated from other Great Basin populations and the loss of key winter or spring breeding/nesting habitat should be considered a major negative impact to that particular population.

2

The other wildlife species which would be negatively impacted by this proposal is mule deer. The Baker Creek/Lehman Creek Bench provides a major travel route for deer moving between the Baker Ranch and key deer habitat located from Kious Basin to Baker Ridge. The proposed Wheeler Peak Scenic Drive cuts a path that would be perpendicular to deer travel and therefore poses a direct impact to normal movements, with the potential for increased deer mortality from vehicle/deer collisions. Further impacts would be realized by promoting visitor use and day use in key deer habitats located between Baker Ridge and Kious Basin. Helicopter deer survey data indicate that over 50% of the deer sample obtained on the east side of the South Snake Range is found between Kious Basin and Baker Ridge. Proposed developments in and around Kious Basin and Baker Ridge along with increased human activity can be expected to reduce or eliminate deer access to key habitats located in the area, resulting in a lowering of the carrying capacity for mule deer and lions which rely on mule deer as their primary prey base.

RESPONSES

1. The plan has been changed to reflect these comments. The Park Service does not anticipate constructing the Wheeler Peak Scenic Drive/new park entrance road within the next two years, and this should provide sufficient time to further evaluate the status of sage grouse in the vicinity. If the evaluation revealed that the project could potentially significantly affect sage grouse populations, the project would be reevaluated and other alternatives considered. A separate compliance document would be completed when an alignment is determined.

2. The Park Service disagrees. We recognize that the new entrance road would pass through habitat used on a seasonal basis by mule deer. The current entrance road also passes through habitat used by mule deer, and several deer/vehicle collisions occur along this road each year. However, unlike the current entrance road, which has a very high design speed and is often traveled at speeds exceeding 55 mph, the new road would have a much lower design speed. The Park Service believes that constructing the new road and changing the existing road to a service road should reduce deer mortality caused by vehicles traveling to and from the park rather than increase it.

The plan proposes no developments in the area between Kious Basin and Baker Ridge other than the new entrance road, associated pullouts, and a trailhead. The new entrance road is not expected to be a barrier to deer movements. Most of the deer use in this area occurs during fall, winter, and early spring, whereas the majority of visitor use occurs during the summer months. The level of visitor use in this area, particularly in the fall/spring period, is not anticipated to have a major effect on mule deer use of this area or access to any key habitats.

COMMENTS

Dana Sturm
December 17, 1991
Page 3

3

The draft document indicates on page 72 under Mule Deer that "If populations increased to the extent that ranchers outside the park experienced serious crop loss, the Park Service would cooperate with the Nevada Department of Wildlife, as it has in the past, to establish hunting seasons on lands adjacent to the park to control deer numbers". Unfortunately the Proposed Action also identifies two sections of Forest Service lands adjacent to Kious Basin and Baker Ridge to be transferred to the National Park Service. Since these sections contain key deer habitats and the nearest escape cover to the Baker Ranch where previous deer depredation hunts have been held, this proposal would contradict and hamper efforts to "control deer numbers" by providing a sanctuary where depredating deer could not be removed. Transferring these two sections to the Bureau of Land Management would have the same effect of simplifying federal agency management and still allow for the "control of deer numbers".

4

An additional conflict with mule deer is that this area is proposed for development of a new visitor center, and visitor use facilities from Baker Ridge to Kious Basin would directly conflict with spring deer use. Baker Ridge and the adjacent bench lands to Kious Basin often provides the first spring "green-up" because of their aspect. This is an important component of mule deer habitat that enables mule deer to recover from harsh winter conditions. Development in this area will jeopardize key deer spring range in this area, as well as, hamper deer movements up and down Baker Creek. There will be insufficient area left to provide a corridor to facilitate deer movements between the west end of Baker Ridge, where the new visitor center would be, and the cliffs across Baker Creek under the Proposed Action. This would be especially true during high public use periods.

The initial statement for Alternative A indicates "Under alternative A there would be no significant changes in present management and visitor use". Since wildlife populations that now exist in the Park, or are expanding into the Park (elk for example), are doing so under present and past management, this may be the best proposal for existing wildlife populations. Proposals that increase human related development and use can be expected to negatively impact attendant wildlife resources.

Alternative C poses the same potential problems for wildlife as the Proposed Action in relation to the proposed new Park Entrance and Access Road. In addition, Alternative C poses an additional threat to the welfare of mule deer with its proposed Mt. Washington visitor center and NPS support complex. This site is located adjacent to key Rocky Mountain bighorn winter habitat, key mule deer spring range, and is directly in the path

RESPONSES

3. The Baker Ranch is more than 6 miles from the two sections of Forest Service lands that would be incorporated into the park, and much of the land in between is publicly owned and available for public hunting. The Park Service believes a sufficient amount of land exists around the park to make depredation hunts effective if serious crop loss occurred outside the park.

4. The Park Service disagrees. The site selected for the visitor center is not critically important habitat for mule deer, and the area affected by associated development is very small. The visitor center would not be in a known migration path, and there is no reason to believe that deer would avoid the entire ridge because a visitor center was located on a small portion of it. Mule deer are very adaptable to low levels of human development (they are often present in the park's current housing area and the adjacent private developments just outside the boundary of the park).

COMMENTS

of an important mule deer migration corridor from summer range to winter range. The current level of use on Mt. Washington is of no concern for wildlife. Because of the primitive nature of the existing road, public use is at acceptable levels and is not affecting current wildlife populations inhabiting the area. Significant increases in visitor use would be expected to negatively impact attendant mule deer and Rocky Mountain bighorn populations.

5 The draft document indicates on page 138 that "Rocky Mountain Bighorn Sheep were extirpated from the South Snake Range in the early 1900's". Our records indicate a local resident observed a bighorn sheep in the South Snake Range as late as October, 1971; however, it is uncertain if sheep still existed in the Snake Range when we released sheep in Smith Creek of the Snake Range in 1975. We do agree with the document that the sheep population in the South Snake Range is not doing well and association with domestic sheep may be one of the limiting factors. It is probably not worth the risk to release additional sheep in the South Snake Range as long as the obvious threat of disease transmission from domestic sheep exists. It was at least promising, that during summer ground surveys on top of Mt. Washington in August of 1991, ewes with lambs were documented between Mt. Washington and Lincoln Peak.

6 We would like to see support, as specifically mentioned in the general management plan, for the establishment of pure Bonneville cutthroat trout in streams adjacent to Pine and Ridge Creeks on the west side of the Snake Range. This activity is outlined in The Bonneville Cutthroat Trout Species Management Plan (Haskins, 1987), and a supplement to this document, Project Proposal for The Introduction of Bonneville Cutthroat Trout in Eastern Nevada. The latter document was submitted to the Superintendent of the park for review in December 1990. This action is being proposed to isolate this area with pure Bonneville cutthroat trout to insure the perpetuation and long term genetic integrity of the species in these streams. This would remove the possibility of contamination of the Pine and Ridge Creek populations at some future date due to inter-drainage water transfers or mixing. It would also lessen the possibility of accidental or intentional movement of competitive or hybridizing species into Pine and Ridge Creeks by humans. These streams would also provide additional populations of Bonneville cutthroat trout, which would lessen the impact of some catastrophic event to existing populations. The proposed streams are isolated and receive minimal angler use, which is expected to facilitate approval and acceptance of this project by the angling public. While these habitats are located outside the native range of the species they are considered important in achieving the mandated

RESPONSES

5. The text has been slightly changed in response to this comment. It is likely that bighorn sheep were extirpated in the early 1900s, but that cannot be determined with certainty.

6. Park Service policy (*Management Policies*, 4:8) generally prohibits the introduction of any species into habitats in which it did not historically occur. Because of this, the Park Service believes efforts to expand the Bonneville cutthroat should occur only within its historic range (east side streams).

COMMENTS

goals of the Department of Wildlife to provide for the perpetuation and genetic integrity of the species.

7 We would also like to see the issue of the maintenance of a viable fishery in Baker Lake addressed. Experience has shown us that this lake needs to be stocked approximately every five years in order to maintain a viable fishery. It is believed that available spawning habitat is inadequate to perpetuate a viable fishery in this lake. It is proposed that the stocking of trout fry or fingerlings be permitted every five years. We believe that this fishery adds to the experience of the back country traveller in the Great Basin National Park. While we understand that his has not been an issue to the publics involved in the Park's review process, we believe that this is due to the lack of knowledge on this issue, not a lack of concern.

Sincerely,

William A Molini

William A. Molini
Director

WAM/JWK:el
cc: Superintendent, Great Basin National Park
Jim Hammett, NPS Denver
Region II Manager
Habitat Files

B-20.3

RESPONSES

7. Park Service policy (4:8) generally prohibits the stocking of fish in waters such as Baker Lake that were naturally barren of fish.

COMMENTS

PETER G. MORROS
Director

STATE OF NEVADA
BOB MILLER
Governor

L. H. DODGION
Administrator

Administration	(702) 687-4670
Air Quality	687-5065
Mining Regulation and Reclamation	687-4670
Waste Management	687-5872
Federal Facilities	687-3880
Wastewater Treatment Services	687-5870
Water Permits and Compliance	687-4670
Water Quality Planning	687-4670
FAX	885-0888

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL PROTECTION
123 W. Nye Lane
Carson City, Nevada 89710

October 10, 1991

CLEARINGHOUSE COMMENTS

SAI NV #88300052

Due Date: October 8, 1991

Title: EIS, Great Basin National Park

AIR - Gay McCleary:

Any proposed mining activity would need to obtain necessary air quality permits.

FEDERAL FACILITIES - Dave Minedew:

No comment.

MINING REGULATION AND RECLAMATION - Janice Freeman-Carr

If any mining operations or exploration projects are approved in the Park, the operation will need to obtain all applicable permits from the Mining Regulation and Reclamation branch prior to engaging in mining or exploration.

WASTE MANAGEMENT - Colleen Cripps:

1 The anticipated increase in visitors and the construction and occupation of the proposed administration facilities may exceed the current solid waste landfill capacity in Baker, Nevada. A discussion of proposed solid waste management practices should be included.

WASTEWATER TREATMENT SERVICES - Jim Williams:

Support proposed action.

WATER PERMITS AND COMPLIANCE - Dick Reavis:

No comment.

RESPONSES

1. All solid waste generated in the park is currently transported to an EPA-approved landfill near Ely, Nevada. This is not expected to change in the future and there should be no effect on Baker's landfill. Park Service *Management Policies* (9:5-6) address reduction of the waste stream.

COMMENTS

RESPONSES

WATER QUALITY PLANNING - Glen Gentry:

Would like to work with NPS in the setup of the water quality monitoring program and share in the data results.

llb
cc: Dana G. Sturm, Coordinator
Budget Division

COMMENTS

BOB MILLER
Governor

STATE OF NEVADA

RONALD M. JAMES
State Historic Preservation Officer

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF HISTORIC PRESERVATION AND ARCHEOLOGY
123 W. Nye Lane, Room 208
Capitol Complex
Carson City, Nevada 89710
(702) 687-5138

December 23, 1991

M E M O R A N D U M

TO: Danna Sturm, Dept. of Administration

THROUGH: Pam Wilcox, Administrator, State Lands

FROM: Alice M. Baldrica, Deputy SHPO Alice M. Baldrica

SUBJECT: EIS/GMP, Great Basin National Park, NV SAI#88300052

The Division has reviewed the EIS and general management plan for the Park. We have also met on site with National Park Service (NPS) staff regarding the National Register eligibility of historic sites recorded at the Park. We have the following comments:

1 First, we wish to thank the National Park Service for incorporating some of our comments regarding the Johnson Mill and Mine as expressed in our August meeting. As discussed, additional work will be necessary at nineteen historic sites to determine their eligibility for inclusion in the National Register under criterion d, for the data they might contribute to understanding the local history, and other criteria as appropriate. Division staff was impressed with the log cabin complex at Johnson Lake and believe it may be National Register eligible and has the potential for interpretation. We concur with the recommendation in the Plan for additional study and caution that any proposal to remove debris from the site receive scrutiny from an historical archeologist and involve consultation with this office. We understand the need to remove non-historic trash but advise the use of care in discriminating between historic and modern artifacts.

2 As discussed within our meeting, the Division recommends that the evaluation of sites (please refer to attached correspondence) proceed before the general management plan is implemented as the proposed actions may impact sites either directly or indirectly.

RESPONSES

1. The text has been changed based on this comment.

2. The text has been changed based on this comment.

COMMENTS

The right-of-way proposed for road construction must be surveyed for archeological and historic sites. Additionally, Native American consultation should be initiated to determine concerns in project specific areas.

We are pleased to note provisions for interpretation, monitoring and education as part of the general management plan as passive avoidance is seldom effective in preserving sites. We encourage NPS to include such programs in project development budgets.

We also encourage NPS to work with the U. S. Forest Service and the Bureau of Land Management on the management of cultural resources in the region. For example, the BLM sponsored excavation of the Baker Mound might include the exhibit of artifacts at the Park.

3 The potential exists for subsurface deposits at the Baker Guard Station sites. We agree with NPS that the sites need testing if development is to occur on or near them. If development does not occur, NPS will need to monitor and preserve the sites until they are evaluated and plans implemented to manage them. The Guard Station also is likely to be found eligible for inclusion in the National Register and any plans to modify the compound must involve consultation with this office.

If you have any questions regarding these comments please call me.

RESPONSES

3. The text has been changed based on this comment.

COMMENTS

RESPONSES

ATTACHMENT TO LETTER FROM STATE OF NEVADA, DIVISION OF HISTORIC PRESERVATION AND ARCHEOLOGY

November 5, 1991

Stanley Albright
Regional Director
Western Division
National Park Service
600 Harrison St. Suite (
San Francisco, CA 9410?

Dear Mr. Albright:

I am writing this letter as a follow up to conversations with National Park Service (NPS) staff regarding what is necessary for the evaluation of historic sites at the Great Basin National Park. I apologize for responding so tardily following our meeting at the Park. I hope this letter may prove useful in evaluating sites described in "A History of Great Basin National Park".

First, as discussed with NPS staff, the Division needs building/site forms for all sites identified in the report that your agency intends to evaluate. The forms should be accompanied by location maps, site maps and plans as well as black and white photographs. We require this information, with the exception of photographs, for archeological sites; NPS staff out of Tucson always provides us with archeological site forms to accompany reports.

Second, some articulation needs to be made between the historic and archeological studies completed to date. Your letter of December 3, 1990 makes determinations of eligibility on sites solely on the basis of the history authored by Unrau. Obviously, some of these sites require archeological test excavations or survey to determine whether or not they qualify for the Register under criterion d as well as additional historic research to determined eligibility under criteria a and b.

Third, nineteen historic sites described in the report are determined ineligible for inclusion in the National Register under criterion c. In addition to further archeological study to determine eligibility under d, additional historic work may be

COMMENTS

RESPONSES

necessary to evaluate the sites under criteria a and b.

In particular, we recommend further work at the Johnson Mill and Mine complexes to include the following:

1. recordation to include site/building forms (see example appended to letter), location map, site plan and photographs;

2. oral interviews with people in the Ely area who might have known the mine operator, people employed there or any other information on the mine;

3. search for descendants in the county census records;

4. have historical archeologist or mining historian look at the mill site to determine its use;

5. research tungsten mining in Nevada during this period (the Mackey School of Mines or U. S. Bureau of Mines have good information utilized by local historians and archeologists);

6. compare the Johnson Mine complex with other log cabins recorded in the state of Nevada.

I've appended a copy of National Register listings for Nevada. I'm aware of several buildings constructed of log listed on or determined eligible for listing and some of these have been moved (the Ruby Valley Pony Express Station) or altered (the Mahoney Ranger Station no longer retains sufficient original material). The cabins at Johnson Lake may represent the most intact complex of log structures known in the state of Nevada. It may lend itself well to interpretation, even if simply to explain to the public how small mines functioned during economically strained times and how these might have benefited local economies and families.

As mentioned in our letter of January 22, 1991, the Division recommended further examination of the Big Wash Sawmill and the Pole Canyon safe. I agreed that the Osceola Ditch be considered eligible for inclusion in the National Register under criterion c but requested it be evaluated under criterion a as well.

Although the history of the park is thorough, local historic contexts for evaluating sites is lacking. We recognize that the development of contexts for the state plan is one of our tasks; but, to determine eligibility on sites at the local level, we must rely on agencies and consultants to analyze comparative data from our existing statewide inventories to evaluate sites or buildings. I am enclosing a report on a small mine located on

COMMENTS

RESPONSES

the Comstock (Virginia City National Historic Landmark) as an example of the means by which smaller sites can be studied and evaluated.

If you have any questions regarding these recommendations, please call me. This letter should be used to supplement our correspondence of January 22, 1991.

Sincerely,

ALICE M. BALDRICA, Deputy
State Historic Preservation Officer

Enc
cc: George Teague, NPS, Tucson
Frank Willis, NPS, Denver
Al Hendricks, NPS, Great Basin National Park

COMMENTS

PETER G. MORROS
Director
Department of Conservation and Natural Resources

PAMELA B. WILCOX
Administrator

BOB MILLER
Governor

State Land Office
State Land Use Planning Agency
Address Reply to
Division of State Lands
Capitol Complex
Carson City, Nevada 89710
(702) 687-4363

STATE OF NEVADA
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

Division of State Lands

December 24, 1991

MEMORANDUM

TO: Danna Sturm, Clearinghouse Coordinator

FROM: Mike Del Grosso, Planner

SUBJECT: GREAT BASIN NATIONAL PARK DRAFT GENERAL MANAGEMENT PLAN (SAI NV 88300052)

Attached to this memo is a copy of the comments on the proposal from the Divisions of State Parks and Environmental Protection. Comments from the Divisions of Conservation Districts and Historic Preservation were previously sent to you.

The Division of State Lands has reviewed the draft Great Basin National Park General Management Plan. We feel that many of the proposals contained in the plan are well thought out and worthy of implementation. The draft plan does much to enhance the visitors recreation experience, promote a better understanding of the natural attributes of the region, encourages a wider use of the attractions the park has to offer and protects and enhances the natural resources of the park. The intent to reduce the focus on the Lehman Caves and encourage the use and enjoyment of other attractions of the park is well evident in the plan and we commend the National Park Service in their efforts in capturing this concept in the plan.

There are, however, some areas of the draft plan with which there is concern. These areas of concern include: (1) the new entrance road; (2) the new visitors center on Baker Ridge; and (3) the impacts of the park on the community of Baker.

1 While the new road promotes the concept of enhancing the visitors experience, the dispersion of visitor use in the park and providing a more impressive entrance to the park, the new road is both expensive and is viewed by many in the community as unnecessary. The new road traverses an area that is largely undisturbed, adds several miles of extra travel for the visitor to the park, could encourage some people to enter the park unnecessarily and could be disruptive to the community of Baker.

RESPONSES

1. The rationale for the proposed new entrance road is included on pages 43-45 of the draft plans/EIS (pp. 43-47 of the final plans/EIS).

COMMENTS

Danna Sturm
December 24, 1991
page 2

Local residents feel that the existing entrance road (State Route 488) could continue to serve the park's need at least for the foreseeable future. Turnoffs and interpretive sites could be constructed at appropriate locations along this road at a considerable savings over building a new and larger road.

If there are concerns regarding potential commercial development on private lands near the park, land use controls and limitations on the development of appropriate infrastructure to support intensive development could be implemented for those lands to limit such development.

The 80 acre administrative site in Baker near the intersection of the existing park entrance road with Highway 487 would be an appropriate location for the visitors center. Such a location would allow benefit from proposed water and sewer infrastructure proposed for other uses on the administrative site.

2 The proposed new visitors center on Baker Ridge could be considered an unnecessary intrusion into an existing undeveloped area, which could be contrary to the intent of protecting park resources. With the visitors center on Baker Ridge all visitors will be encouraged to travel from Highway 487 to the visitors center, bringing additional congestion and traffic to the Lehman Caves area. This would occur whether a new entrance road was built or the existing one was used. People wishing to visit sites other than Wheeler Peak and Lehman Caves could benefit from a visitors center in Baker without driving into the park. The proposed information center in Baker would not be necessary, avoiding a duplication of services and manpower requirements.

The need for improved water and sewer systems in Baker is directly related to the establishment of the Great Basin National Park. Prior to the park, visitor levels and demands for services were at a point where existing systems and services were adequate. The park has increased visitation dramatically and has created a demand for increased services and facilities which the community of Baker is expected to provide. These services and facilities such as housing, tourist commercial businesses (motels, service stations, food services, etc.) and recreational vehicle campgrounds will require adequate water and sewer systems within the community. Park related facilities such as the administrative center, housing and information center proposed on an 80-acre site within Baker will also require such systems.

3 Because the need for water and sewer systems in Baker is directly related to the creation of the park it is imperative that the National Park Service accept much of the responsibility for funding and developing the needed infrastructure. Unless such a commitment is made the community of Baker will not be able to accommodate the needs of the visitors to the park and needs of the National Park Service. The draft management plan must address these needs. Such a commitment in the management plan will do much to mitigate the impacts the park has made on Baker.

RESPONSES

2. The rationale for the proposed new visitor center is included on pages 45-50 of the draft plans/EIS (pp. 47-50 of the final plans/EIS).

3. To date the Park Service has received funding and a congressional directive to complete a joint water and sewer study for the park and the town of Baker. This study has been completed. The town of Baker is outside the legislative boundary of Great Basin National Park. Without a specific directive from Congress, the Park Service cannot commit to funding and developing infrastructure for the town of Baker.

COMMENTS

Danna Sturm
December 24, 1991
page 3

4

A separate study has been prepared to address the water and wastewater problem for the park, the community of Baker, the administrative site and the private lands near the park entrance. Many alternative schemes to provide water and sewer systems are included in the study. None of the funding proposals, however, are adequate. All the proposals which include Baker indicate that a substantial portion of the funding to build the systems would have to be provided by non-National Park Service sources. None of the proposals recognize that without the park the systems would not be necessary and the community of Baker would have been able to continue into the future as they had done in the past. The change forced on Baker by the park must be addressed in the water and sewer study and the National Park Service should have the responsibility to help mitigate the impacts it has caused on the community of Baker.

JMD/kn

Attachments: State Parks Comments
Environmental Protection Comments

RESPONSES

4. See response 3 to the Nevada Department of Commerce (p. 239).

COMMENTS

PETER G. MORROS
Director
Department of Conservation and Natural Resources

JOHN RICHARDSON
Administrator

BOB MILLER
Governor

Address Reply to:
123 W. Nye Lane
Carson City, Nevada 89710
Phone: (702) 687-4370

STATE OF NEVADA
December 12, 1991

DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF STATE PARKS

M E M O R A N D U M

TO: Pam Wilcox, State Lands Administrator

FROM: Steve Weaver, Chief Planning & Development

SUBJECT: Great Basin Nat'l Park Management/Development Plan DEIS
SAI # 88300052

I have completed my review of the draft EIS for the Great Basin National Park General Management Plan and Development Concept Plans. In general, I found the proposals to be well conceived. In addition, I feel that most all previously conveyed state agency and citizen concerns were fairly and adequately addressed. Particularly appreciated is the proposal for a joint federal/local water and sewer system. I commend National Park Service staff for an outstanding overall effort.

Nevertheless, I do have a number of minor comments as follows:

1

Page 9. A particularly good concept is the proposal "...to enter into cooperative agreements with other agencies in the region to develop interpretive facilities and programs on lands outside the park boundary that will ensure full interpretation of this physiographic region." The Nevada Division of State Parks welcomes the opportunity to participate in such a program. NDSP also invites the NPS to participate in the development of an interpretive program for the new NDSP regional visitor center to be located near Panaca on U.S. Highway 395 at Cathedral Gorge State Park. Due to its location on a major tourist route in the region, this new visitor center lends the potential to integrate interpretive and informational services for all of the state parks in the region, as well as the Great Basin National Park.

Page 13. The Nevada Division of State Parks would be interested in receiving a copy of the Great Basin economic study that

RESPONSES

1. Comment noted.

COMMENTS

is currently being prepared under contract. In particular, we are interested in the methodology being developed for measuring and predicting the economic impacts of national park units on local and regional economies.

2

Page 42. The proposed interpretive exhibit shelters on the major highways leading to the park are a good idea. However, noticeably lacking are exhibit shelters on U.S. Highway 93 north of its intersection with U.S. 50 and on U.S. 50 west of the same intersection. Although there would be some redundancy relative to the proposed exhibit at Sacramento Pass, the rationale for locating exhibits at the two aforementioned sites is as legitimate as the proposed southwest exhibit on U.S. 93 south. Certainly, it would be advantageous to capture the attention of tourists heading south on U.S. 93 or east on U.S. 50 before they approach the U.S. 6, 50, 93 intersection and take an alternate route leading away from the park.

Note also that Utah State Highway 21 is misidentified as U.S. 21 in the accompanying text.

3

Page 62. A "rustic group campground" is proposed for the west end of Strawberry Creek with "six picnic tables and six fire grates...." If this site is to serve as a legitimate "group" facility, it would seem more appropriate to cluster the tables in twos or threes and to provide one oversized or "group" picnic grill per table cluster. Otherwise, this campground will be relegated to single family camping.

4

Page 65. The proposed plan calls for a "corral" to be located near Baker Lake. Considering the propensity for horses that are not acquainted to squabble and possibly injure one another, this proposal is ill-advised. A better solution, and one that would be more satisfactory for equestrians in general, would be to provide hitching posts instead of corrals.

5

Page 66. The Trail Map does not correspond to the intent expressed in the text for a north-south trail through the park. Apparently, the connector trail between the Johnson Lake

RESPONSES

2. The intent of the Park Service was to provide interpretive opportunities for visitors coming to the park rather than for all travelers in the vicinity. Views of the park played a major role in choosing the locations.

3. The text was changed in response to this comment.

4. Corrals and hitching rails have different advantages and disadvantages. Hitching rails do not eliminate the possibility of injuries to horses. The intent is to confine the impact of horses to as small an area as possible. This may result in the use of corrals and hitching rails.

5. The Johnson Lake and Dead Lake trailheads are very close to each other (within ¼ mile) and are connected by road access. Therefore, they do not require a connector trail.

COMMENTS

Trailhead and the Dead Lake Trailhead was inadvertently omitted from the map.

Thanks for the opportunity to respond. If you have any questions, please do not hesitate to contact me.

SW:sw
gbasinnp.eis
801.6F

CC: John Richardson
Wayne Perock
Allen Newberry

RESPONSES

COMMENTS

RESPONSES

Baker Area Citizens' Advisory Board
Baker, Nevada 89311

December 26, 1991

Superintendent
Great Basin National Park
Baker, Nevada 89311

Dear Superintendent Hendricks,

In its November 14, 1991 meeting, the Baker Area Citizens' Advisory Board voted unanimously to express its support for the proposal in the General Management Plan for a cooperative arrangement between the National Park Service and Baker for a water and sewer system. As you know, the community of Baker is a very low income community, and we believe that the only way water and sewer can be provided for Baker is through cooperation with the Park Service. We also believe that an adequate water and sewer system is essential for the welfare of the visitors to the Park. The provision of adequate camping facilities, RV facilities, motels, restaurants, grocery, gas stations and other tourist amenities will require an adequate infrastructure in the town of Baker.

Attached please find copies of the pertinent pages of the November 14, 1991 Baker Area Citizens' Advisory Board Minutes, as well as of the October 17, 1991 minutes where citizens' concerns about the General Management Plan were expressed to the Advisory Board. We are forwarding these concerns to you.

Sincerely,

Tonia Harvey

Tonia Harvey
Chairperson
Baker Area Citizens' Advisory Board

cc White Pine County Commissioners
Senator Bryan
Senator Reid
Representative Vucanovich
Western Regional Office

COMMENTS

from the Moab BLM. Kristy Ferguson has been instrumental in getting this donation. The National Park Service will be storing a fire vehicle in the Fire Hall. The next meeting of the Snake Valley Volunteer Fire Department is Tuesday, December 10th at 6:00PM (Nevada time).
NATIONAL PARK SERVICE: Al Hendricks introduced Jose Aguilar who is the new computer specialist at the Park. A community potluck was held on November 12th to introduce other new Park Service personnel: Terry Baldino, Vidal Davila, and Jim Unruh. Although public comment will be heard on November 20th, it is advisable to also submit your comments in writing to the Park Superintendent.
BAKER WATER AND SEWER G.I.D. - The G.I.D. Board held their meeting prior to the BACAB meeting. Briefly, the Park Service and the Baker G.I.D. will draft a letter to Senator Reid and the County Commissioners regarding goals and cooperation between the G.I.D. and the NPS in order to get water and sewer in conjunction with the system developed by the Park Service. Please refer to the minutes of the G.I.D. meeting for further information.
THERE WERE NO OTHER COMMUNITY REPORTS GIVEN AT THIS TIME.

OLD BUSINESS
BAKER TV DISTRICT APPOINTMENTS: Bill Coffman, Emerson Gonder and Margaret Pense have received notification of appointment to this Board. As soon as they have taken the "Oath of Office", the TV District will meet.
BAKER DUMP FENCING PROJECT: Emerson Gonder reported that the NDF crew will be able to fence the dump when they are in Baker to work on the cemetery road. This should be completed, weather permitting, by the end of the month. Karen Breau suggested that a "Clean Up" day be organized to clean the area around the dump site after the fence is installed.
MOBILE MAMMOGRAPHY UNIT: Margaret Pense has received no communication from her request for information sent to Holy Cross Hospital. Julio Costello reported that the William B. Ririe Hospital in Ely now has their own mammography unit and, perhaps, this is why we haven't heard from Holy Cross.
FUND REQUEST FOR EMT TRAINING - Tonia Harvey reported that the County could not fund $1700 for training of Baker area EMTs. As a result, only one Baker area resident will become certified and it is uncertain if any current EMT will recertify. Al Hendricks reported that the Park currently has 3 certified EMTs and will have another one in January. Tonia and Bruce Freet will research EMT reciprocity between Nevada and other states.
NATIONAL PARK SERVICE GENERAL MANAGEMENT PLAN COMMENT - No further comment was heard at this time. After some discussion, JoAnne Garret made the motion that the Baker Area Citizen's Advisory Board support the proposal in the General Management Plan for a cooperative arrangement between the National Park Service and Baker for a water and sewer system. Emerson Gonder seconded the motion and it passed unanimously.
WATER AND SEWER FEASIBILITY STUDY COMMENT - JoAnne Garrett

RESPONSES

COMMENTS

RESPONSES

pointed out that the Water and Sewer Feasibility Study does not directly address cooperation between Baker and the National Park Service, nor does the Study consider impacts on the town of Baker. Emerson Gonder made the motion that the Baker Area Citizen's Advisory Board support the Baker Water and Sewer General Improvement District in their efforts to cooperate with the National Park Service in a joint effort to obtain a water and sewer system for the community of Baker and the SNO subdivision. Bill Coffman seconded the motion and it passed unanimously.

NEW BUSINESS
There was no new business.

PUBLIC COMMENT
There was no public comment.

ADJOURNMENT
There being no further business brought before the Baker Area Citizens Advisory Board, the meeting was adjourned at 7:55PM.

Respectfully submitted,

Margaret Pense, Secretary BACAB

THE DECEMBER 19, 1991, REGULAR MONTHLY MEETING OF THE BAKER AREA CITIZEN'S ADVISORY BOARD IS CANCELLED.

THE NEXT REGULAR MONTHLY MEETING OF THE BAKER AREA CITIZEN'S ADVISORY BOARD WILL BE THURSDAY, JANUARY 16, 1992, AT 7:00PM AT THE SENIOR CENTER IN BAKER.

COMMENTS

MOBILE MAMMOGRAPHY UNIT: Margaret Pense reported that no response had been received from Holy Cross Hospital. She will contact them again.

NEW BUSINESS:

FUND REQUEST FOR EMT TRAINING: Tonia Harvey reported that two Snake Valley residents are interested in taking the EMT training in Ely next January. The course will be held for 12 weeks on Friday night, Saturday and Sunday. Two local EMTs will need to take a weekend refresher course. The Board discussed asking the County Commissioners for mileage and a per diem to defray motel costs for those taking EMT training. Bill Coffman made the motion that the Board request mileage for one vehicle and a per diem for motel costs for Snake Valley residents taking the EMT training in Ely. Margaret Pense seconded the motion and it passed unanimously. Any Snake Valley resident interested in taking the EMT training should contact Tonia Harvey as soon as possible for more information.

NATIONAL PARK SERVICE GENERAL MANAGEMENT PLAN COMMENT: Many local residents voiced their concerns regarding the GMP. Among the issues most commented on were: opposition to the proposed road closure to Mt. Washington at the Park Service boundary, support for locating the new Visitor Center in Baker as an alternative to placing it on Baker Ridge, support for paving the Baker Creek Road, opposition to any additional asphalt (new parking lots, roads, etc.), concern about the Park Service's ability to revegetate disturbed areas as exampled by the "meadow" below the present Visitor Center, support for a new campground, support for "group sites", concern about limiting winter access on paved roads, support for improved seasonal housing, concern that the new proposed entrance road would hinder local businesses because of the distance required to return to Baker, support for locating both the Visitor Center and Administration offices in Baker and support for environmental education opportunities. After much discussion and an excellent "~~Alternative Proposal~~" presentation by Marcia Sanderson, the Board decided to hear public comment again at their next meeting.

WATER AND SEWER FEASIBILITY STUDY COMMENT: The major concern is the study does not address ways in which the National Park Service and the community of Baker can cooperate to the mutual benefit of both. Without a water and sewer system, the community of Baker cannot supply the tourist with services and alternatives not found on the Park: for example, an RV park with complete hookups....at an elevation more tolerable for those who have difficulty breathing at higher elevations; additional motel ~~facilities for the visitor who is not camping, showers and~~ laundry facilities, etc. Affordable alternatives must be found if Baker is to participate in a water and sewer system. The Baker Water and Sewer G.I.D. Board will explore these alternatives.

RESPONSES

COMMENTS

RESPONSES

Board of County Commissioners of Lincoln County, Nevada

COUNTY COMMISSIONERS
ED WRIGHT
LENARD SMITH
KEITH WHIPPLE

P.O. BOX 90, PIOCHE, NEVADA 89043
TELEPHONE 962-5390

DISTRICT ATTORNEY
JAMES L. WADSWORTH

COUNTY CLERK
CORRINE WALKER

December 23, 1991

Great Basin National Park
Baker, Nevada 89311

Dear Superintendent:

As a resident of Lincoln County and as a Lincoln County Commissioner, I would strongly ask that you consider Alternative C Access Emphasis since it will primarily affect our area of responsibility.

The added access of the south end of the park would possibly encourage some small businesses to locate within our County. The only additional area that may be taken into consideration is the improvement of the asphalt road completely surrounding the park to the south - from Shoshone around the south to Garrison, Utah.

A large number of tourist visit Lincoln County's five (5) State Parks regularly. These tourists, already interested in outdoor recreation could be easily funneled through our County, to the Great Basin National Park. An anticipated visitor center located at Cathedral Gorge, to be completed in 1993, could also be used to entice visitors into the National Park.

1

Mining properties located below the Mt Washington Trail, which are partly owned by Lincoln County residents, have the potential to be utilized as overnight camping facilities with power and water hookups.

Please give serious consideration to the Alternative C for additional park access.

Sincerely,

Edward E. Wright,
Lincoln County Commissioner

EEW/ll

cc: Lincoln Co. Clerk

1. These areas are outside the boundaries of Great Basin National Park and thus beyond the jurisdiction of the Park Service. The Park Service believes that the improvements suggested would serve few visitors.

COMMENTS

John A. Chachas
Julio C. Costello
Bunny Hill
John S. Lampros
Frank T. Sperry

P.O. Box 1002
Ely, Nevada 89301
(702) 289-8841

White Pine County
Board of County Commissioners

December 9, 1991

Al Hendricks
Superintendent
Great Basin National Park
Baker, NV 89311

Dear Mr. Hendricks:

On behalf of the White Pine County Commissioners, I would like to thank you for the opportunity to respond to the draft General Management Plan/EIS and Feasibility Study for Water and Wastewater Service for the Great Basin National Park. The National Park represents one of the county's most significant opportunities to strengthen our economic base through increased tourism, and we are anxious to see the Management Plan put into effect. At the same time, we are concerned that all of the interests of our residents are protected and all of the impacts from the increased visitorship at the park are fully addressed.

We support those aspects of the General Management Plan which provide compatible uses of the land for grazing and mining. We also support those alternatives which will enable the National Park Service to provide sufficient camping facilities and interpretive centers throughout the park to serve the increasing number of visitors while protecting the beauty and character of the Mt. Wheeler area.

1 The County Commission has a critical concern with the discussion regarding the impacts of the park on the community of Baker. It is the County Commission's responsibility to ensure that the basic health and safety needs of the residents of Baker are met and that we work to improve the quality of life in that community. We are especially concerned to see that the General Management Plan adequately addresses and suggests mitigation for the impacts the Great Basin National Park will have on Baker and that alternatives are selected which will allow Baker to take advantage of the opportunities for economic development as a result of the park. Central to all of these concerns is the discussion on a water or water and waste water system for Baker.

RESPONSES

1. See response 3 to the Nevada Department of Administration (p. 236).

COMMENTS

RESPONSES

Baker currently operates on individual well and septic systems. Without water and sewer services, the community cannot support the proposed administrative center and housing for the National Park Service nor can it support any commercial development including accommodations such as motels and RV parks for visitors to the park. The economic growth of the Baker business district so that it can provide goods and services needed by community residents (including Park Service personnel) and to accommodate visitors is beneficial to both the park service and the community of Baker.

I would like to outline some of the charateristics of Baker, some of the information we have collected regarding the possibility of a Baker Water and Sewer system, and our concerns with the Draft General Management Plan and Feasibility Study.

1. The Baker Township is a community of approximately 75 households representing a little over 200 people. The town of Baker represents approximately half of that population. According to the Census, about 84 percent of those households are low and moderate income.

2. Baker represents approximately $100,000 in assessed valuation and under our tax rates generates a little over $2,000 in taxes per year.

3. White Pine County is facing a critical budget shortage which may result in laying off county personnel before the end of the fiscal year. It has just been denied permission to go to short term financing to refinance at loan at lower interest rate because the state's Department of Taxation is so concerned about its ability to repay the loan. And, according to the information being received from the Department of Taxation, it is unlikely that this situation will change in the next two years.

4. Over the past ten years, the county, the General Improvement Districts within the county, and the City of Ely have worked closely with agencies that fund water and sewer projects because the county has renovated the Ruth and McGill water systems and McGill Sewer system, the City has been working to expand its sewage treatment facility, and we have been looking ahead to the needs in Baker. We have researched the funding available through these agencies thoroughly. We have worked closely with the HUD Community Services Program since 1984. The allotment for all of the rural counties and cities in the state is a little over $1 million per year. In general, the largest award to any individual entity is $100,000 per year. The Environmental Protection Agency grant program for water and waste water projects ended in 1990 and has

COMMENTS

been replaced with a revolving loan fund. We have been discussing the possibility of applying for a loan/grant project through FmHA with our sub-state office since the park was designated in 1986. This project is larger than Nevada's entire annual allotment and well above the level of funding usually received through the national pooling at the end of the year. In addition, because the income level is so low in the community, FmHA would hold the monthly water and sewer fees to approximately $20 which is too low to cover the costs of operation and maintenance let alone debt service. The new state program to provide grants and loans for small communities' water projects is for renovation rather than building entirely new systems.

2

We are concerned in reading both the Feasibility Study and the General Management Plan, that there is not a consistent and comprehensive discussion of the realistic funding potential either locally or through grants.

The Draft General Management Plan makes several references to the system being funded through state and federal sources. The National Park Service should be aware that although there are state and federal funds available they are extremely limited and could not possibly cover the costs of the systems needed.

3

We are concerned that the Feasibility Study does not clearly identify the potential costs of bringing the full water and sewer systems to Baker solely for the 80 acre administrative site if there is no participation anticipated for the community of Baker or the School of the Natural Order. The Feasilibity Study does not make it clear whether the use factors include the use in the community of Baker which can be attributed to park visitorship.

We feel strongly that the cost sharing formulas should be revised in the following ways:

1. The National Park Service should work with White Pine County and the community of Baker to derive accurate population figures and projections.

2. The use in Baker that can be attributed to park visitorship should be allocated to the National Park Services' share of the costs.

3. The cost sharing formula should base the portion of the cost assigned to the National Park Service on the cost of bringing the systems to the 80 acre administrative site. The costs for the community of Baker should include those costs attributable to expanding the systems' capacities to accommodate the

RESPONSES

2. See response 3 to the Nevada Department of Commerce (p. 239).

3. See response 3 to the Nevada Department of Commerce.

COMMENTS

RESPONSES

community of Baker and the costs of extending the lines within Baker. Once that formula is established it should be used to determine both costs of constructing the system but operations and maintenance as well.

In summary, the County Commission is very concerned that the General Management Plan and Feasibility Study adequately address the following points:

1. The community of Baker is extremely small and low income in character. It does not have the resources nor the capacity to generate resources needed to finance the system or to withstand the full cost of operation and maintenance.

2. The county is in no position to assist Baker in financing the project and the county's financial situation is not likely the change in the near future.

3. The loan and grant sources available to the county and the Baker GID are not in a position to fund a project the size of Baker's water and sewer needs as outlined in the Feasibility Study. However, several of those funding sources have indicated a willingness to participate on a smaller level and they should be included in the negotiation process.

4. The General Management Plan and the Feasibility Study should fully address the impacts of the park on Baker and mitigation strategies. The cost sharing formula should be based on up to date and accurate population figures and projections which include only the area to be served by the system. The impact of park visitation on the community of Baker should be attributed to the park services' share of the cost. And, the cost sharing formula should not be divided between Baker and the National Park Service based on population, households, or use attributed to each. The cost of bringing the system to the administrative center should be considered as a basic cost for the park service, and the cost attributed to Baker should be the additional cost of expanding capacity and extending the lines throughout the community.

In re-evaluating the cost sharing formula, it should be recognized that Baker's ability to expand its business community to accommodate the needs of park personnel and visitors is mutually beneficial to the residents of Baker and to the Park Service. The costs of the systems to allow this expansion should be undertaken as a means to mitigate the impacts of the park on the community and to improve the park's ability to meet the needs of its personnel and visitors.

COMMENTS

RESPONSES

The White Pine County Commission will be happy to continue to work with the Park Service in re-evaluating the needs, costs, and ability to finance water and sewer services to the community of Baker. In so doing, it is fully supportive of the General Improvement District and its efforts to review the Feasibility Study in full detail before making a recommendation for the specific alternative to be selected and to work through Senator Harry Reid's office to secure funding that is not available through other sources.

Thank you for the opportunity to comment on the Draft General Management Plan and the Feasibility Study for Water and Waste water service. We are looking forward to working with your staff to revise the sections pertaining to potential financing of Baker water and sewer systems.

Sincerely,

John A. Chachas

John A. Chachas,
Vice Chairman

cc: Senator Richard M. Bryan
Seantor Harry Reid
Congresswoman Barbara Vucanovich

COMMENTS

Albert J. Hendricks, Superintendent
Great Basin National Park
Baker, Nevada 89311

Re: Draft GMP and EIS

Dear Mr. Hendricks,

The Board and staff of Citizen Alert, at our quarterly meeting in November, discussed the Draft EIS and General Management Plan for Great Basin National Park. We are grateful for the generous commentary period, which allowed us to review the document at length and, through conferences, develop our response to the Proposed Action.

As you know, Citizen Alert is allied with Great Basin National Park in many specific concerns--military overflights, the Thousand Springs Power Plant, the Southwest Intertie Project, the Las Vegas water grab, Lincoln County toxic waste incinerator, and hazardous waste transportation, to name some of the most pressing problems. Our 2100 members look to Citizen Alert for research and information on both environmental and social issues affecting Nevada lands, Nevadans, and their communities.

While the Draft GMP/EIS embodies an immense amount of careful thought and reflects the experience and expertise of its planners, in our opinion its comprehensiveness threatens its focus. Specifically, at Great Basin the National Park Service has a singular opportunity to address at least some of the issues that arise repeatedly in the frequent discussions of the plight of our National Parks.

1 One of these areas is the inherent symbiosis between the Park and adjacent communities. We commend the GMP's recognition of the possibility of cooperating with the town of Baker on development of a water and sewer system to serve both entities. We feel, however, that the real impacts on the town need to be acknowledged, and that the Draft document should set forth concrete plans for mitigation, which would include realistic funding mechanisms for this essential infrastructure.

2 A critical impact of the Proposed Action on the community of Baker that is entirely overlooked by the Draft is the possible effect of the new entrance road on the fragile local businesses. None of these is more than a marginal operation, yet most are absolutely necessary to visitors to this remote place, as well as to the health and vitality of the community (which, of course, includes Park personnel and their families).

Considering that along Highway 487 in the vicinity of the proposed new entrance road there is commercially zoned property whose owner publicly expresses his interest in capitalizing on this fact, the Draft should address this contingency.

RESPONSES

1. See response 3 to the Nevada Division of State Lands (p. 254).

2. The draft plans/EIS discusses anticipated impacts on commercial interests in Baker on page 160 under "Impacts on Residents and Private Property Owners."

COMMENTS

3 Certainly whatever services were offered at that junction two miles down the road would siphon off business from the town of Baker. Such fragmentation of a delicate rural economy should be weighed carefully against other possible options.

Locating the new Visitor Center on the 80-acre site adjacent to Baker, as suggested in Alternative B of the Draft, would seem to be an elegant solution to the problem of impacts on both Park and community, and would offer much to the visitor as well. Diffusion of traffic to various sections of the Park, so as to relieve pressure on Lehman Caves, could best be accomplished from that vantage point. The weary traveler would be introduced to the Great Basin and oriented to the Park before ascending the five-mile hill. The opportunity to formulate plans and to replenish supplies ahead of entering the Park would avert much of the disgruntlement that is presently experienced by those who have to backtrack for ice, food and gasoline, as well as for other roads into the Park. It should also materially reduce the auto emissions that surely threaten the ecosystem, even at Great Basin Park.

Furthermore, the Visitor Center in the valley would be far more cost-effective, not only through lower construction costs, but because it could readily be kept open all year round and its interpretive facilities employed more fully.

Most important, however, is the quality of regard for the Park itself that would be demonstrated loud and clear by refraining from more development therein. We at Citizen Alert rejoiced at the establishment of Nevada's National Park, and welcomed the prospect of cooperating with NPS in the ongoing struggle to conserve Nevada's lands. We appreciate the Park Service for its flexibility in developiong creative approaches to the important tasks of preservation and education. We respect your own reputation as an ardent environmentalist, and urge you toward bold departures in your stewardship of Great Basin National Park.

Sincerely,

Bob Fulkerson

Bob Fulkerson
Executive Director
Citizen Alert

P.O. Box 5391
Reno, Nevada 89513

cc: Senator Harry Reid
Senator Richard Bryan
NPS, Western Regional Office

RESPONSES

3. The plan includes no proposals for businesses at the junction of Nevada 487 and the new entrance road. In fact, because the area around this intersection is entirely public land and the Park Service would seek a right-of-way to further protect it, the plan would ensure that development would not occur at the junction.

COMMENTS

International Llama Association

PO Box 37505, Denver, Colorado 80237 • (303) 756-9004 • FAX (303) 756-8794

ADMINISTRATIVE OFFICE

SANDY CHAPMAN
General Manager
2755 S. Locust Street
Suite 114
Denver, CO 80222
P.O. Box 37505
Denver, CO 80237
(303) 756-9004
FAX (303) 756-8794

BOARD OF DIRECTORS

JEANNETTE PRIEBE
President
1795 McCowan's Ferry Road
Versailles, KY 40383
(606) 873-0615
FAX (606) 873-0615

CUTLER UMBACH
Vice President
Box 172
McCall, ID 83638
(208) 634-5618
FAX (208) 634-3009

RONALD LAFERRIERE
Secretary
2654 Johnson Street
Manc, MI 49435
(616) 677-3309
FAX (616) 677-3309

JACK MOORE
Treasurer
5309 Stagecoach Road
Somerset, OH 43783
(614) 743-1022
FAX (614) 743-1092

DONALD CHRIST
250 Park Avenue
New York, NY 10177
(212) 558-3927
FAX (212)490-3369

BOB FROST
300 Twin Ponds Lane
Lincoln, CA 95648
(916) 645-7507

TONI LANDIS
69220 Goodrich Road
Sisters, OR 97759
(503) 548-6153

DALE MORRIS
P.O. Box 848
Florissant, CO 80816
(719) 748-3580
FAX (719) 748-3590

JOHN NORTHEY
6270 Hickory Road
Helena, MT 59601
(406) 442-2666

December 17, 1991

Al Hendricks, Superintendent
Great Basin National Park
Baker, NV 89311

Dear Superintendent Hendricks:

The International Llama Association would like to submit the following comments in response to your Draft General Management Plan for Great Basin National Park.

The International Llama Association, representing over 1900 llama owners, is dedicated to advancing the well-being of llamas and the interests of llama enthusiasts. Recreational use of llamas as pack animals has increased dramatically over the last decade. In addition, llamas are being used in National Parks and National Forests across the country for trail maintenance and other tasks. Llamas serve as the pack animal of choice in situations that call for minimal environmental impact, surefootedness, and ease of handling.

At this time your Draft General Management Plan does not address llama use in the park. We feel that this is a substantial omission and would like to formally request that llama use be given consideration in the final plan. Furthermore, we feel that it is important to address llama use separately from other pack stock such as horses, mules and burros.

1

In addressing llama use separately from that of other pack stock we would strongly urge you to consider allowing pack llamas on trails that you choose to close to horses and mules. Llamas do not have the same impacts on trails, campsites and vegetation as more traditional pack stock, and they generally create less disturbance than the hikers leading them. We request that you examine your rationale for restricting horses from your hiking trails and, before closing them to llama use, verify that this rationale would be equally applicable to llamas.

RESPONSES

1. The amount of llama use is anticipated to be very low; therefore, it is not treated separately from horse use in the GMP. All pack animal use is regulated by the Code of Federal Regulation and the superintendent's compendium. The compendium allows llama use in Great Basin National Park.

COMMENTS

RESPONSES

I would like to make one point concerning a common misconception about llamas and horses/mules. The opinion is often voiced that the two are incompatible on trails. I know this to be absolutely false. I would not argue that a horse that has not seen a llama may react in the same way that it would react to its first experience meeting a bear, a bicycle or a backpacker. I have personally operated a commercial llama packing business for seven summers in the wilderness areas of Washington and Oregon. Over this time I have led llamas over hundreds of miles of trail each summer and encountered hundreds of horses. Never has a pack string "blown up" or a rider been injured from our encounters. The vast majority of horses that I've met have given us their brief attention and continued on their way. There is little to no credence to claims of horse and llama incompatibility.

The International Llama Association would like to work with you to help you make educated and informed llama use management decisions. The enclosed brochure, *The Impacts of Llamas as Hiking Companions*, includes concise information on the different aspects of this issue. We hope you will use it to determine how best to manage use in your park, giving the llama consideration on its own merits. If you should require further documentation or information on any aspect of llamas and their use as pack animals, please let us know.

Sincerely,

Stanlynn Daugherty
Chairperson, ILA Packing Committee

enclosure

cc: Vikki & Danny Riddle

COMMENTS

RESPONSES

DECEMBER 28, 1991
30 M STREET #6
SALT LAKE CITY, UT 84103

SUPERINTENDENT
GREAT BASIN NATIONAL PARK
BAKER, NV 89311

SUBJECT: DRAFT-GENERAL MANAGEMENT PLAN & EIS COMMENTS

DEAR SIR:

THE GREAT SALT LAKE CHAPTER, NATIONAL AUDUBON SOCIETY, HAS REVIEWED THE DRAFT & OFFERS THE FOLLOWING COMMENTS:

SINCE THE GREAT BASIN NATIONAL PARK(GBNP) CONTAINS A WEALTH OF FLORA & FAUNA AS A "DESERT ISLAND ECOSYSTEM" WITHIN THE GREAT BASIN, ITS NATURAL RESOURCES SHOULD BE AFFORDED MAXIMUM MANAGEMENT PROTECTION.

OF CONCERN TO US, SINCE OUR MEMBERS BOTH USE & ENJOY THE GBNP, IS THE PAST & EXISTING IMPACTS TO THE BIODIVERSITY OF NATIVE FLORA & FAUNA FROM LIVESTOCK GRAZING & MINING. ALTERNATIVE 'B' WOULD AFFORD THE PROTECTION NECESSARY TO MAINTAIN, ENHANCE &/OR RECOVER THESE RESOURCES. STREAM-RIPARIAN ECOSYSTEMS, ESPECIALLY THOSE OF THE BONNEVILLE CUTTHROAT TROUT & FUTURE INTRODUCTION AREAS NEED TO BE PROTECTED TO ASSURE SPECIES RECOVERY & OVERALL ECOSYSTEM BIODIVERSITY. CESSATION OF GRAZING IN THESE AREAS NEEDS TO BE IMPLEMENTED AS THESE FRAGILE SYSTEMS CANNOT RECOVER FROM PAST USE. HABITAT IN GOOD CONDITION NEEDS TO BE PROVIDED FOR RECOVERY OF SENSITIVE OR THREATENED SPECIES, IE. TROUT, AS WELL AS FOR THE MAINTENANCE OF AVIAN & SMALL MAMMAL POPULATIONS.

1 WE CANNOT SEE IN THE DRAFT BUDGET ANY EARMARKED FUNDS FOR THE RIPARIAN-STREAM FENCING OR MONITORING FOR THE DIVERSE WILDLIFE THAT OCCURS NOW OR COULD OCCUR WITH YOUR MANAGEMENT. ADEQUATE MONITORING FUNDS NEED TO BE PROVIDED & IMPLEMENTED ON THE GROUND BY MANAGEMENT. YOU ALSO FAIL TO INCLUDE BOTH A FISHERIES AND A WILDLIFE BIOLOGIST AND A BOTONIST ON THE PROPOSED PERMANENT STAFF. YET YOU LIST A RANGE CONSERVATIONIST UNDER EACH ALTERNATIVE. RESOURCES IN GBNP & YOUR MANAGEMENT DIRECTION DICTATE THE NEED FOR THESE 2 ADDITIONAL POSITIONS AT LEAST, AS A PRIORITY BEFORE THE RANGE POSITION.

WE HOPE YOUR MANAGEMENT WILL BE GEARED TOWARD THE PROTECTION, MAINTENANCE, & ENHANCEMENT OF THE FRAGILE DESERT-BASIN ECOSYSTEM AND ITS NATIVE AND DEPENDENT FLORA AND FAUNA. WE APPRECIATED THE OPPORTUNITY TO COMMENT ON THIS DRAFT. PLEASE KEEP US INFORMED ON YOUR DECISIONS AS WELL AS ANY OPPORTUNITY TO PROVIDE FURTHER COMMENT ON MANAGEMENT PLANS FOR THE GBNP.

SINCERELY,

Connie Bullis

CONNIE BULLIS, CHAIRPERSON, CONSERVATION COMMITTEE
GREAT SALT LAKE CHAPTER NAS

1. The plan only provides a budget for major developments, not for ongoing resource management actions such as fencing and monitoring. The Park Service concluded that a wildlife biologist, fisheries biologist, and botanist were not justified based upon the size and complexity of the park and the availability of regional scientific staff from cooperative park studies units at several regional universities. A range conservationist is required because this area of expertise is not commonly found in NPS regional offices and is needed in the park on a daily basis.

COMMENTS

The National Outdoor Leadership School
P.O. Box AA, Lander, Wyoming 82520
307-332-6973

Jim Ratz
Executive Director

28 December 1991

Al Hendricks
Superintendent
Great Basin National Park
Baker, NV 89311

Dear Mr. Hendricks:

I am writing to comment on Great Basin National Park's Draft General Management Plan/Development Concept Plans/Environmental Impact Statement.

NOLS is a non-profit educational institution with considerable experience in Great Basin National Park and other caving areas on federal lands in the West.[1] The primary goal of all NOLS courses is to provide safe outdoor educational opportunities in remote settings and to do so with minimal impact on the environment. NOLS ran two-week caving sections in GBNP as part of our semester program from the fall of 1984 through the fall of 1990. NOLS had approximately 880 user days in the Park during that seven year period. All of our caving programs at Great Basin and elsewhere focus on cave conservation and management, horizontal and vertical caving skills, natural sciences, and underground safety.[2]

Specific comments on the Draft Document include:

1) On page 72 in the Cultural Resource Management Section of the Proposed Action, the preparation of a cave management plan is mentioned. Many aspects of all of the development options will have

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[1] NOLS operates on a Memorandum of Understanding in Wind Cave NP and Jewel Cave NM. NOLS also caves in Bighorn Canyon NRA, Lincoln and Black Hills NF, and on the Worland and Carlsbad Districts of the BLM. Permits are pending with Carlsbad National Park.

[2] NOLS was a cosponsor of the 1991 ACCA Cave Management Symposium in Bowling Green Kentucky.

RESPONSES

1. On page 28, the draft plans/EIS and final plans/EIS indicate that where facilities are proposed on limestone or on alluvial deposits overlying limestone, the underlying areas would be thoroughly investigated for the presence of caverns before initiating construction. The Park Service does not believe that a cave management plan must be completed before any construction.

COMMENTS

RESPONSES

potential for impacting known or unknown caves within the Park; therefore we feel that a specific timetable and outline for the cave management plan should be adopted so that cave inventories and data can be evaluated prior to any development within the Park. Wind Cave National Park in South Dakota has an excellent example of this inventory and documentation strategy.[3] It would seem that the prudent course for land managers would require thorough knowledge of the resources before the major infrastructure changes outlined in the Draft document are approved. Wind Cave National Park has had all too ample experience with changing surface features which changed the underground environment in ways that the Park Service is still trying to quantify and mitigate.[4]

2) On page 33 in the Management Zoning Concept Section, Outstanding Natural Features are discussed. It is our feeling that the identified cave resources and those areas which have a great likelihood of cave occurrence should not only be identified as outstanding features, but should be included as a subset of the zoning process.[5] Given the Park's mandate to protect "geologic features" as stated in Public Law 99-565 and the 1916 Organic Act, and given the extreme fragility of underground environments, zoning these areas in a somewhat restrictive (in a developmental sense) manner will maximize the protection afforded the caverns and cave-rich areas. It would seem that zones categorizing only surface features ignores some of the reasons for which the Park was originally created.

3) On pages 155, 170, 177, and 187 of the Draft Document, the statement that underground impacts that occur in the Proposed Action and Alternatives will not "be on a regional or national scale" appears. Without cave inventories and data gathering, we question whether this determination can be accurately made. The Ely Nevada District of the Bureau of Land Management, which surrounds GBNP, has identified specific inventory guidelines in an effort to evaluate their caves in the region.[6] As a school familiar with over 50 caves in five western states, we

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[3] Statement for Management: Wind Cave National Park (U.S. Department of the Interior, National Park Service, January 1989), pp. 7, 21, 28, 33, 40, 43.

[4] Ibid., p. 27.

[5] Cave Management Plan for the Ely District, (Ely, Nevada: U.S. Department of the Interior, Bureau of Land Management, March 1986), p. 6.

[6] Ibid., pp. 19-22.

COMMENTS

RESPONSES

believe that many caves within Great Basin Park are potentially significant.[7] In the absence of a clear definition of "significance" in the Federal Cave Resources Protection Act of 1988, it seems that a cave management plan for the park is a conservative requisite first step before any of the proposed developments commence.

4) Although we feel that all proposed actions require a complete cave management plan before their adoption to maximize the protection of the underground resource, many aspects of Alternative B will have a positive effect on Great Basin National Park and the Baker area. Removal of the current visitor center and housing and the relocation of administration facilities to the town of Baker will enhance the remote character of the Park and will help to integrate the NPS with the local community. Reestablishing the Bonneville Trout and potential elk herds, and limiting grazing in the most fragile areas of the Park are impressive and appropriate actions. Acquisition of the "keyhole" lands will also improve the wildlife habitat on the west side of the Park and aid geographically coherent management. We support actions that will continue to encourage the unique, rural, and even wild character of Great Basin National Park. The great basin physiographic region is remote and filled with opportunities for scenery and solitude. It is fitting that Great Basin National Park be managed and developed to reflect and represent the uniqueness of the region.

Thank you for the opportunity to respond to your planning efforts. As an experienced and concerned user of Great Basin National Park, and as an educational entity, we hope that documents detailing the issues and programs from other Parks and caving regions will be referenced to help increase the efficiency and effectiveness of this plan. We look forward to adding our professional perspective to the planning process in the future.

Sincerely,

RICH BRAME

Richard A. Brame
NOLS Caving Coordinator

cc Ron Kerbo

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7 e.g. Little Muddy Cave, Snake Creek Cave, the Halidays-Deep Cave System.

COMMENTS

RESPONSES

RUSSELL D. BUTCHER
Southwest & California Representative

December 24, 1991

RE GREAT BASIN NATIONAL PARK
DRAFT GMP/DCP/EIS

Superintendent Al Hendricks
Great Basin National Park
Baker, Nevada 89311

Dear Al:

National Parks and Conservation Association, a 285,000-member nonprofit organization, founded in 1919 to promote the protection, enhancement, and public understanding of the National Park System, appreciates the opportunity to offer comments on the draft General Management Plan/Development Concept Plans/Environmental Impact Statement for Great Basin National Park.

We would first like to commend the National Park Service and all those who helped produce this important document for a generally excellent job of presenting a complex subject in a clear, logical manner and of articulating issues and concerns affecting the welfare of this new national park.

The following are our views and suggestions regarding some of the specific elements of the GMP's Proposed Action and other aspects of the document:

(1) We favor a new, park-wide Visitor Center; and we support strongly the proposal to place this new facility within Great Basin National Park itself. Of the several alternatives, we favor locating the structure on Baker Ridge, as is suggested in the Proposed Action. Our support stems directly from an on-the-ground viewing of the site, a site that seems ideal from the standpoint of interpretation/education. From this location there are excellent panoramas eastward of Basin-and-Range topography, and westward into the park's Wheeler Peak area. An already disturbed gravel pit expanse in a shallow basin behind Baker Ridge provides an ideal space for Visitor Center parking.

We urge several points concerning the Visitor Center:

(a) that the building not be situated right on top of the ridge, but rather that it be positioned slightly

National Parks and Conservation Association
Box 67, Cottonwood, Arizona 86326
(602) 634-5758

COMMENTS

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2-NPCA re Great Basin GMP/EIS draft

off the crest of the ridge, westward, so that the structure can be somewhat 'hunkered down' while still offering the panorama eastward (we are very concerned that the structure not give the feeling of dominating the ridge);

(b) that the Visitor Center's architectural style, external materials, texture, and color be completely appropriate to and harmonious with the natural surroundings--that it have a low profile and a rustic mountain style of design, similar to some of the wonderful buildings constructed in national parks during the 1930s;

(c) that the building be environmentally sound, as indicated on page 47 of the document, through the use of natural lighting where possible, to minimize the summer's heat and maximize the winter's warmth, and to utilize recycled, nontoxic materials where possible and appropriate; that part of the building be devoted to educational space and materials for young people to better learn about the park and its wildlife, plantlife, ecological principles, etc.; and that landscaping around the building and parking area be of native species, from grasses and shrubs, to trees. Water conservation facilities should be installed in the rest room at the Visitor Center, as elsewhere in the park.

(2) We support the Proposed Action plan for a new main park-entrance road. While we do have some concerns that such a new road would to some extent disturb what is now a largely undisturbed stretch of Bureau of Land Management land (a single-track dirt road exists along some of the projected route), we nevertheless view this proposal as offering several potentially worthy benefits. For instance, the new road would certainly offer an aesthetically more pleasing and scenically more varied entrance, than does the existing nearly straight-shot road. And it would uniquely offer numerous opportunities for interpretive pull-offs, so that visitors could learn something about the park, its Basin-and-Range surroundings, habitats not within the park, and some history of the area--even before reaching the park entrance. The new road would also remove park visitor traffic from the present entrance road where it passes through a small residential community, adjacent to the park.

(3) We strongly favor the transfer of 1,280 acres of isolated Humboldt National Forest land to the park. This management change would be mutually beneficial to both the Forest Service and National Park Service.

(4) We strongly support the placement of the park's maintenance and primary administrative facilities and functions outside the park, on NPS-owned land in the community of Baker. Likewise, we strongly favor placing new NPS staff housing in Baker. In this context, we should mention our support for a

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3-NPCA re Great Basin GMP/EIS draft

closely cooperative program for establishing water and sewer systems--serving both the national park and the community of Baker. Such cooperation has been mutually beneficial elsewhere, as, for example, at Zion and its gateway town of Springdale, Utah.

(5) We continue to urge the removal of Lower Lehman Creek Campground and the restoration of that fragile riparian area, as suggested in the Proposed Action. We believe the best plan for a new campground, designed principally for RVs, is the 50-unit Lehman Flats Campground of the Proposed Action; not the 100-unit proposal under Alternative B. The latter, in our view, would overwhelm the area and cause far too much of an impact upon that part of the park--not the least of which would be the additional motor-vehicle congestion in the vicinity.

As for other camping facilities, we favor retaining the Upper Lehman Creek and Wheeler Peak campgrounds, and we strongly agree with the Proposed Action that Grey Cliffs should be removed, since it is poorly placed for human safety reasons and for its impact upon the Baker Creek riparian habitat.

We oppose, however, the Proposed Action's plan to retain the campsites that are strung out long both the Strawberry Creek and Snake Creek roads. These facilities would seem more appropriately relocated and consolidated at or near the upper end of these roads.

We are pleased to see that the Proposed Action would provide approximately the same number of campsites park-wide as exist at present (if you include the 40 "overflow sites" at Grey Cliffs): approximately 140 campsites. We are also pleased to note that the Proposed Action provides for the separation of various kinds of camping, as, for example, the RVs at Lehman Flats Campground, car- and tent-camping up at Wheeler Peak Campground, and more rustic camping elsewhere.

(6) Regarding the plan to reconfigure and expand the motor vehicle parking at the upper end of the Wheeler Peak Road, we find this issue to be an especially difficult one to adequately evaluate and comment upon, even though we are personally familiar with the area. Were it a realistically achievable alternative to provide shuttle service during the summer and early autumn ~~months, we would most definitely strongly urge the adoption of~~ this solution to the problem. Has a serious study been done to determine, for instance, the cost of two vans that could be used to run up and down the road during the peak season? Have all possible options been explored to determine just how such vehicles could be obtained for the relatively short season? We suggest, in any case, that the GMP include shuttle service as an alternative scenario--if not for immediate implementation, then at least as a virtually certain solution sometime in the future.

1

Assuming that shuttle service is unachievable in the near term, we do support very discreet reconfiguration and modest

1. During the planning process, it was determined that a shuttle bus/van operation on the Wheeler Peak road was not justified at the present time. The draft plans/EIS does indicate on page 68 (p. 70 of the final plans/EIS) that the shuttle is an option for the future and will be used if the demand exceeds the capacity of the proposed parking lots at Wheeler Peak.

COMMENTS

4-NPCA re Great Basin GMP/EIS draft

expansion of parking in this highly sensitive area. Just how much expansion may be appropriate is especially difficult to determine, however, since, to our knowledge, no authoritative "carrying capacity" or "limits of acceptable change" study has ever been carried out. How can we tell what is an appropriate number of visitors in the area, in terms of resource protection, and in terms of the quality of visitor enjoyment?

2 The Proposed Action simply calls for expansion--to accommodate 10 vehicles in one parking area and 50 vehicles, with the potential to expand upwards to 75, at another parking complex. This is being advocated, in the words of the document, "to alleviate problems associated with visitor use"; in other words, to respond to demand. What we feel is urgently needed here is a thoroughly authoritative carrying capacity study first, before committing park resources and funds to expansions that may prove to be inappropriate for the welfare of the park and for the quality of visitor experience.

Furthermore, Public Law 95-625, Sec. 604, B-3, clearly and expressly requires the National Park Service "to develop identification of and implementation commitment for visitor carrying capacities for all areas of the unit." We urge that some meaningful portion of the planning and construction moneys must be allocated to carrying capacity studies, up front in the process, before development decisions have been made. We see no evidence that this has occurred.

We also respectfully draw your attention to National Parks and Conservation Association's own widely acclaimed publication on carrying capacity, VISITOR IMPACT MANAGEMENT, Volumes 1 & 2, published in 1990. This document offers much important and useful information on this subject that is absolutely vital to the welfare of national parks and to the quality of visitor experience.

Were a modest, carrying-capacity-based expansion of parking at the upper end of the Wheeler Peak Road to be chosen, and were it to prove inadequate during the peak visitation season, we would then urge that an approach similar to that at Guadalupe Mountains National Park's McKittrick Canyon be adopted at Great Basin National Park. When the modest parking area is filled to capacity, visitors have the choice of waiting their turn to walk into the canyon or visiting elsewhere. We have heard from the National Park Service that the system of limiting the number of visitors who hike into McKittrick at any given time is working and that the visiting public has accepted the "limits-to-growth" system with virtually no complaints.

We suggest that the high country lakes, the Bristlecone pine area, and Wheeler Peak itself are all parts of a very similar place as McKittrick Canyon--in terms of the fragile nature of the area and its resources, and in terms of the uncrowded wilderness quality visitors come to experience and enjoy.

RESPONSES

2. On page 36, the draft plans/EIS and final plans/EIS indicate that the Park Service will implement a limits of acceptable change (LAC) management program to address the carrying capacity issue. The LAC system represents a reformulation of the recreational carrying capacity concept, with primary emphasis on the conditions desired in the area rather than the amount of use the area can tolerate. The LAC system requires managers to define desired conditions and to undertake actions to achieve and maintain these conditions.

COMMENTS

5-NPCA re Great Basin GMP/EIS draft

In summary on this motor vehicle parking issue, we urge that the utmost care and restraint be exercised in deciding what to do in this sensitive area; and that you come to a judgment only after a thorough carrying capacity evaluation. The values are simply too important to do anything less. Furthermore, conservative and cautious limits are cost effective, until we have a far more complete knowledge of carrying capacity needs and thresholds.

(7) We strongly support the Proposed Action's plan to manage livestock grazing more restrictively, so as to "reduce the recurring conflicts between visitors and livestock" and to reduce impairment of critically important park resources, by such methods as fencing campgrounds, excluding livestock from sensitive habitats (notably the riparian lake, stream, and spring habitats), and by providing replacement waters, as needed and as environmentally appropriate, as suggested under the Proposed Action. We also support the proposal to prohibit grazing within Research Natural Areas to protect sensitive alpine species of plantlife. In this context, we urge the expansion of Research Natural Areas to other habitats, including ones at a variety of lower elevations in the South Snake Range, and that these likewise be off limits to grazing.

While it was unfortunate that the park's enabling legislation, Public Law 99-565, provided for livestock grazing potentially in perpetuity--a new and dangerous precedent for a National Park, we urge that the National Park Service pursue as aggressively as possible any and all opportunities to exchange out the permittees; to negotiate wherever possible with the affected ranchers, with the Bureau of Land Management, and with the Forest Service. As the saying goes, "no stone should be left unturned" to ultimately achieve for Great Basin what is appropriate for all National Parks and Monuments.

3 (8) Regarding Research Natural Areas, we suggest that further study be made of worthy parts of the park--especially the semi-primitive zones. As mentioned above, why shouldn't such areas include a wide variety of habitats at various elevations.

(9) We favor upgrading and prudently expanding the park's trail system. In this regard, we urge that the NPS reach out and seek qualified volunteers who might assist with trail maintenance work under NPS supervision, as occurs at other national parks.

4 (10) Regarding the planned new spur road to the Lehman Caves visitor center, we have strong reservations over this element of the Proposed Action. We suggest that further serious study be done of access that would be less impairing of the landscape and natural vegetation. Is a spur in the present road's location all that undesirable? It has never seemed so to us, as it seems to serve perfectly well.

(11) Concerning the Snake Creek spur road, we urge adoption

RESPONSES

3. Comment noted.

4. The rationale for removing the existing access road and building a new spur road to Lehman Cave is included on pages 51-56 of the draft plans/EIS and final plans/EIS.

COMMENTS

RESPONSES

6-NPCA re Great Basin GMP/EIS draft

of Alternative B, whereby the present road all the way in to the Johnson Lake Trailhead would be pulled back some three to four miles eastward, with that stretch of road being converted to a hiking trail. While the existing road admittedly provides a beautiful drive, we believe the route would offer an even better hike. This option would be better, as well, in terms of providing enhanced protection to that part of the park and its resources.

(12) Concerning the Lexington Arch spur road, we favor Alternative B, by which the present road would be pulled back to about a mile east of the park boundary. This would truly "protect" the Lexington Arch vicinity far better than providing for motor vehicle access right into the proximity of this major scenic attraction of the park. This is a great opportunity for keeping the disturbance of vehicular access out of a sensitive area, so that visitors may enjoy the peaceful ambience of this special place.

(13) We emphatically oppose Alternative C's proposal to provide for public motor vehicular access up to the summit of Mt. Washington. This major summit in the southern part of the park should be accessible only by wilderness-compatible means. Furthermore, the mountaintop contains a significant area of Bristlecone pines. Limiting access into this area will help protect this irreplaceable resource.

(14) As a major priority of the GMP, the Proposed Action's provision regarding mining and mineral claims is most important. We strongly urge onward the validity examination process on all the unpatented claims within the park; and the acquisition of any and all such claims whenever possible.

We also strongly support the ultimate expansion of Great Basin National Park on part of Mt. Washington, to bring park protection to patented claims that were deliberately left out of the park in the enabling legislation. Development of this patented claim area poses the potential for enormous harm--directly upon the natural values on those claims, including ancient Bristlecone pines; and indirectly upon adjacent park land and values. Unpatented claims within this same 1,850-acre "keyhole" area should also be examined for validity and acquired. Regarding this "keyhole" issue, we strongly favor Alternative B.

(15) We favor the Proposed Action's plan to pave the heavily used Baker Creek spur road, primarily as the way to keep down the clouds of dust during dry periods.

(16) Regarding wildlife issues: we support re-establishment of the Bonneville cut-throat trout to appropriate streams in the park; we support active protection and establishment of a viable herd of the native elk; and we urge protection of the bighorn sheep, as best as possible, given the tragic circumstances of the impacts of domestic sheep. The Proposed Action should expressly support long-term maintenance of a native herd of the bighorns, as circumstances permit.

COMMENTS

RESPONSES

7-NPCA re Great Basin GMP/EIS draft

(17) We commend the National Park Service in this document for discussing (pages 75 and 77) the important topic of ecosystem management and viewshed protection. We are pleased that computer-generated graphic analysis has already begun, to identify lands outside the park that are visible from critical viewing places within the park. We support the position that the NPS would "review, evaluate, and make recommendations to local governments concerning all proposals for major developments or activities that might affect the visual integrity of Spring Valley or Snake Valley." This is outstanding. We would suggest adding sounds that could impact the park and its visitors, as for example, an ORV or OHV "play area," as was recently proposed not far from the boundary of Joshua Tree National Monument.

(18) Concerning the small food concession in the Lehman Caves Visitor Center building, we realize from personal experience how handy that small facility can be. Its small scale is part of the appeal. Yet, until we see the Design Concept Plan for the Lehman Cave entrance/visitor center area, we are withholding an opinion on what the future of this concession operation ought to be. Were there to be a proposal to expand the food operation, we would then be likely to favor closing the operation and letting the community of Baker provide food services.

We greatly appreciate this chance to offer National Parks and Conservation Association's comments and suggestions on the draft GMP/EIS for Great Basin National Park. Please let us know if we can be of further help. We welcome participation in future planning and construction review opportunities.

With ~~best~~ regards,

Russell D. Butcher
Pacific Southwest Regional Director

cc: NPCA Headquarters

COMMENTS

The Nature Conservancy
Nevada Public Lands Program
133 North Sierra Street, Suite 204 • Reno, Nevada 89501
(702) 322-4990

13 December 1991

Mr. Al Hendricks
Great Basin National Park
Baker, NV 89311

Subject: Draft Management Plan and EIS for GBNP

Dear Mr. Hendricks:

This letter is a written follow-up to the verbal comments I expressed on behalf of The Nature Conservancy at the public hearing in Reno on 18 November 1991.

The Nature Conservancy is essentially interested in the long-term preservation of all levels (genes, species, and ecosystems) of biological diversity. Protection and conservation management of large tracts of land is arguably the best strategy of preserving important components of earth's biological diversity. Great Basin National Park was established to preserve a representative segment of the Great Basin physiographic province (Sec. 2(a) of GBNP Act of 1986). We feel that future management of GBNP should reflect this primary objective.

There are several components of Great Basin biological diversity represented at GBNP which we feel should receive conservation management goals above and beyond any other management focus. These include rare species and their habitats, and important plant communities, such as the bristlecone pine forests, the alpine/subalpine communities, riparian/wetland communities, and aquatic (lakes, streams, and springs) habitats. The proposed action in the draft plan calls for zoning 11,600+ acres as protected and research natural areas, and would allow grazing only below 10,500 feet in elevation. These are important initial steps to help protect some of the rare species habitats and diverse plant communities, but they fall short of adequate protection in light of the significance of GBNP.

1 The draft plan states in several sections that bristlecone pine forests, alpine/subalpine communities, aquatic habitats with high water quality, and rare species are important above 10,000 feet. The maps showing distributions of these biological resources (pages 20 and 22) fully support the significance of that elevation. There are many potential threats to these elements of biological diversity—the most obvious ones are trampling and grazing impacts imposed by livestock. Therefore, 10,000 feet at the very least, if not an even lower elevation for buffer, should be the lower limit of permitted cattle grazing. Where rare species are known to occur below 10,000 feet in elevation, they

The Nature Conservancy
Great Basin Field Office, P.O. Box 11486, Pioneer Station, Salt Lake City, Utah 84147-0486
National Office, 1815 North Lynn Street, Arlington, Virginia 22209

RESPONSES

1. The rationale for eliminating grazing above 10,500 feet is closely tied to zoning on which this plan is based. All areas above 10,500 feet are in the protected natural area subzone. On page 68 of the draft plans/EIS (pp. 69-70 of the final plans/EIS) a rationale is provided for establishing the protected natural area — to protect alpine species. This vegetation zone begins at about 10,500 feet. In the case of Pine and Ridge creek drainages there was a special need to exclude grazing below this elevation, and this was done to protect the entire watershed of these two streams within the boundary of the park. Although it is true that the subalpine zone (which generally occurs between 10,000 and 10,500 feet) contains fragile plant species, the degree of sensitivity is significantly less than in the alpine zone primarily because of the subalpine zone's greater ability to recover from stress. Because of this it was determined that this zone could continue to accommodate some grazing without unacceptable ecological damage.

COMMENTS

RESPONSES

should receive protection from trampling and grazing as well. An important additional threat to the bristlecone pine forests is the taking of wood by backcountry users for campfires. A policy restricting wood fires to lower elevations, as I understand the park has already imposed, will help protect high-elevation bristlecones where several backcountry campsites are proposed.

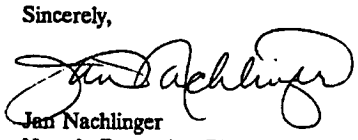
The draft plan states that the riparian/wetland communities have many well-known values, such as providing habitat for wildlife, important ecosystem functions, recreational opportunities, and aesthetic values. Therefore, park management should provide for more protection, rather than allowing the continued degradation of riparian resources from grazing practices. Only extreme reductions or complete elimination of cattle in the riparian/wetland communities will offer adequate protection of these vital resources.

The proposed action calls for less than 3 percent of GBNP's acreage for research natural area status. Further, it calls for this designation specifically for bristlecone pine research—a very worthy, but limited, objective. Certainly, GBNP has much more acreage that qualifies for research natural area status and for other research objectives. This designation, which offers opportunities for education, research, and long-term protection, rarely conflicts with other park activities if areas are wisely selected. At the very least, an additional research natural area for sensitive species research should be nominated and designated.

Finally, the draft plan states that a fire management plan is to be developed which might include allowing natural fires to burn. We encourage you to allow for this natural process to be carefully reintroduced at GBNP where life and property are not endangered. Fire is a natural regenerating process which helps to maintain a diversity of natural landscapes and subsequent biological diversity. In the absence of natural fire, or other actions that simulate the effects of fire, natural systems tend to lose diversity or change into undesired conditions.

Thank you very much for the opportunity to make these general comments on the draft management plan. We look forward to a time of judicious management and long-term protection of the natural values at GBNP.

Sincerely,



Jan Nachlinger
Nevada Protection Planner
The Nature Conservancy

COMMENTS

RESPONSES

NEVADA FARM BUREAU FEDERATION
NEVADA FARM BUREAU SERVICE COMPANY
1300 Marietta Way • Sparks • Nevada • 89431 • (702) 358-FARM

December 26, 1992

Superintendent
Great Basin National Park
Baker, NV 89311

Dear Sir:

Nevada Farm Bureau Comments To Draft General Management Plan

We are writing today to share our input and concerns as they relate to the Draft General Management Plan, Development Concept Plans and Environmental Impact Statement for the Great Basin National Park.

Our interest relates to the issues of livestock grazing and we will reserve our comments to that portion of the proposal.

Nevada Farm Bureau wishes to express its support for Alternative A/No Action as it pertains to livestock grazing.

We also wish to express our deep concern over the Proposed Action and our total opposition to Alternative B.

Throughout the draft report we read of comments which restate over and over that through the legislative process (PL 99-565) which authorized the Great Basin Park, livestock grazing is an activity which is provided for. As we read the proposed action however, we are deeply concerned that in the long run those responsible for administering this activity will through their regulatory actions make livestock grazing impossible.

Since the park came into being (and even before) there have been concerns that livestock would be driven from this area. It seems that possibility will become reality through an ever tightening noose of regulatory actions.

Nevada Farm Bureau Believes In Proper Resource Management:

Lest the attitude be developed that our organization does not support responsible resource management, we wish to stress for the record that our public policy does in fact call for proper management, especially in the primary area of concern in the Draft Proposal -- Riparian Areas.

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Page 2

Farm Bureau Policy on this subjects states:

> "The Nevada Farm Bureau recognizes the importance of healthy riparian and wetland systems. These systems are fundamental to providing the quantity and quality of water necessary to support life in an arid environment. The water on which much of Nevada agriculture depends as well as our domestic, urban and recreational water needs are directly linked to riparian zone functions of water filtering, storage and yield. Additionally, these "green zones" provide a beauty and diversity to our arid landscapes that is of importance to the wild creatures that live there and to our quality of life.
>
> Nevada Farm Bureau supports good management of agricultural and urban uses of riparian areas. Proper grazing management, well designed roads and reasonable recreation use of riparian zones are important. While we believe these and other uses of riparian areas need to be properly managed, we also believe that traditional agricultural use such as livestock grazing can be compatible with healthy riparian systems.
>
> We strongly encourage the early involvement of all affected permittees and other parties through the Coordinated Resource Management Process (CRMP), or other processes that allow for problem identification and implementation of means and methods to address riparian management challenges. These methods can include, but are not limited to, season of use grazing, planned grazing systems, alternative water sources, development of alternative forage, etc. which will provide long-term, less disruptive solutions to these improvement problems; and that fencing should only be used, where needed, as a last resort measure to encourage riparian improvement, or where exclusion fencing proves to be the most economically efficient means to meet multiple use management objectives."

In short, we believe that when efforts are made to create a working program of proper livestock grazing, riparian areas can be enhanced without the automatic exclusion of livestock grazing from these areas. Grazing, can in fact, be used as a management tool to support enhanced riparian objectives.

Draft Falls Short Of Range Management/Science Standards:

In our contacts with those responsible for administration and operation of livestock grazing we are pleased to hear about the commitment to sound range management. We believe that sound range management is a proper approach as long as this "soundness" is not offset by severe restrictions which ignore all of the options that apply to sound range management.

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1

Throughout our reading of the Draft we were amazed at the number of references to "may" and "might"...see page 10 "The present level of grazing in specific locations may be damaging vegetation beyond the point of recovery."

This type of reference and several others led us to wonder whether any type of monitoring program was in place by which to make good range management decisions.

From our inquiry we were informed of an Oregon State University project for "the mountain range" and a satellite/computer modeling program. We also learned that the specific information we believe to be critical to substantiating the levels of actions that are being proposed is not available to the public at this time.

In absence of this type of site specific background information on which the public is not able to comment, we do not believe it to be proper for a general management plan to present the type of assumptions that we see built into the draft before us.

We understand that through the Great Basin Park's system of operations, you have a consultation process that involves working in cooperation with the United States Forest Service. From this perspective we are aware of the approach used by the Forest Service relative to identification of standards and guidelines that apply to riparian management.

Throughout the state of Nevada the Forest Service approach of implementing standards and guidelines is meeting with strong opposition. When you take a top-down planning system and then force compliance to meet unworkable and unobtainable end results -- you create a no-win situation for those who have to deal with your expectations. We cannot say it strongly enough that a more proper approach would be a planning/implementation system which builds from the ground up, taking into consideration aspects of various site specific situations.

We've been informed that the process is underway to put in place Allotment Management Plans for livestock grazing. Given this situation, we urge adoption of Alternative A for livestock grazing. Upon the adoption of these Allotment Management Plans you will be able to arrive at a proper management level and structure, taking into account specific needs/opportunities that various sites offer.

We applaud the comments that we've heard which indicate the willingness and actual performance of this willingness to work with grazing permittees in developing management approaches that fit the situations that exist. Adoption of a heavy-handed plan which appears to lack the technological data to back up the proposal can only work to undercut the required cooperation needed to bring into existence a shared vision of responsible resource management.

RESPONSES

1. A general management plan is not intended to provide a detailed analysis of every issue related to natural resources and visitor use. The plan sets broad direction only. The allotment management plans will be much more specific. Nevertheless, we believe that existing data support all statements made in the draft plans/EIS. Obviously, there are some uncertainties regarding all effects of grazing in all areas of the park. The plan recognizes and qualifies statements to this effect where appropriate. However, the Park Service also recognizes that domestic livestock grazing has had adverse effects on some resources within the park. These effects are stated in the draft.

COMMENTS

RESPONSES

Page 4

Grazing Impacts Are Not Livestock Specific:

As we read of the possibility of elk in Alternative B and we learn of some elk populations already becoming established, we wonder how this will play out in a real world situation. Will livestock grazing be subjected to further restrictions because livestock can be controlled and wildlife cannot?

This isn't to say that we object to wildlife use of public lands. We strongly support multiple use of all public lands -- parks included. However, we do not think it proper to slant the playing surface in such a way that livestock use is forced out of the picture.

The same can be said of proposals to bring about a wider population distribution of the Bonneville cutthroat trout. We have no problem with the idea of providing for such a possibility as long as responsible actions are also taken to allow for proper management of livestock grazing. From our perspective, this level of "proper management" livestock grazing does not automatically exclude grazing. We fear that may be the only definition of "proper" which planners are working from.

In Summary:

We wish to repeat our contention that the proper course of action for you to take in making your decision on the General Management Plan would be adoption of Alternative A for livestock grazing.

We are deeply concerned over the prospects of having to deal with a "preferred alternative" which does not also provide the documentation which supports its conclusions. If the proposed action is based on data and assumptions that are not being circulated for comment as part of the environmental impact -- for whatever reason -- you have a seriously flawed and incomplete assessment. We don't believe it would be proper to put in place a public comment/adoption of a plan program which is built on hidden information.

As indicated throughout the Draft, livestock grazing is a part of the Great Basin Park's mandate. We strongly encourage you to avoid using bureaucratic maneuverings to accomplish other ends.

Thank you for this opportunity to respond. We look forward to continued opportunity for input.

Sincerely,

Doug Busselman

Doug Busselman,
Executive Vice President

COMMENTS

RESPONSES

Northern Nevada Native Plant Society

Rare Plant Committee

James D. Morefield, Chair
2021 Lone Mountain Drive, Apt. 31
Carson City, NV 89706
(702) 687-4245 (days)
(702) 885-1027 (eves)

19 December 1991

Mr Al Hendricks, Superintendent
Great Basin National Park
Baker, NV 89311

Dear Mr. Hendricks:

Thank you for the opportunity to speak, last November 18 in Reno, about our concerns regarding the Draft General Management Plan and Environmental Impact Statement for Great Basin National Park (GBNP). The following will further detail the concerns of the Rare Plant Committee of NNNPS.

Our concerns center around the maintenance of biological diversity within GBNP, particularly of those species that are limited in distribution and therefore vulnerable to extirpation or extinction if excessively disturbed. While the Draft Plan clearly recognizes the effects of continued livestock grazing in the Park as one of the primary threats to plant diversity, we find that the Preferred Alternative suggested by the Plan does not responsibly address these threats. Our concerns cover 3 broad areas: Rare and Sensitive Species, Riparian Zones, and Threats from Development.

RARE AND SENSITIVE SPECIES

Among the objectives listed in the Plan are the needs to:

> *Eliminate or mitigate any impacts that threaten biological resources. Protect threatened, endangered, and endemic species and restore them within their natural ranges. Manage the grazing program to minimize effects on natural processes . . .* (p. 25)

It is noted that

> *All of the plant species listed . . . are considered important in planning because of the potential for domestic livestock grazing, mining, and recreational uses in the park to affect these species and their habitats.* (p. 21)

and that

> *. . . one of the park's most notable attributes is its great diversity of biological communities.* (p. 24)

Yet,

> *The proposed action . . . focuses on diversifying visitor opportunities by expanding interpretation of significant features . . . , improving access to and within the park, constructing a new visitor*

COMMENTS

center, and offering new ways to view and appreciate the park's many resources. (p. 38)
While we do not necessarily oppose these last goals, they are not sufficient to address the other objectives and concerns above.

First, the enclosed data search from the Nevada Natural Heritage Program shows that the list of sensitive plants and animals occurring on or near Park lands has increased since the Plan was written. This reflects continued exploration and taxonomic study of Great Basin biota. The list can only be expected to grow further as rarer or more obscure species are discovered and described.

1 Of particular concern to us is discovery of the recently described Waxflower (*Jamesia tetrapetala*) within and adjacent to the Park. Waxflower is a low, spreading shrub in the hydrangea family, with solitary, white to pinkish, 4-petaled flowers. This species is known from limestone rock crevices between 6600 and 10000 feet elevation, much lower than most other sensitive plants listed in the Draft Plan (pp. 23, 136-137). Plants in lower, accessible crevices would be subject to damage from grazing by domestic livestock.

In our view, this situation only adds to the inadequacy of the Preferred Alternative in only "prohibiting grazing above 10,500 feet" (p. 115). While we commend the proposed action's protection of fragile alpine areas to maintain their biological diversity, grazing should be extended anywhere that populations of rare or sensitive species exist. Portions of Alternative B (p. 94) better address this concern.

The statement on p. 153 that "Lower elevation rare and sensitive plant species would also receive increased protection under the proposed action" using methods to "separate grazing livestock from areas with rare and sensitive plants . . ." is encouraging, but seems to contradict other statements concerning low-elevation grazing management under the preferred alternative. This statement appears to come from Alternative B rather than the Preferred Alternative.

2 Impacts to sensitive species from mining and recreational use should also be eliminated, not merely "limited" (p. 115). The Plan correctly states that "Activities on existing mining claims in the park could have major effects on rare and sensitive plant species . . ." (p. 153), but promises only that presence of such species would be "considered" in reviewing any claimant's Plan of Operations.

3 The National Park Service, like all other federal agencies, must abide by the Endangered Species Act. We recommend that no activities within the park be permitted to adversely impact rare and sensitive species or communities. Such impacts directly contradict one primary purpose of the National Park, to

. . . conserve and protect scenery, the natural, geologic, historic, and archeological resources . . . in such a manner as to perpetuate these qualities for future generations. (p. 5-7)

And in economic terms, it is much less expensive to taxpayers to prevent a species from becoming threatened with extinction, than to attempt its recovery later after it is threatened. One need only note the spotted owl, desert tortoise, or California condor as examples.

RESPONSES

1. The text has been changed, and this species has been included in table 1. This species has only recently been described, and little is known about its distribution within the park and the effects that grazing may have on it.

2. Given the distribution of sensitive plant species and the concentration of them in certain areas of the park, it is unlikely that the Park Service could ever eliminate **all** adverse effects on these plants. The process for approval of mining plans of operations is described on pages 70-71 of the draft plans/EIS (pp. 72-73 of the final plans/EIS). Any approval process for a plan of operations would seek to avoid or mitigate effects on these plants.

3. The Endangered Species Act has protective measures applicable to species listed as threatened or endangered by the U.S. Fish and Wildlife Service. At the present time and as indicated in the draft plan/EIS, the only listed species known to use the park are the bald eagle and peregrine falcon.

COMMENTS

Mr. Al Hendricks

Page 3

RIPARIAN ZONES

Our second concern involves continued impacts on riparian areas under the preferred alternative. The Draft Plan correctly states that:

> *. . . riparian areas represent a very small percentage of the park. However, these areas have great ecological significance because they support a greater quantity and diversity of species than the adjoining more arid land. The biological productivity of riparian areas is substantially higher than that of surrounding areas. . . . Many life forms in the park are dependent upon these areas.* (p. 19)
>
> *Grazing over the years has affected the composition of native vegetation, contributed to the introduction of nonnative plant species, and polluted or otherwise disturbed streams and riparian areas.* (p. 70)
>
> *The present level of grazing in specific locations may be damaging vegetation beyond the point of recovery.* (p. 10)
>
> *In areas of the park where grazing would continue [under the preferred alternative], these effects would continue into the future.* (p. 70)

Yet, under the Proposed Action,

> *In the foreseeable future, grazing would continue in the park, except in the semi-primitive day use, protected natural area, and research natural area subzones.* (p. 70)

In our opinion this Action does not address the concerns already expressed for riparian areas. The Preferred Alternative removes "development . . . from approximately 2 acres of riparian habitat" (p. 115), but does not adequately address the much greater need to eliminate impacts to riparian areas caused by livestock grazing.

Mere mitigation is not enough given the existing widespread damage to riparian areas inside and outside the Park. Grazing impacts should be eliminated from riparian areas in GBNP to permit natural reseeding and regeneration of riparian vegetation, and to insure maintenance of the quality and diversity of regenerated communities. This possibility is not precluded by the enabling legislation for GBNP, yet it is not addressed among the existing alternatives. 4

Under the Proposed Action

> *. . . the Park Service would develop and use various techniques involving fire and vegetation management to minimize grazing's adverse effects on exceptional resources such as riparian areas and rare and sensitive plant species.* (p. 70)

RESPONSES

4. The specific actions that would be used for managing grazing in riparian zones would be delineated in individual allotment management plans. This is discussed on page 70 of the draft plans/EIS (p. 72 of the final plans/EIS). It is beyond the usual scope of a general management plan to describe actions as specific as these would be. It is the Park Service's belief that better and more intensive management of riparian zone grazing should allow conditions in riverine wetlands to greatly improve.

COMMENTS

Mr. Al Hendricks — Page 4

It is unclear to us how these actions will enable "conditions in riverine wetlands" to "greatly improve" (p. 157). Please be more specific.

Because of their stated importance in the Plan, we recommend that "Riparian Communities" be added as separate subheadings throughout the Plan, where appropriate, to specifically address the management concerns associated with maintaining biological diversity and important ecosystem functions in these communities (i.e., on pp. 10-11, 72-73, 86, 94-95, 105). The existing section on pp. 19, the sections on Water Resources and Water Rights (pp. 73, 129-131), and other scattered references (i.e., p. 72, 134-135, 138-139), do not adequately address these concerns.

THREATS FROM DEVELOPMENT

5 Finally, the Preferred Alternative does not adequately address protection of biological diversity during proposed new construction within the park. Construction and development should be added as another category of potential impacts to Rare and Sensitive Plant Species (p. 152-153) and Biological Diversity (p. 154).

Generally accepted guidelines should be followed for conducting pre-construction surveys for sensitive species and communities, avoiding damage to any such resources found, and reclaiming and restoring disturbed areas. For a start, we suggest adoption of the *Guidelines for Assessing Effects of Proposed Developments on Rare and Endangered Plants and Plant Communities* of the California Department of Fish and Game, and of similar guidelines on page iii of the California Native Plant Society's inventory of rare and endangered plants.

Furthermore, to be consistent with its management objectives, the Plan should specifically state that only local native species will be used for reseeding and restoration work, and should specifically prohibit the use of non-native species, such as crested wheatgrass, for any planned or emergency re-seeding, or for any range improvement activities.

Thank you for the opportunity to comment on the Draft General Management Plan for GBNP. We look forward to publication and implementation of a greatly improved Final Plan.

Sincerely,

James D. Morefield
Chair, NNNPS Rare Plant Committee

RESPONSES

5. The Park Service does not believe that construction and development would have any appreciable effect upon sensitive species and biological diversity. On page 152 of the draft plans/EIS (p. 154 of the final plans/EIS) it is stated, "The proposed action recommends no development in alpine and subalpine areas other than limited trail and backcountry campsite improvements. . . . Limiting development in the alpine zone and subalpine areas, eliminating vehicular access, and zoning the areas to prohibit grazing would afford additional protection to these [alpine/subalpine] communities." This is reiterated on page 154 of the draft (p. 156 of the final) under the discussion of impacts on biological diversity.

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RESPONSES

Northern Nevada Native Plant Society

Rare Plant Committee

James D. Morefield, Chair
2021 Lone Mountain Drive, Apt. 31
Carson City, NV 89706
(702) 687-4245 (days)
(702) 885-1027 (eves)

20 February 1992

Mr. Al Hendricks, Superintendend
Great Basin National Park
Baker, NV 89311

Dear Mr. Hendricks:

In reference to our letter of 19 December 1991 commenting on the Draft General Management Plan and Environmental Impact Statement for Great Basin National Park (GBNP):

While reviewing a copy of the letter recently, I noticed an omission which altered the intended meaning of one sentence in our letter. We would appreciate it if you could correct this on your copies, and in any published or unpublished excerpts containing the error.

On page 2 of our letter, in the 3rd full paragraph, the sentence:

> While we commend the proposed action's protection of fragile alpine areas to maintain their biological diversity, grazing should be extended anywhere that populations of rare or sensitive species exist.

should instead read:

> While we commend the proposed action's protection of fragile alpine areas to maintain their biological diversity, protection from grazing should be extended anywhere that populations of rare or sensitive species exist.

Thank you for helping us correct this error, and our apologies for the inconvenience.

Sincerely,

James D. Morefield
Chair, NNNPS Rare Plant Committee

COMMENTS

PARTNERS IN PARKS

1855 QUARLEY PLACE • HENDERSON, NV 89014 • 702 454-5547

December 20, 1991

Superintendent
Great Basin National Park
Baker, NV 89311

Dear Al:

As promised, I have read through your draft management plan for Great Basin National Park. I did not read every word, but close enough for government work. Basically, I support the proposed action. I do have some concerns, questions, and observations.

1 Concerns: You have proposed no wilderness designation for Great Basin NP. This is unacceptable for a pristine area under the jurisdiction of the agency that took the lead in wilderness designation in the 1970's. I recognize that times have changed as well as attitudes within the National Park Service, but that is no excuse. There absolutely must be a proposal for wilderness in you GMP. There are no reasons why most of the park cannot be so designated and many reasons why it should be.

As for your grazing management plan, go with Alternative B. There should be no grazing in areas with sensitive plant species, period. I strongly encourage you to go back to the drawing board on protecting riparian areas from cattle grazing. Can't you offer more protection for these precious features and still meet grazing needs? What about stock tanks?

2 Question: Is it true that techniques exist for determining from the surface the actual location of caves? If so, that is news to me. The only way I know to do that is through holography, and I do not think the techniques exist yet. Radio location and devices that show gravity variants are not exact enough for your purposes I shouldn't think. However, I could be behind the times.

Observations: With the highest air quality in the US, Great Basin should be class I, not class II under the Clean Air Act. It should be your top priority to do whatever needs to be done to get Great Basin reclassified. Let your friends know what you plan to do about reclassification. You can count on our assistance.

The combined water and sewage treatment system for Baker and the park is a good idea. Don't let that slip away.

Thanks for showing the effectiveness of GIS through your electronically plotted route for the proposed new park entrance road. Be sure to impress upon you doubting colleagues the success of this technique.

Thanks for giving me an opportunity to comment on your proposed GMP.

Sincerely yours,

Sarah

Sarah G. Bishop
President

RESPONSES

1. It is the intention of the Park Service to complete a wilderness recommendation for Congress in the future; however, the Park Service believes that an independent study and report is the appropriate vehicle for this. The Park Service *Management Policies* (6:2) outline a two-stage process for a wilderness recommendation: 1) determining those lands that possess the characteristics and values of wilderness; and 2) studying those lands and values and conflicting uses of the same before making a wilderness recommendation to Congress. The plan has addressed the first step of this process. The lands indicated in the Wilderness Suitability map will in the future be studied and evaluated before making a wilderness recommendation.

2. Several techniques are now in use and have been proven to be effective in Mammoth and Jewel caves for locating even relatively small caverns. These involve a combination of methods involving gravity variance, seismic, active electrical, and natural potential (the mapping of voltage distributions along the surface that arise from natural d.c. currents in the ground).

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SIERRA CLUB
Northern California/Nevada
Regional Conservation Committee

720 Brookfield Drive
Reno, Nevada 89503
December 17, 1991

Al Hendricks, Superintendent
Great Basin National Park
Baker, Nevada 89311

Dear Mr. Hendricks:

The following are my comments on the Great Basin National Park Draft General Management Plan and Environmental Impact Statement. In general, I feel that a combination of many of the provisions of the proposed alternative plus some concepts and limitations from Alternative B would provide the best management for the Park. I have also added some of my own suggestions which do not seem to appear in any of the alternatives.

I particularly like the management zoning concept with its categories of modern, rural, semi-primitive day use, semi-primitive, primitive, protected natural area, and research natural area and agree, for the most part, with the boundaries for these zones as delineated in the map on Page 40. However, I fail to understand why you have ruled out (Page 18) the possibility of a wilderness recommendation for the Park. The map on Page 212 showing present wilderness suitability may have to be modified slightly to fit in with your proposed action, but formal wilderness designation has many advantages in protecting resources and preventing unfortunate development which would be a disaster in such a small park. I would urge that, if you do not include proposed wilderness designation in the final document, that you recommend strongly that such a special study document be prepared and implemented within the next five years.

The unfortunate inclusion of grazing in PL 99-565 establishing the Park is probably the main reason why managing the Park will be so difficult. As you state in the Summary (Page iii), "Resources of particular concern include the large stands of bristlecone pine, the biologically productive riparian areas, water quality in park lakes and streams, the fragile alpine and subalpine areas, all endangered, sensitive, protected, and candidate plant and animal species, the park's biological diversity..." These are the resources that are most impacted by grazing of domestic livestock, as you admit in the document. However, there may be a way to eliminate at least some of the grazing until an amended law can be passed by invoking Sec. 3(f) of the legislation stating, "At the request of the permittee or at the initiative of the Secretary, negotiations may take place at any time with holders of valid existing grazing permits on land within the park for exchange of all or part of their grazing allotments for allotments outside the park." This avenue

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of action should be pursued vigorously by the National Park Service, with meetings set up with the permittees, the Forest Service, and the BLM. Until such agreements can be worked out, grazing should be excluded from sensitive riparian areas, as well as the protected natural area and the research natural areas. Any area known to contain threatened, endangered, sensitive, or candidate plant species must be closed to grazing. Although water troughs and fencing may be necessary and certainly would be visually obtrusive, they can be easily removed when livestock grazing is eliminated.

The public must be encouraged to contact their legislators, asking for a modification of the law to eliminate or phase out grazing in the Park. While I understand that such a campaign cannot be carried out by the Park Service, data can be presented in such a way in the final document that the impact of grazing on the Park resources is made extremely clear.

A second impact that could seriously affect the Park's visual quality, air quality, and the health of the ancient bristlecone pine forest on Mt. Washington is mining. The patented mining claims near Mt. Washington must be purchased and the "keyhole" added to the Park as soon as possible, as stated in Alternative B. It is most unfortunate that this area was not included in the original legislation, an omission that must be remedied in a timely fashion. In addition, all valid unpatented mining claims in the Park must be acquired in the near future. Another area that should be added to the Park in the near future is the three sections near the Lexington Arch trailhead which are now Forest Service land. Adding this area would also involve buying out some mining claims.

One concern in managing the Park has to do with the placement of facilities. I strongly favor the moving of administrative offices, employee housing, maintenance shops, and the establishment of an orientation center in the town of Baker. However, in mitigation for the effects of such Park actions on this small, poor community, the Park must enter into partnership to provide adequate water, sewer, and waste disposal facilities that will serve the town and the Park. This will also allow orderly expansion of such services as a private RV park with shower and laundry facilities and an adequate store for groceries and other necessities. This partnership will benefit not only Baker but also the Park, since the demand for services will be met by the private sector.

Although I generally oppose unnecessary development in any national park, I do support the idea of a new visitor center within the Park, since the purpose of such a center is education and interpretation. The Great Basin is a little known or understood ecosystem and needs to be shown and explained to many Park visitors. I have considered carefully whether a center built outside the Park could serve these purposes and have concluded it would not.

COMMENTS

Al Hendricks, Superintendent
12/17/91. Page 3.

The new visitor center can be built either on Baker Ridge (requiring a new road) or adjacent to the present Lehman Caves center (requiring modification of the present road.) Both choices have their advantages and drawbacks, and these must be weighed carefully. The visitor center at Baker Ridge, combined with the displays at the turnoffs along the new road, would undoubtedly be the best place for visual interpretation and a projection of the Great Basin experience. On the other hand, such a location and road would require a great deal of earth-moving activity which could disturb resources and affect air quality. If the center is built on Baker Ridge, it must be carefully designed to be as unobtrusive as possible and blend in with the natural environment. A structure that reflects light and looms up on the horizon would be totally inappropriate. The parking lot should be located on already disturbed land, with two or three disabled spaces next to the center. Destruction of vegetation should be minimized.

If the center is built next to the present Lehman Caves center, it should be built on already disturbed land and again be visually unobtrusive. Easements should be acquired along the present road for interpretation and some parking, and an appropriate speed limit must be established by the county. The entry access from the highway may have to be changed.

Regardless of whether the new road is built or not, I favor the minimal paving of the heavily used Baker Creek road, in order to keep down dust which adds to air pollution. However, this road should not be widened.

The building of a new 50-site campground at Lehman Flats and the closing of Lower Lehman Creek campground and part of the Grey Cliffs campground because of resource conflicts are desirable actions. Since there will not be enough camping available in the Park to satisfy the demand on summer weekends and holidays, an effort should be made to cooperate with both the private sector for RV sites and the Forest Service and BLM for camping sites within reasonable driving distance of the Park. Information on these alternatives should be available to the public at the Orientation Center. Also signs must be posted in Baker and at the entrance road indicating what campgrounds are full.

I strongly favor a shuttle bus service, available to all for a minimum fee, that would run on summer weekends and holidays. Points of access could be the Orientation Center, the Visitor Center, the Cave Center, the various campgrounds, and the Wheeler Peak trailhead. Such a service would cut down on the need for so many parking spaces, particularly at the Wheeler Peak trailhead, and also on traffic and air pollution. It is extremely important that dependence on the automobile be reduced in all national parks, and the management plan for a new park must address this problem aggressively.

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Al Hendricks, Superintendent
12/17/91. Page 4.

I am concerned about the miles of new trails proposed in the Preferred Alternative, particularly if these are to be built to horse trail standards, and prefer the recommendations in Alternative B on trails. The trail system in the Park does need to be improved, but this must be done carefully. Any trail must lie easy on the land and be kept away from lake shores, riparian areas, and meadows. Horse use must be kept to a minimum, at least until the livestock grazing problem is solved.

The preparation of studies and maps of important vegetation, archeological resources, cave systems, and other unique aspects of the Park must be a top priority. It is difficult to have good management if there is lack of information on what is being managed.

The Plan needs to stress the utilization of volunteers in all aspects of Park activities and particularly in education and interpretation. Many teachers, scientists, and retirees are willing to spend all or part of their summers working with the public and helping them to understand and appreciate the Great Basin. Volunteers can also be used in the visitor center, in the orientation center, as campground hosts, for building and maintaining trails, and for survey work.

1 I believe a time-line and a system of priorities has to be established for a management plan designed to last for the next fifteen years. Protection of resources must be the highest priority in the Plan. This would include insuring that activities which will destroy these resources such as grazing or mining are eliminated from the Park within a reasonable time. In setting priorities, the reasons for the establishment of the Park should be the first consideration. This is particularly important when developments such as parking lots, buildings, campgrounds, or even trails are planned. There should also be a mechanism for modifying the Management Plan and the various priorities as studies are completed. For example, discovery of important archeological sites could lead to eliminating certain trails or other developments. The Plan must be both strong and flexible in protecting resources.

Thank you for the opportunity to comment on this important document. Please call me if you have any questions about the specific issues I have raised. I look forward to working with you in the future on this wonderful park.

Sincerely,

Marjorie Sill, Chair, Great
Basin National Park Task Force
& Federal Lands Coordinator

RESPONSES

1. The plan does not include a specific implementation timeline because it is impossible to realistically predict the availability of funding in future years. Funding will depend on unknown congressional appropriations and how the projects in Great Basin National Park compare with other servicewide construction priorities. Appendix J provides a general phasing sequence which establishes general priorities and estimated costs. Before designing construction projects, all areas would be inventoried for archeological resources and sensitive plant species. All projects would be designed to avoid these resources to the fullest extent possible and to mitigate any effect to them.

COMMENTS

RESPONSES



RIO GRANDE CHAPTER OF THE SIERRA CLUB
440 Cerrillos Rd., Suite Q, Santa Fe, NM 87501

28 December 1991

Superintendent
Great Basin National Park
Baker, Nevada 89311

Comments on Draft General Management Plan

Sir:

The Draft Plan is a splendid document: rich in easy-to-understand detail, in a format that may be hard to shelve but is just right for the excellent maps and sketches.

The Park was established partly through painful compromise. Your modest proposal toward rationalizing the east boundary by adding two Forest Service sections is a small step toward alleviating the pain. We strongly support slightly less modest additions: (1) The Mt. Washington "keyhole." If necessary, help should be sought from private organizations to obtain this threatening 1850-acre inholding. (2) Northeastward expansion, adding the five sections of Forest Service land., about six of BLM land, and 100 acres of private land to protect (and display) samples of salt desert scrub and better samples of grassland and of northern desert scrub than are available within present park boundaries. You are, after all, a Great *Basin* park, not just a mountain park.

We can in general support the Proposed Action, and we praise many of its provisions: good plans for development of Wheeler Peak, good location for a new visitor center, good ideas for "outreach" displays on highways and at Baker, and, most importantly, conservative zoning with most of the park primitive or protected.

What we don't like about the Proposed Action is its over-development of the southern third of the park, which, we think, should be wilderness. The Proposed Action provides plenty of semi-primitive trails and high-country opportunities from Baker Lake and Johnson Lake trailheads. South and east of Johnson Lake we think that there should be no development at all other than the short walk to Lexington Arch from the east. That is, there should be nothing at Big Spring Wash, nothing at Highland Ridge, and no trail development from Big Wash.

COMMENTS

RESPONSES

2

If you must simply count who favors your alternatives, unmodified, then you should count our 6000 members in New Mexico and El Paso as favoring Alternative B. In fact we would prefer to keep the Proposed Action in the northern two-thirds of the park and, in the south No Action except acquisition of the Keyhole.

Sincerely,

Roger S. Peterson
for the National Parks committee

COMMENTS

RESPONSES

SIERRA CLUB

Toiyabe Chapter – Nevada and Eastern California
P.O. Box 8096, Reno, Nevada 89507

December 30, 1991

Al Hendricks, Superintendent
Great Basin National Park
Baker, NV 89311

Dear Superintendent Hendricks,

On behalf of the Toiyabe Chapter, I am submitting comments on the draft General Management Plan, Development Concept Plans, and Environmental Impact Statement for the Great Basin National Park. I would like to compliment you and your staff who developed the draft plan.

This draft is one of the best Park plans I have ever reviewed. While it is comprehensive and thorough, it is also extremely readable and understandable. The format is attractive and the maps and figures are illustrative. It is also quite responsive to public comments during the scoping period as well as to comments by visitors since the Park establishment. We do have some concerns about unnecessary proposals.

We also appreciate the public hearing held in Reno on November 18, 1991. It was fairly evident that most public comments reflect the pride and love which Nevadans and others feel for the Park. However, neither the Park nor the draft plan will ever satisfy some of the public which apparently opposed the formation of the Park and now oppose the management of the Park for the enjoyment of the general public.

The Toiyabe Chapter has over 3,700 members in Nevada and Eastern California, many of whom have visited the Park and all of whom support a strong Park management plan. Our membership is one of the many bases from which the Park can draw upon for volunteers in implementing the Park Plan.

We strongly support the use of zoning in order to diversify visitor use and experiences in the Park. Right now, the use is concentrated at the Caves and the Wheeler Peak area. The proposed action will disperse visitor use while protecting the more fragile areas from people through zoning and other restrictions. Acquisition of inholdings should be a high priority for the Park, both on the Western boundary and near Lexington Arch on the east side.

We strongly support the emphasis on environmental education and Great Basin interpretive facilities and activities, includiing the new seven mile eastern road extension, the new visitors center on Baker Ridge, and the highway interpretive exhibit shelters. We suggest that the hwy. centers be manned by volunteers on holiday and high use weekends. However, we

)UTHERN NEVADA GROUP
O. Box 19777
s Vegas, Nevada 89136

To explore, enjoy and protect the wild places of the earth . . .

GREAT BASIN GROUP
P.O. Box 8096
Reno, Nevada 89507

COMMENTS

strongly urge that the new visitor center be designed as part of the landscape at Baker Ridge, perhaps in part below grade, so as not to detract from the scenic vistas which are a special quality of our Park.

We do support the removal of unnecessary Park facilities from the Park and the restoration and rehabiliation of disturbed areas, perhaps with volunteer labor, as soon as possible. However, we do have qustions about the extensive relocation proposed, as our Park is not overburdened with the kinds of commercial development so inappropriate for Yosemite. We discuss these problems in the section of our letter on additions. The relocation of the Park entrance road to the public lands south of Baker is appropriate and should be completed as soon as possible. While we support the concept of joint water and sewer facilities with the town and county, we do not believe the Park should delay necessary improvements for visitors if joint agreements can not be worked out in a timely manner.

We strongly support the management emphasis on protection of biodiversity, including T&E species, the alpine/subalpine zones, and the stands of ancient bristlecone pines. We especially support the inventory of Park biodiversity and the development of a biodiversity plan to restore lost Great Basin species, including the reintroduction of Bonneville cutthroat trout and peregrine falcons, the augmentation of the big horn sheep band, and the reintroduction of elk, when livestock conflicts have been reduced. We strongly urge that the Plan protection of alpine/subalpine areas from livestock grazing be extended to 10,000 feet. There is no rationale given in the draft Plan for the selection of 10,500 feet as the elevation threshold. The threshold should be based on the occurrence of the rare plants (and associated fauna), not on an arbitrary elevation.

1

As you can see, we liked the Plan, overall. We do have some suggestions for additions and two objections. First, the handling of the livestock grazing conflict is somewhat better than continuing the status quo of livestock riparian degradation and damage to the very resources which the park was established to protect. Livestock conflicts are the chief complaint we hear from Sierra Club members and other visitors to the Park. Aren't livestock the chief complaint which the NPS receives from Park visitors? These comments should be reflected in the Plan. We would strongly urge the Park plan to provide for the early buyout or tradeout of grazing permits, as cows and people and parks don't mix.

2

In the meantime, however, we strongly urge that the Park use the presence of livestock in the Park to interpret the vast vegetative and other changes wrought by livestock in the Great Basin, current livestock management problems, including the need to protect riparian areas, and changes in grazing practices necessary to protect and rehabilitate public resources damaged by public land livestock grazing. The Park could do a real service

RESPONSES

1. See response 1 to The Nature Conservancy (p. 284).

2. On pages 69-70 of the draft plans/EIS (pp. 71-72 of the final plans/EIS) is a discussion of the complexities of the grazing issue in Great Basin. Congress has not given the Park Service the authority to buy out grazing privileges, and an exchange of grazing allotments could only occur under certain circumstances.

COMMENTS

to the public to illuminate the current controversies surrounding public land livestock grazing as well as solutions which are being tried to correct livestock management problems. For example, what changes have occured to Park vegetation and wildlife from the impacts of livestock use over the last 100 years? Existing Park exhibits on the livestock industry overemphasize the "benefits" of livestock use as part of the settlement of the West, but are inadequate to describe the profound changes which livestock have made on Western ecosystems.

Second, we strongly urge that the Plan add a strong volunteer element. The Park will never get federal funding to implement all of the wonderful projects and proposals in the draft Plan. But federal funds can be stretched if volunteers provide much of the labor, for example, to build or restore trails, provide environmental education/interpretation, and/or restore disturbed areas.

In addition, volunteers can help at the campgrounds. There is a great need to better manage visitor use of the high campground area. Most campers object to the noise and disturbance caused by children (and, unfortunately, adults) who ride motorcycles and ORVs around and around the loop road, even though this activity is prohibited. A Park Service presence would discourage such illegal activity, as well as cutting of trees, loud music, etc., standard problems in national park campgrounds.

3 A larger emphasis should be placed on interpretation of native American connections to the Great Basin. Were they residents or seasonal hunters and gatherers? Where do they live now? Ask the Shoshones and Paiutes who still live near the Park to participate in interpretation of their history & culture in the Great Basin.

Third, greater emphasis should be placed on the conservation and enjoyment of the caves in the Park. The caves are one of the two or three unique resources of the Park and the Plan should recognize their values and priortize Park actions for this public resource, including the development of a cave management plan.

Fourth, we urge that the Plan include a study of the suitability of wilderness designation for the primitive areas of the Park.

We do have concerns about some of the draft proposals which we feel are unnecessary and too expensive. We object to the expansion of the parking areas at the Wheeler Peak campground. The parking lot is quite adequate for visitors most of the year. We don't believe anyone supports putting more cars on that road. However, no one objects to providing more access to the beautiful forests, lakes, trails, and meadows of the Mt. Wheeler area, as long as increased numbers of visitors don't damage the very resources visitors come to see. The obvious solution is to provide a shuttle or van on holiday or high use weekends, stopping at the visitor center and the campgrounds to load and discharge riders. Either the Park or a concessionaire can

RESPONSES

3. Comment noted. An interpretive prospectus would be developed that would delineate interpretive themes.

COMMENTS

provide the shuttle. But do not cause more disturbance to the 10,000 foot forests and meadows by building more paved surfaces.

We also question the relocation of the entire administrative capability out of the Park and ask the Park staff to take another look at whether the extensive reloctions are really necessary. We have never heard anyone complain about the presence of Park administration and facilities in the Park. The rationale that relocation of facilities to Baker will remove buildings from over potential caves and facilitate a better relationship between Park staff and town residents is extremely weak. The carbonate rock is below Baker and the entire Eastern Nevada. What evidence is there that caves exist below the current facilities and don't exist below Baker? It is totally inappropriate to base an expensive move of Park facilities to assist Park-town relationships. The mission of the Park Service is to take care of the Parks. The Great Basin NP needs more Park presence, not less. Especially on those weekends when the Park hosts hundreds of motorcycle gang members from Southern California, we would prefer that the Park have more staff on hand than 1 or 2 law enforcement officers.

4

5

We would like to suggest another scenario for the Park staff to consider in the final Plan. Move the Park administration adjacent to the new visitors center. It's more important for Park administrators to be where visitors are to keep in touch with the public (not Baker residents). Leave the residences where they are as they are not substantially noticiable in the pinyon-juniper forest location. Keep the maintenance facilities in the Park, somewhere, to avoid the unnecessary vehicle trips up and down the Park roads.

Do put a Park orientation center in Baker so visitors can decide which part of the Park to visit. Use the old Forest Service site in Baker for a large trailer type campground. This is very needed for the large sort of motor homes which are inappropriate for the steep grades and winding Park roads. Put in a shuttle service so trailer campers can get to the caves, to the bristlecone areas, to the Arch, etc. Put in a nature trail for easy hiking and interpretation of the Basin part of the Park in an actual valley. Not relocating Park staff will relieve Baker of the socioeconomic and environmental impacts of which we heard residents complaining at the public hearing, but will place Park visitors near town.

Thank you for considering our comments, concerns and suggestions.

Sincerely,

Rose Strickland, Chair
Public Lands Committee

RESPONSES

4. The draft plans/EIS discusses the primary reason for the decision to move facilities from the park. The NPS *Management Policies* (9:14) state that management facilities will be located outside park boundaries whenever the management functions being served can be adequately supported from such a location. Adherence to these policies is mandatory, unless there are compelling reasons not to.

Some existing facilities proposed for removal, including the maintenance area and most housing, are above carbonate rock. This rock is overlain by relatively shallow alluvial deposits. The 80-acre site is over very deep alluvial deposits. It is much less likely that development at the 80-acre site would adversely affect caves than would similar developments within the park.

5. The Baker administrative site would be only 5 miles from the park. Many parks have administrative facilities much farther from park boundaries without significant management difficulties.

COMMENTS

NORTHEAST NEVADA TROUT UNLIMITED
c/o 600 COMMERCIAL ST. STE 101
ELKO, NV 89801

December 30, 1991

Superintendent
Great Basin National Park
Baker, NV 89311

Dear Superintendent:

The Northeast Nevada Chapter of Trout Unlimited has reviewed the draft "General Management Plan-General Concept Plans" EIS. The chapter would like to make the following comments concerning the plan:

The proposed alternate addresses management of Bonneville Cutthroat Trout (Oncorhynchus Clarki Utah) in waters within the species historical range. However, streams exist on the west side of the Park that should be managed for the species, to provide for their recovery. These waters presently have pure and/or hybridized polulations of the specie (Pine and Ridge creeks have pure populations, Board and Willard creeks have a high probability of pure populations, and Shingle and Williams creeks presently have hybrid populations.) The majority of these streams have their origin on the National Park and flow over only a small portion of the park. These streams have been proposed for eradication and reintroduction by the Nevada Department of Wildlife in their Bonneville Cutthroat Trout Management Plan, and all efforts should be given to continuing these proposals.

The plan should address monitoring of both riparian and aquatic ecosystems for direct, indirect and cumulative impacts of land uses.

The chapter was pleased to see the elimination of livestock grazing in currently occupied Bonneville Cutthroat Trout streams. Consideration should also be given to control or eliminate livestock in all salmonoid streams.

1 Under the alternatives listed workforce no consideration was given to the need of a fisheries or wildlife biologist. A biologist is needed to properly evaluate and monitor impacts to the aquatic and terrestrial environments. The greatest impacts to the aquatic and riparian ecosystems will occur form livestock grazing, and early indications of biotic changes can and should be analyzed by a professional biologist.

RESPONSES

1. See response 1 to the National Audubon Society, Great Salt Lake Chapter (p. 273).

COMMENTS

RESPONSES

--2--

The EIS was of high quality and land management should be of the same caliber. Thanks for letting the Chapter evaluate and comment on the draft document. Please keep us informed on the activities and decisions affecting the valuable cold-water fisheries on the Great Basin National Park.

Yours truly,

James F. Shepherd
Secretary

COMMENTS

TROUT UNLIMITED

29 December 1991
P.O.Box 11861
Salt Lake City, UT 84147-0861

Superintendent
Great Basin National Park
Baker, NV 89311

Dear Sir:

This refers to your Draft EIS for the management of the Great Basin National Park. I have reviewed the draft and offer the following comments for the management of the coldwater fisheries in the Park:

The Park possesses unique native aquatic fauna within its area of "closed basins" in Nevada and the Bonneville basin(UT-NV). Of particular interest to Trout Unlimited is the recovery of the native Bonneville cutthroat trout in these basins. The species could be listed in the future by the U.S. FWS as a threatened species. A listing package has already been developed but at present has not been acted upon. Impacts from mining and livestock grazing have hindered its recovery in its occupied streams within the Park.

The trout would receive greatest assist to recovery of its populations and habitats through implementation of Alternative "B" of your Plan. We encourage the Park to implement this alternative for the management and enhancement of the native aquatic and stream-riparian biota. We support your recommendation to curtail grazing use in stream-riparian areas occupied by the Bonneville cutthroat as well as in areas where future reintroductions will occur to extend the range of the species. Continued grazing in riparian areas which are in unsatisfactory condition presently will not arrest the decline of the streambank and instream habitat needed for the trout recovery and maintenance. Research and agency administrative studies have shown that recovery cannot occur with continued grazing use however slight. Desert stream ecosystems are very fragile within the Basin and your management should strive to bring them back to pristine conditions to assure conservation of species and biodiversity maintenance of the area.

1 Your management for the cutthroat should be done in cooperation with the Nevada Dept. of Wildlife and the Humboldt National Forest and coordinated with the state's management plan for the species. Your Plan should provide for a fisheries biologist on your full time staff as well as the necessary funding for the position as well as management and monitoring of the fisheries, macroinvertebrates, water quality, and the physical habitat condition. The Forest Service's Aquatic Ecosystem Analysis Lab(Provo,UT) has done past analysis for the Forest and State in your streams and could be used for your work to as a interagency cooperator.

2

Thank you for the opportunity to comment. Please keep us informed so we may provide future comment as needed fro your management plans.

Sincerely,

Don Duff

Don Duff, Aquatic Ecologist, National Partnership Coordinator

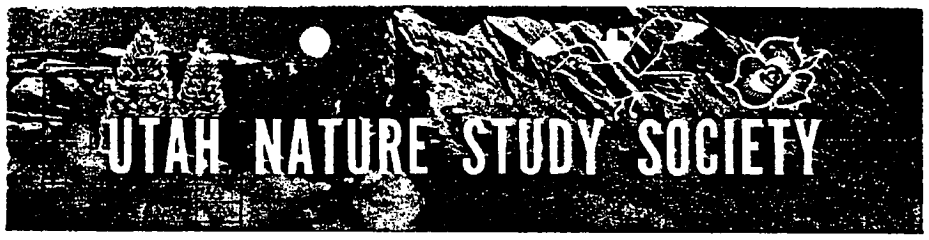
America's Leading Coldwater Fisheries Conservation Organization
Washington, D.C. Headquarters: 800 Follin Lane #250 Vienna, Virginia 22180 • 703-281-1100

RESPONSES

1. Page 71 of the draft plans/EIS (p. 73 of the final plans/EIS) indicates that the Park Service would cooperate with the Nevada Department of Wildlife regarding the reestablishment of Bonneville cutthroat trout.

2. See response 1 to the National Audubon Society, Great Salt Lake Chapter (p. 273).

COMMENTS



721 Second Avenue
Salt Lake City
Utah 84103

December 2, 1991

Mr Al Hendricks, Superintendent
Great Basin National Park
Baker, Nevada 89311

Dear Mr Hendricks:

I have review the document "Draft General Management Plan/Development Concept Plans/Environmental Impact Statement" and was unable to attend any of your public meetinns. I hope these meetings had a sianificant turnout.

I am impressed with the thought behind the document. In particular, I am impressed with the efforts of interpretation of the basin floor fauna and flora. My initial criticisms of the Park itself is that it is a mountain range and not a basin. I would extend the basin floor fauna and flora interpretations in a co-operative agreement with the BLM (House Range or Warm Springs Resource Area) to include the House Range and the salt desert floor of Tule Valley. The Warm Springs Resource Area has recently created a "Scenic Byway" The trilobite beds and the sharp escarpment on the western side of the House Range would make a great effort toward Basin and Range and Great Basin desert interpretations.

1 What the plan lacked was a wish list from the Park of research that should be done, biosurveys that are needed, and costs and support of such a program. Although National Parks in general seem not to have any money for biosurveys and research, I believe they should have a master plan of what is needed. Also, how expedient is it for Great Basin National Park to approve of research? (Grand Teton National Park takes 15 minutes, and Yellowstone National Park takes a year).

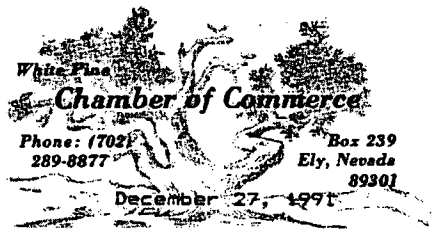
Sincerely,

Peter Hovingh

RESPONSES

1. Research needs and priorities are outlined in a park's resource management plan, not in a GMP. The GMP references the preparation of the resource management plan.

COMMENTS



Great Basin National Park
Attn: Superintendent
Baker, Nevada 89311

Dear Superintendent,

The White Pine Chamber of Commerce would like to take this opportunity to make comment on the Great Basin National Park Management Plan proposed by the National Park Service.

This Chamber of Commerce during the period prior to the designation of the Great Basin National Park, approximately one year, made a considerable investment in both time and money in seeing that the designation occured. We have also, since the park was created, made considerable efforts to advertise this Park as a destination for visitors to the area so that all will have an opportunity to see first hand what the Great Basin eco system has to offer. This in turn should provide an increase in the economic base of the entire area, including White Pine County, as well as other areas of Nevada and Utah. Additionally we intend to continue the practice of promoting the Park as a destination for visitors from around the country and the world.

Upon careful review of the Proposed action and all the alternatives in the draft General Management Plan we find that all proposals and alternatives are inadequate for the development of visitor services within and outside the Great Basin National Park. The Proposed Action combined with alternative C are the only posibilities that begin to even come close to addressing the needs of visitors. However, if these are the only alternatives the National Park Service are proposing then we can only support Alternative C, with some modifications.

The following are additions to the proposed action and Alternative C that we feel are essential to the development of the Great Basin National Park development to both protect the resource from damage by visitors and to also provide those visitors with a more pleasant experience when they do visit.

1. Access to the West side of the Great Basin National Park from Spring valley needs to be substantially improved, including 4wd, surfaced and unsurfaced access.
A. In any of the alternatives, other than C, there is literally no access to the western side of the range which is

RESPONSES

COMMENTS

totally unacceptable to this Chamber of Commerce.

B. Any development of this National Park should include substantial access to the attraction on the West side for the convience of those who cannot or will not be able to see them without vehicular access.

2. Even in Alternative C the Administration, Maintenance and Housing facilities should be sited in the town of Baker on existing federal properties.

A. This will allow for the development of the water and sewer facilites for the town of Baker that are so deserately necessary for its well being as well as the National Parks.

B. This will allow for private development to occur that will enhance the visitors experience. Development that the Park Service obviously has no appetite or budget to accomplish with federal monies.

We, the White Pine Chamber of Commerce in Ely, Nevada, the nearest full service community to the Great Basin National Park, strongly request that the National Park Service consider applying Alternative C to the Proposed action for the future development of the Great Basin National Park.

Sincerely,

Ferrel D. Hansen
Executive Vice President

RESPONSES

COMMENTS

RESPONSES

THE WILDERNESS SOCIETY

CALIFORNIA/NEVADA REGIONAL OFFICE

December 31, 1991

Al Hendricks
Superintendent
Great Basin National Park
Baker, Nevada 89311

Dear Superintendent Hendricks:

Thank you for the opportunity to review and comment on the Draft General Management Plan (DGMP) for the Great Basin National Park. We appreciate the work and thought that went into the document by National Park Service (NPS) staff. We look forward to working with you to preserve the cultural and natural resources within Great Basin National Park.

Please consider these comments and incorporate our recommendations in your revision of the GMP. Our comments are limited to a few of the issues covered by the DGMP, but we remain interested in all aspects of Great Basin's management and wish to be included on all of your mailing lists.

SPECIFIC COMMENTS

BIOLOGICAL DIVERSITY

The DGMP recognizes that the Proposed Action would do little to reduce numerous threats to the Park's biological diversity (page 154), except for those associated with fire suppression. It is remarkable that the NPS has the honesty to admit this fact and the audacity to propose a plan which would allow the continued degradation of resources within the Park. The GMP should set out the guiding principals of management for the unit. If one of those prinicpals is to accept adverse impacts to Park resources, the GMP will be a failure.

116 NEW MONTGOMERY, SUITE 526, SAN FRANCISCO, CA 94105
(415) 541-9144

COMMENTS

WILDERNESS

1 The DGMP dismisses the consideration of wilderness designation with one sentence and no explanation. This is inadequate and must be corrected. The GMP should include a detailed discussion of the wilderness values within Great Basin NP and how those resources will be protected. Even if a recommendation for wilderness recommendation is not made within this document, the GMP should offer the public some explanation for leaving it out. The treatment of wilderness in the GMP reflects very poorly on the overall adequacey of the document.

Leaving out consideration of wilderness at this most basic of your planning stages is irresponsible. Wilderness options should be contained in each alternative. Obviously wilderness designation is a management tool which can be used to protect Park resources. Analysis should be provided to allow the reviewer, and decision makers, the ability to judge how wilderness designation could provide permanent protection for resources.

MINING

2 Validity exams It is unclear from the Proposed Action (page 70) when validity exams would be prepared for mining claims. While further discussion of validity exams is included in the Analysis section (page 159), the criteria that will be used to determine when validity exams are called for, if the NPS does not plan to systematically exam all claims within the Park, should be included in the Proposed Action as well. No plans of operation should be considered until validity exams have been undertaken and claims proven to be valid.

Patented claims We support the Proposed Action's proposal to acquire the patented claims at the "keyhole" on the western boundary of the Park near Mt. Washington. We also urge the modification of the Proposed Action to include the recommendation made in Alternative B, at page 95, to acquire all of the "keyhole" lands, including those managed by the U.S. Forest Service.

3 Existing mine sites The Proposed Action should include a provision to study the potential problem of drainage from these sites and call for development of a plan to eliminate or reduce the potential for drainage from existing mine sites to further damage Park resources.

RESPONSES

1. See response 1 to Partners in Parks (p. 295).

2. Validity exams are being conducted as funding, personnel, and other priorities permit. The draft plans/EIS states on page 71 (p. 73 of the final plans/EIS) that all claims would be examined within park boundaries. Page 159 of the draft (p. 162 of the final) explains that when a claimant submitted a plan of operation, the Park Service would conduct validity exams prior to approval.

3. Research needs and priorities are usually outlined in a park's resource management plan as opposed to its GMP. The GMP references the preparation of the resource management plan. Mine drainage was determined not to be so severe a problem that it merited discussion in the GMP.

COMMENTS

LIVESTOCK GRAZING

As the DGMP makes clear, grazing is having adverse impacts to Park resources. The Plan's recommendations for grazing management, as stated on page 10, should be revised to insure that all of the Park's resources are protected from damage due to domestic livestock grazing. As it is stated, the Plan now recommends only that "sensitive natural features" be protected from livestock grazing. This statement of intent should be changed to include all natural, cultural, and recreational resources of the Great Basin National Park.

4 The GMP must be revised to eliminate the adverse impacts to riparian areas from livestock grazing that would be allowed under the Proposed Action. At page 152, the DGMP recognizes that resources associated with riparian zones will continue to be degraded. What authority or guidance permits the continuation of damage to Park resources that can be prevented? Authorizing legislation for Great Basin National Park clearly states that grazing within the Park will be subject to "limitations," presumably this was intended to allow the NPS to fulfill its obligation to protect the unit's resources.

Grazing Prohibition As outlined in Alternative B, grazing should immediately be prohibited from areas with sensitive plant and animal species, as well as in protected natural areas and research natural area subzones.

5 Fees Whether in the Final GMP or the grazing management plan, there should be an outline of costs of managing the grazing within the Park so that a fee schedule can be developed to recover the full costs of managing the livestock grazing.

RIPARIAN AREAS

Booneville cutthroat trout As proposed in Alternative B, the Booneville cutthroat trout reintroduction should be extended to all historical habitat.

Grazing All riparian areas should be free of livestock grazing to protect the unique resources in those zones.

WATER RESOURCES

6 Groundwater The Final GMP should provide for consideration of groundwater as a possible alternative to use of surface water and riparian areas for livestock watering. Of course the impacts of this use on other Park resources must also be considered. (The GMP should call for a determination of groundwater resources within the Park unit. This baseline data should be established to protect resources dependent on the water, and to provide the Park's managers the ability to determine if groundwater could be used for management actions, such as supplementing surface water where man's activities have dimished the quality or quantity of available water.)

RESPONSES

4. The Redwoods Act (16 USC 1a-1; 1978), which effectively amended the Park Service's organic act, indicates that "the authorization of activities shall be construed and the protection, management, and administration of these areas shall be conducted in light of the high value and integrity of the National Park System and shall not be exercised in derogation of the values and purposes for which these various areas have been established, *except as may have been or shall be directly and specifically provided by Congress* [emphasis added]." Congress specifically states that grazing will be permitted to the same extent as was permitted on July 1, 1985.

A large part of the available forage in the park is associated with or close to riparian zones. The draft plans/EIS states that there would continue to be adverse effects on riparian zones, but that better management of grazing in these zones would minimize those effects. The Park Service believes that this approach fulfills its statutory obligations.

5. Congress sets grazing fees, not the Park Service.

6. The vast majority of livestock watering occurs in remote and inaccessible locations where drilling a well would create great environmental damage. The Park Service is also very concerned about the effects that well drilling and groundwater removal might have on cave resources and is very cautious about using groundwater anywhere in the park.

COMMENTS

Water quality monitoring We fully suppoprt the need for a detailed monitoring plan to establish baseline data and to monitor water quality on a permanent basis.

WILDLIFE

7 Rocky Mountain Bighorn Sheep At pages 71 and 72, the DGMP clearly indicates that there are significant conflicts between the survival of bighorn sheep in the Park and domestic sheep grazing. The statement further suggests that the NPS has does not intend to eliminate the conflict immediately, even though there is evidence that the existing domestic sheep grazing is threatening the survival of the Park's Rocky Mountain bighorn sheep herd. The Final GMP should provide for the elimination of this threat immediately.

GENERAL COMMENTS

Two of our most important concerns are the failure of the DGMP to address the issue of wilderness designation and that the DGMP provides direction for future management of the Park that will allow resource degradation. Both of these faults should be rectfied before the GMP is finalized. Without doing so will result in an inadequate Plan to guide the management and protection of the resources the NPS is obligated to preserve.

We support keeing administrative facilities outside of the Park. We also suggest that those facilities within the Park be designed and positioned to avoid attracting attention. The proposal for building a visitor center on a ridge seems inappropriate. Man-made structures should be below the ridgeline so that they do not dominate the scene. Visitors to the Park are coming for the natural and cultural values present. Human intrusions should be minimized.

Finally, we believe Alternative B, not the Proposed Action, would provide the best protection for Park resources and best provide for appropriate visitor use. Great Basin NP is probably the most remote Park in the lower 48 states, visitors to the region will be looking for a primitive experience. Most importantly, Alternative B will provide more protection for Park resources than the other proposals, and that after all is why the area was designated, to protect the resources.

Thank you for this opportunity to be involved in development of the Great Basin National Park's General Management Plan. We look forward to working with the NPS in the future.

Sincerely,

Norbert Riedy
Senior Policy Analyst

RESPONSES

7. Eliminating grazing within the park would not solve the problems with bighorn sheep because most of the bighorn's range is outside the boundaries of the park where domestic sheep grazing is beyond the jurisdiction of the Park Service.

COMMENTS

RESPONSES

NATIONAL PUBLIC LANDS TASK FORCE
NEVADA OUTDOOR RECREATION ASSOCIATION, INC.

Founded 1958
HONORARY LIFE MEMBERS
Charles S. Watson, Jr.
Carson City, Nevada
Alvin McLane
Reno, Nevada
Darwin Lambert
Lusby, Virginia
Bill Vincent
Las Vegas, Nevada
Jeff Van Ee
Las Vegas, Nevada
Howard Booth
Las Vegas, Nevada
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Logan, Utah
Harold A. Kentrud
Jamestown, North Dakota
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Bedford, New York
C. Clifton Young
Reno, Nevada
Richard Pough
New York, New York
Marjorie Sill
Reno, Nevada
Michael Frome
Moscow, Idaho
Richard Raymond
Menlo Park, California
Russell Pengelly
Burns, Oregon
James A. Corbett
Tucson, Arizona
Clifton R. Merritt
Denver, Colorado
Rex and Muriel Lund
Unionville, Nevada
Leonore Nappe
Reno, Nevada
William Meiners
Boise, Idaho
Thoson Lane
Cornero, Arizona
Amy Mezza
Reno, Nevada
Roscoe Poland
San Diego, California
Roger Scholl
Reno, Nevada
Drummond Pike
San Francisco, California
Charles H. Callison
Denver, Colorado
Charles H. Stoddard
Minong, Wisconsin

December 11,1991

Mr. Al Hendricks
Superintendent
Great Basin National Park
Baker, Nevada 89311

Re: Draft General Management Plan/Development Concept Plans/ Environmental Impact Statement for Great Basin National Park.

Dear Mr. Hendricks:

The following represents the official comment of Paul C. Clifford, Jr. and the Nevada Outdoor Recreation Association (NORA), each and severally on the above referenced document and plans.

The Great Basin Planning Team has done a superb job. There is a sense that the real issues facing the Park and its environs have been wrestled with and that the proposed action generally meets those issues head on and resolves them in large degree in ways that should be fiscally and politically viable. If the proposed action were implemented in toto, the Park would have an excellent management framework on which to build in future years.

However, there are some issues which require further comment or clarification.

1) The concept and execution of management zoning in the proposed action is excellent.

2) The Park would be extremely well served by a new entrance road with attendant protective easements, whether along the alignment suggested in the proposed action or through Kious Basin.

3) Paving the Baker Creek Road would certainly reduce dust and decrease the need for labor intensive maintenance. It will however, cost over $1,000,000. One could run a lot of water trucks and occasional graders for that million dollars. Also, on the philosophical

** IN MEMORIAM **

(NORA Founders)

Sumner L. Evans, Sparks, Nevada
George Lund, Unionville, Nevada
Ernest Johnson, Empire, Nevada
James G. Hulse, Sr., Pioche, Nevada
George Kell, Sparks, Nevada
Charles Rago, Reno, Nevada
Howard DeHart, Genoa, Nevada

(NPLTF Founders)

Paul M. Tilden, Bethesda, Maryland
Carmelita Lowry, St. Louis, Missouri
George Hudson, Pullman, Washington
Gerald E. Freeman, Ft. Tobacco, Maryland

COMMENTS

RESPONSES

side, many, if not most of the urban visitors to the Park will not have ever driven on a genuine gravel road! An un-paved Baker Creek Road would provide the only contact of the vast majority of visitors to a rural zone within the Park. Perhaps a pleasant gravel road beckoning just outside the Visitor Center door will entice visitors to this new experience in a controlled environment whereas they would probably be thoroughly intimidated by the thousands of miles of BLM gravel roads in the immediate area. They might try it and like it enough to stop demanding the paving of every two track in the desert.

4) The selection of Baker Ridge or Kious Basin for the new Visitor Center should depend on two probably incompatible factors. First, which is the least intrusive site in terms of the view from other areas of the Park? Second, which is the more effective site from which to interpret the Great Basin environs as a whole? In any event, it should not be moved to the new administrative center at Baker because an appallingly high percentage of people will go no farther and not even get into the Park! It should not be expanded or shifted around near the present location at Lehman Caves, because this ecologically fragile area is already over-burdened and over-crowded.

5) The regional exhibit centers are a stroke of genius if well executed.

6) The Wheeler Peak Pull-out/Trailhead must be developed with extreme sensitivity. There should be no sense that the road will be extended or that substantially different or expanded facilities will be built. There are still many persons supportive of the Park who consider the very existence of this road to be almost a personal affront. If increased visitor use is shown to be detrimental to the fragile alpine environment, it will have to be curtailed. It would then be very hard to justify several large, empty parking lots up there!

7) There should be no need for paving within the Grey Cliffs campground area as reconstructed.

8) The administrative and maintenance functions should be moved to the new Baker site. Is there any way to eliminate entirely the housing and fire cache from their present location as well? They would remain particularly intrusive if they stay where they are. Perhaps they could be moved to the general vicinity of the water tanks?

9) Bonneville cutthroat trout should be reintroduced on the

COMMENTS

1 east side of the Park. Which streams on the east side historically supported cutthroat trout? If only some streams are to have reestablished populations, which would they be? Why not all suitable streams?

2 10) What is the permitted level of livestock use within the Park for each existing grazing permittee? What is their preference, that is how many head does each permittee actually run? In each case are they cows, sheep or even potentially horses? Is this level of grazing actually causing irremedial or long term losses to the Park's natural resources? Do these animals constitute a clear and present danger to Park visitors? Why not prohibit grazing in all areas of known sensitive plant species?

11) Elk should be actively reintroduced into the Park, even if they have to be inoculated against the diseases of domestic livestock.

12) The Park should work especially hard with the National Forest Service and Bureau of Land Management to insure integrity of the Park's view-shed. The BLM will have a very critical role and can use Visual Resource Criteria and land disposal as effective zoning. However the Park should not seek new additional utility corridors in currently pristine areas in favor of using existing pre-Park, in-use corridors near, but outside the Park i.e. the Southwest Intertie Project (SWIP). The Park can better exercise its clout to determine the actual necessity of such utility expansions and is in a much better position to demand that facilities actually built have the least environmental and visual impact. Please don't palm your problems off on your neighbors!

13) If at all possible, the Park should add the 1850 acres to the Park, known as the "keyhole", along the western boundary adjacent to Mt. Washington.

14) The Park should definitely add 1280 acres along the eastern Park boundary adjacent to the proposed Great Basin visitor center on Baker Ridge. This addition would rationalize both Park and NFS land administration and should take place regardless of the placement of the visitor center.

3 15) How would some consumptive and other recreational activities (for example: hunting, tree cutting, unrestricted four wheel driving, undesignated camping, trapping, commercial harvesting, prospecting and collecting) be prohibited or more closely regulated than in the past, under the Proposed Action? I would have thought all of these activities would have been prohibited since establishment of the Park. Would not the Proposed Action merely continue these pre-existing constraints?

RESPONSES

1. The Park Service cannot answer all of these questions at the present time. All of the streams on the east side of the park that drained into historic Lake Bonneville probably contained Bonneville cutthroat. The draft plans/EIS states that any reintroduction effort would be coordinated with the Nevada Department of Wildlife. There are many technical difficulties associated with eradicating alien salmonids that would make reestablishment very problematic in some streams. Until additional research was completed, the Park Service could not determine which streams would be affected.

2. Most of this information would be included in the individual allotment plans. A discussion of the effects of past livestock grazing is included on pages 69-70 of the draft plans/EIS (pp. 71-72 of the final plans/EIS).

3. The park's zoning would allow certain activities in some zones and not allow them in other zones. These are outlined in the "Management Zoning" section (pp. 27-37) of the draft plans/EIS and final plans/EIS. For example, horses would be restricted to certain trails, and campfires would be prohibited in the primitive zone.

   Commenter may be referring to text on page 163 of the draft plans/EIS (p. 165 of the final plans/EIS) under "Impacts on Local Visitors." This text was intended to contrast permitted activities allowed in the plan with those activities that were permitted before the establishment of the park. This text has been clarified in the final plan/EIS.

COMMENTS

4

16) What is the need for "substantial increases in law enforcement officers"? The Park user survey indicates that the current user group is substantially middle class families, and that type and numbers of visitors is not apt to change dramatically under the proposed action. Are these middle class folk such a current threat that the Park is over run with hooligans and thieves? One of the charms of Nevada is a general way of life which does not require large numbers of police. I would hate to think that the Park would require a lawman behind every bush asserting him/her self just because they are there!

5

17) While Wilderness is not a direct issue in the DEIS, it is gratifying to note that none of the alternatives put forward in the plan adversely affect designating any part of the Park as Wilderness which is currently suitable for Wilderness designation. Is it possible under the zoning concept to mandate that it is a management objective to not reduce existing wilderness values anywhere in the Park?

These are real but ultimately minor quibbles. You have done an excellent job!

Sincerely,

Paul C. Clifford, Jr.
2955 Berkshire
Cleveland Heights, Ohio 44118
Phone: (216) 371-2749

Charles S. Watson, Jr.
NORA, P. O. Box 1245
Carson City, Nevada 89702
Phone: (702) 883-1169

RESPONSES

4. Eight specific reasons are listed on page 165 of the draft (p. 167 of the final) for the increases in law enforcement and resource management personnel.

5. The Park Service *Management Policies* (6:3) prohibit the agency from taking any action that would diminish the wilderness suitability of an area recommended for wilderness study.

COMMENTS

Burkhard Bohm
P.O. Box 1922
Portola, CA 96122

December 27, 1991

Al Hendricks
Superintendent
Great Basin National Park
Baker, NV 89311

Dear Mr. Hendricks:

I hope that my letter will reach you before the deadline for public input for the Environmental Impact Statement. If not, maybe my comments may serve at least as general input for general management of your magnificent park.

I have been a long time admirer of the Great Basin scenery and its ability to regenerate the weary city dweller's spirits. When I learned about the formation of Great Basin National Park, I had mixed feelings. On the one hand I was glad to hear that Congress and the Park Service are doing something to protect part of this marvelous landscape.

On the other hand I am wondering if this park will do nothing more than draw undue attention to an area that is best valued for its loneliness. Already I see a sign on Highway 50, calling it the "Loneliest Road in America" (which is probably not true). Even if it was true, it is almost certain that it no longer will be so, since it will attract many more visitors in the future. Understandably this will probably be a welcome relief for the small communities in central Nevada who depend on it economically.

But I am more concerned about Great Basin National Park. Will it follow the course that most other parks in the U.S. have developed? If you attract too many people you will loose what is special in these places. The worst cases to me are Yellowstone and Yosemite, places which I no longer visit due to overcrowding.

1 Growing up in southern Africa I am used to the fact that it is a special privilege to visit National Parks, and that people are strangers in those parks. A privilege that we should not take for granted. We were used to the fact that the privilege to visit the parks each year could be granted only to a limited number of people, i.e. its "carrying capacity". We had to apply ahead of time to reserve our time to visit (for example in the Etosha Pan Game Park). It was generally accepted that this was necessary and I ask myself whether something similar maybe considered in America.

RESPONSES

1. See response 2 to the National Parks and Conservation Association (p. 280).

COMMENTS

Great Basin National Park is at the beginning and management policies are still flexible. It seems as if now is the time to begin policies that pay attention to the Park's carrying capacity. Of course I realize that it will be difficult to determine the carrying capacity. And it will be difficult to convince the general public of the necessity to adhere to it.

Since I do not understand much about the environmental issues that you try to manage in the Park, I am not taking any position on those issues. I believe that your personnel is qualified to make these decisions and present them to the public in an atmosphere of faith and trust. However, the issue of overcrowding affects me deeply, since places like the Great Basin are most "healing to the soul" when there are only few people at a time. And I would like to see our and future generations to be able to experience the true loneliness of this place, instead it being overly sacrificed to commercial gain.

I hope that my comments are meaningful to you.

Sincerely,

Burkhard Bohm

Burkhard Bohm
Geologist

RESPONSES

COMMENTS

P. O. Box 1669
Ceder City, UT 84721-1669
18 October 1991

Superintendent
Great Basin National Park
Baker, NV 89311

Dear Sir:

Thank you very much for sending me a copy of the draft general management plan/development concept plans/environmental impact statement for Great Basin National Park. I am very impressed with the content of the plan and with the use you have made of GIS. I hope to attend the meeting in Baker on November 20 and to submit written comments before December 31.

1 I noted, on page 15, the paragraphs titled "Issues Beyond the Scope of the General Management Plan" and I examined Appendix B regarding Wilderness Suitability. Perhaps I am mistaken but it had been my understanding that, under the Wilderness Act of 1964, each National Park was to make recommendations to Congress regarding suitability of lands for wilderness designation. Has such action been undertaken for Great Basin National Park? If so, could I obtain a copy of the relevant document. If not, is there a plan to produce such a document?

Sincerely,

James B. Case

RESPONSES

1. See response 1 to Partners in Parks (p. 295). The Wilderness Act of 1964 required the secretary of the interior to report to the president within 10 years of the date of the act on the suitability or nonsuitability or each roadless area of 5,000 contiguous acres or more in the existing national parks (as of 1964) and national wildlife refuges and game ranges. Great Basin National Park was not established until 1986, and there is no statutory requirement to submit a wilderness suitability recommendation.

COMMENTS

Superintendent
Great Basin National Park
Baker, NV 89311

Re: Great Basin National Park, Draft General Management Plan

I appreciate having the opportunity to comment on the proposed development activities that are expected to occur in Great Basin National Park in Baker, Nevada, and in the surrounding area, over the next several years. It is obvious that a great amount of time, research and thoughtful deliberation has gone into the Draft General Management Plan and in the Proposed Action.

Some of the language of Public Law 99-565 which established Great Basin National Park states: "In order to preserve for the benefit and inspiration of the people a representative segment of the Great Basin of the Western United States possessing outstanding resources and significant geological and scenic values there is hereby established the Great Basin National Park.....The Secretary shall protect, manage, and administer the park in such manner as to conserve and protect the scenery, the natural, geologic, historic, and archaeological resources of the park, including fish and wildlife **and to provide for the public use and enjoyment of the same** in such a manner as to perpetuate these qualities for future generations."

I support most of the development under the Proposed Action, however, we all recognize that there can be various ways of interpreting the wording of any document. My comments are intended to be taken in the spirit of properly implementing the enabling legislation. I believe that wording would be better served by a few changes as to visitor access, and to the location of certain specific development.

My primary comment concerns the Mt. Washington area. I believe the general public should continue to have some kind of vehicular access to the vicinity of Mt.Washington peak, and to the magnificent stand of bristlecone pine in that area. I realize there might be right-of-way problems with some private property; that there might need to be improvements made to the existing road; that a vehicle concession might be necessary; that park personnel might need to be present at all times the area was open; that innovative procedures might need to be developed in order to allow the general public to walk among the bristlecones in the peak area and on the ridge east of the peak without endangering the trees or the downed wood; and that there may be other concerns not listed here. However, I believe that with the proper precautions and management practices this area can be opened to the general public and still be protected and preserved.

1

RESPONSES

1. Comments noted. The Mount Washington road would be closed for two primary reasons: 1) The planning team believes that the bristlecone pine and sensitive alpine and subalpine plant species must receive maximum protection, and closing the road would help protect these resources; and 2) the existing road is extremely steep and unsafe in its current condition. The costs for improving the road would not be justifiable for the low amount of use that this road would likely receive. In addition, there are other nearby areas of bristlecone pines that are accessible. These areas include the bristlecone pine forest in the Wheeler Peak cirque.

COMMENTS

RESPONSES

It is my contention that there are some very good reasons why Mt. Washington should be open. The key features of the park now are Lehman Caves; the paved scenic drive to the Wheeler Peak campground at nearly 10,000 ft. and the hiking trails from the campground to the several alpine lakes, a bristlecone stand, and the ice field; and the gravel-type roads to campgrounds in the Baker creek and Snake Creek areas. These do not give ample opportunity for the general public to experience the flora, fauna, geology, and the scenic perspectives of the Great Basin.

The vastness and the spectacular beauty of the basin and range topography can only begin to be appreciated when one is near, or above treeline. The park has many visitors who are not able to hike the trails to the higher elevations for this rare experience. This not only includes the elderly and the handicapped,but also visitors who will not have the time for extended hiking, those who do not have the proper shoes or suitable clothes for changeable weather at the higher elevations, those who may have some temporary physical impairment, or those with children to young for long hikes.

Mt. Washington is the only place in the park where the general public can go in a vehicle and, after a very short walk, stand on a peak 11,676 ft. above sea level. Here the visitor can view the other peaks in the South and North Snake Ranges, and look to the east and west across ranges, one beyond another, gradually fading to invisibility in the distance. In my opinion this awe-inspiring and magnificent experience should not be limited to a relative few hardy individuals who can hike there.

The new Visitor Center, in my opinion, should be constructed either at the location where the proposed new park entrance road will meet Nevada State Highway 487, or at the Park Service 80-acre site in Baker. For one thing, the Site on Baker Ridge is to close to the Lehman Caves Visitor Center for another major facility. But principally, the New visitor Center should be at or near the park entrance so that the visitor may learn of the various options available before driving five or six miles into the park. An Orientation facility in the town of Baker will not appropriately serve this need, particularly for those visitors approaching from the south, as those who have been visiting the southern Utah parks do. The Baker Ridge site does provide a great scenic view. this could be developed as a large parking area with an overview and a small Orientation facility.

Some type of Orientation facility, or sign including a profile of the South Snake Range could be considered for a site on US Highway 6 & 50 where the visitor approaching from the east in Utah first sees Wheeler Peak from the pass crossing the Confusion Range .

COMMENTS

I believe the Baker Creek road should not be paved. A well-maintained gravel road will continue to be suitable, and will help to preserve a more back-country experience for the campers in that area.

Now I would like to comment about a few administrative items. Many visitors who come to Great Basin National Park will be coming at the end of a tour of Southern Utah parks which generally have a longer visitor season (due to weather patterns) than here. Some will be travelling quite early in the spring or very late in the fall and into early winter. Also, many will have traveled far to arrive here. I think it is very important that these visitors don't arrive to find the scenic drives are closed due to snow on the road. I think that every effort should be made to keep these roads cleared of snow and open as much of the year as possible, and that if necessary park rangers could patrol the roads if safety is a concern. In addition, I think that access should be maintained to areas where there could be some cross-country skiing during the winter months, even if it were limited to higher elevation roadways and snowed-in parking areas. This would not only be a benefit to local residents, if it were advertised it could also encourage increased visitation during the winter.

With the exception of the comments included here, I support all of the Proposed Action in the Draft General Management Plan. I look forward to seeing the development of the park proceeding promptly.

Sincerely,

Bill Coffman

RESPONSES

COMMENTS

November 11, 1991

Superintendent
Great Basin National Park
Baker, Nevada 89311

Dear Mr. Hendricks,

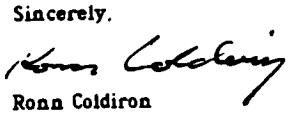
I would like to support alternatives A or B in the Great Basin National Park EIS. The preferred alternative would cause excess development within the park boundaries. The construction of a new access road and new visitor center are unwarranted in such a small park.

The current visitor center is adequate at present as an educational tool for both the caves and the park as a whole. The center discusses cave function, cave structure, park life zones and the geologic history of the park. If the administrative portions of the building were moved to Baker there would be more than enough room for additional exhibit space for the cultural history of the area and more detailed information on the flora and fauna of the park.

Also the native cutthroat should be reestablished in all waters of the park where they once occurred.

1 I strongly object to the preferred alternative in light of the fact that original public comments showed that most people were against it and their comments were ignored in the preparation of the current EIS.

Sincerely,



Ronn Coldiron

1065 Miarmonte Avenue
Los Altos, California 94024

(415) 965-8258

RESPONSES

1. Public comments on the workbook were not ignored. Based on the public and agency responses to the workbook, the alternatives contained in that document were modified significantly for the draft plans/EIS. There were 38 individual questions in the workbook dealing with particular aspects of the plan. A review of the responses indicates that many, if not most, aspects of the proposed action received favorable responses in the workbook.

COMMENTS



December 12, 1991

Mr. Al Hendricks, Superintendent
Great Basin National Park
Baker NV 89311

Dear Al,

In response to your letter inviting public comment on the Draft General Management Plan, I've written a long proposal to permit dogs on Great Basin National Park trails. From previous discussion, I know that you are not inclined to permit dogs on Great Basin trails. However, I hope you will consider this document carefully and with an open mind.

I believe that our ideas about parks and their purposes probably are very similar, but we differ a bit with regard to how best to achieve those purposes. There was a time when I espoused your viewpoint about dogs on trails. But I changed my mind due to my own experiences, due to some reading of the writings of other backcountry enthusiasts, and due to some probing questions asked me by NPS personnel reviewing some of my writings. 1

Now I have become a fervent advocate of hiking with dogs, believing that I have some good news and insights that I want to share. However, little of the enclosed analysis is original with me. My role has been mainly to organize bits and pieces from many other folks into a document that looks new, perhaps even revolutionary, but really is based in many decades of people interrelating with parks.

I think you are in an ideal position to use these ideas to lead the way in some innovative backcountry management.

Sincerely,

Kent

RESPONSES

1. We did reconsider the issue of dogs on trails in the backcountry of the park. However, we came to the same conclusion as is stated in the draft plan. The rationale for that conclusion is on page 106 of the draft plan (p. 109 of the final plans/EIS). Dogs are permitted in many adjacent backcountry areas, including the Mount Moriah Wilderness Area a few miles northeast of the park.

COMMENTS

Why Leashed Dogs Should Be Permitted on Backcountry Hiking Trails in Great Basin National Park and How To Manage This Use

Summary: Contrary to page 106 of the Draft General Management Plan for Great Basin National Park, use of dogs in the backcountry need not conflict with solitude or with wildlife, visitors, or horses. As testified to by many of the founding fathers of our national park and wilderness systems as well as by modern prominent writers on this subject, canine companionship can contribute in five ways to the traditional mission of national parks. At least five management techniques already used by backcountry management agencies can minimize to insignificance any potential problems in managing dogs on trails. Therefore, dogs on leashes should be allowed to accompany hikers in the backcountry areas of Great Basin National Park.

History: Prior to the establishment of Great Basin National Park in 1986, most of the backcountry area of the national park was contained within Wheeler Peak Scenic Area in Humboldt National Forest. USDA Forest Service administration of the scenic area had similar goals to those of present National Park Service administration in so far as the issue of dogs on trails is concerned. Forest Service regulations permitted leashed dogs on all trails. The Humboldt National Forest office in Elko, Nevada, which administered the former Wheeler Peak Scenic Area, has stated that they experienced no management problems with dogs on trails.

Despite the fact that no management problems with dogs on trails existed, when NPS took over administration of the area, dogs were immediately banned from the trails. To a distressed dog owner, the Great Basin Superintendent stated that he banned dogs from the trails because he assumed that this was the general policy in national parks.

However, a letter from John Morehead, Associate Director for Operations of the National Park Service states to the American Kennel Club, "As you have correctly pointed out, there is currently no Servicewide regulation or policy prohibition in regard to allowing dogs on park trails." The Code of Federal Regulations applying to Parks does prohibit pets that are not physically restrained, as by a leash, anywhere in parks (Section 2.5). These regulations also prohibit pet owners from permitting their animals to make unreasonable noise and from leaving or tying a pet unattended except in designated areas. Nowhere does the Code of Federal Regulations say anything about leashed dogs being prohibited in backcountry areas. Dogs are permitted in the backcountry of heavily visited NPS sites such as Acadia, Redwoods, North Cascades, Mammoth Cave, and others.

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Leashed dogs can enhance trail experiences in five ways.

The Draft General Management Plan states that park managers should permit "recreational activities that contribute to understanding and appreciation of the park's resources" and extols the park's "natural, cultural, and scenic values." A stated goal of NPS interpretive activities is to "heighten visitor awareness of the interrelationships of people and their environment." [pages 25-26]

(1) Dogs can enhance hikers' sense of cultural values by providing historic association with previous wilderness travelers, beginning with Paleo-Indians that first walked these park lands in company with domestic dogs during the Pleistocene era, about 11,000 years ago. Domestic dogs thus have been on the scene at Great Basin as long as most of the park's native fauna and longer than all of its plant communities.

Modern hikers, well protected by their society and technology, have little to fear from the wilds and do not rely on the wilds for food, clothing, or shelter. Indeed, virtually the only wilderness attitude we have in common with our predecessors in the wilds, including European pioneers in the last century, is our potential relationships with our dogs.

(2) If hikers were permitted canine company at Teresa and Stella lakes, a Paleo-Indian ghost watching from a ridge above certainly would understand how the dogs were sharing their senses with the humans. Dogs can point out natural aspects of the park, such as small animals or animal signs, that we otherwise would miss. For humans that have learned to rely on superior canine senses of smell and hearing, banning dogs from the trails is like taking away a blind person's white cane. As wilderness philosopher Aldo Leopold wrote of his own dog, dogs on Great Basin trails could translate ". . .the olfactory poems that who-knows-what silent creatures have written in the summer night."

(3) For millennia, dogs also have served as pack animals at Great Basin and in that role can further expand the human sense of sight by aiding hikers in carrying burdens. By packing up to 25% of their own weight in water, food, first aid kit, and extra clothing, dogs can make room in human packs for guide books, camera equipment, or binoculars. The degree to which dogs thus can increase hikers' appreciation of scenic and natural values is impossible to exaggerate.

COMMENTS

Even on relatively short hikes, such as to Lexington Arch, pack dogs can be important for families or single parents who need to carry many extra things relative to small children and for hikers who are a bit infirm due to chronic skeletal problems. Hiking shops usually stock dog packs and report good sales of this item. Dogs inflict less impact on the wilds than any other pack animal because they eat only the food they carry (not munching on trailside flowers) and cause no erosion.

In appreciation of pack dogs taken on his explorations in Alaska, wilderness advocate Bob Marshall wrote, "they aided materially in dispersing the load. . . . But if dogs get soft from just sitting around and getting fed, so does a bureaucrat." Pack dogs can help hikers whose responsibilities deny them the opportunity to keep ideally fit for a climb to the summit of Wheeler Peak.

(4) Associating with dogs in the wilds helps hikers to step outside a strictly human viewpoint toward the world and achieve a broader perspective. Though a human invention, dogs still have a couple of paws in the world of wild canines. Through their closeness to their human companions, dogs provide the best possible bridge of understanding between humans and wild predators. From predators, human understanding can extend to other wild animals. Thereby, dogs "heighten visitor awareness of the interrelationships of people and their environment," as the management plan desires.

John Muir, the father of the national park system, wrote of his exploration of Glacier Bay National Park with a dog, Stickeen: "Through him as through a window I have ever since been looking with deeper sympathy into all my fellow mortals." To deny such windows to hikers in Great Basin is to significantly frustrate the traditional mission of national parks.

(5) Another legitimate use of Great Basin National Park is fun. Most hikers use the wilds for fun rather than some more correct, uplifting motive. Enos Mills, father of Rocky Mountain National Park who often is pictured with his dog Scotch, thought that fun was motive enough to have his dog with him in the wilds. Mills wrote, "great times we had together. Many of our best days were spent in the wilds."

In more than one-half of American households, the family dog is part of family fun and taken on vacations. Because of its location, Great Basin is likely to be one of several destinations on a family trip. The dog usually will be taken along to enjoy other destinations. But, if it cannot hike with the human family members, the whole group likely will be barred from experiencing the best features of Great Basin,

RESPONSES

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those which are available in the backcountry. During the season when most people can visit the park, it is too hot to leave a dog in the car for the length of time needed for a hike.

In the increasing number of childless households, dogs often function as surrogate children, just as important to their owners as human children are to their parents. Statistics indicate that childless homes due to some physical handicap are increasing in America at the same time that adoption of children grows increasingly difficult. Though not obvious to casual observers, this physical handicap can create much hardship for those who must bear it. Dogs as surrogate children often are extremely important in helping infertile couples cope with their handicap. To such people, barring dogs from the wilderness effectively bars their handicapped owners, who are just as reluctant to leave their dogs behind as parents would be to leave their children.

Even in normal households, the family dog often has the status of loved one, who should be included in family fun. To believe that such love is silly or in some other way unworthy is narrow and insensitive.

These five benefits of canine companionship in the wilds have been recognized by writers who have been very influential in defining the importance of wilderness preservation, including Muir, Mills, Leopold, Marshall, and Loren Eisley. It is inconsistent to elevate these people to wilderness sainthood and use their writings as guides to wilderness appreciation and management while banning dogs from the wilderness. Modern writers about wilderness values, such as Laura and Guy Waterman and Anne LaBastille, also have testified to the value of dogs on the trail. In banning dogs, we lose more than we gain.

Management Alternatives to Banning Dogs from Great Basin Trails

The Draft General Management Plan presents no alternative to banning dogs from the trails, claiming that such action preserves solitude associated with backcountry experiences and reduces the potential for conflicts between dogs and wildlife, visitors, and horses. Both these claims are inaccurate. Banning dogs from trails may actually decrease solitude and increase chances of conflict in ways indicated below.

Banning dogs will increase the opportunities for solitude only to the extent that it keeps people who wish to hike with dogs from hiking on Great Basin trails. Though solitude is an important and legitimate value for some hikers, it is not the only or even most important

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wilderness value. To increase solitude by banning a certain class of potential hikers is contrary to traditional national park purposes.

Perhaps the Draft General Management Plan does not mean that dogs should be banned merely to increase solitude by subtracting dogs' human companions from the total of potential trail users. The Draft Plan does not explain how banning dogs is supposed to increase solitude.

However, it is possible to guess that park managers might believe that dogs barking on the trail decrease solitude. "Allowing a pet to make noise that is unreasonable" is prohibited by the Code of Federal Regulations, Section 2.15, paragraph a,4.

But those familiar with dogs on backcountry trails that receive much heavier use than ever imaginable for Great Basin can testify that incessant, unreasonable barking is very rare in a hiking situation. It is a very unusual dog that will do more than bark a few times to indicate to the relatively dull hiker at the other end of the leash that there is something of interest to be noted at trailside. And nearly all of even the few, extreme barkers can be controlled and caused to cease barking by their human companions. Barking dogs on trails so rarely menace solitude that they are not worth considering in light of the many other benefits offered by the vast majority of hiking dogs.

Barking dogs do disturb solitude in some national parks, but not in the backcountry. It is dogs left in physical discomfort and loneliness at campsites and parking areas that raise a ruckus. Usually because of park regulations banning dogs from the backcountry, they are left behind while their owners make a mad dash to some hiking destination, such as the ancient bristlecone forest. Therefore, while regulations banning dogs from the backcountry have a negligible effect on solitude along the trails, such bans themselves decrease peace and quiet in developed areas.

Conflicts between dogs and wildlife, visitors, or horses are significant only when dogs are unleashed. Below are five commonly used management techniques that can reduce the incidence of free-running dogs to acceptable levels with minimum management costs. Free-running dogs are more likely to cause conflict with visitors who also are hiking with dogs than in any other type of situation. Nonetheless, it is these visitors who are most likely to face dog conflicts who are least likely to want dogs banned from the trails, though they likely will want free-running dogs prohibited.

RESPONSES

COMMENTS

A complete barring of dogs from trails is a less successful management technique than using techniques described below, either individually or in combination with each other. A complete ban works less well because a significant percentage of park visitors are surprised by the regulation when they arrive at the trailhead ready to go with a dog and with no perceived acceptable alternative to breaking the regulation. This tendency is compounded by the reasonable perception that the regulation banning dogs is unreasonable.

Therefore, in this age when the federal government (even the National Park Service) often is seen as the enemy, some hikers decide to break the rules. Some break only the letter of the regulation: if they are knowledgeable and ethical; they keep their dogs leashed, beneficial, and out of trouble. Unfortunately, other dog owners are ignorant and/or so maddened by the prohibition that they cease to care about ethical behavior. Their dogs are allowed to run free and may cause problems. Replacing a complete ban with the alternatives listed below would provide more opportunities to educate the ignorant, provide acceptable conditions for hiking with dogs, and thereby reduce the number of unleashed dogs on trails below the levels achieved by a complete ban, and with minimal administrative costs. Therefore, banning dogs from trails instead of using other techniques to control unleashed dogs actually increases the chances for conflict between dogs and wildlife, horses, and visitors.

Education of dog owners should focus on the positive and negative reasons why dogs should remain leashed when around the bend in the trail from the parking lot. Positively, hikers should be informed of the above five benefits, not all of which are necessarily obvious to even experienced hikers. Most of these benefits are not available if the dog is allowed to run free.

Negatively, free-running dogs are subject to very significant hazards such as getting lost, falling prey to experienced wild predators, running afoul of porcupines (very inconvenient and possibly expensive for the dog owner, very painful and possibly fatal for the dog), being gored by mule deer during rut, and injury or death from precipices, sharp rocks or snags, or heat prostration from over-excited running. The best-trained or least-likely to roam dog in the world cannot be prevented from drinking from streams and lakes if not leashed. This is certain to lead eventually to the same unpleasant symptoms of giardia infection suffered by humans who drink unpurified water. Dogs should drink only purified water such as drunk by their human companions, best carried in dog packs along with a small dish from which they can drink.

RESPONSES

COMMENTS

Such education can be accomplished through the usual means of signs, brochures, and direct contact. Some of the management alternatives outlined below involve permits, the backs of which can be used for educational messages. Education by other hikers with dogs also can be employed; this can be seen as a version of peer pressure.

Education must be backed up by enforcement techniques. Those below are listed in order of increasing restrictiveness.

1) Post a sign at trailheads stating that all dogs must be leashed. This simple technique is the one most often used by backcountry managers. It is the technique that works most often and fails most often. It worked for the Forest Service on Great Basin trails; they report no management problems using this technique. The Park Service never tried it at Great Basin, though it works at other NPS sites. Signing should be tried first; it is the easiest technique for everyone. Its chances for success at Great Basin are good because hikers with dogs will see it as an alternative far preferable to the present complete ban. Another indicator of probable success of the simple sign technique is the Draft Management Plan's prediction that "the park's isolation from large population centers and interstate highways will keep visitation relatively low for the foreseeable future." [page 142]

The simple sign technique may fail for various reasons, depending on the pattern of who makes up most of the hikers. Even where this technique initially has failed because an unacceptable number of hikers unleashed their dogs as soon as they were out of sight of the trailhead, some managers have elected to stick with it. Eventually, a simple sign worked because education/peer pressure finally caught up with most of the dog owners in areas with much repeat use. Managers could put up with the administrative problems of too many loose dogs for a relatively long time because the other four alternatives below always were available as life preservers that managers knew they could grab if they ever felt like they were going down for the third time.

2) Hikers with dogs must self register at trailheads in a way similar to self registration at some campgrounds (particularly in national forests). Permits would record name and address of owner and description of dog. A carbon would go into a receptacle at the trailhead. The original would be tied to the dog's leash and would contain a list of rules and a short explanation, if necessary. (Suggested rules are listed below.)

RESPONSES

COMMENTS

Knowing that their identities are recorded would be a very significant incentive for hikers to keep their dogs leashed. They would be unlikely to start off unrecorded because they might meet a ranger somewhere up the trail. The likelihood of this technique achieving an acceptable degree of success is very high.

3) Backcountry use permits could be issued for hiking with dogs in the same way they are used in many parks for assigning campsites to backpackers. Hikers with dogs would have to go to a park office to be issued the permit. This could be considerable hassle, if the visitor does not know about this regulation until reaching the trailhead before the necessary park office opens or after it closes (the best times for photography in the ancient bristlecone forests). However, most hikers with dogs probably would find even this inconvenience preferable to breaking the rules with accompanying mental uncertainty.

NPS personnel issuing the permits not only could record the owners and dogs in person but also take the opportunity for education. This method would provide a way to limit the number of dogs on a particularly popular trail in the same way that backpackers are not permitted to overcrowd particularly popular campsites. Projected light visitation makes such a limitation of dogs unlikely to be necessary.

4) Limited access of dogs to certain trails is used in some parks with heavy trail use. Redwoods permits leashed dogs on all trails except that to the tallest tree. Grand Canyon permits dogs on leash above the rim. North Cascades permits dogs on the Pacific Crest Trail in wilderness areas. An analogous policy is possible for Great Basin, but probably would not be necessary due to relatively light visitation.

5) Special use permits could be issued to hikers who can demonstrate experience with their dogs in backcountry situations and who acknowledge ethical responsibilities in such situations. Park managers could insist that the dogs actually be used for working purposes, such as packing. Alternatively, some hikers might be able to demonstrate responsible use of their dogs as "guide" dogs, assuming that all humans have relatively blind senses of smell and hearing.

A bond could be required of permittees to further assure that they abided by the rules. The bond could be some multiple of the fine that would be levied for releasing a dog from physical control within the park. A far more serious club held over permittees than loss of their bonds would be loss of their permits.

RESPONSES

COMMENTS

Special use permittees also could be required to help educate the public about proper use of dogs in the wilds. Carrying educational brochures in the dogs' packs for distribution to other interested hikers is an example of how permittees could undertake this effort.

A visible sign of the dogs special permits (patches or tags) could be displayed on the dogs' packs or leashes for the public and patrolling rangers to see.

Suggested Rules for Hiking with Dogs in Great Basin National Park

1) Dogs never are to be released from direct physical control of their masters anywhere in the park.

2) Dogs are to be prevented from continuously barking.

3) Dogs are to be prevented from approaching other hikers closely unless other hikers initiate the approach.

4) If horses, llamas, or mules are encountered, hikers with dogs must move well off the trail, far enough to prevent dogs and other animals from disturbing each other.

THIS STATEMENT OUTLINES HOW DOGS CAN HELP PARK VISITORS ACHIEVE UNIQUE PURPOSES FOR WHICH GREAT BASIN AND OTHER NATIONAL PARKS WERE CREATED. THIS STATEMENT ALSO OUTLINES WAYS IN WHICH PARK ADMINISTRATORS CAN SUCCESSFULLY MANAGE ANY PROBLEM ASSOCIATED WITH DOGS ON TRAILS. THE ORGANIZED COMMUNITY OF DOG FANCIERS STANDS READY TO WORK WITH GREAT BASIN'S MANAGERS TO SOLVE ANY CONCERN ABOUT DOGS ON TRAILS THAT THIS STATEMENT DOES NOT ADDRESS.

RESPONSES

COMMENTS

December 31, 1991

Superintendent
Great Basin National Park
Baker, Nevada 89311

Dear Superintendent,

Please accept these comments on the draft general management plan to be entered into the record.

First let me say as a livestock operator I would, of course, prefer alternative A, but I realize with the increasing use of the park that some things need to change so in general I support the proposed action in the management plan with some reservations which are discussed in the following letter.

I would prefer to see the entrance road stay where it is and leave the present visitor center and move the housing and maintenance to Baker. It is hard for me to see where the advantage of an expensive new road and visitors center justifies the cost.

Also I would encourage the development of 100 sites in the Lehman Flats campground as called for in one of the other alternatives.

1 I also think the road to Mt. Washington should be left open to provide an opportunity for those who can't hike to be able to enjoy the beauty of this area. I don't think it needs to be managed to encourage visitor use but should be left open so those who want to could drive up and enjoy this area.

It states in the document that there is a shortage of stream fishing in Nevada. The stocking of cutthroat trout in the streams on the east side would not help this situation because there is just not sufficient quantity of water to maintain any significant amount of fishing pressure on a natural fishery. I therefore feel a way should be found to stock

2 some streams so as to allow more fishing. I do however support the

RESPONSES

1. See response 1 to Bill Coffman (p. 323).

2. Comment noted. The plan does not indicate that grazing would automatically be restricted to protect the cutthroat. Page 71 of the draft plans/EIS (p. 73 of the final plans/EIS) indicates only that the impacts of grazing activities in the watershed would be carefully monitored to ensure that the fish would not be jeopardized. If grazing impacts appeared to be affecting the fish, there are many grazing management options that could be implemented that would not involve restricting numbers of cattle in the allotments.

COMMENTS

stocking of cutthroat trout in some selected sites as outlined in the plan, but strongly disagree with restricting grazing to insure their survival. First, I don't think that grazing at the present level would be detrimental to the establishment of cutthroat trout, and second, I don't think that it would be in keeping with the mandate that grazing not be curtailed except for sound range management reasons.

As to the matter of elk on the park. If they come on their own, I am sure nothing can be done about it. I don't think, however, that they should be planted and I support the proposal not to do so. It is my understanding that elk are not native to this mountain range. When my great grandfather came here in 1868, there were no elk on this mountain range. Both he and my grandfather used many of the native indians who lived on Snake Creek, just above Garrison, and those early native indians never mentioned anything about there ever being elk on this mountain either.

3 I also feel that the detrimental effects of grazing as it pertains to introduction of non-native species or erosion, pollution, and damage to some existing species beyond their ability to recover is exaggerated and way over emphasized in the plan. Especially when the plan itself states on page 130 that this is not known but only suspected.

The inclusion in the general management plan of the mention of 200 unsolicited comments that came in with the workbooks that "suggest that grazing was incompatible with the park and should be eliminated" is inappropriate given the mandate of the park; and this by your own definition, on page 15, of issues that are beyond the scope of this management plan. It should be evident that those of us who graze livestock are in favor of grazing continuing, but because we stuck to the instructions in the work book which had no alternative for no grazing, we

4 made no comments along those lines. I therefore think it is inappropriate to give play to those who are opposed to grazing and disregarded the instructions in the workbook while making no mention of anyone being in favor of it when that is evident but we did not mention it because we stuck to the issues in the workbook.

In the section on special use zones, I didn't find any mention of

RESPONSES

3. Comment noted.

4. The grazing section on page 10 of the draft plans/EIS and final plans/EIS documents the issues that arose during public scoping. It is significant that nearly one-third of the respondents to the workbook indicated that grazing was an important issue with them.

COMMENTS

the concrete pipeline in Snake Creek. Maybe this was covered under special use permits, i.e. pipelines, I don't know, but I thought I should call your attention to this matter.

5 Also there is mention in some zones that the use of power tools would not be allowed. I would hope there would be a way by special permit or something that could provide exceptions to this such as the use of a chain saw to remove trees over a fence or while maintaining water development.

6 In the special day use zones, especially the one at Lexington Arch, I have some concern. There is mention of a one mile trail and a ¼ mile one around the arch that would be restricted to no grazing. This would severely impact the grazing in the rest of the head of Lexington. However by moving the trail head and parking area a little ways up arch canyon, it wouldn't adversely affect the experience of the hike to the arch and it would eliminate any problem with grazing the rest of the canyon. I would hope that when it comes time to do this that there could be some co-operation so this could be worked out to everyone's benefit and I'm sure it can be.

7 Last but not least, I am concerned about the section on vacating a permit. It states that if a permit is vacated for ~~any~~ reason, and I would presume this would mean the death of a permit holder, that the permit could be reallocated or permenatly withdrawn. Even though there are several places in the management plan that states that the intent of the law is for grazing to continue it is evident that this does not set well with park service policy. I am concerned that this section, even given the mandate of the bill, lays the ground work to terminate grazing in the park.

Sincerely,

Owen L. Gonder

Owen L. Gonder

Patricia T. Gonder

Patricia T. Gonder

RESPONSES

5. The Park Service *Management Policies* (6:4) require that the "minimum tool" concept be used in areas suitable for wilderness designation. The policies state that superintendents will select the minimum tool for administrative practices necessary to sucessfully and safely accomplish the management objective with the least adverse impact on wilderness character and resources. A decision to allow a permittee to use a chainsaw for maintenance purposes would be based on this policy.

6. See response 11 to the U.S. Forest Service, Ely Ranger District (p. 229).

7. The enabling legislation for the park (PL 99-565) makes it clear that grazing is to continue within the park "subject to such limitations, conditions or regulations as [the secretary of the interior] may prescribe." Senate Report 99-458, which was submitted along with the enabling legislation, states: "Section 3(e) provides that grazing is to continue in the park subject to constraints imposed by the Secretary to ensure proper rangeland management. The Secretary is not expected to take any action restricting grazing unless it is in furtherance of sound rangeland management."

The section of the draft plans/EIS on page 70 (p. 72 of the final plans/EIS) that discusses the intent of the Park Service regarding vacated permits recognizes the agency's responsibility to exercise sound rangeland management principles, as well as the opportunity to review and change allotment management whenever a vacancy occurs (although changes need not wait for an allotment to become vacant). As noted, reallocations would be made consistent with sound rangeland management. Similarly, other management actions could be taken, including holding an allotment in reserve, or permanently withdrawing an allotment, if in the best interest of resource protection and visitor use, both of which are components of a sound rangeland management program.

COMMENTS

Lehman Caves Gift and Cafe
Great Basin National Park
Baker, Nevada 89311

December 27, 1991

Superintendent
Great Basin National Park
Baker, Nevada 89311

Dear Superintendent Hendricks,

My comments on the General Management Plan in regard to the concession can be quite brief---I thoroughly agree with the General Management Plan's proposal to keep the concession essentially as it is. I think that it is very appropriate in this small and fragile park to not increase commercial services in the park, but to rely on commercial services in the nearby town of Baker, only five miles from the current park entrance on the present entrance road.

1 In this regard, however, I want to stress the importance of support to the town of Baker in developing infrastructure, since Baker is a very small (75 to 100 persons) and poor (one of the lowest median incomes in the state) community. In EIS terms, the Park Service needs to address mitigation of the impact which has occurred to the community of Baker with the creation of Great Basin National Park. At this point Baker is served by individual wells and septic systems that have sufficed for this very small community without the Park. However, with the impact of the Park, and the need for gas, laundromats, showers, grocery, motel, RV park, etc. services (which, according to the GMP, will not be provided in the Park) Baker has become responsible for providing services to the Park visitors which the town has not the infrastructure to provide. It seems to me that the impact is clear, and that the EIS/GMP is remiss in not addressing this issue.

In general, I think the direction of the GMP is very wise. Limiting concessions, keeping development very limited on Snake and Strawberry Creeks, limiting the Greycliffs area, removing administration, maintenance, and most of the housing from the Park, as well as the sewage lagoons, are all in character with the small size of the Park and its wonderfully clean air and water, as well as its quietness and fragility.

However, there are certain proposals in the GMP which I feel are contrary to the general direction of the plan and the purposes and intentions which many of us perceived were the reasons for the creation of the Park.

First, the development of a new, large, and very visible building

RESPONSES

1. See response 3 to the Nevada Department of Administration and response 3 to the Nevada Division of State Lands (pp. 236, 253).

COMMENTS

and parking lot in the Park---the Baker Ridge Visitor Center. While there are beautiful views from the proposed site, the building and associated parking lots will destroy the wilderness nature of the views from the Baker Creek road, as well as from portions of the Wheeler Peak Scenic Drive. It has also been pointed out that the proposed site is underlain by possible cave strata, and that interpretation from the 80 acre Administrative Site in Baker would better fit new Park Service models of interpretation which do not require buildings right in the middle of what is being interpreted.

The 80 acre site would also contribute better than the Baker Ridge Site to the goal of dispersing visitors throughout the Park, thereby relieving pressure on Lehman Caves. Concerns have also been expressed that a Baker Ridge Visitor Center would end up being closed during the sparseley visited winter months, whereas a visitor center at the Administrative Site could be more easily kept available to the public in the winter since staff would be nearby. It really is a small and fragile park...no new buildings should be built within the Park when an excellent alternative such as that in alternative B exists. This matches with the input which my employees and I have received from visitors in the cafe and gift shop that no new buildings should be built in the Park.

Second, the proposed new entrance road would create new paving to and through such fragile Park areas as Kious Basin, and fragile riparian areas on both Park and BLM lands. The road would also take the risk of disturbing deer migration routes and sage grouse strutting grounds. At a cost of over 4 million dollars, it would replace the current perfectly adequate entrance road, and while perhaps providing more glorious vistas from one's car, it will destroy areas which currently provide considerable opportunities for solitude and exploration. The public has been clearly opposed to <u>any</u> new road---in earlier public comment responses, the greatest number of responses went to "other" and wrote in "no new road," when the respondents were faced with four versions of a new road. It should be noted that with both this issue and that of the new visitor center, the public was not then offered any no action alternative. And, again, comments in the concession have been almost universally opposed to any new road.

2

Third, considerable expansion is planned for the Wheeler Peak parking lot. It has seemed to me that overcrowding of the current lot only occurs during the busiest portions of the summer season, and, rather than once again destroying the environment, a better solution to this problem might be a summer shuttle system, which could also aid RV drivers who might wish to reach the Wheeler Peak trailhead and viewpoints where they will not be allowed to drive. Building a bigger parking lot only increases the possibility of an overcroweded Wheeler Peak Day Use Area, and a dangerously overcrowded Wheeler Peak Road.

RESPONSES

2. Comment noted. Responses to workbook questions are not regarded by the Park Service as votes. A total of 566 individuals responded to the workbook question on a new entrance road. One hundred fifty-nine indicated that no new road should be built. Four hundred and seven indicated that a new road should be built along along one of four possible alignments. This does not indicate to us that there is universal opposition to a new entrance road.

COMMENTS

RESPONSES

Fourth, there are many instances in the GMP where new roads and parking lots are proposed to replace old roads and parking lots. It seems to me that the proposed "rehabilitation" of these old roads and parking lots needs to await more proven techniques. We have all seen the lower part of the orchard deteriorate further and further through the years until it right now won't even support cheat grass, and the unused road below remains as obvious and intrusive as it did twenty years ago. Resource management personnel have ventured the opinion that in these altitudes of the Great Basin the revegetation process is iffy and slow, and often doesn't work. I would suggest holding off on any of these projects until the technology can be shown to be adequate for this particular climate and elevation. Perhaps the Park Service could use the area below the orchard (including the old road at the foot of that area),the gravel pit, and the old dump site as areas in which to practice this rehabilitation. If successful technology is proven, it would then be appropriate to reintroduce these particular issues.

A final thought. As we discussed earlier, providing water to the SNO subdivision could be an excellent idea if it is tied to irrevocable easements or covenants which would both prohibit any commercial development and maintain the current 5 acre minimum lot size single family dwelling restrictions. As of today, I have spoken to somewhat more than half of the current residents, and all of them consider it an excellent idea. Clearly this is the most preliminary of discussions, but it has great possibilities for creating a real win-win situation for the Park and its nearest neighbors.

Thanks for the opportunity to comment!

Sincerely,

Tonia Harvey

Tonia Harvey
Lehman Caves Gift and Cafe

cc Senator Bryan
Senator Reid
Western Regional Office

COMMENTS

RESPONSES

2300 B Estes Road
Chico, CA 95928
December 9, 1991

Mr. Al Hendricks, Superintendent
Great Basin National Park
Baker, Nevada 89311

Dear Mr. Hendricks:

I am writing in response to the *Draft General Management Plan/Development Concept Plans/Environmental Impact Statement* for Great Basin National Park. I first became aware of the beauty of Great Basin National Park when a friend and I camped at a primitive campground on Snake Creek in the summer of 1990. We were both struck by the lovely power of this mountain canyon--our favorite national park is now Great Basin.

Unfortunately, the beauty of the park is presently marred by the extreme degradation of the riparian areas due to the grazing of cattle. Because of this concern, I asked to be on the mailing list to comment on the future direction of the Great Basin National Park.

Unfortunately, I found the Draft EIS to be inadequate in a number of significant areas, and therefore a violation of NEPA. These inadequacies can be categorized as follows:

(1) Grazing
(2) Wilderness designation
(3) Mining
(5) Cultural Resource Interpretation
(6) Other Concerns

GRAZING

As the DEIS states, the riparian areas in the park are severely overgrazed and would continue to be degraded as long as grazing is permitted in the park (p. 10, 152). The proposed action continues to permit grazing with apparently very little protection of riparian areas. Even the most stringent alternative, Alternative B, only vaguely states how the riparian areas might be more protected than the proposed action. There has to be more details which specify what range practices are proposed.

COMMENTS

RESPONSES

2

1 Furthermore, one alternative must have a "no grazing" component or the NEPA requirement of "alternatives to the proposed action" will be blatantly violated. The excuse given was that "the authorizing legislation for the park provides for the continuation of grazing subject to such limitations, conditions, or regulations as the Secretary of the Interior may prescribe." Thus, under a continued grazing alternative, the Secretary of the Interior has the power to prescribe the most stringent means possible to protect riparian areas, including the fencing of riparian areas from cattle. The Secretary of the Interior also has the power to negotiate with the permittees an exchange of allotments outside the park so that grazing can be eliminated in the park (p. 209). However, no mention of this clause is stated on page 10 and page 106 when it is falsely implied that the authorizing legislation must include grazing within the park forever.

Therefore, one alternative, in order to be a true alternative to the proposed action (especially when such an alternative will mitigate an adverse environmental impact which would otherwise continue under the proposed action) must include no grazing within the park. Besides the allotment exchange for permittees, other compensation to the permittees (such as monetary) should be included in the alternative action. If government can bail out the S & L crooks with billions of dollars, it should be able to fairly compensate hard-working and honest cattle ranchers.

1. See response 1 to the Nevada Farm Bureau (p. 288), response 2 to the Sierra Club, Toiyabe Chapter (p. 303), and response 4 to the Wilderness Society (p. 314). Nowhere in the draft plans/EIS does it state that the National Park Service must include grazing within the park forever. A discussion of the complexity of the grazing issue is included on page 70 of the draft (p. 72 of the final). This section also discusses the provision in the enabling legislation authorizing negotiations with grazing permittees for exchange of their grazing allotments and the Park Service's intentions regarding grazing allotments that may be vacated within the park.

The National Environmental Policy Act (NEPA) and the Council of Environmental Quality's (CEQ) implementing regulations do not require an agency to include an alternative that is clearly beyond what Congress has authorized unless that alternative is reasonable. Given the amount of discussion regarding grazing in the enabling legislation and its administrative history, the Park Service does not believe it is reasonable to include an alternative that would completely eliminate grazing in the park.

WILDERNESS DESIGNATION

2 On page 15 it is stated that "wilderness recommendation was determined to be beyond the scope of the general management plan" and that "the general management plan for Great Basin does not include a wilderness recommendation," even though it is also stated that the Forest Service "reviewed the area and proposed it for future wilderness recommendation." Why isn't an explanation given for not including any area in the park for wilderness designation? On page 211 it falsely states that wilderness suitability is "discussed." Nothing is discussed--we only get a statement with no explanation. Other national parks and monuments have wilderness designations within their boundaries, why not Great Basin as one alternative for its future? If wilderness suitability is "beyond the scope of the General Management Plan," reasons must be given. To not include wilderness designations for some areas of the park in one alternative is a violation of NEPA because it is a reasonable alternative to the proposed action which will enhance the parks natural environment.

2. See response 1 to Partners in Parks (p. 295). Nothing in the proposed action would affect lands currently suitable for wilderness.

COMMENTS

MINING

3 The analysis on mineral interests is incomplete. It is stated that the Park Service has incomplete information (p. 159). Yet the purpose of a management plan and an EIS is to obtain the information. It is not stated why the information on mining claims was not gathered. How is the public and the Park Service to assess mining impacts if we only have vague information to analyze?

CULTURAL RESOURCE INTERPRETATION

4 The only mention of Native Americans is a brief paragraph on page 12. The proposed action as well as the alternatives discuss no involvement with Native Americans with the cultural resource interpretation of the park. One alternative should include an emphasis with Native American participation and interpretation.

OTHER CONCERNS

5 In summary, the DEIS is generally lacking detailed scientific data with which the public can evaluate proposed actions and alternatives. NEPA requires a "detailed statement by the responsible official" within the EIS. On pages 12-13, it is stated that "a resource management plan, a rangeland analysis,...grazing allotment management plans...a fire management plan, cave management plan, water resources plan, backcountry management plan, and land protection plan" are concurrently being prepared with the DEIS or will be prepared at a later date. However, a plan--and NEPA--requires details. As a member of the public, I have not received any information on any of these plans. These concurrent and proposed plans should be included in the DEIS document. On page 12 it also states that the details will come after the general management plan is approved. But the purpose of an EIS, according to law, is to provide the details needed for an adequate public as well as agency assessment of environmental consequences of any proposed actions. The whole document reads like a verbal summary, and not a detailed scientific study with real alternatives to the proposed action. Also, only the consultation with the Fish and Wildlife Service is given. Why wasn't the Forest Service or the BLM consulted?

RESPONSES

3. Conducting validity exams on the numerous mining claims in the park is an expensive, long, tedious process. The Park Service believes that the level of existing information is sufficient to assess the impacts of the alternatives in the GMP as they pertain to mining.

4. An interpretive prospectus would be developed that would delineate interpretive themes. On page 239 of the draft plans/EIS (p. 395 of the final plans/EIS) involvement with Native Americans is discussed.

5. The Park Service believes that there is sufficient detail included in the draft plans/EIS to analyze and evaluate the level of decisions being made. CEQ regulations encourage agencies to tier more site-specific or project-specific actions and their environmental analysis on broader-scope NEPA documents such as the draft plans/EIS. Consultation with the Forest Service and BLM is documented on page 200 of the draft (p. 204 of the final).

COMMENTS

RESPONSES

4

A violation of NEPA has occurred if (1) such agencies with special expertise were ignored, or (2) they were consulted and the information was not given to the public in the DEIS document.

The DEIS should be thoroughly rewritten so that the above management plans are written into the document; to not do so would be a violation of NEPA as well as a disservice to those who care about the future of Great Basin National Park.

I appreciate the good work which has been done, but the public and the Park Service itself deserves more.

Thank you,

Bill Helmer

Bill Helmer

COMMENTS

12/21/91

Mr. Al Hendricks, Superintendent
Great Basin National Park
Baker, NV 89311

Dear Mr. Hendricks,

First let me commend you and all those who devoted their time to the preparation of the Great Basin EIS. It seems, in my experience a model of intelligence and, although I am at variance with the proposed plan, it also seems to show considerable openness to real alternatives, not just lip service to them.

I am originally from Utah and though I have lived in New Mexico for a number of years now, I have been visiting Great Basin for over thirty years. I have hiked, camped and visited the caves several times in that span. I want to urge you to implement Alternative B in lieu of the proposal. The proposal, it seems to me, tries too hard to meet and incorporate the views and perceived needs of too many 'constituencies'. In doing so, it is full of contradictory and antagonistic principles of growth and conservation. It is time for the Park Service, as well as other federal agencies whose task is to be stewards of our patrimony of land, to take more decisive steps to implement the growing will in America to conserve and protect that legacy and not try to perform a balancing act among views that cannot all be met except by an ungainly and essentially nonprotective set of compromises. Compromise in the case of this proposed action entails the building of new roads, buildings, trails, all of which will have future consequences of degradation to this beautiful and vulnerable area. Alternative B upgrades essential roads without proliferating them, allows consolidation of buildings, campgrounds, upgrading of much of the land to either semi-primitive or primitive status. It also provides for a real balanced recreational diversity with improvements for those who are limited by physical inabilities or preference to a tour of important areas, plus an extension of the trail system, notably by closing the road at the Johnson Lake trailhead and turning the rest of the current Snake Creek road into trail, but a consolidation of the trail system which creates a more extensive opportunity for real backcountry experience and solitude for those who desire that. Besides giving much more extensive protection to flora and fauna, through changed and improved subzone designations, and through special research zones and additional efforts to restock and close additional sensitive botanical areas to grazing, Alternative B represents the real wisdom that is going to be needed in the future about restoration of areas by deliberate closing of areas to kinds of recreational development patterns that simply support the status quo usage and invite greater use and its consequent degradation of the land.

Thankyou for taking the time to consider my views. I know that I am not alone, and believe that I represent a growing view that a newly oriented philosophy of protection is required in this increasingly crowded world, one which bravely liberates itself from dangerously anachronistic views that equate additional development with progress.

Most sincerely,

Georgia S. Knight
2604 Alamosa Dr.
Santa Fe, NM 87505

RESPONSES

No response required.

COMMENTS

University of Calgary
Calgary, Alberta T2N 1N4 Canada
December 26, 1991

Mr. Al Hendricks
Superintendent, Great Basin National Park

Dear Mr. Hendricks:

I have received a copy of the GBNP Draft Management Plan and would like to comment briefly on the proposals. My perceptions of the proposed options are colored by my experiences in the other western national parks, all of which I have visited. The ho-hum experiences were in places where outstanding natural phenomena are surrounded by development, and the phenomena are reduced to mere curiosities (e.g., Old Faithful in Yellowstone). In contrast, the most sublime experience I can recall was in Horseshoe Canyon in Canyonlands NP, where those mind-boggling pictographs were encountered in solitude, without the benefits of hamburger stands, souvenir stores, roads, handrails, or visitor centers. Had those spectacular sites been subject to normal national park development, the effect on mind and spirit would have been nearly obliterated. Judging from past American practices, I regard national park status as commonly deleterious to the natural region's health that is supposedly being protected. Hence I regard Alternative B in the Draft Management Plan as the most sensible of the described options, and cast an informal citizen's vote for its implementation. The "proposed option" is relatively undamaging however, and the idea of a visitor center located in a commanding position on Baker Ridge has a certain appeal, particularly were it to become a symbolic and functional center of education and research in the Great Basin region. Alternative C is more in keeping with normal national park practices; that is, it is damaging and distasteful. The single worst thing in any of the described options, in my opinion, is provision of easy access to the bristlecones on Mt. Washington.

The Wheeler Peak cirque is a special place in the park, indeed in the entire Great Basin. Although I described potential interpretive stops in my cirque write-up for the NHA, I very much hope such stops as these can be utilized with a leaflet and maybe a few small number posts. Interpretive signs in the cirque would be very intrusive.

Under separate cover I would like to send you or Bruce Freet a few comments on the geographic and geologic background presented in the management plan document. Meanwhile, I appreciate the opportunity to voice my opinions.

Sincerely,

Gerald Osborn

RESPONSES

No response required.

COMMENTS

RESPONSES

December 29, 1991

Mr. Al Hendricks
Superintendent
Great Basin National Park
Baker, Nevada 893311

Dear Sir;

I would like to thank the Park Service for this opportunity to express my views on the Draft General Management Plan of the Great Basin National Park. My name is William Rountree. I originally moved to Baker Nevada in 1971. I have owned and operated the Silver Jack Motel and Gift Shop in Baker since 1985. Through diligent work and effort my wife Katherine and I have created a successful business here. Our business received a beneficial boost in 1986 with the creation of the Great Basin National Park. From a business and service to park visitor point of view, the details of the General Management Plan and how they are executed will have a direct effect, either beneficial or deleterious. I love this area and have every intention of living out my natural life here.

I was very impressed with the exhaustive volume and quality of work performed in gathering the data necessary for distillation into the draft G.M.P. Gentlemen, ladies, my congratulations. I appreciate your effort. Naturally I don't agree with all the conclusions drawn and actions suggested. I have some opinions on various subjects and they are offered in the spirit of developing our park in a way that it can be protected, interpreted and appreciated through generations to come.

VISITOR CENTER IN BAKER

I have been made aware of a concerted effort on the part of some special interest individuals to have the visitor center placed in Baker. As a resident and business person of Baker, I stand in firm opposition to this scheme. I support alternative A with the information kiosk in Baker. The kiosk will provide information about the park to the visitor, then they can stop in Baker for goods and services before heading into the park. It is a sensible plan.

However, a visitor center in Baker is eminently unwise. It will serve no one's best interests; the Park Service, the town of Baker or the tourist. 1. It is a poor site for interpreting the Great Basin. 2. Traffic would become a major problem with the average stay increased from 15 minutes (information kiosk) to over one hour (visitor center). 3. Saddled with a visitor center in Baker, the Park Service's autonomy would be compromised. It is imperative that the N.P.S. visitor center be situated within the G.B.N.P. boundaries. 4. If the visitor center is sited in Baker our little town will be altered beyond any form of recognition. Modest though it may be, Baker possesses a history, character and charm that is both unique and fragile. It should be noted that people live in Baker out of choice rather than necessity,

For its part the N.P.S. is to be commended for demonstrating a sensitivity to Baker and its needs with alternative A. Based on seven years of working with the N.P.S. and Al Hendricks, I have full faith that every effort on their part will be made to harmoniously "blend in" an information kiosk, residential area and maintenance area.

THE NEW ROAD VIA KIOUS BASIN

I am fully in favor of the new road for a number of reasons.

1. Interpretation. It will be a marvelous introductory drive for the visitor. I am very familiar with the

COMMENTS

area through which the new road will be sited. The views of the South Snake Range, Snake valley and Mt. Moriah to the north are sublime.

2. Zoning. The Park service needs this corridor and the zoning control of it to ensure a pristine and commercially undeveloped route to the Park boundary.
3. Safety. The new road to the park will be safer than the existing entrance road. A few years ago I worked with Wyoming Electric on a contract bringing power to Lehman Caves Visitor Center. While working on the ditch near the intersection of Lehman Creek Road and the main road, I observed numerous dangerous traffic situations. People in huge RV's backing down the road to read signs, followed minutes later by cars speeding into the park at 60 m.p.h. I was glad to get away from that dangerous intersection.

REBUTTAL TO ARGUMENTS FOR NOT BUILDING THE NEW ROAD VIA KIOUS BASIN

1. Argument: Sage Grouse strutting area.
   Rebuttal: The Sage Grouse is not an endangered species.
2. Argument: The road crosses a mule deer migration route.
   Rebuttal: The mule deer is not an endangered species. The existing entrance road crosses mule deer migration routes. The difference in speed limits between the Kious Basin Road (35 m.p.h.) versus the current road (55 mph) will result in fewer deer killed on the Kious Basin Road.
3. Argument: The Kious Basin Road will adversely affect the town of Baker and its businesses.
   Rebuttal: No it won't. More visitors will pass through Baker on their way to visit the park, giving the businesses in Baker more exposure than they currently have. It can only be beneficial.

1

REBUTTAL TO ARGUMENTS AGAINST SITING THE NEW VISITOR CENTER INSIDE G.B.N.P.

1. Argument: The placement of a new visitor center will create an unnatural visual distraction from the Lehman Creek Road
   Rebuttal: Granted, this potential exists. Indeed there are some wonderful examples of visual eyesores within the S.N.O. subdivision. My point is this condition can be minimized if it is held as an architectural priority. Non-glaring surfaces, siting of windows and landscaping are a few of the considerations, which used sensitively, can mitigate the problem.
2. Argument: The new visitor center will only be used seasonally and therefore it is a waste of money.
   Rebuttal: On the contrary, the new visitor center will serve the needs of the park quite nicely. That it will be used seasonally merely demonstrates fiscal responsibility.
3. Argument: Because the new visitor center will be used seasonally it should be sited in Baker.
   Rebuttal: There is no logic in this argument.

• THE ROAD TO MT. WASHINGTON

I would like to see it kept open, if not advertised as a major attraction. The reasons are many and varied and have been covered in the scoping meetings and other letters so I won't enumerate them here.

• EAST SIDE TROUT STOCKING

2 To reintroduce and protect the Bonneville Cutthroat is a commendable goal. But is it necessary

RESPONSES

1. Comments noted

2. See response 10 to the U.S. Forest Service, Ely Ranger District (p. 229).

COMMENTS

to stock all the major creeks of the east side with them? It is my opinion that recreational fishing is important to a sizable percentage of park visitors. I would suggest that the two considerations are not mutually exclusive.

Upon further reflection I can see that recreational fishing might have an adverse impact on the riparian zones. But this potential problem could be mitigated by careful trail planning and close usage monitoring.

• THE RESIDENTIAL AREA IN BAKER

One concern is that the homes be constructed rather than modular. Modulars, kit homes and trailers aesthetically pinch my gut. Baker has a need to upgrade with permanent, sound structures. The N.P.S. could go a long way by setting an example in this regard.

The homes should be well insulated and sited to take advantage of passive solar radiation. The wiring of the homes should be designed for going partially or totally "off the grid" in the future.

3 The plumbing should have a grey water system for outside watering.

• CONSTRUCTION OF NEW VISITOR CENTER

Consideration should be given to the future addition of solar generated heat. This can be accomplished by installing ductwork under the foundation for piping and air passages. The ducting should originate in the utility/furnace room and terminate just outside the foundation footings. This consideration is of particular importance if the building is to be constructed on a concrete slab.

• WATER AND SEWER

Baker needs municipal water and sewer if we hope to provide quality goods and services to the increasing numbers of park visitors. Increasingly stringent Dept. of Health regulations pose a threat to businesses without municipal water and sewer. Without the help of the N.P.S. this is fiscally beyond our reach. Municipal water and sewer will benefit all parties involved.

Again, thank you for the opportunity to express my views.

Yours truly,

William R. Rountree

William R. Rountree

RESPONSES

3. Comments noted.

COMMENTS

Michael P. Schafale
4220 Optimist Farm Road
Apex, NC 27502

December 28, 1991

Superintendent
Great Basin National Park
Baker, NV 89311

Dear Sir:

I have reviewed the draft General Management Plan, Development Plan, and Environmental Impact Statemet for Great Basin National Park. In general, I believe the proposed alternative will provide for appropriated development and management of the park. The zoning concept used is a good way of providing or protecting a variety of visitor experiences. In most ways the plan appears to protect the ecological resources of the park.

I do, however, have several significant concerns with the proposed alternative. The primitive zone in this alternative, although large, is fragmented. It is unclear to me tne practical difference between the primitive and semi-primitive zones, away from constructed trails. Nevertheless, it is clear that the proposed action would leave no major canyon bottom without a trail, and that the number of official access points would lead to increasing use levels in all parts of the park. Elimination of one of the southern access areas and trails, such as the Highland Ridge trailhead and the trail in upper South Fork big Wash, would provide a more contiguous primitive block. Such a larger block, with a greater diversity of environments, would be beneficial to both wildlife and visitors seeking a greater freedom from human disturbance. It would not have to preclude trail connections along the entire length of the park.

My second major concern is with the several proposals to build new facilities on new sites while removing existing facilities and reclaiming the sites. In my experience, true restoration of natural vegetation on formerly paved or built sites is nearly impossible, even in the humid East with its more rapid growth rates. While reclamation greatly inproves disturbed sites, from the ecological standpoint, it does not replace natural vegetation lost to disturbance elsewhere. I therefore dispute the conclusion that rehabilitation of 27 acres of disturbed land reduces the loss of 127 acres by new disturbance to 97 acres. It is noted that some of the 127 acres to be disturbed has been previously disturbed and does not nave natural vegetation, but the amount is not given. While visitor safety and interpretation may warrant some disturbance of natural lands in the developed parts of the park, some of the proposed actions are not well

1

RESPONSES

1. The discussion and table on page 166-167 of the draft plans/EIS (pp. 168-169 of the final plans/EIS) fully quantifies and qualifies the impacts according to severity and habitat classes.

COMMENTS

RESPONSES

justified in this document. These are the areas most park visitors will see, and while most will not be aware of the difference between natural, disturbed, and restored communities, it should be a function of the park to educate them about the difference.

On a final, personal, note, I am concerned about the proposal for designated backcountry campsites on the Baker-Johnson loop. While designated sites are sometimes necessary to limit damage caused by heavy use, and should be used in such circumstances, I find them to severely degrade the backcountry experience. I believe use of such designated sites should not be required unless and until degradation is starting to occur. If such heavy overnight use is anticipated in the near future, I question the wisdom of encouraging horseback use, which is much more destructive than hiking, by providing corrals and horse trailor parking at trailheads.

Thank you for the opportunity to comment on this proposal.

Sincerely,

Michael P. Schafale

Michael P. Schafale

COMMENTS

Marylou Schnoes
5100 Lane Creek Road
Central Point, OR 97502

Superintendent
Great Basin National Park
Baker, NV 89311

To the Decision Maker,

I'm writing in response to the invitation for comments on your DEIS. I have enjoyed your Park a great deal and hope, for the sake of my children and all our descendents, you make a very well-informed decision. I'm a wildlife biologist and have worked for the Forest Service and BLM, and have some experience working on roadless areas interdisciplinary teams.

In general, I support the Proposed Action as outlined in your DEIS, but I do have a few concerns, as outlined below. I hope your staff is given the time to inventory the natural resources present before each step of the management scheme is carried out, so that nothing is lost due to simple ignorance. I suggest you allocate the resources to retain professionals that can thoroughly survey for sensitive plants and animals, "new" caves, and other valuable resources.

Concerning Mining Claims

Planning and budgeting should adequately allow for the resources of person-hours and other expenses necessary for

1. Testing the validity of mining claims,
2. Extinguishing invalid claims,
3. Scrutinizing plans of operation for valid claims,
4. Following-up on the actual implementation of those plans.

1 Abandoned shafts and "new" caves should be inventoried for sensitive species of bats. Even non-biologists can be taught the appropriate precautions to minimize disturbance, and how to distinguish bat- from woodrat- and other feces. Then, if necessary, a biologist should survey the shaft at the appropriate time of day in the appropriate season(s). Roads to shafts used by bats could be obliterated and rehab'd.

Concerning Grazing

Sound range management should be used to not just minimize adverse effects on sensitive plants, but to eliminate all such effects.

Grazing should be eliminated in areas below 10,500' which contain sensitive plants. I suspect it may be easy for a manager to confuse the idea that no

RESPONSES

1. Comment noted. Biological inventories would be incorporated into the cave management plan and the resource management plan.

COMMENTS

RESPONSES

sensitive plants ist below a certain elevation w h the fact that none are known to exist. ess a thorough botanical surve, as been done in high probablility areas, such a conclusion is not valid.

If the NPS has not had the workforce to do so in the past, it should hire professional botanist(s) to:

1. Identify any area with a high probability of sensitive plant habitat, in a pre-field and cursory field survey,
2. Recommend mitigating measures until a thorough survey can be done, and
3. Design a thorough survey plan.

Which, of course, the NPS should undertake. I suggest only experienced botanical technicians and botanists should be employed for such work.

Grazing should be monitored carefully and seasonal and/or AUM allowances should be modified as soon as possible if adverse impacts are observed.

Concerning Peregrines

Particular attention should be paid to protection and enhancement of the riparian areas closest to any known peregrine eyries. Such riparian areas are potentially highly productive of the prey base used by peregrines. Where non-migratory bird habitat of any kind can be enhanced near peregrine eyries, it should be. For many western peregrine females are still having trouble with pesticides originating in prey species that overwinter in Central and South America.

Concerning Caves

I suggest no new developments should occur in areas with underlying solution caves.

Concerning Horseback Trails

Again my concern is for the botanical resource and wildlife forage values. In the event equestrian use begins to spread noxious weeds to formerly uninvaded areas, plans should be in place to:

1. Redesignate such trails as pedestrian-use only trails, and
2. Immediate steps should be taken to control or eliminate the offending weed.

Thank you for the opportunity to comment. As I said the Proposed Action does look fairly good and with the above modifications, I support it.

Sincerely,

Marylou Schnoes

Marylou Schnoes

COMMENTS

Wilber and Virginia Scoville
324 SHORELANE, OSHKOSH, WISCONSIN 54901-5321
(414) 235-3013

Monday, December 2, 1991

Al Hendricks, Superintendent
Great Basin National Park
Baker, Nevada 89311

Dear Sir:

I have recently examined the September 16, 1991 mailing "Draft" general management plan at some length. Our five months of summer travel concentrated on a variety of parks in Alaska, Canada, and the Western States—often a repeat of visits made from three to fifty years ago.

1) The legislative limitations that came with the Park are such that there does not seem to much merit in spending time, effort, and money on the place—especially given the recent Congressional reluctance to raise grazing fees to a reasonable level. It should have remained a National Monument until such time at the State of Nevada wanted a National Park badly enough to get rid of the sheep and cattle. Confiscation of any unauthorized livestock will reduce their numbers and discourage the practice. Permit holders are experienced at bending and breaking the rules with impunity.

2) I did not find anything in the draft that indicated planning for seasonal differences in the use of the park. For example, there is not nearly enough campground space in the upper campgrounds during the summer, while more visitors will make use of the lower levels in the other seasons—unless it closes down in September for lack of funds needed to keep the Seasonal Staff on the job. Note that the Park Service seriously underestimated the numbers of visitors to Arches National Park. 1

3) Have some very low-budget alternatives as the entire Park System is on a starvation budget with high dependence on Seasonal and Volunteer labor.

4) I wish the Park Service would prohibit generators in campgrounds and fine violators. Limitations on operation do not seem to work.

Best Wishes,
Wilber E Scoville

RESPONSES

1. Seasonal operation of the park will be a function of visitation, and the park's operating budget and may vary from year to year. The Park Service's estimate for visitation to Great Basin has been accurate to this point.

COMMENTS

Lockheed
Engineering & Sciences Company
Environmental Programs Office
1050 E. Flamingo Road, Suite 120, Las Vegas, Nevada 89119

26 December 1991

Mr. A. Hendricks, Superintendent
Great Basin National Park
Baker, NV

Dear Mr. Hendricks:

I wish to address two issues raised at the recent public hearing of the management plan for Great Basin National Park (GBNP). I have visited GBNP in all seasons, for reasons of scientific research and recreation. I have assisted with similar management plans for National Parks and Wildlife Sanctuaries on several continents.

1. Plowing snow off of the road leading to Wheeler Peak Campground would remove a safe "escape route" for ski mountaineers and cross-country skiers. The trail from the Upper Lehman Campground to the Wheeler Peak Campground can be hazardous at night, or when visibility becomes poor, due to low clouds or storms. The road provides a safe, albeit longer, route for skiers who are inexperienced, unfamiliar with GBNP, sick, injured, or ill-equipped for an overnight bivouac.

I have personal experience in this matter. In the Winter of 1986, three of us skied from the Upper Lehman Campground to the Wheeler Peak Campground. It was late in the afternoon by the time we reached Wheeler Peak Campground. I became "altitude sick". The three of us (all experienced) decided that skiing the trail back down to the Upper Lehman Campground would not be safe at night, particularly when ill. Although the road was a much longer route in terms of distance, it was much safer and much less strenuous. Clearly, plowing the road would have prevented us from skiing down to Upper Lehman Campground, making our descent much more difficult, time-consuming, and, therefore, potentially hazardous.

2. While a shuttle bus system makes good sense for the parks that are often crowded with visitors (e.g., Yosemite), it would be neither cost-effective nor environmentally sound for GBNP. Estimates of the expected number of visitors to GBNP were outlined clearly in the management plan and at the hearing. The volume of traffic on the road to Wheeler Peak Campground is not expected to reach levels which would justify the need for a shuttle bus. The emissions (per trip) caused by a diesel bus, multiplied by the required number of trips per day would unquestionably be greater than the emissions from the gasoline-powered vehicles from the expected number of visitors.

1

RESPONSES

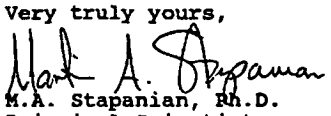
1. Comment noted.

COMMENTS

A. Hendricks
Great Basin National Park
26 December 1991
p. 2

If I can be of any technical assistance with respect to this management plan, please feel free to contact me at (702)734-3208.

Very truly yours,



M.A. Stapanian, Ph.D.
Principal Scientist
Chemometrics Section

cc: R.C. Metcalf
G.D. Merritt

J.O. 40.48

RESPONSES

COMMENTS

Supt.
Great Basin National Park
Baker, Nevada 89311

December 27, 1991

Dear Great Basin National Park:

I have only had a limited amount of time to review your management plan. But I do have several comments.

The first concerns the continuation of livestock grazing in Great Basin National Park. Livestock grazing in most of the Great Basin is inappropriate, but especially in a national park. I'm aware that the enabling legislation allowed for the continuation of livestock grazing, but that doesn't mean the Park Service shouldn't oppose this at every front. And there are a number of good biologically sound reasons why you can and should discontinue livestock grazing here.

I will make some general comments and I could provide all kinds of references, but I am hoping that you will not find disagreement with the general statements. But if you do, or you want additional information, I will dig out the papers and send you the titles.

The native vegetation largely evolved without large grazing animal influence. Even the mid-size animals like antelope and bighorn sheep were limited in number. Biological reviews of pristine and isolated vegetative plots show that under no livestock grazing, the sagebrush-bunchgrass ecosystem typically has a 5-15% sagebrush component and the rest grasses and forbs. We seldom see this anywhere because livestock grazing has favored the sagebrush at the expense of the grasses. The Great Basin plant communities do not adapt to livestock grazing, they collapse.

Furthermore, national parks are established as biological baselines. There is almost no place of any size in the entire Great Basin where livestock grazing does not occur. How we know the subtle and perhaps not so subtle ways that domestic livestock influences native communities without a major ecosystem size baseline. Great Basin could serve this function.

Livestock grazing interrupts natural ecological processes like fire. Loss of fuels and litter due to grazing has dramatically changed fire frequency in the entire Great Basin. And fire is an important natural ecological process that is emulated by livestock grazing. The reintroduction of fire into the ecosystem should be a major priority and getting rid of livestock is one step along that road.

In addition, national parks are supposed to be reserves for NATIVE species. Cattle and domestic sheep are non-native alien animals. Just as Great Basin National Park would not allow anyone to grow Scotch Pine or Norway Spruce in the park because they were

RESPONSES

No response required.

COMMENTS

alien species, you should not promote or condon any activity that favors alien animals over native ones. There are no empty niches. Forage going into the belly of domestic cattle is that much less that could support native species. In the Great Basin, the primary consumer on native grasslands is insects. What effect is grazing having on invertebrate species? You probably don't know, but any reduction in forage for these native insects means that many fewer higher predators from small mammals to birds that the park can support.

In addition, you have conflicts like the domestic sheep grazing which is a real threat to the bighorn sheep recently reintroduced into the Snake Range. I take real exception to your comment that says that if this herd dies out, no other bighorn will be reintroduced as long as domestic sheep are present. This is good logic and I understand the reasoning, so get rid of the domestic sheep. Isn't that the least of your job. While the enabling legislation said domestic livestock grazing could continue, it doesn't say that livestock grazing should continue if it is ruining other park resources and it most assuredly is.

Besides impacts on native species, there is the problem of water pollution. One of the great privileges that Americans are being denied is their right to drink clean water. Numerous studies have shown that domestic livestock pollute waters in part because they spend so much time in riparian areas.

Of course, the Park Service recognizes the impacts of livestock to riparian zones. A study by the Elko BLM showed that more than 80% of the species in that district depended upon or used riparian areas more than any other community. Any impact to riparian zones is unacceptable. And since there is no way to keep cows out of riparian zones short of fencing all the riparian areas in the Park, you are again not protecting park resources by permitting grazing. Furthermore, even if you could prevent use of the riparian areas, since the vast majority of forage is located in this region, you would have no choice but to do a major reduction in livestock if you are to prevent overgrazing of uplands. There is no free lunch.

In addition, the use of fences, construction of stock ponds, etc. is a domestication of our wildlands. Why should we have to accept greater ecosystem manipulation that costs hundreds of thousands of dollars simply to accommodate the economic interests of a few individual permittees.

There is just the public policy question. Why does the economic interest of a few individuals and corporations take priority over the interests the vast majority of Americans who own this land and the land itself which has suffered for more than a hundred years from the curse of livestock grazing.

For all these reasons and more, Great Basin National Park make elimination of livestock grazing their major priority. Despite the enabling legislation there are alternatives. Personally, I think

RESPONSES

COMMENTS

RESPONSES

you should find some eastern Congressional person to sponsor legislation changing your enabling legislation about livestock. Present all the biological reasons and there are many and you should be able to show that the reason the park was established is being greatly compromised by the presence of livestock. Alternatively, you could use all the money you are currently spending on livestock management, research, etc. should all be funneled into a fund that would be used to buy up a nearby ranch. With that ranch, you could reassign the grazing permits to people using the park-- I actually hate the idea that taxpayers must buy out someone using my lands for their personal profit, but getting rid of livestock would be worth the price. Or you could look for vacant BLM or FS allotments and have livestock reassigned to those areas. Finally, you could simply reduce herds to such low numbers that it is no longer viable to run cattle or sheep in the park.

One way or another you should make elimination of livestock a major priority.

On another issue, there are plans to make specific backcountry camps and assign permits. There is really no reason to get into that whole bureaucracy. Study after study has shown that human backcountry use has had a tiny impact on ecological processes and sites. (Unlike cattle) The use of permits makes for a major bureacratic process that not only restricts user freedom, it also takes away from user independents to make for administrative "solitude". In other words instead of hikers seeking out areas that are more difficult to reach if they want solitude, some lazy hikers demand that government agencies administer solitude for them by restricting use. The use is restricted not because of ecological impacts (although many wilderness managers not being trained in ecology think that a ten foot piece of bare ground is a major ecological impact), but because of the perception that it is too crowded.

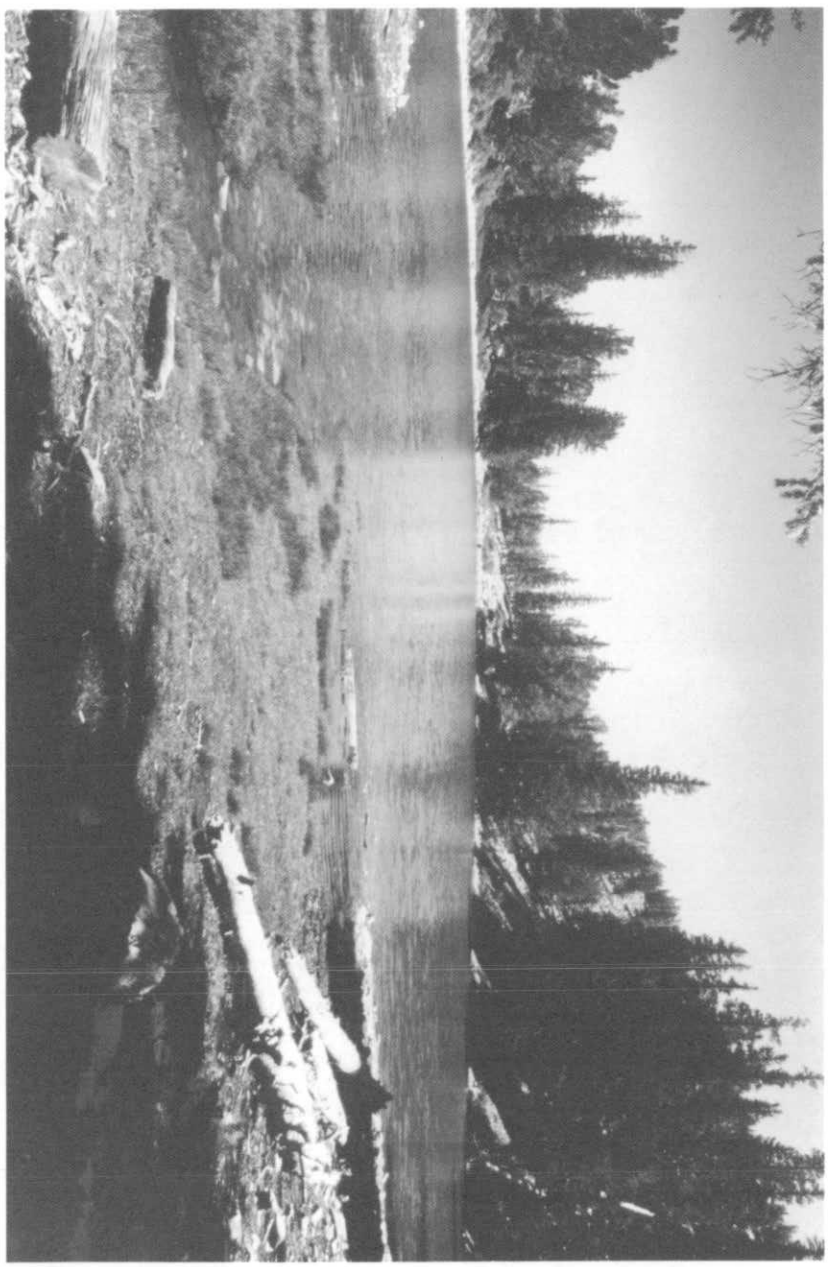
I am not opposed to hardening sites by installation of outhouses and such at popular camping areas. This only makes sense and much preferable to a permit system and other restrictions.

Finally, Great Basin National Park is not really representative of the Great Basin or an ecosystem. It is way too small. It should be expanded to take in at the least, most of the South and North Snake Range and the Adjacent Spring Valley and Schell Creek Range at a minimum. Only then will it be able to function as a representative of the Great Basin Ecosystem and be large enough to sustain most mammal populations. Read William Newmark's 1987 paper " A Land Bridge Island Perspective on Mammalian Extinctions in Western North American Parks" to get a better handle on this.

That's it for my comments. Good luck. SEND THE COWS HOME!

Sincerely,

George Wuerthner, Box 273, Livingston, Montana 59047



APPENDIXES / BIBLIOGRAPHY / PREPARERS

APPENDIX A: PUBLIC LAW 99-565

Public Law 99-565
99th Congress

An Act

To establish a Great Basin National Park in the State of Nevada, and for other purposes.

Oct. 27, 1986
[S. 2506]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

Great Basin National Park Act of 1986.

SHORT TITLE

SECTION 1. This Act may be known as the "Great Basin National Park Act of 1986"

16 USC 410mm note.

ESTABLISHMENT

16 USC 410mm.

SEC. 2. (a) In order to preserve for the benefit and inspiration of the people a representative segment of the Great Basin of the Western United States possessing outstanding resources and significant geological and scenic values, there is hereby established the Great Basin National Park (hereinafter in this Act referred to as the "park").

(b) The park shall consist of approximately seventy-six thousand acres, as depicted on the map entitled "Boundary Map, Great Basin National Park, Nevada," numbered NA-GB 20,017, and dated October 1986. The map shall be on file and available for public inspection in the offices of the National Park Service, Department of the Interior, and the Office of the Superintendent, Great Basin National Park, Nevada.

Public information.

(c) Within 6 months after the enactment of this Act, the Secretary of the Interior (hereinafter in this Act referred to as the "Secretary") shall file a legal description of the park designated under this section with the Committee on Interior and Insular Affairs of the United States House of Representatives and with the Committee on Energy and Natural Resources of the United States Senate. Such legal description shall have the same force and effect as if included in this Act, except that the Secretary may correct clerical and typographical errors in such legal description and in the map referred to in subsection (a). The legal description shall be on file and available for public inspection in the offices of the National Park Service, Department of the Interior.

Public information.

(d)(1) The Lehman Caves National Monument, designated on January 24, 1922, by Presidential proclamation under the authority contained in the Act of June 8, 1906 (34 Stat. 225) is hereby abolished and the lands incorporated within the Great Basin National Park. Any reference in any law, map, regulation, document, record, or other paper of the United States to such national monument shall be deemed to be a reference to Great Basin National Park.

(2) Any funds available for purposes of the national monument shall be available for purposes of the park.

ADMINISTRATION

Conservation. Fish and fishing. Wildlife. 16 USC 410mm-1.

SEC. 3. (a) The Secretary shall administer the park in accordance with this Act and with the provisions of law generally applicable to units of the national park system, including the Act entitled "An Act to establish a National Park Service, and for other purposes," approved August 26, 1916 (39 Stat. 535; 16 U.S.C. 1-4). The Secretary shall protect, manage, and administer the park in such manner as to conserve and protect the scenery, the natural, geologic, historic, and archaeological resources of the park, including fish and wildlife and to provide for the public use and enjoyment of the same in such a manner as to perpetuate these qualities for future generations.

(b) The Secretary shall permit fishing on lands and waters under his jurisdiction within the park in accordance with the applicable laws of the United States and the State of Nevada, except that he may designate zones where, and periods when, no fishing may be permitted for reasons of public safety. Except in emergencies, any regulations prescribing such restrictions relating to fishing, shall be put into effect only after consultation with the appropriate State agency having jurisdiction over fishing activities.

(c) After notice and opportunity for public hearing, the Secretary shall prepare a management plan for the park. The Secretary shall submit such plan to the Committee on Interior and Insular Affairs of the United States House of Representatives and with the Committee on Energy and Natural Resources of the United States Senate within three years after the enactment of this Act. Such plan may be amended from time to time. The plan shall include, but not be limited to, provisions related to grazing within the park to the extent permitted under subsection (e) and provisions providing for the appropriate management of fish and wildlife and fishing within the park in accordance with subsection (b). Such provisions shall be adopted only after consultation with the appropriate State agency having jurisdiction over fish and wildlife.

(d) Subject to valid existing rights, Federal lands and interests therein, within the park, are withdrawn from disposition under the public lands laws and from entry or appropriation under the mining laws of the United States, from the operation of the mineral leasing laws of the United States, and from operation of the Geothermal Steam Act of 1970, as amended.

30 USC 1001 note.

(e) Subject to such limitations, conditions, or regulations as he may prescribe, the Secretary shall permit grazing on lands within the park to the same extent as was permitted on such lands as of July 1, 1985. Grazing within the park shall be administered by the National Park Service.

(f) At the request of the permittee, or at the initiative of the Secretary, negotiations may take place at any time with holders of valid existing grazing permits on land within the park, for an exchange of all or part of their grazing allotments for allotments outside the park. No such exchange shall take place if, in the opinion of the affected Federal land management agency, the exchange would result in overgrazing of Federal lands.

(g) Existing water-related range improvements inside the park may be maintained by the Secretary or the persons benefitting from them, subject to reasonable regulation by the Secretary.

(h) Nothing in this Act shall be construed to establish a new express or implied reservation to the United States of any water or water-related right with respect to the land described in section 2 of

this Act: *Provided*, That the United States shall be entitled to only that express or implied reserved water right which may have been associated with the initial establishment and withdrawal of Humboldt National Forest and the Lehman Caves National Monument from the public domain with respect to the land described in section 2 of this Act. No provision of this Act shall be construed as authorizing the appropriation of water, except in accordance with the substantive and procedural law of the State of Nevada.

State and local governments.

(i) In order to encourage unified and cost-effective interpretation of the Great Basin physiographic region, the Secretary is authorized and encouraged to enter into cooperative agreements with other Federal, State, and local public departments and agencies providing for the interpretation of the Great Basin physiographic region. Such agreements shall include, but not be limited to, authority for the Secretary to develop and operate interpretive facilities and programs on lands and waters outside of the boundaries of such park, with the concurrence of the owner or administrator thereof.

ACQUISITION OF LAND

16 USC 410mm-2.

SEC. 4. (a) The Secretary may acquire land or interests in land within the boundaries of the park by donation, purchase with donated or appropriated funds, or exchange, but no such lands or interests therein may be acquired without the consent of the owner thereof. Lands owned by the State of Nevada or any political subdivision thereof may be acquired only by donation or exchange.

(b) Lands and waters, and interests therein, within the boundaries of the park which were administered by the Forest Service, United States Department of Agriculture prior to the date of enactment of this Act are hereby transferred to the administrative jurisdiction of the Secretary to be administered in accordance with this Act. The boundaries of the Humboldt National Forest shall be adjusted accordingly.

AUTHORIZATION OF APPROPRIATIONS

16 USC 410mm-3.

SEC. 5. (a) Not more than $800,000 are authorized to be appropriated for development of the park.

(b) Not more than $200,000 are authorized to be appropriated for acquisition of lands and interests in land within the park.

Approved October 27, 1986.

LEGISLATIVE HISTORY—S. 2506:

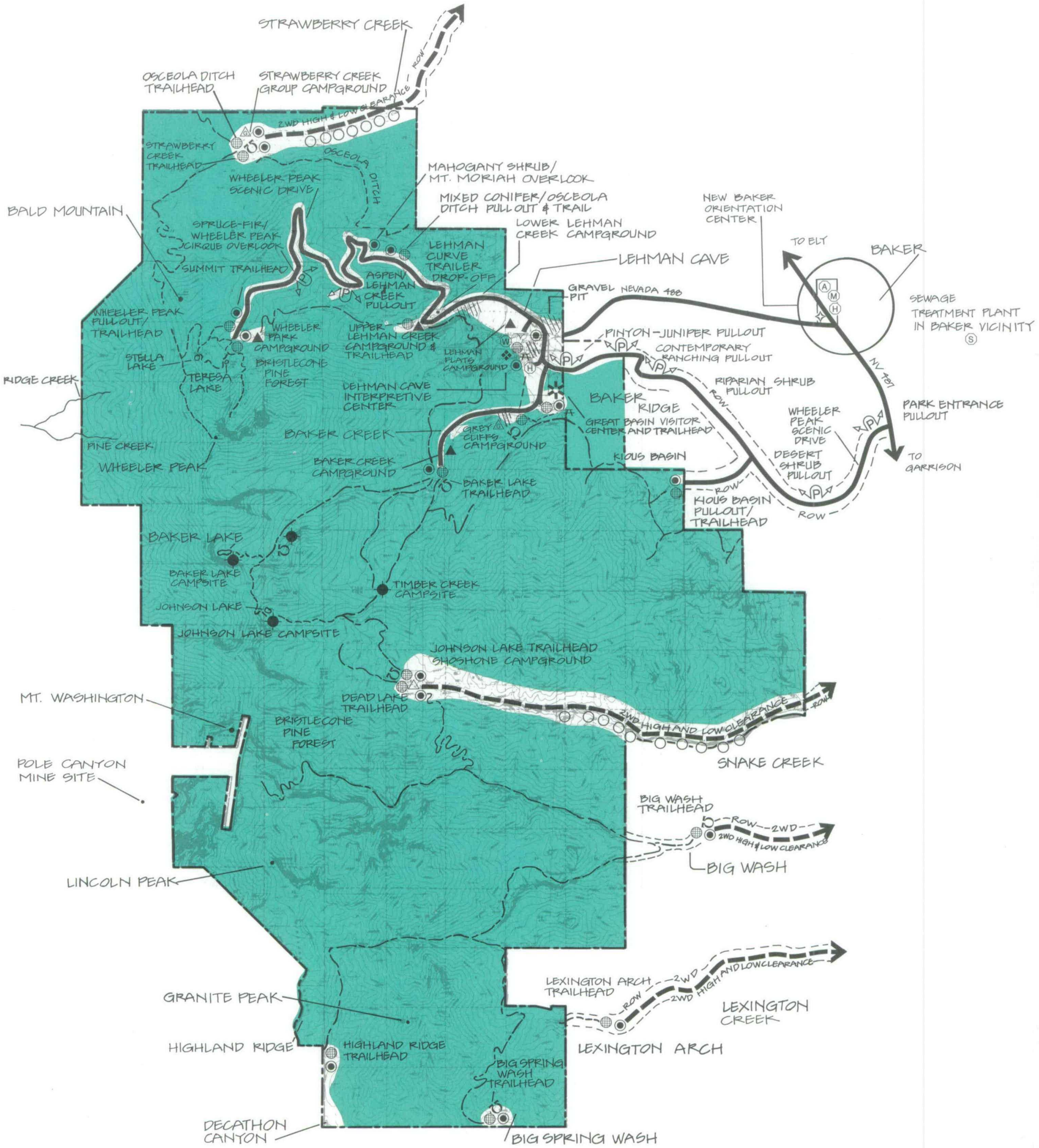
SENATE REPORTS: No. 99-458 (Comm. on Energy and Natural Resources).
CONGRESSIONAL RECORD, Vol. 132 (1986):
Sept. 30, considered and passed Senate.
Oct. 6, considered and passed House, amended.
Oct. 9, Senate concurred in House amendments.

O

APPENDIX B: WILDERNESS SUITABILITY

As discussed in the "Issues Beyond the Scope of the General Management Plan" section, the draft general management plan does not provide a wilderness recommendation for the lands within the park. The map on the following page indicates the lands within the park boundary that would meet the criteria for wilderness designation under the proposed action. These criteria are

> lands that lack roads or lands where roads would be closed and no longer be used
>
> lands that generally appear to have been affected primarily by nature, with the imprint of man's work substantially unnoticeable
>
> lands that have outstanding opportunities for solitude or a primitive and unconfined type of recreation
>
> contiguous areas of land possessing the above characteristics that are at least 5,000 acres in size or are of a sufficient size as to make practicable their preservation and use in an unimpaired condition


STRAWBERRY CREEK
OSCEOLA DITCH TRAILHEAD
STRAWBERRY CREEK GROUP CAMPGROUND
ROW
2WD HIGH & LOW CLEARANCE
STRAWBERRY CREEK TRAILHEAD
OSCEOLA DITCH
WHEELER PEAK SCENIC DRIVE
MAHOGANY SHRUB/ MT. MORIAH OVERLOOK
MIXED CONIFER/OSCEOLA DITCH PULLOUT & TRAIL
BALD MOUNTAIN
SPRUCE-FIR/ WHEELER PEAK CIRQUE OVERLOOK
SUMMIT TRAILHEAD
LOWER LEHMAN CREEK CAMPGROUND
LEHMAN CAVE
LEHMAN CURVE TRAILER DROP-OFF
ASPEN/ LEHMAN CREEK PULLOUT
NEW BAKER ORIENTATION CENTER
TO ELY
BAKER
GRAVEL NEVADA 488 PIT
SEWAGE TREATMENT PLANT IN BAKER VICINITY
WHEELER PEAK PULLOUT/ TRAILHEAD
WHEELER PARK CAMPGROUND
UPPER LEHMAN CREEK CAMPGROUND & TRAILHEAD
PINYON-JUNIPER PULLOUT
CONTEMPORARY RANCHING PULLOUT
STELLA LAKE
TERESA LAKE
BRISTLECONE PINE FOREST
LEHMAN FLATS CAMPGROUND
RIPARIAN SHRUB PULLOUT
NV 487
RIDGE CREEK
LEHMAN CAVE INTERPRETIVE CENTER
BAKER RIDGE
PARK ENTRANCE PULLOUT
WHEELER PEAK SCENIC DRIVE
BAKER CREEK
GREY CLIFFS CAMPGROUND
GREAT BASIN VISITOR CENTER AND TRAILHEAD
PINE CREEK
WHEELER PEAK
BAKER CREEK CAMPGROUND
KIOUS BASIN
DESERT SHRUB PULLOUT
TO GARRISON
BAKER LAKE TRAILHEAD
KIOUS BASIN PULLOUT/ TRAILHEAD
BAKER LAKE
BAKER LAKE CAMPSITE
TIMBER CREEK CAMPSITE
JOHNSON LAKE
JOHNSON LAKE CAMPSITE
JOHNSON LAKE TRAILHEAD SHOSHONE CAMPGROUND
MT. WASHINGTON
DEAD LAKE TRAILHEAD
BRISTLECONE PINE FOREST
2WD HIGH AND LOW CLEARANCE
SNAKE CREEK
POLE CANYON MINE SITE
BIG WASH TRAILHEAD
2WD
BIG WASH
LINCOLN PEAK
LEXINGTON ARCH TRAILHEAD
LEXINGTON CREEK
GRANITE PEAK
HIGHLAND RIDGE
HIGHLAND RIDGE TRAILHEAD
BIG SPRING WASH TRAILHEAD
LEXINGTON ARCH
DECATHON CANYON
BIG SPRING WASH

WILDERNESS SUITABILITY

GREAT BASIN NATIONAL PARK

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

148 • 20059 • DSC • SEPT 91

SUITABLE FOR WILDERNESS

NOT SUITABLE FOR WILDERNESS



0 1 2 MILES

0 1 2 3 KILOMETERS

APPENDIX C: MANAGEMENT ZONING APPLICATION

The following examples indicate the types of decisions that park managers would have to make to maintain the integrity of management zones and subzones. Decisions on appropriate types of use and levels of physical development would probably be easier to make than decisions that define the limits of use for each subzone. The zoning concept serves as the guideline. Park managers would be responsible for specific decisions to implement and perpetuate the concept.

> The determination of acceptable levels of use would be an issue in all of the subzones, particularly as visitation increased. For example, if visitation in the primitive subzone increased to the point where there was pressure to designate trails

or provide backcountry campsites with toilets, tables, and tent pads, managers would have to limit use, disperse use, or implement another nondevelopment option.

> The rural subzone is intended to provide a special niche between the developed area experience (modern subzone) and the backcountry experience (primitive and semi-primitive subzones). Rustic campsites, spaced to provide a higher degree of privacy and solitude than in the modern subzone, and access by dirt or gravel roads are critical elements of the rural subzone experience. If visitation increased in this subzone, managers would have to seek alternatives to paving roads or increasing the number or density of campsites, as such actions would destroy the intent in establishing rural areas.

Any type of major facility development or vehicular access (exceptions for emergencies and for restricted access for grazing permittees on a special permit basis) within the primitive or semi-primitive subzone would violate the zoning concept.

If the park manager decided that opportunities for solitude were being sacrificed in the primitive subzone because of increases in backcountry visitation, the zoning concept would provide a basis for actions to establish a permit system or devise other methods to alleviate the condition.

Grazing in the semi-primitive day use and protected and research natural area subzones would violate the zoning concept.

APPENDIX D: CONSULTATION WITH THE U.S. FISH AND WILDLIFE SERVICE

United States Department of the Interior

FISH AND WILDLIFE SERVICE
GREAT BASIN COMPLEX
4600 Kietzke Lane, Bldg. C
Reno, Nevada 89502

August 5, 1987
File No. 1-5-87-SP-97

Mr. Robert Allen, Jr.
2966 Yates Street
Denver, Colorado 80212

Dear Mr. Allen:

As requested during your July 29, 1987, visit to this office, you will find attached a list of listed endangered and threatened species (Attachment A) that are present or may be present in the Great Basin National Park. To the best of our knowledge, no proposed species occur within the area. The list is intended to fulfill the requirement of the Fish and Wildlife Service to provide a list of species under Section 7(c) of the Endangered Species Act of 1973, as amended. Please see Attachment B for your requirements.

Also, for your assistance we have included a list of species that are candidate species. These species are presently being reviewed by the Fish and Wildlife Service for consideration to propose and list as endangered or threatened. It should be noted that candidate species have no protection under the Endangered Species Act and are included for your consideration as it is possible the candidates could become formal proposals and be listed in the future.

Upon completion of the Biological Assessment (see Attachment B), should you determine that a listed species is likely to be affected, then your agency should request formal Section 7 consultation through this office. If there are both listed and candidate species that may be affected, then if requested, we will informally consult on the candidate species during the formal consultation. However, should the Assessment reveal that only candidate species may be affected, then you should consider informal consultation.

One of the benefits of informal consultation to the consulting agency is to provide the necessary planning alternatives should a candidate species become listed in the future. I am also including management plans for Lahontan cutthroat trout and Bonneville cutthroat trout.

Should you have any additional questions regarding your responsibilities under the Act, please contact this office. We thank you for your interest in endangered species.

Sincerely,

Richard J. Navarre
Complex Manager

Enclosures

ATTACHMENT A

Listed Species

Bald eagle (Haliaeetus leucocephalus)

Peregrine falcon (Falco peregrinus)

Proposed Species

None

Candidate Species	Category
Animals	
Ferruginous hawk (Buteo regalis)	2
Bonneville cutthroat trout (Salmo clarki utah)	2
Plants	
Cymopterus nivalis	2
Eriogonum holmgrenii	2
Penstemon concinnus	2
Primula nevadensis	2

United States Department of the Interior
NATIONAL PARK SERVICE
DENVER SERVICE CENTER
12795 W. ALAMEDA PARKWAY
P.O. BOX 25287
DENVER, COLORADO 80225-0287

IN REPLY REFER TO:

JUL 27 1989

D50-19 (DSC-TWE)
GRBA-152-02

Richard J. Navarre
U.S. Fish and Wildlife Service
Great Basin Complex
4600 Kietzke Lane, Building C
Reno, Nevada 89502

Dear Mr. Navarre:

The National Park Service is entering the final stage of writing the General Management Plan and Draft Environmental Impact Statement for Great Basin National Park. Approximately 2 years ago, our office requested a list of species from your agency that are known or suspected of being within the park that are listed or are candidate species for listing under the Federal or State Endangered Species Act or the Nevada Natural Heritage Program. We are required by our management policies to update that list and consult with federal and state organizations yearly through extended planning processes.

Please review the attached list for which you have legal authority to ensure the accuracy of the species listed and their placement within each category. Please provide a detailed explanation for any species additions or deletions and for any category status changes. Your response letter should indicate approval (as per any necessary changes), as it will be filed as an official compliance letter for the Great Basin General Management Plan process.

If you have any questions about this list, please contact me at 303-969-2268 (FTS 327-2268).

Sincerely,

Jim Hammett
Natural Resource Specialist

cc: compliance file
identical letters to:
U.S. Fish and Wildlife Service
Nevada Natural Heritage Program
Nevada Department of Wildlife

Table I

Endangered, Threatened, and Sensitive Species Known or Suspected of Utilizing Habitat in Great Basin National Park

	Federal Status	State Status
Birds		
Bald eagle **	E	E
Peregrine falcon *	E	E
Ferruginous hawk *	C	P
Swainson's hawk *	C	P
Mammals		
Spotted bat *	C	P
Fish		
Bonneville cutthroat trout	C	S
Insects		
Koret's checkerspot ***	-	-
Plants		
Snow wavewing	C	-
Intermountain wavewing *	C	-
Holmgren's buckwheat	C	-
Tunnel springs beardtongue	C	-
Nevada primrose	C	-
Nachlinger's catchfly ***	-	-
Pennell's Penstemon ***	-	-

Codes:
E = Endangered
C = Candidate Species
P = Protected (under Nevada law)
S = Sensitive

* not known to be present but habitat is suitable
** transient through the park
*** species recommended for state listing by Nevada Natural Heritage Program

(A more detailed description of these species is found on page * in the *Affected Environment* section).

United States Department of the Interior

FISH AND WILDLIFE SERVICE
RENO FIELD STATION
4600 Kietzke Lane, Building C
Reno, Nevada 89502

August 3, 1989
File No.: 1-5-89-SP-161

MEMORANDUM

To: Chief, Branch of Planning, DSC-TWE, National Park Service, Denver, Colorado

From: Field Supervisor, Reno, Nevada

Subject: Species List Request for the Great Basin National Park

In a letter dated July 27, 1989, Jim Hammett, Natural Resource Specialist, requested a review and update of a list of endangered, threatened, proposed and candidate species which are known or suspected of being within the boundaries of the Great Basin National Park. The list had been compiled two years ago from information received from the U. S. Fish and Wildlife Service and other agencies and organizations. This list will be included in the General Management Plan and Draft Environmental Impact Statement for the Great Basin National Park.

We found the list to be complete, although difficult to review due to the lack of scientific names. We urge you to include the scientific names of all species. Common name usage for certain species varies widely.

Please find attached a list which is based on the one provided by Mr. Hammett, but includes scientific names, and federal status. The category of each candidate species and explanation of those categories is also included, along with reference to the document containing the categorization.

If you have any questions, please contact Donna Withers at (702) 784-5227 or FTS 470-5227.

Richard F. Navarro

Attachments

cc: Assistant Regional Director (AFWE), Portland, Oregon

Endangered, Threatened and Sensitive Species Known or Suspected of Utilizing Habitat in Great Basin National Park

Birds	Federal Status
Bald eagle, *Haliaeetus leucocephalus*	E
Peregrine falcon, *Falco peregrinus*	E
Ferruginous hawk, *Buteo regalis*	C-2
Swainson's hawk, *Buteo swainsoni*	C-3C
Mammals	
Spotted bat, *Euderma maculatum*	C-2
Fish	
Bonneville cutthroat trout, *Oncorhynchus clarki utah*	C-2
Insects	
Koret's checkerspot, *Euphydryas editha koreti*	---
Plants	
Snow wavewing, *Cympoterus nivalis*	C-2
Intermountain wavewing, *Cymopterus basalticus*	C-3C
Holmgren's buckwheat, *Eriogonum holmgrenii*	C-2
Tunnel springs beardtongue, *Penstemon concinnus*	C-2
Nevada primrose, *Primula nevadensis*	C-2
Nachlinger's catchfly, *Silene nachlingerae*	---
Pennell's penstemon, *Penstemon francisci-pennellii*	C-3C

Federal Status:

E: Endangered

C-2: Taxa for which information now in the possession of the U. S. Fish and Wildlife Service indicates that proposing to list as endangered or threatened is possibly appropriate, but for which conclusive data on biological vulnerability and threat are not currently available to support proposed rules.

C-3C: Taxa that were once being considered for listing as endangered or threatened, but are not currently receiving such consideration. These taxa are now considered to be more widespread than previously thought.

References for candidate species:

U. S. Fish and Wildlife Service.
1989. Endangered and Threatened Wildlife and Plants; Animal Notice of Review. Federal Register, Part IV, Department of Interior, Fish and Wildlife Service, 50 CFR Part 17: January 6, 1989.

U. S. Fish and Wildlife Service.
1985. Endangered and Threatened Wildlife and Plants; Review of Plant Taxa for Listing as Endangered or Threatened Species; Notice of Review. Federal Register, Part IV, Department of Interior, Fish and Wildlife Service, 50 CFR Part 17: September 27, 1985.

APPENDIX E: GIS APPLICATION AND BENEFITS TO PROJECT

The general management plan for Great Basin National Park represents one of the first GMPs where NPS planners used a geographic information system (GIS) as the primary method of collecting, storing, and analyzing mappable resource data. Working with the Geographic Information System Division, a Denver-based division of the Natural Resources Office of the National Park Service, planners identified types of information (themes) important to park planning. These themes included features such as roads, topography, hydrography, geology, and vegetation. Once data were obtained, the themes were digitized (placed in a computerized form) and stored on computer tape.

Normally, using typical planning methods, these themes would be mapped by hand and stored on transparent media and later used to manually build up the layers of information needed to analyze problems and generate planning alternatives. The GIS allowed quick retrieval of these themes, but also allowed the layers to be produced at any desired scale. In addition, certain analysis (e.g., acreage and length computation, viewsheds) could be completed much faster and with greater accuracy than with manual methods.

The ability to easily change the scale on finished products allowed tremendous flexibility in analyzing information at various scales – on a very small scale when siting a building, road, or campground, on a larger scale when developing parkwide zoning schemes, or on an even larger scale when analyzing issues that extend beyond park boundaries (viewsheds from the park toward parts of surrounding basins or from various park approach routes toward the park). This proved to be an extremely powerful tool for a variety of planning tasks.

During the impact analysis for the proposal and alternatives, the GIS was used extensively to quantify the direct impacts of developments on different vegetation types and to analyze the significance of those impacts by appraising the uniqueness of individual vegetation types compared with other vegetation in the park. This technique proved particularly useful in analyzing the impacts of proposed linear developments such as roads and trails that pass through numerous vegetation types, where analysis is often very difficult and tedious.

In what at first was only an experiment, the GIS was used to electronically plan a route for the proposed new park entrance road without any on-site reconnaissance. Planners supplied criteria (i.e., slopes should be 7 degrees or less, stream crossings should be minimized and where necessary should be at right angles to the stream, and the route should be hidden from view from the proposed new visitor center to the fullest extent possible). The resulting plot, which the computer provided with no information other than start and end points, proved to be very accurate and impossible to improve upon when the plot was analyzed on the ground by a road engineer, a landscape architect, and a natural resource specialist.

APPENDIX F: ROAD SYSTEM EVALUATION

The following road system evaluation for Great Basin National Park was prepared in conjunction with the draft general management plan (proposed action) to provide road-related guidance to the planning team and define road proposals that would facilitate preliminary design. Funding for road projects within the national park system is through the federal lands highway program (FLHP), which was created by the Surface Transportation Act of 1982. That act requires advance planning to promote the efficient expenditure of funds. A road system evaluation constitutes Park Service compliance with the requirements of the 1982 act.

Table F-1 presents an inventory of the major roads providing access to and within the park as well as the new roads and circulation routes proposed as part of the draft general management plan (proposed action); existing and proposed parking areas associated with these roads are also inventoried. The two maps following the table indicate the locations of existing and proposed roads and parking areas.

Existing road descriptions include length, width, surface type, and physical condition and terrain. Also included are jurisdiction (FLHP funds can only be spent on roads under NPS jurisdiction through ownership and right-of-way agreement), estimates of use (SADT – seasonally adjusted average daily traffic), and function and classification (classifications are derived from the *Park Road Standards*; there are five classifications ranging from I, principal road, to V, administrative road).

Road proposals under the draft general management plan are categorized by proposed function and classification, projected SADT, recommended and proposed width, and surface type. Recommended widths were included to indicate the *Park Road Standards* minimum widths under specific road classifications. If the proposed width differs from the recommended width, it is usually to enhance resource protection or visitor experiences. Where proposed road data is included on the existing road portion of the table, it is enclosed in parentheses. Comments to explain actions to be taken are also included.

Cost estimates for all road work, including for the alternatives considered, are presented in appendix I, "Cost Estimates." The estimates are based on unit costs (per mile or acre) that were derived from actual costs for construction projects in similar areas with similar terrain. They are gross construction costs in 1990 dollars. Estimates for parking areas include costs for curbs, walks, fences, colored concrete, interpretive displays, sanitary facilities, and other appurtenances.

TABLE F-1: ROAD SYSTEM EVALUATION

	EXISTING							PROPOSED ACTION					
Route/Segment No. & Name	**Road Length (miles) or Parking Capacity (vehicles)**	**Juris-diction (miles)**	**Road Width* (feet) or Parking Lot Size (sq ft)**	**Surface Type**	**Physical Condition and Terrain**	**SADT**	**Function & Classi-fication**	**Proposed Function & Classi-fication**	**Projected SADT**	**Recom-mended Width* (Park Road Standards)**	**Proposed Width* or Parking Lot Size**	**Surface Type**	**Comments**
Route 10, Existing Entrance Road	4.9	4.2 State 0.7 NPS	26 feet	Asphalt	Fair to good condition; flat terrain	150	Main park entrance, I						
Segment 1, Baker to Boundary	4.2	State						NA	NA	NA	NA	Asphalt	State maintenance for access to residences
Segment 2, Boundary to Baker Creek Road (Route 101)	0.2	NPS/State						Administra-tive access, V	NA	20 feet	26 feet	Asphalt	Change to route 406; gate at boundary; overlay when other work in area is done
Segment 3, Route 101 to Lehman Cave Visitor Center Parking Area (Route 901)	0.5	NPS					NA	NA	NA	NA	NA	NA	Obliterate
Route 11, Wheeler Peak Scenic Drive	11.8	NPS	22 feet	Asphalt	Fair condition, no shoulders, some edge cracking, isolated base failures because of drainage problems	150	Principal park road providing access to main park features, I	Principal park road; also main park entrance, I	185	20 feet		Asphalt	
Segment 1, Wheeler Peak Pullout/Trailhead Parking Area (Route 900) to Upper Lehman Creek Campground (Route 202)	9.3				Mountainous terrain			Access to scenic turnouts and trailheads, I	185		22 feet	Asphalt	Most scenic portion of road – avoid use of guardrail if possible; realign road at four major pullouts and construct retaining walls; rehabilitate existing road with base repair as needed.
Segment 2, Upper Lehman Creek Campground to Park Entrance	2.5 (Proposed 3.2)				Flat to rolling terrain			Access to main visitor facilities, I	185		26 feet	Asphalt	Realign lower portion along with Baker Creek road (route 100) as part of new construction; construct small bridge over Lehman Creek; incorporate segment of Baker Creek road into route 11 and pave; construct new section from previous route 100 to park boundary; rehabilitate rest of segment.

	EXISTING							PROPOSED ACTION					
Route/Segment No. & Name	**Road Length (miles) or Parking Capacity (vehicles)**	**Juris-diction (miles)**	**Road Width* (feet) or Parking Lot Size (sq ft)**	**Surface Type**	**Physical Condition and Terrain**	**SADT**	**Function & Classi-fication**	**Proposed Function & Classi-fication**	**Projected SADT**	**Recom-mended Width* (Park Road Standards)**	**Proposed Width* or Parking Lot Size**	**Surface Type**	**Comments**
(Segment 3, Existing Park Boundary to SR 487)	(Proposed 8.5)	(1.2 NPS) (7.3 BLM; 800-foot-wide NPS right-of-way)			(Flat to rolling terrain)			Main park entrance; access to visitor facilities and interpretive areas, I	185		26 feet	Asphalt	Construct new road with curvilinear align-ment emphasizing changing scenic views; align road corridor out of new visitor center view-shed; construct park entrance pullout (route 906), Kious Basin pullout (route 106), and four additional 5- to 10-car pullouts; construct small bridge over Lehman Creek.
Route 100, Baker Creek Road	3.5	NPS	22 feet	Gravel	Fair to good condition; flat terrain	50	Access to campgrounds and trailhead, II						
Segment 1, Entrance Road (Route 10) to Milepost 0.5	0.5	NPS						Main park road, I	185	20 feet	26 feet	Asphalt	Rehabilitate base and pave to become part of route 11, segment 2 (main park road).
Segment 2, Milepost 0.5 to Baker Lake Trailhead	3.0	NPS						Access to campgrounds and trailhead, II	65	20 feet	22 feet	Asphalt	Rehabilitate existing base and pave.

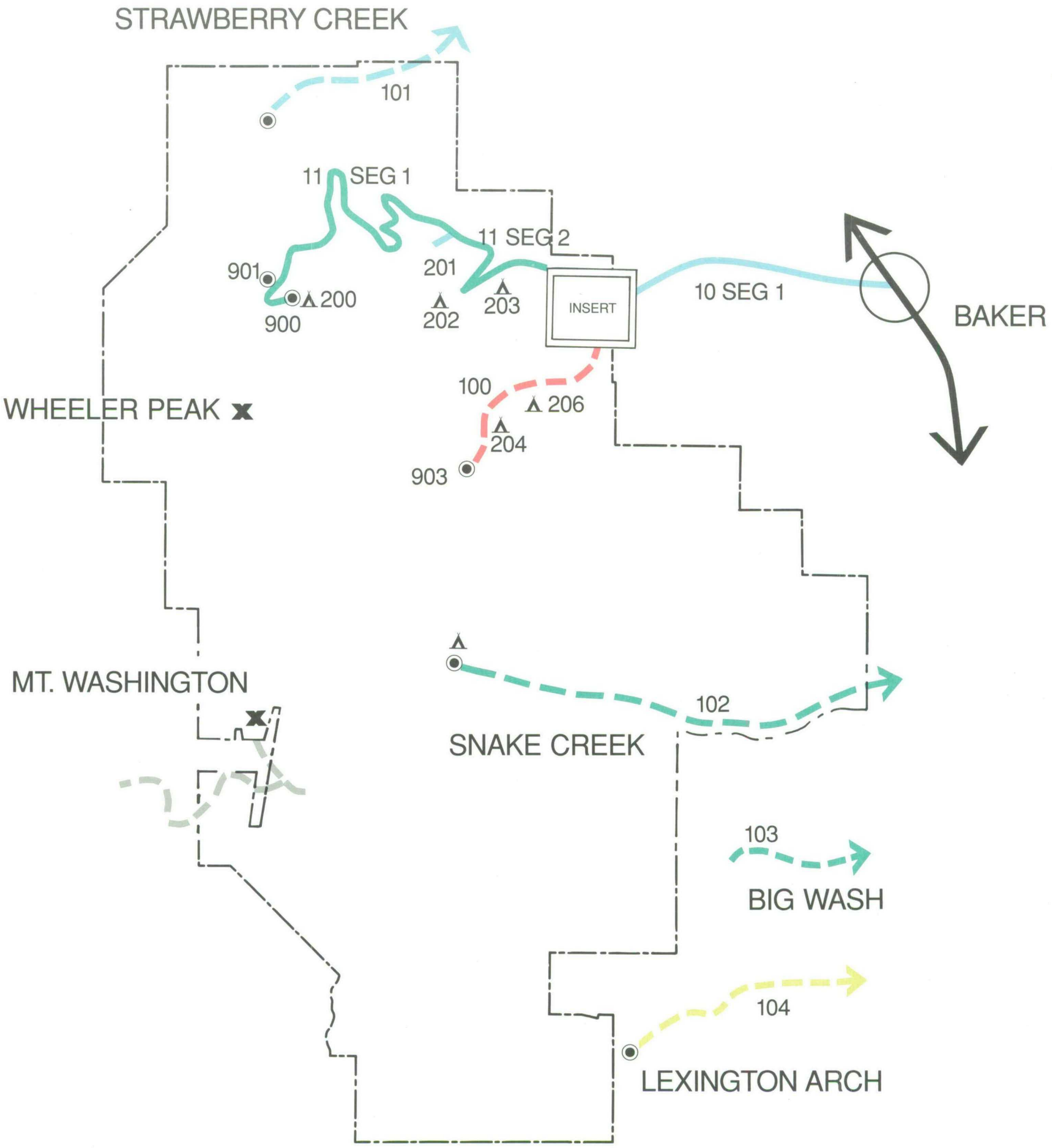
	EXISTING							PROPOSED ACTION					
Route/Segment No. & Name	**Road Length (miles) or Parking Capacity (vehicles)**	**Juris-diction (miles)**	**Road Width* (feet) or Parking Lot Size (sq ft)**	**Surface Type**	**Physical Condition and Terrain**	**SADT**	**Function & Classi-fication**	**Proposed Function & Classi-fication**	**Projected SADT**	**Recom-mended Width* (Park Road Standards)**	**Proposed Width* or Parking Lot Size**	**Surface Type**	**Comments**
Route 101, Strawberry Creek Road	5.6	2.9 NPS 0.5 USFS 2.2 BLM	10-14 feet	Dirt	Fair condition; rolling terrain	<50	Access to primitive camping areas and trailheads, IV	Same, IV	<50	NA Primitive	Same	Gravel	Make accessible to 2WD vehicles; improve drainage and provide maintainable surfacing (2-4 inches gravel); widen only as needed to improve drainage, but maintain minimum width of 10 feet with passing turnouts; realign short segments where roads are in or cross drainage channels; armor drainage crossings with low water crossings (fords) or culvert pipes (when already present); construct or formalize trailhead parking (10 cars each at ends of all roads, some with corral facilities); delineate existing rustic campsites along roads and campgrounds at end of roads with gravel parking pads where applicable.
Route 102, Snake Creek Road	12.3	6.8 NPS 1.3 USFS 4.2 BLM	10-14 feet	Dirt/ gravel	Fair condition; rolling terrain	<50	Access to primitive camping areas and trailheads, IV	Same, IV	<50	NA Primitive	Same	Gravel	
Route 103, Big Wash Road	9.4	2.9 USFS 6.5 BLM	10-14 feet	Dirt	Fair to poor condition; rolling terrain	<50	Primitive access to trailhead, IV	Same, IV	<50	NA Primitive	Same	Gravel	
Route 104, Lexington Arch Road	11.5	3.8 USFS 7.7 BLM	10-14 feet	Dirt	Fair condition; rolling terrain	<50	Primitive access to trailhead, IV	Same, IV	<50	NA Primitive	Same	Gravel	
Route 105, Mt. Washington Road	1.5		8-12 feet	Dirt	Fair to poor condition; mountainous terrain	<50	Primitive access to west side of park, IV	NA	NA	NA	NA	NA	Close road at park boundary and gate; restore scar. USFS might provide small parking area. NPS would not seek jurisdiction of road outside boundary.
(Route 106, Kious Basin Road)	(Proposed 1.4)	(0.1 NPS) (1.3 BLM)			(Rolling terrain)			Access to interpretive area and trailhead, II	150	20 feet	26 feet	Asphalt	Construct new road, 5- to 10-car parking area at interpretive area, and 15- to 20-car parking area (route 907) at trailhead.

	EXISTING							PROPOSED ACTION					
Route/Segment No. & Name	**Road Length (miles) or Parking Capacity (vehicles)**	**Juris-diction (miles)**	**Road Width* (feet) or Parking Lot Size (sq ft)**	**Surface Type**	**Physical Condition and Terrain**	**SADT**	**Function & Classi-fication**	**Proposed Function & Classi-fication**	**Projected SADT**	**Recom-mended Width* (Park Road Standards)**	**Proposed Width* or Parking Lot Size**	**Surface Type**	**Comments**
Route 200, Wheeler Peak Campground Road	0.9	NPS	14-18 feet two-way; 14 feet one-way (loops)	Asphalt	Fair condition; rolling terrain	<50	Campground access and circulation, III	Same, III	<50	18 feet two-way; 14 feet one-way	18 feet two-way; 14 feet one-way	Asphalt	Make two-way segments a consistent 18 feet wide and one-way segments not more than 14 feet; overlay existing road; do not change layout or character of area.
Route 201, Wheeler Peak Road Scenic Spur	0.2	NPS	22 feet	Gravel	Poor condition; flat terrain	100	Access to scenic/ interpretive area, III	Same, III	125	20 feet	22 feet	Asphalt	Rehabilitate severely deteriorated pavement; improve intersection alignment with route 11.
Route 202, Upper Lehman Creek Campground Road	0.8	NPS	14-18 feet two-way; 14 feet one-way (loop)	Asphalt	Poor to fair condition; rolling terrain	<50	Campground access and circulation, III	Same, III	<50	18 feet two-way; 14 feet one-way	18 feet two-way; 14 feet	Asphalt	Rehabilitate existing roads and provide consistent width at the few constricted areas; do not change layout or character of area.
Route 203, Lower Lehman Creek Campground Road	0.3	NPS	14 feet one-way (loop)	Asphalt	Poor to fair condition; rolling terrain	<50	Campground access and circulation, III	NA	NA	NA	NA	NA	Obliterate existing road and restore area to natural conditions.
Route 204, Baker Creek Campground Road	0.7	NPS	18 feet two-way; 12 feet one-way (loops)	Gravel	Poor to fair condition; flat terrain	<50	Campground access and circulation, III	Same, III	<50	18 feet two-way; 12 feet one-way	18 feet two-way; 12 feet one-way	Asphalt	Repair isolated base failures and pave; improve drainage; use existing widths and alignments.
Route 205, Headquarters Picnic Area Road	0.2	NPS	22 feet	Asphalt	Fair condition; flat terrain	<50	Access to picnic area, III	Adminis-trative, handicap, seasonal access to Lehman Cave interpretive center, III	<50	18 feet	22 feet	Asphalt	Convert picnic area to parking/staging area with new access from Wheeler Peak Scenic Drive; use existing road for adminis-trative, handicap, and seasonal access to visitor center; rehab-ilitate existing road.
Route 206, Grey Cliffs Campground Road	1.4	NPS	20 feet two-way; 12-14 feet one-way	Gravel	Fair condition; flat to rolling terrain	<50	Campground access and circulation (overflow use only), III	Group campground access, III	<50	18 feet two-way; 12 feet one-way	18 feet two-way; 12 feet one-way	Asphalt	Convert west loop to group campground, and obliterate/restore other three loops; provide new short access to group area off Baker Creek road; rehabilitate base and pave; obliterate spur road along creek.

	EXISTING							PROPOSED ACTION					
Route/Segment No. & Name	Road Length (miles) or Parking Capacity (vehicles)	Jurisdiction (miles)	Road Width* (feet) or Parking Lot Size (sq ft)	Surface Type	Physical Condition and Terrain	SADT	Function & Classification	Proposed Function & Classification	Projected SADT	Recommended Width* (Park Road Standards)	Proposed Width* or Parking Lot Size	Surface Type	Comments
(Route 207, Great Basin Visitor Center Road)	(0.7)	(NPS)			(Rolling terrain)			Access to new visitor center, II	150	20 feet	26 feet	Asphalt	Was routes 403 and 100, segment 2; convert narrow gravel road to new paved two-lane road.
(Route 208, Lehman Cave Spur Road)	(0.3)	(NPS)			(Rolling terrain)			Access to parking for Lehman Cave interpretive area, II	150	20 feet	26 feet	Asphalt	Construct spur road partially following an old road scar; construct a small bridge across Lehman Creek.
(Route 209, Lehman Flats Campground Road)	(1.0)	(NPS)						Campground access and circulation, III	<50	18 feet two-way; 14 feet one-way	18 feet two-way; 14 feet one-way	Asphalt	Design and construct for RV use.
Route 400, Lehman Cave Residential/ Maintenance Road	0.5	NPS	20 feet	Asphalt	Poor condition; flat terrain	<50	Access to and circulation within housing and maintenance area, V	Same, V	<50	18 feet	20 feet	Asphalt	Overlay circulation loops; obliterate and restore existing access from route 10; construct new access partially following old road scar from route 100, segment 2.
Route 401, Lehman Cave Water Tank Road	0.8	NPS	12 feet	Dirt	Fair condition; rolling terrain	5	Administrative access, V	Same, V	5	NA	12 feet	Dirt	No change.
Route 402, Wheeler Peak Drive Gravel Pit Road	0.1	NPS	12 feet	Dirt	Poor condition; flat terrain	5	Administrative access, V	NA	NA	NA	NA	NA	Obliterate road and restore entire area to natural conditions.
Route 403, Baker Ridge Pit Road	0.2	NPS	12 feet	Dirt	Poor condition; flat terrain	5	Administrative access, V	Public access to new Great Basin visitor center, II	150	20 feet	26 feet	Asphalt	Change to route 207; construct new paved road following existing alignment.
Route 404, Lehman Cave Sewage Lagoon Road	0.2	NPS	12 feet	Dirt	Fair condition; flat terrain	5	Administrative access, V	NA	NA	NA	NA	NA	Obliterate road and restore entire area to natural conditions after new sewage treatment facility is constructed.
Route 406, Old Entrance Road	(0.2)	(NPS)	(26 feet)	(Asphalt)	(Fair condition; flat terrain)	(150)	(Public access to Lehman Cave visitor center, I)	Administrative access, V	5	18 feet	26 feet	Asphalt	Was route 10, segment 2 (entrance road); overlay when other work in the area is done; install gate at boundary.

	EXISTING							PROPOSED ACTION					
Route/Segment No. & Name	**Road Length (miles) or Parking Capacity (vehicles)**	**Juris-diction (miles)**	**Road Width* (feet) or Parking Lot Size (sq ft)**	**Surface Type**	**Physical Condition and Terrain**	**SADT**	**Function & Classi-fication**	**Proposed Function & Classi-fication**	**Projected SADT**	**Recom-mended Width* (Park Road Standards)**	**Proposed Width* or Parking Lot Size**	**Surface Type**	**Comments**
(Route 407, Baker Administrative Site Roads)								Access to and circulation within residential and maintenance area, IV	<50	18 feet	20 feet	Asphalt	Construct new roads when area is developed.
Route 900, Wheeler Peak Pullout/Trailhead Parking Area	8-10 vehicles	NPS	1,500 sq ft	Asphalt	Fair condition; mountainous terrain	NA	Public parking for interpretive area and trailhead, III	Same, III	NA	NA	10,000 sq ft	Asphalt	Relocate to new site northeast of existing site; design with tiered, separated bays and utilize existing vegetation for screening; construct for 50-vehicle capacity with potential for maximum expansion to 75 vehicles (development to include restrooms, information/orientation, and interpretation).
Route 901, Summit Trail Parking Area	10-12 vehicles	NPS	2,000 sq ft	Asphalt	Fair condition; flat terrain	NA	Public parking for trailhead, III	Same, III	NA	NA	2,000 sq ft	Asphalt	Overlay existing area when adjacent road work is done.
Route 902 Lehman Cave Visitor Center Parking Area	75 vehicles (two tiers with islands)	NPS	23,500 sq ft	Asphalt	Fair condition; rolling terrain	NA	Public parking for visitor center, III	Adminis-trative, handicap, seasonal parking, III	NA	NA	11,750 sq ft	Asphalt	Obliterate lower tier (35 spaces) and RV parking areas and restore to natural conditions; rehabilitate upper tier (35 vehicles).
Route 902, Baker Lake Trailhead Parking Area	75 vehicles (two tiers with islands)	NPS	23,500 sq ft	Asphalt	Fair condition; rolling terrain	NA	Public parking for visitor center, III	Adminis-trative handicap seasonal parking, III	NA	NA	11,750 sq ft	Asphalt	Obliterate lower tier (35 spaces) and RV parking areas and restore to natural conditions; rehabilitate upper tier (35 vehicles).
Route 903, Baker Lake Trailhead Parking Area	10-15 vehicles	NPS	3,000 sq ft	Gravel	Fair condition; flat terrain	NA	Public parking for trailhead, III	Same, III	NA	NA	3,000 sq ft	Asphalt	Pave when work on Baker Creek road (route 100) is done.

	EXISTING							PROPOSED ACTION					
Route/Segment No. & Name	Road Length (miles) or Parking Capacity (vehicles)	Jurisdiction (miles)	Road Width* (feet) or Parking Lot Size (sq ft)	Surface Type	Physical Condition and Terrain	SADT	Function & Classification	Proposed Function & Classification	Projected SADT	Recommended Width* (Park Road Standards)	Proposed Width* or Parking Lot Size	Surface Type	Comments
Route 904, Lehman Cave Picnic Area Parking (Cave Staging Area Parking)	20 vehicles	NPS	4,000 sq ft	Paved	Fair condition; flat terrain	NA	Public parking for picnic area, III	Public parking for Lehman Cave and interpretive center, III	NA	NA	25,000 sq ft	Asphalt	Construct new 70-car/30-bus/RV parking area on existing area (development to include picnic area, restrooms, and cave ticket sales kiosk).
(Route 905, Great Basin Visitor Center Parking Area)		(NPS)			(Rolling terrain)			Public parking for new visitor center, III		NA	13,000 sq ft	Asphalt	Construct new 50-car/5-bus/RV parking area on site of existing borrow area at end of new route 207.
(Route 906, Park Entrance Pullout Parking Area)		(BLM; NPS right-of-way			(Flat terrain)			Public parking for information/ orientation and photos, III	NA	NA	5,000 sq ft	Asphalt	Construct new 15- to 20-car parking area near junction of Nevada 487 and new route 11, segment 3 (park entrance road) (development to include entrance sign and kiosks).
(Route 907, Kious Basin Parking Areas)		(NPS)	NA		(Rolling terrain)			Public parking for trailhead and interpretive area, III	NA	NA	5,000 sq ft	Asphalt	Construct new 5- to 10-car and 15- to 20-car parking areas at end of new route 106 (development to include information kiosks and restroom).
(Route 908, Baker Orientation Center Parking Area)		(NPS)	NA		(Flat terrain)			Public parking for orientation facility, III	NA	NA	7,000 sq ft	Asphalt	Construct a new 25-car/5-bus/RV parking area on the administrative site west of Nevada 487 near the town of Baker.


STRAWBERRY CREEK
101
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SEG 1
11 SEG 2
901
200
900
201
202
203
INSERT
10 SEG 1
BAKER
100
206
204
903
WHEELER PEAK
MT. WASHINGTON
102
SNAKE CREEK
103
BIG WASH
104
LEXINGTON ARCH

ROAD SYSTEM EVALUATION
EXISTING CONDITIONS
GREAT BASIN NATIONAL PARK

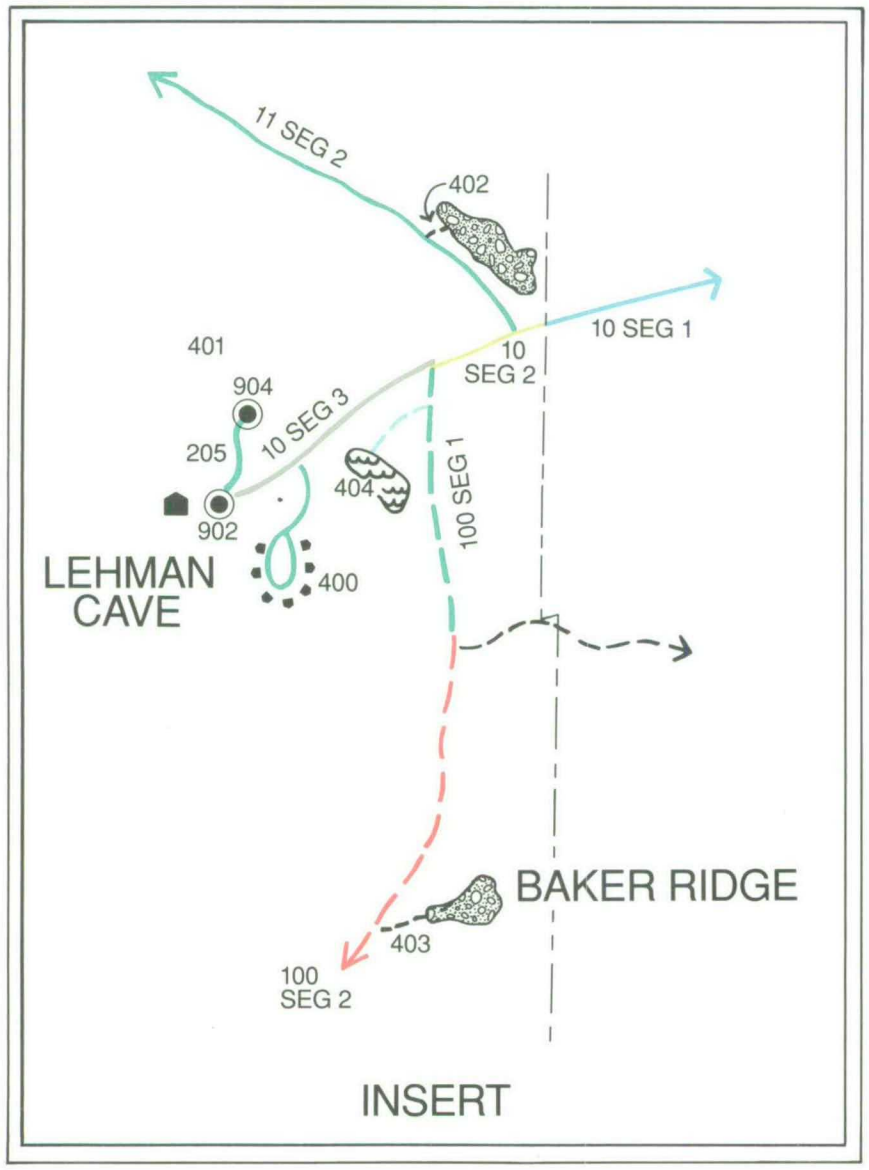
UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

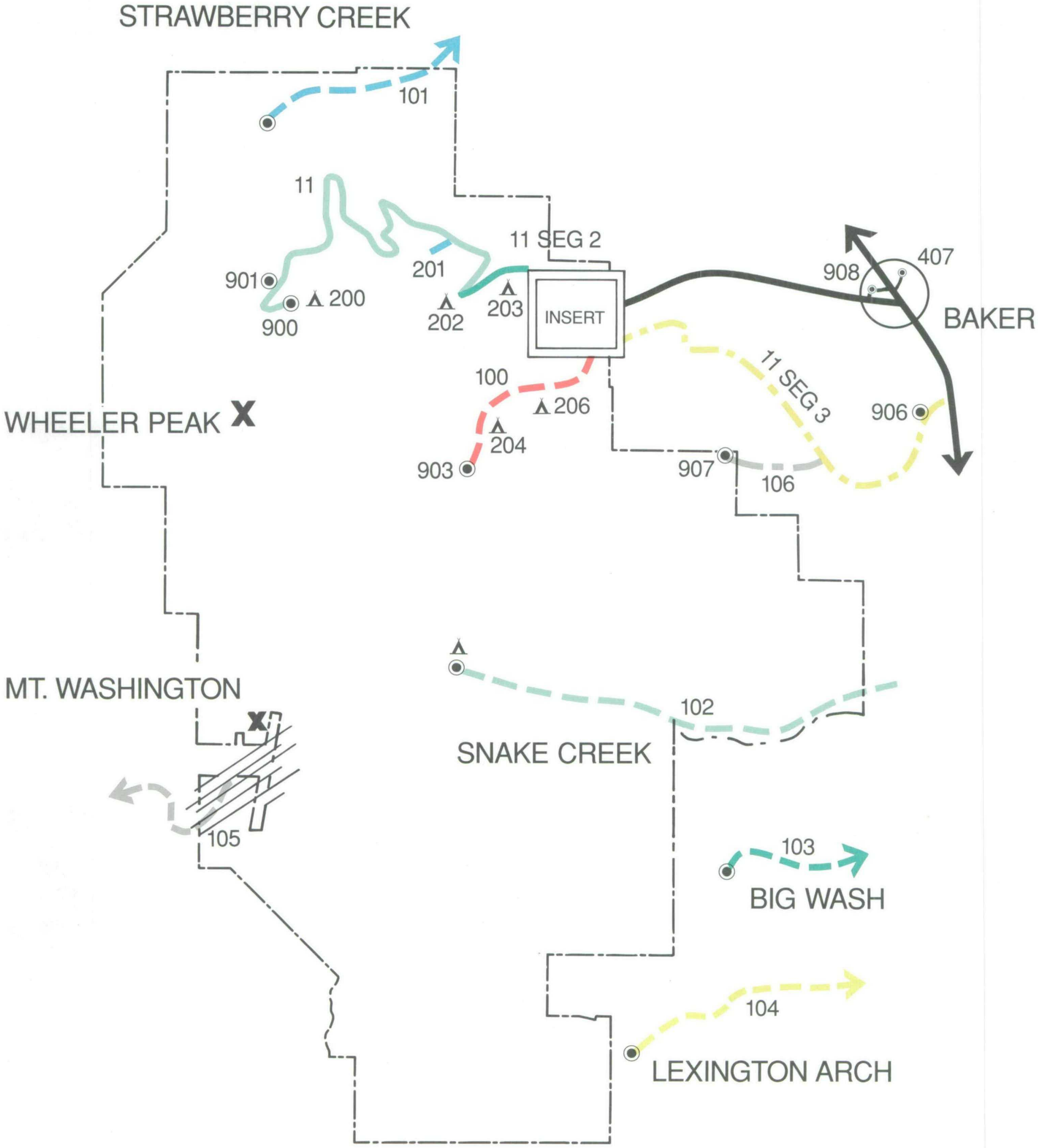
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GRAVEL PIT
SEWAGE LAGOON
BUILDING
PARKING AREA
CAMPGROUND
PAVED ROAD
DIRT/GRAVEL ROAD
BOUNDARY
100 = DIRT ROAD
200 = CAMPGROUND
400 = SERVICE ROAD
900 = PARKING LOT

N

0 1 2 3 MILES
0 1 2 3 4 KILOMETERS




STRAWBERRY CREEK
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106
WHEELER PEAK
MT. WASHINGTON
105
102
SNAKE CREEK
103
BIG WASH
104
LEXINGTON ARCH

ROAD SYSTEM EVALUATION
PROPOSED ACTION
GREAT BASIN NATIONAL PARK

UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

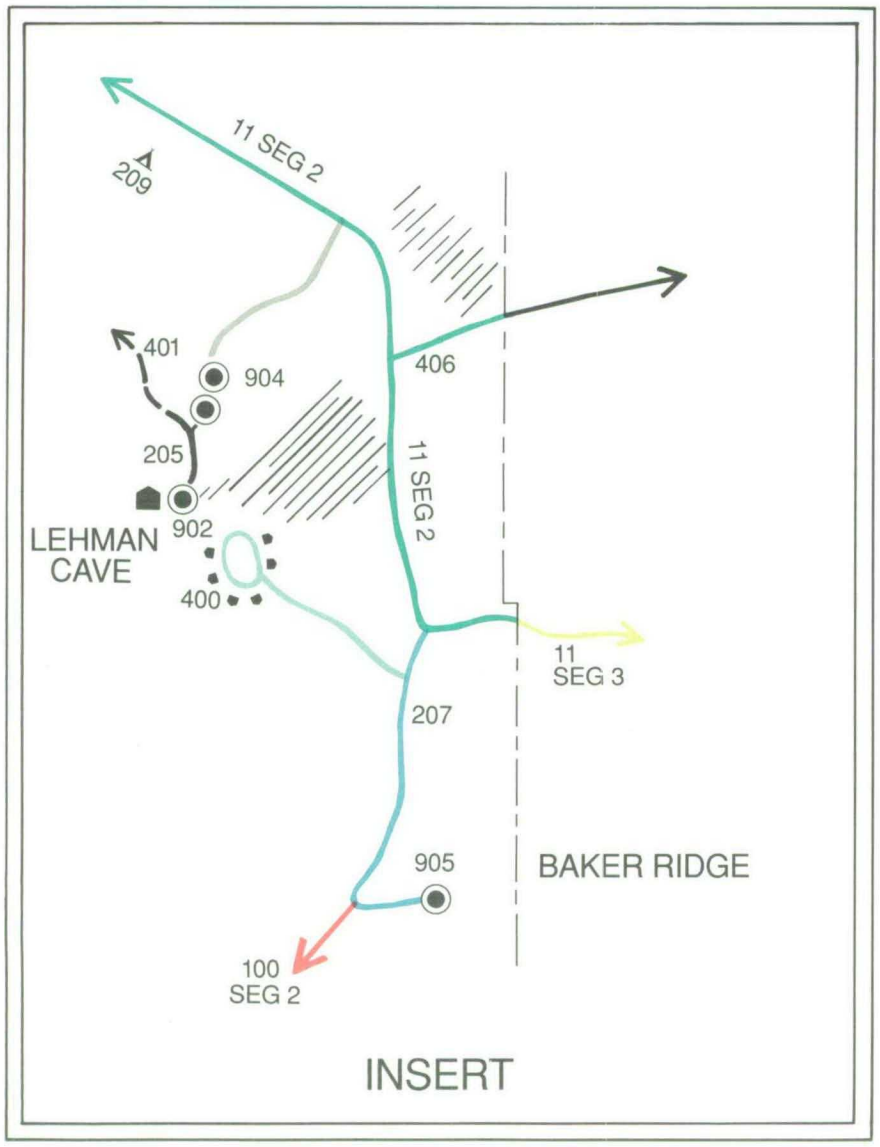
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- BUILDING
- PARKING AREA
- CAMPGROUND
- PAVED ROAD
- DIRT/GRAVEL ROAD
- PROPOSED PAVED ROAD
- OBLITERATE
- BOUNDARY

100 = DIRT ROAD
200 = CAMPGROUND
400 = SERVICE ROAD
900 = PARKING LOT

N

0 1 2 3 MILES
0 1 2 3 4 KILOMETERS



INSERT

APPENDIX G: COMPLIANCE STATUS

Documentation of National Park Service compliance with federal and state laws and regulations is incorporated in the text of this *Final General Management Plan/Development Concept Plans/Environmental Impact Statement*. Compliance with nine major federal laws, executive orders, and regulations and associated state regulations is summarized here.

NATIONAL ENVIRONMENTAL POLICY ACT OF 1969

This *Draft General Management Plan/Development Concept Plans/Environmental Impact Statement* provided public disclosure of the planning and decision-making process and the potential environmental consequences of the proposed action and alternatives, as required by the National Environmental Policy Act. That document was distributed for public review in September 1991. A notice of availability was printed in the *Federal Register* on October 9, 1991 (56 FR 50924-50925), and approximately 1,400 copies of the draft were distributed. The draft document was available for public review and comment for 90 days. Agency and public comments were then considered, and the draft plan and environmental analysis were reviewed in light of those comments. This *Final General Management Plan/ Development Concept Plans/Environmental Impact Statement* responds individually or through summaries to all substantive comments received. Thirty days following publication of the final plan and environmental impact statement, a record of decision will be published to document the final decision and the alternatives considered, to identify the environmentally preferable alternative, and to describe whether all practicable means of avoiding environmental harm as a result of implementing the selected action have been adopted. At that time the actions in the final plan will be implemented.

ENDANGERED SPECIES ACT OF 1973

Section 7 of the Endangered Species Act directs all federal agencies to utilize their authorities in furtherance of the purposes of the act by carrying out programs for the conservation of endangered or threatened species. Federal agencies are required to consult with the U.S. Fish and Wildlife Service to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitat.

Informal consultation under section 7 of the Endangered Species Act was initiated with the U.S. Fish and Wildlife Service in February 1988 with a request for a list of species potentially within the project area. (Correspondence has been maintained with Fish and Wildlife Service on a yearly basis since this effort was initiated). A similar request was sent to the Nevada Natural Heritage Program and the Nevada Department of Wildlife. Through subsequent correspondence with these agencies and organizations, several particularly sensitive species residing within the park were identified. Two species known or suspected to occur within the park are listed on the federal endangered species list. Nine species are candidate species for listing. The park also contains two additional species that are listed on the state or Nevada Natural Heritage Program list as endangered, threatened, or sensitive (see table 1 in the text). There is no designated critical habitat within Great Basin National Park for any federally listed species.

It is the conclusion of the National Park Service that the draft proposed action described in this document would not adversely affect any federally listed or candidate species or critical habitat.

EXECUTIVE ORDER 11988 ("FLOODPLAIN MANAGEMENT") AND EXECUTIVE ORDER 11990 ("PROTECTION OF WETLANDS")

Executive Orders 11988 and 11990 direct federal agencies to enhance floodplain and wetland values, to avoid development in floodplains and wetlands whenever there is a practicable alternative, and to avoid to the extent possible adverse impacts associated with the occupancy or modification of floodplains and wetlands.

Neither flash-flood hazard areas nor floodplains have been mapped for the park. The various riparian areas associated with Strawberry Creek, Lehman Creek, Baker Creek, Snake Creek, and other creeks within the park are assumed to be within the floodplain. Most of the creeks and drainages in the park are subject to flash flooding during summer months.

Approximately half of the existing campgrounds and campsites in the park are adjacent to creeks. The plan proposes to remove 34 of the Grey Cliffs campsites, which lie within the confined narrows portion of Baker Creek, as well as the entire Lower Lehman Creek campground (11 sites). The majority of the existing campgrounds, where escape routes are good and the flood events are not expected to be severe, would be retained. The proposed Lehman Flats campground (50 sites) would be built outside the floodplain. The proposed entrance road alignment would cross Baker Creek; however, the impacts on the floodplain would be minimal because the road would cross at a 90

degree angle and would not parallel the creek on either side. The bridge would also be designed to minimize its effect on water flow. All other proposed developments and all existing developments that would remain under the proposed action would be outside the floodplain.

In addition to the riparian areas discussed above, the park has numerous wetlands including subalpine meadows, lakeshores, and isolated wetlands associated with numerous springs and seeps on mountain slopes. With the exceptions noted above, no proposed actions would affect wetlands.

COUNCIL ON ENVIRONMENTAL QUALITY MEMORANDUM ON PRIME OR UNIQUE FARMLAND SOILS

An August 11, 1980, memorandum from the Council on Environmental Quality requires federal agencies to assess the effects of their actions on soils classified by the Soil Conservation Service as prime or unique farmlands. No such soils occur within the park.

NATIONAL HISTORIC PRESERVATION ACT OF 1966

Section 106 Consultation

As required by section 106 of the National Historic Preservation Act, the *Draft General Management Plan/Development Concept Plans/Environmental Impact Statement* is being reviewed by the Nevada historic preservation officer and the Advisory Council on Historic Preservation, in accordance with the council's regulations (36 CFR 800).

On July 21, 1987, the National Park Service sent a letter to Nevada historic preservation officer Roland Westergard, requesting that he designate a person from his staff to serve as a key contact for this planning effort. On July 24, 1987, the Mr. Westergard designated Alice Becker, staff archeologist for the Nevada Division of Historic Preservation and Archeology, as the key contact for the Great Basin National Park planning effort.

On January 27, 1988, the National Park Service sent a letter to the Advisory Council and the Nevada historic preservation officer stating that the general management plan for Great Basin was being initiated and invited their participation at appropriate stages in the planning process. A copy of the task directive for this general management plan effort was enclosed with each letter.

On February 9, 1988, Robert Fink of the Advisory Council sent a letter to the National Park Service acknowledging receipt of the task directive and stating that the council appreciated the opportunity to participate in the planning effort as established by the programmatic memorandum of agreement (PMOA). The letter stated:

> Our initial thoughts after reading the document are that available information regarding cultural resources in the park should be gathered and synthesized as a first step in the planning effort. Historic and prehistoric sites should be considered together to facilitate conformity of management considerations in accordance with Stipulation 6 of the PMOA. [A historic resource study and an archeological overview were completed in 1990 as part of this planning effort.]

On February 10, 1988, the National Park Service contacted by Nevada's state historic preservation officer by telephone to confirm that the January 27th initiation letter and the task directive had been received. The preservation officer had received the letter and task directive enclosure and agreed to participate in the planning process.

On March 1, 1988, the National Park Service sent a letter inviting the state historic preservation officer to participate in a scoping session on the Great Basin National Park general management plan. This session was held in Carson City, Nevada, on March 29, 1988. Ms. Kate Kuranda attended the scoping session along with the other representatives listed in the "Consultation and Coordination" section.

In October 1988 a Great Basin *Alternatives Workbook* was sent to both the state historic preservation officer and the Advisory Council of Historic Preservation. On October 20, 1988, the council sent a letter to the National Park Service acknowledging that it had received the alternatives workbook on October 7. In the letter the council stated:

> At this point, the Council cannot comment on any of the alternatives because of the stated lack of information on historic properties within the Park. We are keenly interested and would like to review a copy of the study effort that will provide the basic data for your planning effort.

On December 2, 1988, Nevada Governor Bryan sent a letter to the National Park Service that provided the state's comments on the *Alternatives Workbook*. The governor stated that the comments were developed through a consensus-building process among those state agencies designated as key contacts, which included the Nevada Division of Historic Preservation and Archeology. The state's comments pertaining to cultural resources were as follows:

> The Park Service should realize that increased visitation to the park will lead to impacts to historic properties within the park boundaries. Accordingly, the Park Service must conduct sample surveys to identify classes of properties that might be affected by increased visitor use, and decide on the appropriate strategies for preservation or mitigation. In reference to the historic orchard in the Park, we would agree that the orchard area should be reestablished, however, we question whether enough is known about the orchard (a National Register Property) to restore it accurately. In any event, coordination with our State Historic Preservation Officer will be required before any major developments are initiated.

The National Park Service requested a meeting with the various state agencies to discuss the governor's comments. This meeting was held at 9:00 a.m., April 12, 1989, in Carson City, Nevada. Ms. Karen Kuranda represented the state historic preservation officer but raised no questions concerning cultural resource issues. Previously, on March 21, 1989, the Park Service had contacted Ms. Kuranda to suggest that the Great Basin planning team meet with the state historic preservation officer on the afternoon of April 12, 1989 (following the morning meeting described above), for a focused discussion on cultural resources issues. Ms. Kuranda declined stating that the morning meeting would provide sufficient opportunity to discuss cultural issues.

On August 20, 1991, prior to the printing of the draft plan/EIS, the National Park Service met with representatives from the Nevada state historic preservation office in Great Basin National Park to inspect some of the historic sites in the park and to review the text of the draft plan as it pertained to those sites. That meeting resulted in several minor revisions to the draft.

On January 10, 1992, the Park Service received the Nevada state historic preservation office's comments on the draft plan (see state of Nevada comment letters). On March 27, 1992, Park Service cultural resource personnel met with the Nevada state historic preservation officer and staff to discuss these comments. In that meeting, the Park Service agreed to conduct investigations to test the significance of the three archeological sites at the Baker administrative site. A draft work plan for that effort was given to the state historic preservation office for comment. In addition, it was agreed that eight historic sites would be evaluated by archeologists for their significance under criterion D of the National Register of Historic Places. Finally, it was also agreed that Park Service would prepare additional documentation to support the determinations of noneligibility for historic sites that did not meet the eligibility standards under criterion C of the National Register.

Section 110 and Executive Order 11593

Historic structures were evaluated in accordance with section 110 of the National Historic Preservation Act to determine eligibility for inclusion on the National Register of Historic Places. Although the park has not been systematically surveyed for historic resources, 26 such sites have been identified as part of the 1990 Great Basin *Historic Resource Study*. The majority of these sites are related to mining and agriculture/ranching themes. Three of the 26 sites were placed on the National Register of Historic Places in 1975 – the Lehman orchard, Lehman aqueduct, and Rhodes cabin. After careful evaluation, documented in the *Historic Resource Study*, this general management plan recommends that one additional site – the Osceola ditch and associated structures – be nominated to the National Register of Historic Places. Although the *Historic Resource Study* determined that the remaining historic sites were not of National Register quality based on their historical significance, the study acknowledged their value as assets to the park's interpretive program. In addition, the 1990 *Archeological Survey and Site Assessment at Great Basin National Park* found 16 of the 26 historic sites eligible for nomination to the National Register based on their archeological value (potential to yield scientific information).

The Western Archeological Center of the National Park Service inventoried approximately 2 percent of the park to provide information for the general management plan effort. The preliminary inventory findings, which are documented in the *Archeological Survey and Site Assessment at Great Basin National Park*, identified 30 prehistoric sites, 40 isolated finds, and more than 70 pieces of isolated chipped stone debitage. In addition, the *Archeological Survey of the Baker Guard Station* identified four archeological sites on that property. All sites will be evaluated in consultation with the Nevada historic preservation officer to determine their eligibility for listing on the National Register.

The draft general management plan has emphasized the need to eliminate most nonessential development from one of the park's prime resource areas – the Lehman Caves/Lower Lehman Creek/Baker Ridge vicinity. The majority of NPS housing, all maintenance and sewage treatment facilities, and administration would be moved out

of this prime resource area to an 80-acre location near the town of Baker. This action would enhance scenic quality, improve visitor experiences, and reduce impacts on the karst topography underlying most of this prime resource area. The draft plan does propose that three essential new developments (the Great Basin visitor center and parking area on Baker Ridge, the parking area for the rehabilitated Lehman Cave interpretive center, and the 50-site campground at Lehman Flats) be developed within this prime resource area to fulfill the purpose of the new national park, improve visitor experiences, provide a quality interpretive program, and better accommodate the projected increases in visitation. Because there is a very limited amount of available space suitable for development within this prime resource area, there are few options for locating these developments. The locations proposed for the essential developments have the potential to impact approximately 11 known archeological sites and 30 known archeological finds. The proposed 80-acre NPS administrative, maintenance, and housing site near the town of Baker has the potential to impact approximately four archeological sites. Where possible, proposed developments would be located and designed to avoid disturbance to archeological sites and finds. If an archeological site or find could not be avoided, all appropriate mitigation procedures would be developed in consultation with the Nevada historic preservation officer and the Advisory Council on Historic Preservation. If a discovery was made during construction, the Park Service would cease any activity affecting the discovery and would consult in accordance with 36 CFR 800.11.

ARCHEOLOGICAL RESOURCES PROTECTION ACT OF 1979

The National Park Service intends to meet its obligations under the Archeological Resources Protection Act in all activities at Great Basin National Park. No archeological resources will be excavated without proper permits. Unauthorized excavation, removal, damage, alteration, or defacement of archeological resources will be prosecuted. All archeological resource collections and data will be preserved. Archeological site data will remain confidential.

AMERICAN INDIAN RELIGIOUS FREEDOM ACT OF 1979

In accordance with the American Indian Religious Freedom Act (PL 95-341) and the "Native American Relationships Management Policy of the National Park Service" (52 FR 35674), the National Park Service has identified the relevant native American groups who might use or have direct or indirect interest in the park. As described in the "Consultation and Coordination" section, consultations have taken place with or been offered to the Ely Tribal Colony Council, the Duckwater Tribal Council, and the Paiute Tribal Council (Cedar City). The Park Service as a matter of policy will be as unrestrictive as possible in permitting native American access to and use of any identified traditional sacred resources for traditional ceremonials. It is the intent of the Park Service to establish and promote good relations with the three native American groups that may have an interest in the park.

APPENDIX H: STAFFING REQUIREMENTS

EXISTING STAFFING

As of 08/31/90

Position	Position Title	Grade	Work Year Authorized
8420-01	Superintendent	GM-13	1.00
8420-02	Administrative Officer	GS-09	1.00
8420-04	Personnel Assistant	GS-07	1.00
8420-10	Chief I&RM	GS-12	1.00
8420-12	Resource Management Specialist	GS-09	1.00
8420-20	Supervisory Park Ranger (Interpretation)	GS-09	1.00
8420-21	Park Ranger (Interpretation)	GS-07	1.00
8420-50	Supervisory Park Ranger (Visitor Protection)	GS-09	1.00
8420-60	Facility Manager	GS-11	1.00
8420-70	Maintenance Mechanic Foreman	WS-07	1.00
8420-71	Maintenance Worker (B&U)	WG-08	1.00
8420-72	Utility System Operator	WG-08	1.00
8420-80	Engineering Equipment Operator Foreman	WS-08	1.00
8420-81	Motor Vehicle Operator	WG-06	.93
8420-505	Administrative Technician	GS-05	1.00
8420-511	Secretary	GS-05	1.00
8420-512	Range Technician	GS-07	.36
8420-513	Park Ranger (Resource Mgmt.)	GS-05	.16
8420-514	Physical Science Technician	GS-05	.40
8420-522	Park Ranger (Interpretation)	GS-05	.48
8420-523	Park Ranger (Interpretation)	GS-05	.40
8420-524	Park Ranger (Interpretation)	GS-05	.48
8420-525	Park Ranger (Interpretation)	GS-05	.37
8420-527	Park Ranger (Interpretation)	GS-05	.33
8420-530	Park Ranger (Interpretation)	GS-04	.93
8420-531	Park Ranger (Interpretation)	GS-04	.87
8420-532	Park Ranger (Interpretation)	GS-04	.51
8420-533	Park Ranger (Interpretation)	GS-04	.33
8420-535	Park Ranger (Interpretation)	GS-04	.45
8420-536	Park Ranger (Interpretation)	GS-04	.35
8420-537	Park Ranger (Interpretation)	GS-04	.62
8420-539	Park Ranger (Interpretation)	GS-04	.97
8420-540	Park Ranger (COOP)	GS-05	.39
8420-545	Park Ranger (Interpretation)	GS-03	.30
8420-550	Park Ranger (Visitor Protect.)	GS-05	.54
8420-551	Park Ranger (Visitor Protect.)	GS-05	.80
8420-557	Forestry Technician	GS-04	.40
8420-558	Forestry Technician	GS-04	.39
8420-559	Forestry Technician	GS-04	.37
8420-560	Program Clerk	GS-05	1.00
8420-569	Motor Vehicle Operator	WG-05	.94
8420-574	Maintenance Worker	WG-04	1.00
8420-575	Maintenance Worker	WG-04	.31
8420-576	Laborer	WG-03	.41
8420-580	Engineering Equipment Operator	WG-09	1.00
8420-582	Automotive Worker	WG-08	.88
8420-583	Motor Vehicle Operator	WG-04	.35
8420-588	Maintenance Worker	WG-08	.37
8420-589	Maintenance Worker	WG-08	.52
8420-590	Maint. Worker/MVO Op. Leader	WG-05/WL-04	1.00
	Laborer	WG-03	.31
	Laborer	WG-03	.31
	Laborer	WG-03	.31
	Laborer	WG-03	.31
	Laborer	WG-03	.31
	Laborer	WG-03	.31

PROPOSED ADDITIONAL STAFFING – PROPOSED ACTION
(As of August 1991)

Permanent Additional	Grade	Work Year Authorized
Research Scientist	GS/GM-12/13	1.0
Computer Programmer Analyst	GS-07/09	1.0
Resource Management Technician	GS-07	1.0
Range Conservationist[1]	GS-07/09	1.0
Park Ranger (Visitor Protection)	GS-05/07	1.0
Park Ranger (Interpretation)	GS-07	1.0
Purchasing Agent	GS-05/06	1.0
Secretary	GS-05	1.0
Secretary[2]	GS-05	1.0
Administrative Technician[3]	GS-05	1.0
Program Clerk[4]	GS-05	1.0
Maintenance Mechanic – 2 positions	WG-09	1.0/each
Maintenance Worker[5]	WG-04	1.0
Maintenance Worker	WG-04	1.0
Maintenance Worker	WG-07	1.0
Engineering Equipment Operator[6]	WG-09	1.0
Engineering Equipment Operator	WG-09	1.0
Automotive Worker[7]	WG-08	1.0
Maint. Worker/MVO Op. Leader[8]	WG-05/WL-04	1.0
STF Permanent		
Clerk-Typist (Administration)	GS-03	0.8
Clerk-Typist (I&RM)	GS-03	0.8
Library Technician	GS-07	0.8
Range/Forestry Technician – 2 positions	GS-05	0.8/each
Seasonal/Temporary		
Range/Forestry Technician – 2 positions	GS-05	0.5/each
Park Ranger (Interpretation) – 6 positions	GS-05	0.5/each
Park Ranger (Interpretation) – 6 positions	GS-04	0.5/each
Park Ranger (Resource Management)	GS-05	0.5
Park Ranger (Backcountry) – 2 positions	GS-05	0.5/each
Laborer (Roads and Trail) – 3 positions	WG-03	0.5/each
Motor Vehicle Operator – 10 positions	WG-04	0.5/each

1. Replaces temporary position 8420-512
2. Replaces temporary position 8420-511
3. Replaces temporary position 8420-505
4. Replaces temporary position 8420-560
5. Replaces temporary position 8420-574
6. Replaces temporary position 8420-580
7. Replaces temporary position 8420-582
8. Replaces temporary position 8420-590

DESCRIPTION OF WORK TO BE PERFORMED BY ADDITIONAL STAFF – PROPOSED ACTION

DIVISION OF MANAGEMENT AND ADMINISTRATION

Secretary GS-05 FTE 1.0

This position would be needed to assist the superintendent with correspondence, scheduling, research, and coordination for increased park projects.

Purchasing Agent GS-05/06 FTE 1.0

This position would be needed to prepare and process purchasing documents. A greatly increased level of purchasing and contracting would be necessary as the park operations expand.

Administrative Technician GS-05 FTE 1.0

This is currently a temporary position funded on a yearly basis. It would become permanent full time. There would be an increase in administrative workload due to the increase in staff and budget. This position would assist the administrative officer with housing, budget, property, timekeeping, travel, and administrative functions.

Clerk-Typist GS-03 FTE 0.8

This position would be required to assist with the seasonal increase in clerical work including correspondence, filing, employee processing, and records management.

DIVISION OF VISITOR SERVICES AND RESOURCE MANAGEMENT

Research Scientist GS/GM-12/13 FTE 1.0

This position would be the global climate change coordinator for research in the park. The incumbent would coordinate and conduct ongoing research.

Computer Programmer Analyst GS-07/09 FTE 1.0

This position would manage automatic data processing for the entire park, which would include assembling and operating the geographic information system for resource management and research.

Resource Management Technician GS-07 FTE 1.0

This position would focus on wildlife concerns and abiotic resources. Research would be conducted on the wildlife component of grazing or browsing to gain an understanding of range management in the park.

Range Conservationist GS-07/09 FTE 1.0

This position would replace temporary position 8420-512. The position is necessary to manage and monitor livestock grazing in the park and implement the allotment management plans.

Secretary GS-05 FTE 1.0

This is currently a temporary position funded on a yearly basis. It would become permanent full time. This position is necessary to proved the clerical assistance needed by the division. The secretary assists the Chief of I&RM with correspondence, filing, administrative research, division payroll, dispatching, and budget.

Park Ranger (Visitor Protection) GS-05/07 FTE 1.0

This position would be required to provide essential visitor support services including wildland fire suppression, search and rescue, law enforcement, and emergency medical services.

Park Ranger (Interpretation) GS-07 FTE 1.0

This position would be necessary because of the increase in seasonal interpretive staff needed to operate the new visitor center and orientation center. This position would provide on-line supervision and coordination of the seasonal staff and program.

Library Technician GS-07 FTE 0.8

This position would be necessary to organize and expand the reference libraries, conduct literature searches, and maintain the museum collection. The position would handle the curation of natural and cultural collections including a repository of bristlecone pine literature and research.

Clerk-Typist GS-03 FTE 0.8

This position would assist the division with the seasonal increase in correspondence, filing, payroll, and processing of reports.

Range/Forestry Technicians GS-05 FTE 1.6

These two positions would assist the range conservationist and resource management technician with research projects on wildlife, abiotic resources, and range management.

Park Ranger (Resource Management – Seasonal) GS-05 FTE 0.5

This position would replace temporary position 8420-512. The position is necessary to manage and monitor livestock grazing in the park and implement the allotment management plans.

Park Ranger (Backcountry – Seasonal) GS-05 FTE 1

These two seasonal positions would patrol the backcountry and provide visitor assistance. They would provide essential visitor services including wildland fire suppression, search and rescue, law enforcement, and emergency medical services.

Range/Forestry Technicians (Seasonal) GS-05 FTE 3.0

These two seasonal positions would work in the backcountry to monitor range vegetation, fire fuels, livestock movements, and visitor use impacts. They would construct range improvements and revegetate old mining sites and access roads.

Park Ranger (Seasonal) GS-05 FTE 3.0
Park Ranger (Seasonal) GS-04 FTE 3.0

These positions would be required to provide a full range of visitor services because of the expanded operation at the new visitor center and orientation center in Baker. These positions are necessary to provide a full-week operation at the new facilities and interpretation of the Great Basin physiographic region.

DIVISION OF MAINTENANCE

Maintenance Mechanic WG-09 FTE 2.0

These two positions would be necessary because of the increased amount of development, including housing. Journeyman are essential for the maintenance of these buildings.

Program Clerk GS-05 FTE 1.0

This is currently a temporary position funded on a yearly basis. It would become permanent full time. The position assists the facility manager with data input for the maintenance management system, budget, imprest cashier, payroll and secretarial duties.

Automotive Worker WG-08 FTE 1.0

This is currently a temporary position funded on a yearly basis. It would become permanent full time. The position is necessary because of the large fleet of vehicles maintained in the park. More vehicles would be added as the operation expands.

Engineering Equipment Operator WG-09 FTE 2.0

One of these positions is currently a temporary position funded on a yearly basis. With the increase in roads, two full-time equipment operators would be needed to assist the road crew in the summer and be the primary operators of the snow removal equipment.

Maintenance Worker WG-04 FTE 2.0

One of these positions is currently a temporary position funded on a yearly basis. With the increased number of buildings, two janitor/groundskeepers would be needed to clean all the facilities on a yearly basis.

Maintenance Worker WG-07 FTE 1.0

This position would be necessary because of the increased size of the water systems. This position would assist the utility systems operator.

Maintenance Worker/MVO Operator Leader WG-05/WL-04 FTE 1.0

This position is currently a temporary position funded on a yearly basis. It would become permanent full time. The position would be the trail leader during the summer. During the winter the incumbent would assist the maintenance mechanics with buildings and utilities needs.

Laborer (Seasonal) WG-03 FTE 1.5

These positions would be necessary to construct and maintain the trails and roads in the park. Because of the increased trail mileage, two working crews would be required.

Motor Vehicle Operator (Seasonal) WG-04 FTE 5.0

These positions would be necessary because of the increased number of facilities and the need to drive to each one of the buildings to perform cleaning and routine maintenance.

PROPOSED ADDITIONAL STAFFING – ALTERNATIVE A

Permanent Additional	Grade	Work Year Authorized
Research Scientist	GS/GM-12/13	1.0
Computer Programmer Analyst	GS-07/09	1.0
Resource Management Technician	GS-07	1.0
Range Conservationist[1]	GS-07/09	1.0
Purchasing Agent	GS-05/06	1.0
Secretary	GS-05	1.0
Secretary[2]	GS-05	1.0
Program Clerk[3]	GS-05	1.0
Maintenance Mechanic	WG-09	1.0
Maintenance Worker[4]	WG-04	1.0
Engineering Equipment Operator[5]	WG-09	1.0
STF Permanent		
Clerk-Typist (Administration)	GS-03	0.8
Park Ranger (Visitor Protection)	GS-05/07	0.8
Park Ranger, Lead Interpreter	GS-06	0.8
Automotive Worker[6]	WG-08	0.8
Maint. Worker/MVO Op. Leader[7]	WG-05/WL-04	0.8
Seasonal/Temporary		
Library Technician	GS-07	0.8
Laborer (Roads and Trail) – 2 positions	WG-03	0.5/each
Motor Vehicle Operator – 2 positions	WG-04	0.5/each

1. Replaces temporary position 8420-512
2. Replaces temporary position 8420-511
3. Replaces temporary position 8420-560
4. Replaces temporary position 8420-574
5. Replaces temporary position 8420-580
6. Replaces temporary position 8420-582
7. Replaces temporary position 8420-590

PROPOSED ADDITIONAL STAFFING – ALTERNATIVE B

Permanent Additional	Grade	Work Year Authorized
Research Scientist	GS/GM-12/13	1.0
Computer Programmer Analyst	GS-07/09	1.0
Resource Management Technician	GS-07	1.0
Range Conservationist[1]	GS-07/09	1.0
Purchasing Agent	GS-05/06	1.0
Secretary	GS-05	1.0
Secretary[2]	GS-05	1.0
Administrative Technician[3]	GS-05	1.0
Program Clerk[4]	GS-05	1.0
Maintenance Mechanic – 2 positions	WG-09	1.0/each
Maintenance Worker[5]	WG-04	1.0
Maintenance Worker	WG-04	1.0
Maintenance Worker	WG-07	1.0
Engineering Equipment Operator[6]	WG-09	1.0
STF Permanent		
Clerk-Typist (Administration)	GS-03	0.8
Park Ranger (Visitor Protection)	GS-05/07	0.8
Park Ranger (Interpretation)	GS-07	0.8
Automotive Worker[7]	WG-08	0.8
Maint. Worker/MVO Op. Leader[8]	WG-05/WL-04	0.8
Seasonal/Temporary		
Library Technician	GS-07	0.8
Range/Forestry Technician – 2 positions	GS-05	0.5/each
Park Ranger (Interpretation) – 2 positions	GS-05	0.5/each
Park Ranger (Interpretation) – 2 positions	GS-04	0.5/each
Park Ranger (Resource Management)	GS-05	0.5
Park Ranger (Backcountry) – 3 positions	GS-05	0.5/each
Laborer (Roads and Trail) – 5 positions	WG-03	0.5/each
Motor Vehicle Operator – 4 positions	WG-04	0.5/each

1. Replaces temporary position 8420-512
2. Replaces temporary position 8420-511
3. Replaces temporary position 8420-505
4. Replaces temporary position 8420-560
5. Replaces temporary position 8420-574
6. Replaces temporary position 8420-580
7. Replaces temporary position 8420-582
8. Replaces temporary position 8420-590

PROPOSED ADDITIONAL STAFFING – ALTERNATIVE C

Changes To Existing Staff – The following positions would be increased in grade or the title changed (the new grade and/or title are listed):

Position	Title	New Grade
8420-01	Superintendent	GM-14
8420-02	Administrative Officer	GS-11
8420-10	Chief Ranger	GS-12
8420-20	Chief of Interpretation	GS-12
8420-21	Assistant Chief of Interpretation	GS-09
8420-60	Chief of Maintenance	GS-12
8420-70	Maintenance Mechanic Foreman	WS-09
8420-80	Engineering Equipment Operator Foreman	WS-09

Permanent Additional	Grade	Work Year Authorized
Assistant Superintendent	GM-13	1.0
Research Scientist	GS/GM-12/13	1.0
Computer Programmer Analyst	GS-07/09	1.0
Resource Management Technician	GS-07	1.0
Range Conservationist[1]	GS-07/09	1.0
Park Ranger (Visitor Protection)	GS-05/07	1.0
Park Ranger (Interpretation)	GS-07	1.0
Park Ranger (West Visitor Protection)	GS-09	1.0
Personnel Specialist	GS-09	1.0
Budget Analyst	GS-05/07	1.0
Purchasing Agent	GS-05/06	1.0
Secretary	GS-05	1.0
Secretary[2]	GS-05	1.0
Administrative Technician[3]	GS-05	1.0
Dispatcher	GS-04/05	1.0
Program Clerk[4]	GS-05	1.0
Maintenance Mechanic – 2 positions	WG-09	1.0/each
Maintenance Mechanic (West Side)	WG-09	1.0
Maintenance Worker[5]	WG-04	1.0
Maintenance Worker	WG-04	1.0
Maintenance Worker	WG-07	1.0
Engineering Equipment Operator[6]	WG-09	1.0
Engineering Equipment Operator	WG-09	1.0
Automotive Worker[7]	WG-08	1.0
Maint. Worker/MVO Op. Leader[8]	WG-05/WL-04	1.0

1. Replaces temporary position 8420-512
2. Replaces temporary position 8420-511
3. Replaces temporary position 8420-505
4. Replaces temporary position 8420-560
5. Replaces temporary position 8420-574
6. Replaces temporary position 8420-580
7. Replaces temporary position 8420-582
8. Replaces temporary position 8420-590

STF Permanent

Clerk-Typist (Administration)	GS-03	0.8
Clerk-Typist (I&RM)	GS-03	0.8
Library Technician	GS-07	0.8
Range/Forestry Technician – 2 positions	GS-05	0.8/each

Seasonal/Temporary

Range/Forestry Technician – 2 positions	GS-05	0.5/each
Park Ranger (Interpretation) – 6 positions	GS-05	0.5/each
Park Ranger (Interpretation) – 6 positions	GS-04	0.5/each
Park Ranger (Resource Management)	GS-05	0.5
Park Ranger (Backcountry) – 3 positions	GS-05	0.5/each
Laborer (Roads and Trail) – 10 positions	WG-03	0.5/each
Motor Vehicle Operator – 10 positions	WG-04	0.5/each
West Side Seasonal Positions:		
Park Ranger (Interpretation) – 2 positions	GS-05	0.5/each
Park Ranger (Interpretation) – 2 positions	GS-04	0.5/each
Park Ranger (Visitor Protection) – 2	GS-05	0.5/each
Motor Vehicle Operator – 2 positions	WG-04	0.5/each
Laborer – 2 positions	WG-03	0.5/each

APPENDIX I: COST ESTIMATES (1991 dollars)

	Gross Construction Cost	Advance & Project Planning Cost	Total Project Cost
PROPOSED ACTION			
Modern Subzone			
Extension of Wheeler Peak Scenic Drive (new entrance road)			
Construct 7 miles, 40 mph design speed, 26' paved top	$3,500,000	$667,940	$4,167,940
Park entrance pullout			
Construct 15-20 car paved parking	98,250	18,750	117,000
Desert shrub pullout			
Construct 5-10 car paved parking	11,790	2,250	14,040
Kious Basin pullout/trailhead			
Construct 15-20 car paved parking	31,440	6,000	37,440
Riparian shrub pullout			
Construct 5-10 car paved parking	11,790	2,250	14,040
Contemporary ranching pullout			
Construct 5-10 car paved parking	11,790	2,250	14,040
Pinyon-juniper pullout			
Construct 5-10 car paved parking	11,790	2,250	14,040
Existing 12-mile Wheeler Peak Scenic Drive			
Rehabilitate 12 miles at existing width; eliminate peak overlook	3,930,000	750,000	4,680,000
Construct Lehman Flats trailer drop-off (½ acre surfaced)	65,500	12,500	78,000
Mixed conifer/Osceola ditch pullout			
Construct 5-10 car paved parking and realign road	39,300	7,500	46,800
Restore ditch	32,750	6,250	39,000
Construct 0.1-mile high-standard trail	65,500	12,500	78,000
Mahogany shrub/Mt. Moriah pullout			
Construct 5-10 car paved parking	18,340	3,500	21,840
Construct ¼-mile wheelchair-accessible paved trail	32,750	6,250	39,000
Construct 400-sq ft viewing platform	26,200	5,000	31,200
Aspen/Lehman Creek pullout			
Construct 5-10 car paved parking	11,790	2,250	14,040
Spruce-fir/Wheeler Peak cirque overlook			
Construct retaining wall and 5-10 car paved parking	212,220	40,500	252,720
Wheeler Peak summit trailhead			
Construct 10-car paved parking	15,720	3,000	18,720
Wheeler Peak pullout/trailhead			
Construct 50-car paved parking	196,500	37,500	234,000
Provide 2 vault toilets	52,400	10,000	62,400
Great Basin visitor center (Baker Ridge)			
Construct 5,000 sq ft building	1,310,000	250,000	1,560,000

	Gross Construction Cost	Advance & Project Planning Cost	Total Project Cost
60-seat auditorium (750 sq ft) exhibit space (1,000 sq ft) restrooms (600 sq ft) lobby/sales (1,000 sq ft) storage (100 sq ft) interpretive workspace (300 sq ft) superintendent's office/conference room (150 sq ft) staff office (150 sq ft) natural history association office (150 sq ft)			
Construct viewing deck	65,500	12,500	78,000
Construct 50-car parking lot	78,600	15,000	93,600
Establish picnic area	6,550	1,250	7,800
Landscape	230,560	44,000	274,560
Prepare cave impact study on visitor center placement	52,400	10,000	62,400
Lehman Cave interpretive center			
Redesign existing building; remove administration except 2 interpretive offices; expand cave interpretation into administration area; retain concession; provide handicap access	131,000	25,000	156,000
Obliterate lower-level parking (¼ acre) and 1.5 miles of road in front of the interpretive center	294,750	56,250	351,000
Upgrade existing self-guide interpretive trail adjacent to interpretive center	3,000	570	3,570
Construct cave ticket sales kiosk/shelter information office (100 sq ft) restrooms (400 sq ft) shelter (1,000 sq ft)	144,100	27,500	171,600
Construct 70-car/30-RV/bus parking	196,500	37,500	234,000
Establish picnic area (12-15 tables)	10,480	2,000	12,480
Construct wheelchair-accessible trail from kiosk to interpretive center	65,500	12,500	78,000
New road alignment			
Realign entrance road/Baker Creek road/new Lehman Cave parking area (1 mile of road); remove existing entrance road south of orchard	750,000	143,130	893,130
New paved road			
Establish paved road from new entrance road junction west to Baker Lake trailhead (3 miles); 20-car parking at trailhead	1,000,000	190,840	1,190,840
Regional highway exhibit shelters			
Construct and install shelters	131,000	25,000	156,000
Baker administrative site (80 acres)			
Construct orientation center information/orientation/camping permit kiosk (designed to be manned or unmanned; 100 sq ft) restroom (400 sq ft) storage (50 sq ft)	144,100	27,500	171,600
Construct 25-car parking	32,750	6,250	39,000

	Gross Construction Cost	Advance & Project Planning Cost	Total Project Cost
Landscape	26,000	4,960	30,960
Construct 3,000 sq ft administration building	491,250	93,750	585,000
superintendent's office			
administrative officer's office			
division chiefs' offices			
protection offices			
resource managers' offices			
two conference rooms			
NPS storage			
NHA storage			
restrooms			
lobby/information			
library			
curatorial and records space			
Landscape	78,600	15,000	93,600
Construct residential area			
20-30 apartments	1,375,500	262,500	1,638,000
6 new permanent housing units	786,000	150,000	936,000
playground	26,200	5,000	31,200
Landscape	200,000	38,170	238,170
Construct maintenance area			
B&U shop (2,500 sq ft)	327,500	62,500	390,000
vehicle storage building (heavy equipment; 10,000 sq ft)	1,310,000	250,000	1,560,000
warehouse (1,500 sq ft cold; 1,500 sq ft warm)	275,100	52,500	327,600
parking (½ acre)	65,000	12,400	77,400
meeting space/offices (500 sq ft)	65,500	12,500	78,000
Berm and landscape	50,000	9,540	59,540
Existing Lehman Cave maintenance and housing area			
Demolish 4 trailers and revegetate	10,480	2,000	12,480
Provide fire cache (500 sq ft heated) and structure to house fire truck	65,500	12,500	78,000
Demolish existing maintenance (two buildings, 5,000 sq ft)	52,400	10,000	62,400
Eliminate sewage lagoons and revegetate 5 acres	65,500	12,500	78,000
Utilities (sewer, water, electricity)*	6,738,400	1,286,000	8,024,400
Campgrounds			
Wheeler Peak campground (37 existing sites; small RV only)			
Add 2 barrier-free sites	6,550	1,250	7,800
Provide 4 vault toilets	104,800	20,000	124,800
Upper Lehman Creek campground (24 existing sites) small RV, small trailer			
Provide 4 vault toilets	104,800	20,000	124,800

*These costs include wastewater treatment and domestic water system development. Wastewater treatment and possibly water system development and their costs are expected to be shared with the town of Baker.

	Gross Construction Cost	Advance & Project Planning Cost	Total Project Cost
Lower Lehman Creek campground			
Eliminate and revegetate	39,300	7,500	46,800
New Lehman Flats campground			
Construct 50 paved campsites & interior roads	750,000	143,130	893,130
Provide low-volume flush toilets (3 restroom complex)	314,400	60,000	374,400
Construct 1/8-mile paved entrance and exit road	131,000	25,000	156,000
Provide water, sewer, and electricity hookups for 1 campsite	6,550	1,250	7,800
Grey Cliffs campground			
Eliminate 3 loops of the 4-loop campground (9 acres)	176,850	33,750	210,600
Develop 1 group campground	209,600	40,000	249,600
2 vault toilets			
12 picnic tables			
6 fire grates			
6 paved pull-ins			
1/8-mile paved circulation road			
no water or electricity			
Baker Creek campground (32 existing sites; tent/RV/trailer camping)			
Provide 4 vault toilets	104,800	20,000	124,800
Rural Subzone			
Highland Ridge (unmaintained access/informal parking)			
Establish trailhead	2,620	500	3,120
Big Spring Wash (unmaintained access/informal parking)			
Establish trailhead and corral	6,550	1,250	7,800
Lexington Arch entrance road (11 miles)			
Upgrade from dirt to 2WD gravel	1,080,750	206,250	1,287,000
Establish gravel 10-car parking and trailhead	10,480	2,000	12,480
Big Wash entrance road (9 miles)			
Upgrade from dirt to 2WD gravel	884,250	168,750	1,053,000
Establish gravel 10-car parking and trailhead	10,480	2,000	12,480
Provide corral	6,550	1,250	7,800
Snake Creek			
Upgrade 12-mile road from dirt to 2WD gravel	1,179,000	225,000	1,404,000
Establish 10 rustic campsites along creek	301,300	575,000	358,800
10 vault toilets			
10 picnic tables			
10 fire grates			
Establish 6 rustic cluster campsites	180,780	34,500	215,280
perimeter definition			
2 vault toilets			
6 picnic tables			

	Gross Construction Cost	Advance & Project Planning Cost	Total Project Cost
6 fire grates			
Establish Johnson trailhead parking (10 cars, gravel)	10,480	2,000	12,480
Establish Shoshone trailhead parking (10 cars, gravel)	10,480	2,000	12,480
Provide corral	6,550	1,250	7,800
Strawberry Creek			
Upgrade 5-mile entrance road from dirt to 2WD gravel; establish two 10-car gravel parking areas and trailheads	491,250	93,750	585,000
Establish 7 rustic campsites along creek	210,910	40,250	251,160
perimeter definition			
7 vault toilets			
7 picnic tables			
7 fire grates			
Establish 1 group campground	58,950	11,250	70,200
perimeter definition			
2 vault toilets			
6 picnic tables			
6 fire grates			
1 corral			
Semi-Primitive Day Use Subzone			
Rehabilitate Lehman Creek trail (3.2 miles)	125,760	24,000	149,760
Establish 4-mile high-standard trail at Wheeler Peak pullout/trailhead (0.1-mile segment wheelchair accessible)	163,750	31,250	195,000
Construct 1-mile medium-standard trail at Lexington Arch	26,200	5,000	31,200
Semi-Primitive Subzone			
Rehabilitate existing backcountry trails – 60 miles, approximately $5 per foot	2,075,000	395,990	2,470,990
Construct new backcountry trails – 24 miles, approximately $10 per foot	1,660,000	316,790	1,976,790
Construct trail from Strawberry Creek parking lot to Osceola ditch tunnel (1 mile)	26,200	5,000	31,200
TOTAL – DEVELOPMENT	**$35,508,480**	**$6,776,460**	**$42,284,940**
Media Products			
Regional exhibit shelter panels	65,500	12,500	78,000
Exhibits	337,500	64,410	401,910
Interpretive trail exhibits			
20-25 wayside exhibits			
17 trailhead exhibits			
7 campground orientation exhibits			
Rhodes cabin museum exhibits/Lehman Cave ticket sales kiosk	104,800	20,000	124,800
Baker orientation center exhibits	52,400	10,000	62,400

	Gross Construction Cost	Advance & Project Planning Cost	Total Project Cost
Baker Ridge visitor center			
lobby treatment	170,300	32,500	202,800
exhibit room	314,400	60,000	374,400
15-minute film	183,400	35,000	218,400
theater installation	26,200	5,000	31,200
Wheeler Peak interactive video	91,700	17,500	109,200
portable exhibit	17,030	3,250	20,280
Lehman Cave interpretive center	393,000	75,000	468,000
new exhibit and film treatment of cave story			
TOTAL – MEDIA	**$ 1,756,230**	**$335,160**	**$2,091,390**
TOTAL – PROPOSED ACTION	**$37,264,710**	**$7,111,620**	**$44,376,330**

	Gross Construction Cost	Advance & Project Planning Cost	Total Project Cost
ALTERNATIVE A			
Modern Subzone			
Existing 12-mile Wheeler Peak road			
Rehabilitate 12 miles at existing width; eliminate peak overlook	$3,930,000	$750,000	$4,680,000
Desert shrub pullout (on existing entrance road)			
Construct 5-10 car paved parking	11,790	2,250	14,040
Construct Lehman Flats trailer drop-off (½ acre surfaced)	65,500	12,500	78,000
Mixed conifer/Osceola ditch pullout			
Construct 5-10 car paved parking and realign road	39,300	7,500	46,800
Construct 0.1-mile high-standard trail	65,500	12,500	78,000
Mahogany shrub pullout			
Construct 5-10 car paved parking	18,340	3,500	21,840
Construct ¼-mile wheelchair-accessible trail	32,750	6,250	39,000
Aspen/Lehman Creek wayside pullout			
Construct 5-10 car paved parking	11,790	2,250	14,040
Wheeler Peak summit trailhead			
Construct 10-car parking/trailhead	15,720	3,000	18,720
Wheeler Peak pullout/trailhead			
Construct 25-car paved parking	52,400	10,000	62,400
Provide 2 vault toilets	52,400	10,000	62,400
Lehman Cave visitor center			
Rehabilitate; remove administration except for 2 offices for interpreters; redesign to tell both the cave and Great Basin stories; retain orientation/ticket sales/concession function	131,000	25,000	156,000
Construct new 50-space parking area on site of existing picnic area for RVs/trailers and overflow parking (retain upper and lower parking lots in front visitor center)	98,250	18,750	117,000
Construct wheelchair-accessible trail from parking area to visitor center	65,500	12,500	78,000
Establish picnic area (12-15 tables)	10,480	2,000	12,480
New administration building			
Construct next to the new 50-space parking area	491,250	93,750	585,000
Residential area			
Construct 20-25 new apartments	1,375,500	262,500	1,638,000
Construct 3-6 additional single family units	786,000	150,000	936,000
Maintenance			
Move material storage to gravel pit, rehabilitate gravel pit	65,500	12,500	78,000
Utilities (water, sewer, electricity)	550,200	105,000	655,200

	Gross Construction Cost	Advance & Project Planning Cost	Total Project Cost
Campgrounds			
Wheeler Peak campground			
Provide 4 vault toilets	104,800	20,000	124,800
Upper Lehman Creek campground			
Provide 4 vault toilets	104,800	20,000	124,800
Lower Lehman Creek campground			
Eliminate and revegetate	39,300	7,500	46,800
New Lehman Flats campground			
Establish 50 paved campsites & interior roads	750,000	143,130	893,130
Provide low-volume flush toilets (3 restroom complex)	314,400	60,000	374,400
Construct 1/8-mile paved entrance and exit road	131,000	25,000	156,000
Provide water, sewer, and electricity hookups for 1 campsite	6,550	1,250	7,800
Rural Subzone			
Grey Cliffs campground			
Eliminate 3 loops of the 4 loop campground (9 acres)	176,850	33,750	210,600
Develop 1 group campground	209,600	40,000	249,600
2 vault toilets			
12 picnic tables			
6 fire grates			
6 paved pull-ins			
1/8-mile paved road			
no water or electricity			
Baker Creek campground			
Provide 4 vault toilets	104,800	20,000	124,800
Snake Creek			
Grade entrance road for 4WD and 2WD high clearance (12 miles)	157,200	30,000	187,200
Establish 10 rustic campsites along creek	301,300	57,500	358,800
10 vault toilets			
10 picnic tables			
10 fire grates			
Establish 6 rustic cluster campsites	180,780	34,500	215,280
perimeter definition			
2 vault toilets			
6 picnic tables			
6 fire grates			
Establish Johnson trailhead parking (10 cars, gravel)	10,480	2,000	12,480
Establish Shoshone trailhead parking (10 cars, gravel)	10,480	2,000	12,480
Strawberry Creek			
Grade entrance road for 4WD and 2WD high clearance (5 miles)	65,500	12,500	78,000
Establish 5 rustic campsites along creek	210,910	40,250	251,160
perimeter definition			

	Gross Construction Cost	Advance & Project Planning Cost	Total Project Cost
5 vault toilets 5 picnic tables 5 fire grates			
Establish backcountry trailhead and parking (10 cars)	10,480	2,000	12,480
Lexington Arch			
Grade entrance road for 4WD and 2WD high clearance (11 miles)	144,100	27,500	171,600
Establish gravel parking area/trailhead (10 cars)	10,480	2,000	12,480
Baker Creek			
Establish gravel parking/trailhead (10 cars)	10,480	2,000	12,480
Semi-Primitive Day Use Subzone			
Rehabilitate Lehman Creek trail (3.2 miles)	125,760	24,000	149,760
Establish 4-mile high-standard trail at Wheeler Peak pullout/trailhead (0.1-mile segment wheelchair accessible)	163,750	31,250	195,000
Semi-Primitive Subzone			
Construct 1-mile medium-standard trail at Lexington Arch	26,200	5,000	31,200
Rehabilitate backcountry trails (36 miles)	1,245,000	237,590	1,482,590
TOTAL – DEVELOPMENT	**$12,484,170**	**$2,382,470**	**$14,866,640**
Media Products			
Exhibits 20-25 wayside exhibits 17 trailhead exhibits 7 campground orientation exhibits	327,500	62,500	390,000
Lehman Cave visitor center upgrading and rehabilitation; new exhibit and film treatment of both the Great Basin story and the cave	393,000	75,000	468,000
TOTAL – MEDIA	**$720,500**	**$137,500**	**$858,000**
TOTAL – ALTERNATIVE A	**$13,204,670**	**$2,519,970**	**$15,724,640**

	Gross Construction Cost	Advance & Project Planning Cost	Total Project Cost
ALTERNATIVE B			
Modern Subzone			
Existing 12-mile Wheeler Peak road			
Rehabilitate 12 miles at existing width; eliminate peak overlook	$3,930,000	$750,000	$4,680,000
Desert shrub pullout (on existing entrance road)			
Construct 5-10 car paved parking	11,790	2,250	14,040
Construct Lehman Flats trailer drop-off (½ acre surface)	65,500	12,500	78,000
Mixed conifer/Osceola ditch pullout			
Construct 5-10 car paved parking and realign road	39,300	7,500	46,800
Restore ditch	32,750	6,250	39,000
Construct 0.1-mile high-standard trail	65,500	12,500	78,000
Mahogany shrub pullout			
Construct 5-10 car paved pullout	18,340	3,500	21,840
Construct ¼-mile wheelchair-accessible paved trail	32,750	6,250	39,000
Construct viewing platform (400 sq ft)	26,200	5,000	31,200
Aspen/Lehman Creek pullout			
Construct 5-10 car paved parking	11,790	2,250	14,040
Spruce-fir/Wheeler Peak cirque overlook			
Construct retaining wall and 5-10 car paved parking	212,220	40,500	252,720
Wheeler Peak summit trailhead			
Construct 10-car parking/trailhead	15,720	3,000	18,720
Wheeler Peak pullout/trailhead			
Construct 40-car paved parking	80,000	15,270	95,270
Provide 2 vault toilets	52,400	10,000	62,400
Lehman Cave visitor center			
Eliminate visitor center and upper and lower parking lots and revegetate	131,000	25,000	156,000
Construct contact/cave ticket sales kiosk/shelter	196,500	37,500	234,000
information office (100 sq ft)			
restroom (400 sq ft)			
shelter (1,000 sq ft)			
Construct 70-car/30-RV parking	196,500	37,500	234,000
Establish picnic area (12-15 tables)	10,480	2,000	12,480
Construct wheelchair-accessible trail from kiosk to cave	65,500	12,500	78,000
Open natural cave entrance for interpretation			
New entrance road alignment			
Establish new entrance to Lehman Caves parking area; remove old entrance road south of orchard	655,000	125,000	780,000
Regional highway exhibit shelters			
Construct and install shelters	131,000	25,000	156,000

	Gross Construction Cost	Advance & Project Planning Cost	Total Project Cost
Baker administrative site (80 acres)			
Construct visitor center/administration building (8,000-10,000 sq ft)	1,965,000	375,000	2,340,000
75-car/RV parking	78,600	15,000	93,600
landscaping	26,000	4,960	30,960
Construct residential area			
25-30 apartments	1,441,000	275,000	1,716,000
11-15 new permanent housing units	1,965,000	375,000	2,340,000
playground	26,200	5,000	31,200
landscaping	200,000	38,170	238,170
Construct maintenance area			
B&U shop (2,000 sq ft)	327,500	62,500	390,000
vehicle storage building (heavy equipment; 10,000 sq ft)	1,310,000	250,000	1,560,000
warehouse (1,500 sq ft cold; 1,500 sq ft warm)	275,100	52,500	327,600
parking (½ acre)	65,500	12,500	78,000
meeting space/offices (500 sq ft)	65,500	12,500	78,000
berm and landscaping	50,000	9,540	59,540
demolition of existing maintenance (2 bldgs, 5,000 sq ft)	52,400	10,000	62,400
eliminate sewage ponds and revegetate 5 acres	65,500	12,500	78,000
fire cache (heated; 500 sq ft)	65,500	12,500	78,000
Existing NPS housing and maintenance area			
Eliminate housing and maintenance areas and revegetate	262,000	50,000	312,000
Utilities (sewer, water, electricity)*	8,233,350	1,571,250	9,804,600
Campgrounds			
Eliminate Wheeler Peak campground	65,500	12,500	78,000
Upper Lehman Creek campground			
Provide 4 vault toilets	104,800	20,000	124,800
Lower Lehman Creek campground			
Eliminate and revegetate	39,300	7,500	46,800
New Lehman Flats campground			
Construct 100 paved campsites	1,500,000	286,260	1,786,260
Provide low-volume flush toilets (6 restroom complex)	628,800	120,000	748,800
Construct ⅛ mile paved entrance and exit road	131,000	25,000	156,000
Provide water, sewer, and electricity hookups for 1 campsite	6,550	1,250	7,800
Rural Subzone			
Lexington Arch entrance road (11 miles)			
Upgrade from dirt to 2WD gravel	1,080,750	206,250	1,287,000
Establish gravel parking/trailhead (10 cars)	10,480	2,000	12,480

*These costs include wastewater treatment and domestic water system development. Wastewater treatment and possibly water system development and their costs are expected to be shared with the town of Baker.

	Gross Construction Cost	Advance & Project Planning Cost	Total Project Cost
Snake Creek			
Upgrade 12-mile entrance road from dirt to 2WD gravel	1,179,000	225,000	1,404,000
Eliminate all campsites on Snake Creek and revegetate	26,200	5,000	31,200
Establish 15-car gravel parking and backcountry trailhead	20,960	4,000	24,960
Strawberry Creek			
Upgrade 5-mile entrance road from dirt to 2WD gravel	491,250	93,750	585,000
Establish 15-campsite rustic cluster campground	432,300	82,500	514,800
perimeter definition			
15 vault toilets			
15 picnic tables			
15 fire grates			
corral			
Establish backcountry trailhead with 10-car gravel parking	10,480	2,000	12,480
Establish Osceola ditch trailhead with 10-car gravel parking	10,480	2,000	12,480
Baker Creek campground			
Provide 4 vault toilets	104,800	20,000	124,800
Grey Cliffs campground			
Eliminate 3 loops of existing 4-loop campground (9 acres)	176,850	33,750	210,600
Develop 1 group campground	209,600	40,000	249,600
2 vault toilets			
12 picnic tables			
6 fire grates			
6 paved pull-ins			
1/8 mile paved circulation road			
no water or electricity			
Baker Creek trailhead			
Establish 10-car gravel parking	10,480	2,000	12,480
Baker Ridge overlook/pullout			
Establish gravel (fill) parking for 15-20 cars	39,300	7,500	46,800
Provide 10 picnic tables	3,000	570	3,570
Establish 1/4-mile high-standard trail	131,000	25,000	156,000
Semi-Primitive Day Use Subzone			
Rehabilitate Lehman Creek trail (3.2 miles)	125,760	24,000	149,760
Establish a 4-mile high-standard trail at Wheeler Peak pullout/trailhead (0.1-mile segment wheelchair accessible)	163,750	31,250	195,000

	Gross Construction Cost	Advance & Project Planning Cost	Total Project Cost
Semi-Primitive Subzone			
Rehabilitate existing backcountry trails – 38 miles	1,310,000	250,000	1,560,000
Construct new backcountry trails – 10 miles	694,300	132,500	826,800
Construct trail from Strawberry Creek trailhead to Osceola ditch tunnel (1 mile)	26,200	5,000	31,200
Upgrade and redesign trail from Lexington trailhead to arch	26,200	5,000	31,200
TOTAL – DEVELOPMENT	**$31,213,480**	**$5,956,770**	**$37,170,250**
Media Products			
Regional exhibit shelter panels	65,500	12,500	78,000
Exhibits	327,500	62,500	390,000
20-25 wayside exhibits			
17 trailhead exhibits			
7 campground orientation waysides			
Rhodes cabin museum exhibits/Lehman Cave contact/cave ticket sales kiosk	104,800	20,000	124,800
Baker guard station visitor center			
lobby treatment	170,300	32,500	202,800
exhibit room	314,400	60,000	374,400
15-minute film	183,400	35,000	218,400
theater installation	26,200	5,000	31,200
Wheeler Peak interactive video	91,700	17,500	109,200
portable exhibit	17,030	3,250	20,280
TOTAL – MEDIA	**$1,300,830**	**$248,250**	**$1,549,080**
TOTAL – ALTERNATIVE B	**$32,514,310**	**$6,205,020**	**$38,719,330**

	Gross Construction Cost	Advance & Project Planning Cost	Total Project Cost
ALTERNATIVE C			
Modern Subzone			
Extension of Wheeler Peak Scenic Drive (new entrance road)			
Construct 7 miles, 40 mph design speed, 26' paved top	$3,500,000	$667,940	$4,167,940
Park entrance pullout			
Construct 5-10 car paved parking	65,500	12,500	78,000
Desert shrub pullout			
Construct 5-10 car paved parking	11,790	2,250	14,040
Kious Basin pullout/trailhead			
Construct 15-20 car paved parking	31,440	6,000	37,440
Riparian shrub pullout			
Construct 5-10 car paved parking	11,790	2,250	14,040
Contemporary ranching pullout			
Construct 5-10 car paved parking	11,790	2,250	14,040
Pinyon-juniper pullout			
Construct 5-10 car paved parking	11,790	2,250	14,040
Existing 12-mile Wheeler Peak Scenic Drive			
Rehabilitate 12 miles at existing width; eliminate peak overlook	3,930,000	750,000	4,680,000
Construct Lehman Flats trailer drop-off (½ acre surfaced)	65,500	12,500	78,000
Mixed conifer/Osceola ditch pullout			
Construct 5-10 car paved parking and realign road	39,300	7,500	46,800
Restore ditch	32,750	6,250	39,000
Construct 0.1-mile high-standard trail	65,500	12,500	78,000
Mahogany shrub/Mt. Moriah pullout			
Construct 5-10 car paved parking	18,340	3,500	21,840
Construct ¼-mile wheelchair-accessible paved trail	32,750	6,250	39,000
Construct 400-sq ft viewing platform	26,200	5,000	31,200
Aspen/Lehman Creek pullout			
Construct 5-10 car paved parking	11,790	2,250	14,040
Spruce-fir/Wheeler Peak cirque overlook			
Construct retaining wall and 5-10 car paved parking	212,220	40,550	252,770
Wheeler Peak summit trailhead			
Construct 10-car paved parking	15,720	3,000	18,720
Wheeler Peak pullout/trailhead			
Construct 50-car paved parking	196,500	37,500	234,000
Provide 2 vault toilets	52,400	10,000	62,400
Great Basin visitor center (Kious Basin)			
Construct 5,000 sq ft building	1,310,000	250,000	1,560,000
75-seat auditorium (750 sq ft)			
exhibit space (1,000 sq ft)			
restrooms (600 sq ft)			
lobby/sales (1,000 sq ft)			

	Gross Construction Cost	Advance & Project Planning Cost	Total Project Cost
storage (100 sq ft) interpretive workspace (300 sq ft) superintendent's office/conference room (150 sq ft) staff office (150 sq ft) natural history association office (150 sq ft)			
Construct viewing deck	65,500	12,500	78,000
Construct 50-car parking lot	78,600	15,000	93,600
Establish picnic area	6,550	1,250	7,800
Landscape	230,560	44,000	274,560
Lehman Cave interpretive center			
Redesign existing building; remove administration except 2 interpretive offices; expand cave interpretation into administration area; retain concession; provide handicap access	131,000	25,000	156,000
Obliterate lower-level parking (¼ acre) and 1.5 miles of road in front of the interpretive center	294,750	56,250	351,000
Upgrade existing self-guide interpretive trail adjacent to interpretive center	3,000	570	3,570
Construct cave ticket sales kiosk/shelter information office (100 sq ft) restrooms (400 sq ft) shelter (1,000 sq ft)	144,100	27,500	171,600
Construct 70-car/30-RV/bus parking	196,500	37,500	234,000
Establish picnic area (12-15 tables)	10,480	2,000	12,480
Construct wheelchair-accessible trail from kiosk to interpretive center	65,500	12,500	78,000
New road alignment			
Realign entrance road/Baker Creek road/new Lehman Cave parking area (1 mile of road); remove existing entrance road south of orchard	750,000	143,130	893,130
New paved road			
Establish paved road from new entrance road junction west to Baker Lake trailhead (3 miles); 20-car parking at trailhead	1,000,000	190,840	1,190,840
New paved road			
Pave Snake Creek Road (12 miles) from NV 487 to Shoshone campground	8,400,000	1,596,000	9,996,000
Regional highway exhibit shelters			
Construct and install shelters	131,000	25,000	156,000
Baker administrative site (80 acres)			
Construct orientation center information/orientation/camping permit kiosk (designed to be manned or unmanned; 100 sq ft) restroom (400 sq ft) storage (50 sq ft)	144,100	27,500	171,600
Construct 25-car parking	32,750	6,250	39,000
Landscape	26,000	4,960	30,960
New administration building in Lehman Cave developed area			
Construct 3,000 sq ft building	491,250	93,750	585,000

	Gross Construction Cost	Advance & Project Planning Cost	Total Project Cost
superintendent's office			
administrative officer's office			
division chiefs' offices			
protection offices			
resource managers' offices			
two conference rooms			
NPS storage			
NHA storage			
restrooms			
lobby/information			
library			
curatorial and records space			
Landscape	78,600	15,000	93,600
Residential area			
Expand existing area			
20-30 apartments	1,375,500	262,500	1,638,000
3-6 new permanent housing units	786,000	150,000	936,000
New maintenance area			
Construct new maintenance area at former sewage lagoon site			
B&U shop (2,500 sq ft)	327,500	62,500	390,000
vehicle storage building (heavy equipment; 10,000 sq ft)	1,310,000	250,000	1,560,000
warehouse (1,500 sq ft cold; 1,500 sq ft warm)	275,100	52,500	327,600
parking (½ acre)	65,500	12,500	78,000
meeting space/offices (500 sq ft)	65,500	12,500	78,000
fire cache (500 sq ft heated) and structure for fire truck	65,500	12,500	78,000
Berm and landscape	50,000	9,540	59,540
Existing maintenance area and sewage lagoon site			
Remove and revegetate	131,000	25,000	156,000
Relocate emergency generator to new location near Lehman Cave contact/cave ticket kiosk	6,550	1,250	7,800
Utilities (sewer, water, electricity)*	9,490,000	1,811,070	11,301,070
Campgrounds			
Wheeler Peak campground			
Add 2 barrier-free sites	6,550	1,250	7,800
Provide 4 vault toilets	104,800	20,000	124,800
Upper Lehman Creek campground			
Provide 4 vault toilets	104,800	20,000	124,800
Lower Lehman Creek campground			
Eliminate and revegetate	39,300	7,500	46,800

*These costs include wastewater treatment and domestic water system development. Wastewater treatment and possibly water system development and their costs are expected to be shared with the town of Baker.

	Gross Construction Cost	Advance & Project Planning Cost	Total Project Cost
New Lehman Flats campground			
Construct 125 paved campsites	1,850,000	353,050	2,203,050
Provide low-volume flush toilets (3 restroom complex)	314,400	60,000	374,400
Construct 1/8-mile paved entrance and exit road	131,000	25,000	156,000
Provide water, sewer, and electricity hookups for 1 campsite	6,550	1,250	7,800
Grey Cliffs campground			
Eliminate 3 loops of the 4-loop campground (9 acres)	176,850	33,750	210,600
Develop 1 group campground	209,600	40,000	249,600
2 vault toilets			
12 picnic tables			
6 fire grates			
6 paved pull-ins			
1/8-mile paved circulation road			
no water or electricity			
Baker Creek campground (32 existing sites; tent/RV/trailer camping)			
Provide 4 vault toilets	104,800	20,000	124,800
Establish 1 corral	6,550	1,250	7,800
Snake Creek campground			
Establish 3 new limited-service campgrounds (10 sites each) along Lower Snake Creek and in the Bonita mine and Shoshone areas	982,500	187,500	1,170,000
Establish 1 corral	6,550	1,250	7,800
Rural Subzone			
Big Wash			
Upgrade 6-mile road from dirt to 2WD gravel	589,500	112,500	702,000
Establish 10-car gravel parking/trailhead, 5 primitive campsites, and corral	19,650	3,750	23,400
Lexington Arch entrance road			
Upgrade 15-mile road from dirt to 2WD gravel	1,473,750	281,250	1,755,000
Establish 2 gravel parking/trailheads (10 cars each)	20,960	4,000	24,960
Decathon Canyon/Highland Ridge			
Upgrade 20-mile road from dirt to 2WD gravel	1,965,000	375,000	2,340,000
Establish two 10 car gravel parking/trailheads, five primitive campsites, and corral	28,820	5,500	34,320
Strawberry Creek			
Upgrade 5-mile entrance road from dirt two 2WD gravel; establish two 10-car gravel parking areas and trailhead	491,250	93,750	585,000
Establish 7 rustic campsites along creek	210,910	40,250	251,160
perimeter definition			
7 vault toilets			
7 picnic tables			
7 fire grates			

	Gross Construction Cost	Advance & Project Planning Cost	Total Project Cost
Establish 1 group campground perimeter definition 2 vault toilets 6 picnic tables 6 fire grates 1 corral	58,950	11,250	70,200
Mt. Washington			
Upgrade 5-mile entrance road from dirt to 2WD gravel from US 93 to Lincoln Canyon mine	1,750,000	333,970	2,083,970
Upgrade 5-mile segment from impassable to 4WD access from Lincoln Canyon	655,000	125,000	780,000
Construct visitor contact station (1,000 sq ft)	262,000	50,000	312,000
Construct 10-15 car gravel parking area/trailhead	26,200	5,000	31,200
Construct ranger residence	131,000	25,000	156,000
Construct utilities generator septic system potable water development	655,000	125,000	780,000
Semi-Primitive Day Use Subzone			
Rehabilitate Lehman Creek trail (3.2 miles)	125,760	24,000	149,760
Establish 4-mile high-standard trail at Wheeler Peak pullout/trailhead (0.1-mile segment wheelchair accessible)	163,750	31,250	195,000
Construct 1-mile medium-standard trail at Lexington Arch	26,200	5,000	31,200
Develop a loop interpretive trail for the Mt. Washington bristlecone forest (2 miles)	78,600	15,000	93,600
Semi-Primitive Subzone			
Rehabilitate existing backcountry trails – 60 miles	2,075,000	395,990	2,470,990
Construct new backcountry trails – 25 miles	1,729,000	329,960	2,058,960
Construct trail from Strawberry Creek parking lot to Osceola ditch tunnel (1 mile)	26,200	5,000	31,200
Construct 6 shelters	78,600	15,000	93,600
TOTAL – DEVELOPMENT	**$52,566,810**	**$10,024,820**	**$62,591,630**
Media Products			
Regional exhibit shelter panels	65,500	12,500	78,000
Exhibits Interpretive trail exhibit 20-25 wayside exhibits 17 trailhead exhibits 7 campground orientation waysides	337,500	64,410	401,910
Rhodes cabin museum exhibits/Lehman Cave ticket sales kiosk	104,800	20,000	124,800
Baker orientation center exhibits	52,400	10,000	62,400

	Gross Construction Cost	Advance & Project Planning Cost	Total Project Cost
Mt. Washington contact station exhibits	52,400	10,000	62,400
Kious Basin visitor center			
lobby treatment	170,300	32,500	202,800
exhibit room	314,400	60,000	374,400
15-minute film	183,400	35,000	218,400
theater installation	26,200	5,000	31,200
Wheeler Peak interactive video	98,250	18,750	117,000
portable exhibit	17,030	3,250	20,280
TOTAL – MEDIA	**$1,422,180**	**$271,410**	**$1,693,590**
TOTAL – ALTERNATIVE C	**$53,988,990**	**$10,296,230**	**$64,285,220**

APPENDIX J: CONSTRUCTION PHASING – PROPOSED ACTION

Phase I		
Construct Wheeler Peak parking/trailhead		$ 296,400
Construct or rehabilitate trails in semi-primitive day use subzone at Wheeler Peak cirque		344,760
Construct visitor center and associated improvements		3,032,640
Construct Baker administrative site and improvements (administration building, maintenance area, housing, orientation center), and rehabilitate vacated park areas		6,471,360
Construct utility systems and new sewage treatment facilities; rehabilitate existing lagoon areas in the park		8,102,400
	Total – Phase I	**$18,247,560**
Phase II		
Redesign Lehman Cave interpretive center; construct parking, cave ticket sales kiosk, and associated facilities		$ 1,599,450
Pave Baker Creek road		1,190,840
Rehabilitate existing portion of Wheeler Peak Scenic Drive		5,299,320
Extend Wheeler Peak Scenic Drive (new entrance road) to Nevada 487		4,378,540
Realign roads in Lehman Cave vicinity, construct new spur road to cave, and obliterate old road		893,130
Construct and install trailhead and wayside exhibits		401,910
	Total – Phase II	**$13,763,190**
Phase III		
Make improvements to existing campgrounds		$ 889,200
Construct new Lehman Flats campground		1,431,330
Make improvements to existing unpaved roads, establish facilities in rural subzone, and construct trail to Lexington Arch		5,332,080
Construct or rehabilitate trails in semi-primitive subzone		4,478,990
Construct and install regional highway exhibit shelters		234,000
	Total – Phase III	**$12,365,600**

APPENDIX K: SECTION 106 COMPLIANCE REQUIREMENTS

The actions listed below are actions that are either programmatic exclusions under the programmatic agreement between the National Conference of State Historic Preservation Officers, the Advisory Council on Historic Preservation, and the National Park Service or are subject to further consultation with the Nevada state historic preservation office and the Advisory Council. Should the Park Service and the state historic preservation officer so decide, other actions not meeting the programmatic exclusion definition may be determined to need no further review under section 106 of the National Historic Preservation Act. Any such agreement, however, must be determined mutually and must be fully documented.

Archeological clearances are indicated for a number of projects. (An archeological clearance is defined as the documentation for a determination of no effect by the project on archeological resources.) The archeological clearance data will be gathered by the Park Service and provided to the state historic preservation officer. If any sites are within the area of project impacts, consultation with the state historic preservation officer will be required. Depending upon the effect, consultation may be needed with the Advisory Council.

Location	Action	Compliance Requirements
Wheeler Peak Scenic Drive	Rehabilitate 12 miles of the existing Wheeler Peak road; restrict access on the existing entrance road (Nevada 488) at the park boundary.	Programmatic exclusion (g) if within disturbed area. If rehabilitation involved disturbing ground outside previously disturbed areas, then archeological clearance would be required.
	Construct a new nine-mile eastern extension (entrance road), trailer drop-off, 11 interpretive pullouts.	Requires archeological clearance.
Baker Creek Road	Pave the existing Baker Creek road and connect to the new Wheeler Peak Scenic Drive.	Requires archeological clearance.
Strawberry Creek, Snake Creek, Big Wash, and Lexington Arch Roads	Upgrade these roads from dirt to gravel (2WD accessible).	Requires archeological clearance.
Mount Washington Access Road	Close at boundary.	Programmatic exclusion (h)
Great Basin Visitor Center	Construct a new visitor center on Baker Ridge with direct access from Wheeler Peak Scenic Drive. Include a 50-vehicle paved parking area, picnic area, barrier-free pathway, entry court, lobby, auditorium, exhibit space, large viewing deck, and restrooms.	Requires archeological clearance.
Lehman Cave Visitor Center/Interpretive Center	Construct a new 100-vehicle paved parking area, cave ticket sales kiosk/shelter, picnic area, and wheelchair-accessible trail to the interpretive center.	Requires archeological clearance and consultation with the SHPO since several National Register properties are adjacent to the visitor center development.
Orientation/Information Center	Construct an orientation center on the 80-acre administrative site in Baker with 30-vehicle parking.	Requires archeological clearance. The Baker guard station is being evaluated under National Register criteria. Consultation with the SHPO would be required.
Regional Exhibit Shelters	Construct four regional exhibit shelters along the major highways leading to the park to interpret both the great basin physiographic region and the park.	Requires archeological clearance coordinated with BLM.
Wheeler Peak Pullout/Trailhead	Establish a major trailhead for the Wheeler Peak day use area, with a new 50-vehicle paved parking area, interpretive/orientation displays, seating, and restrooms.	Archeological clearance obtained. Requires no further SHPO/ACHP consultation.

Location	Action	Compliance Requirements
Trails	Rehabilitate or reconstruct 60 miles of existing trails.	Requires archeological clearance.
	Construct 24 miles of new trail	Requires archeological clearance.
	Establish or formalize trailheads with parking at Kious Basin, Baker Ridge, Baker Creek (two), Upper Lehman Creek, summit, Strawberry Creek (two), Snake Creek (two), Big Wash, Lexington Arch, Big Spring Wash, and Highland Ridge; including corrals at Baker Creek (two), Strawberry Creek, Snake Creek, Big Wash, Big Spring Wash, and Highland Ridge.	Requires archeological clearance.
Campgrounds	Grey Cliffs – Eliminate three loops and convert the fourth for group camping.	Requires archeological clearance.
	Baker Creek – Retain 32 limited-service sites with gravel roads and pull-ins; include a campfire circle and new vault toilets.	Requires archeological clearance.
	Upper Lehman Creek – Retain 24 limited-service sites; provide a campfire circle and new vault toilet.	Requires archeological clearance.
	Lower Lehman Creek – Eliminate campground and revegetate site.	Potentially requires archeological clearance when revegetation plan is completed.
	Lehman Flats – Construct and pave 50 new limited-service campsites and an access road; include an amphitheater, water system, dump station, and low-volume flush toilets.	Requires archeological clearance.
	Wheeler Peak – Retain 37 limited-service sites; include a campfire circle and new vault toilets.	Requires archeological clearance.
	Strawberry Creek – Designate 7 rustic campsites along the creek; establish one rustic group campground with vault toilets.	Requires archeological clearance.
	Snake Creek – Designate 10 rustic campsites along the creek; establish 6 rustic cluster campsites at the west end.	Requires archeological clearance.
	Backcountry campsites – Establish 5 to 6 backcountry campsites (one with a corral).	Requires archeological clearance.
Administrative Facilities	Construct an administration building, maintenance compound, and residential area on the 80-acre administrative site near Baker; relocate all maintenance and most administration and staff housing to this site; remove existing maintenance buildings and housing units (except those necessary for protection) in the Lehman Cave area and revegetate the sites.	Requires archeological clearance and further SHPO review.
Boundary expansion	Add 1,280 acres along the eastern park boundary adjacent to the proposed Great Basin visitor center on Baker Ridge.	Programmatic exclusion (e). After acquisition, section 110 studies to identify cultural resources would be needed and would be completed in consultation with SHPO.

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WYOMING GAME AND FISH DEPARTMENT

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PREPARERS, CONTRIBUTORS, AND CONSULTANTS

PREPARERS

Bart Young
Outdoor Recreation Planner and Team Captain (1987-1990), Denver Service Center, BS Forestry, MS Forestry and Environmental Studies

Coordinated and supervised EIS production, including schedule, budget, team production, GIS analysis and input, outside consultant contributions, and related studies; made all project presentations; developed the management zoning concept and produced the "Management Zoning Concept" section as well as all information in the proposed action and alternatives related to management zoning; produced all narrative information related to the Great Basin viewshed analysis; produced portions of the first-draft visitor use proposals, and revised the first-draft visitor use, interpretation, and development proposals to produce the "Visitor Use and Development" sections of the proposed action and alternatives; produced portions of the "Socioeconomic Environment" and "Management" subsections of the "Environmental Consequences" section; produced the "Compliance Status" section (appendix G).

Jim Hammett
Natural Resource Specialist and Team Captain (1991-1992), Denver Service Center, BS Forestry, MS Vegetation Ecology

Supervised EIS production from printing of the draft through the printing of the final; coordinated the analysis of natural resources and the effects of possible future actions on them; produced the "Exceptional Resources" section, the "Natural Resource Management" sections of the proposed action and alternatives, and all "Affected Environment" and "Environmental Consequences" sections related to natural resources; maintained quality control over GIS production; developed the statistical analysis for the workbook responses.

Al Hendricks
Superintendent, Great Basin National Park,
BA Geography/Geology

Assisted in the production and review of the proposed action and alternatives; coordinated park staff input; coordinated consultations with selected agencies, organizations, and individuals as well as all public involvement meetings and workshops; produced the "Staffing" section (appendix H).

Kay Roush
Writer-Editor, Denver Service Center, BA History

Produced the "Summary," "Impacts on Local Visitors," and "Impacts on Other Visitors" sections; edited the entire document and coordinated its production.

Pat Sacks
Landscape Architect, Denver Service Center,
BS Natural Resources, MLA Landscape Architecture

Developed and produced most of the design proposals for the development concept plans in the document; produced the first draft of the development sections for the proposed action and alternatives as well as portions of the "Affected Environment" section; produced all development-related graphics included in the review draft EIS and all graphics used in presentations.

Mark Tabor
Landscape Architect, Denver Service Center,
BS Conservation of Natural Resources,
MLA Landscape Architecture

Developed the Wheeler Peak pullout/trailhead and Baker administrative site development concept plans.

Harlan Unrau
Cultural Resource Specialist, Denver Service Center,
BA, MA History

Coordinated the analysis of cultural resources and the effects of possible future actions on them; produced the "Cultural Resource Management" sections of the proposed action and alternatives, and all "Affected Environment" and "Environmental Consequences" sections related to cultural resources; produced the 1990 *Historic Resource Study* for the park.

Larry Tillman
Interpretive Planner (retired, formerly with Harpers Ferry Center)

Developed the interpretive proposals for the proposed action and alternatives sections of the document.

Cynthia Young
Community Planner, Denver Service Center,
BA, MA Urban and Regional Planning

Coordinated the economic study contract and produced the "Impacts on the Regional Economy" sections of the document.

Robert Allen
Landscape Architect, Denver Service Center,
MA Environmental Planning and Design/Landscape Architecture

Assisted in data collection for the resource base information analysis.

CONTRIBUTORS

Great Basin National Park

Bruce Freet, Former Chief of Interpretation and Resources Management
Mac Brock, Former Natural Resource Specialist
Norm Hiestand, Former Interpretive Specialist
Steve Riley, Former Facility Manager
Terry Saunders, Former Facility Manager

Western Regional Office

Ray Murray, Regional Liaison
Dan Olson, Regional Liaison
George Teague, Archeologist, Western Archeological and Conservation Center
Susan Wells, Archeologist, Western Archeological and Conservation Center
Krista Deal, Archeologist, Western Archeological and Conservation Center

Denver Service Center

Allen Hagood, Planner/Geologist
Gary Waggoner, Senior Geographical Information Specialist, Denver/Washington Office
Mike Reynolds, Geographical Information Specialist
Janet Runas, Geographical Information Specialist
Terry Goodrich, Park Road Planning Coordinator
Al Galipeau, Statistician, Denver/Washington Office
Ray Borras, Former Estimator
Greg Jarvis, Planning Technician
Sally Snyder, Planning Technician
Anne Shewell, Visual Information Specialist
Joan Huff, Visual Information Technician

Washington Office

Alice Johns, Hydrologist, Water Rights Branch, Water Resources Division
Erik Hauge, Environmental Specialist, Air Quality Division
Sidney Covington, Geologist, Mining and Minerals Branch

CONSULTANTS

National Park Service

Jim Pennington, Environmental Engineer, Western Team, Denver Service Center
Dick Morishige, Chief, Branch of Publications and Graphic Design, Denver Service Center
Gary Johnson, Section Chief, Western Team, Denver Service Center
Betty Janes, Chief of Planning, Western Team, Denver Service Center
Frank Williss, Cultural Compliance Specialist, Western Team, Denver Service Center
Jim Huddlestun, Environmental Specialist, Western Regional Office
Thomas Mulhern, Chief, Division of Park Historic Preservation, Western Regional Office
Stanley Ponce, Chief, Water Rights Branch, Washington Office
Owen Williams, Hydrologist, Water Rights Branch, Washington Office
Jake Hoogland, Chief of Compliance, Washington Office
Carol Aten, Chief of Policy, Washington Office

Other

Formation Interiors/Exhibits (graphic production)
AGK Engineers Incorporated
Dames and Moore (viewshed analysis)
Don Field, Associate Dean, School of Natural Resources, University of Wisconsin, Madison
Marty Lee, Recreation Research Assistant, Cooperative Park Studies Unit, Oregon State University
Kay Hymas, Highway Engineer, Federal Highway Administration
Teri Knight, Research Scientist/Botanist, Nevada Natural Heritage Program
Richard Navarre, Field Supervisor, U.S. Fish and Wildlife Service, Reno Field Station
Richard Haskins, Fisheries Biologist, Nevada Department of Wildlife, Ely Office
Rita Suminsik, Wildlife Biologist, Humboldt National Forest, Ely Ranger District
Jerry Smith, Egan Resource Manager, Bureau of Land Management, Ely District
Richard Johnson, Research Botanist, Washington State University
Nevada Historic Preservation Office
Advisory Council on Historic Preservation
Clynn Phillips and David Taylor, Western Analysis Company, Laramie, Wyoming, (economic study)

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☆ U.S. GOVERNMENT PRINTING OFFICE: 1992—676-728 REGION NO. 8

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Publication services were provided by Joan Huff, visual information technician; Kay Roush, writer-editor; and Anne Shewell, visual information specialist, of the Branch of Publications and Graphic Design, Denver Service Center. D-32A September 1992

UNITED STATES
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