National Park Service
U.S. Department of the Interior

Whiskeytown National Recreation Area

Environmental Assessment and Assessment of Effect

Expand and Redesign Oak Bottom Campground

August 2011

Oak Bottom Campground

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National Park Service

Whiskeytown National Recreation Area
California

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Whiskeytown National Recreation Area
Shasta County, California

Summary

The National Park Service proposes to improve the visitor camping experience at Oak Bottom Campground at Whiskeytown National Recreation Area. The existing tent campground at Oak Bottom is seasonally very popular, becomes overcrowded, and does not adequately accommodate the growing trend of recreational vehicle (RV) camping. In addition, the tent camping area is composed of a large number of sites in a small area. The overcrowding has led to increasing numbers of law enforcement interventions at the campground and has stressed the aging infrastructure at the campground, which has led to the deferred maintenance issues that can be found at the campground today. Some of these maintenance challenges have now become safety concerns for visitors.

The National Park Service proposes to reduce the density of existing campsites up to 50%, while achieving a maximum number of 110 campsites in the area, redesigning the existing parking lot-based Oak Bottom RV campground area, relocating the general store and amphitheater to an area closer to the campground, and providing other improvements and amenities described herein. This proposed action is needed to provide a high-quality recreation experience; reduce safety hazards; provide facilities adequate to meet the concessioner contract for numbers of campsites and services; and to alleviate visitor conflicts, extensive soil compaction, erosion, and vegetation degradation.

This environmental assessment analyzes the preferred alternative and other alternatives and their potential impacts on the environment. The document has been prepared in accordance with the National Environmental Policy Act of 1969, as amended; the regulations of the Council on Environmental Quality (40 *Code of Federal Regulations* [CFR] 1508.9); NPS Director's Order 12: *Conservation Planning, Environmental Impact Analysis, and Decision-making*; the National Historic Preservation Act of 1966, as amended; and the Endangered Species Act of 1973, as amended. The assessment of effect analyzes potential effects to historic properties under section 106 of the National Historic Preservation Act of 1966, as amended.

The preferred alternative would have no impacts on air quality, wild and scenic rivers, ecologically critical areas, prime and unique farmlands, floodplains, Indian trust resources, cultural landscapes, historic structures, ethnographic resources, museum collections, geologic and paleontological resources, environmental justice, socioeconomics, climate change, soundscapes, water quality, wetlands, or land use.

The preferred alternative would contribute short-term minor adverse impacts to certain components of visitor use and experience and viewsheds and lightscapes; short-term moderate adverse impacts to concession operations; long- and short-term minor to moderate impacts to the cost of camping; long-term negligible to minor adverse impacts to soils, vegetation, wildlife, threatened and endangered species and species of special concern, and viewsheds and lightscapes; long-term negligible impacts to archeological resources and visitor numbers and health and safety; and long-term moderate adverse impacts to visitor use of the historic trail and recreation area operations through increased fire suppression response times. There would be long-term beneficial impacts to viewsheds, soils, concession operations, visitor use and experience, and recreation area law enforcement resource and interpretation operations.

Note to Reviewers and Respondents

If you wish to comment on the environmental assessment, you may mail or e-mail comments to the address below. Our practice is to make all public comments available for public review. Individual respondents may request that we withhold their name and/or home address from the record, which we will honor to the extent allowable by law. *If you want us to withhold your name and/or address, you must state this prominently at the beginning of your comment.* We will make all submissions from organizations and businesses, and from individuals identifying themselves as representatives of officials of organizations or businesses, available for public inspection in their entirety.

Please address comments to: Whiskeytown National Recreation Area; Oak Bottom Campground Comments; PO Box 188; Whiskeytown, CA 96095-0188

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ACRONYMS AND ABBREVIATIONS

CDF&G	California Department of Fish and Game
CFR	Code of Federal Regulations
cm	Centimeter(s)
°C	Degrees Celsius
°F	Degrees Fahrenheit
ft	Foot/Feet
GMP	General Management Plan
km	Kilometers
m	Meter(s)
NEPA	National Environmental Policy Act of 1969, as amended
NHPA	National Historic Preservation Act of 1966, as amended
NPS	National Park Service
NRA	National Recreation Area
NRHP	National Register of Historic Places
RV	Recreational Vehicle
SHPO	State Historic Preservation Office(r)
TES	Threatened and Endangered Species and Species of Special Concern
USC	United States Code
USFWS	U.S. Fish and Wildlife Service

INTRODUCTION

Whiskeytown National Recreation Area (NRA) is a unit of the national park system in Shasta County, California, approximately 8 miles west of downtown Redding. The NRA encompasses approximately 42,500 acres (approximately 39,042 acres of land and approximately 3,458 acres of water). Elevations range from 800 feet (ft) on lower Clear Creek below Whiskeytown Dam in the southeastern corner of the NRA, to 6,199 ft atop Shasta Bally in the southwest section of the NRA (figure 1). Vegetation generally includes mixed pine-oak woodlands and forests, riparian shrublands and woodlands, montane chaparral shrublands and wooded shrublands, and alpine shrublands and herbaceous vegetation. Whiskeytown Lake was created by a 263 ft tall earth-filled dam constructed by the U.S. Bureau of Reclamation – Central Valley Water Project on Clear Creek in 1963. The lake has a catchment area of approximately 203 square miles, and is capable of storing approximately 241,100 acre-feet of water for irrigation, flood control, and electricity generation. Annual visitation to the NRA has ranged from approximately 850,000 to over 1.5 million, depending on local and regional climatic conditions, with hot, dry weather boosting visitation numbers.

FIGURE 1. AREA MAP

PURPOSE AND NEED

The purpose of the proposed action is to improve visitor experience to the NRA, and specifically, Oak Bottom Campground (figure 2). The existing tent campground at Oak Bottom is seasonally very popular, becomes overcrowded, and does not adequately accommodate the growing trend of recreational vehicle (RV) camping (figure 3). In addition, the tent camping area is composed of a large number of sites in a small area (figure 4). The overcrowding has led to increasing numbers of law enforcement interventions at the campground and has stressed the aging campground infrastructure, which has led to the deferred maintenance issues that can be found at the campground today (figures 5 and 6). Some of these maintenance challenges have now become safety concerns for visitors.

This environmental assessment will analyze the preferred alternative and other alternatives and their potential impacts on the environment. It has been prepared in accordance with the National Environmental Policy Act of 1969, as amended (NEPA); the regulations of the Council on Environmental Quality (40 *Code of Federal Regulations* [CFR] 1508.9); National Park Service (NPS) Director's Order 12: *Conservation Planning, Environmental Impact Analysis, and Decision-making*; the National Historic Preservation Act of 1966, as amended (NHPA); and the Endangered Species Act of 1973, as amended. The assessment of effect analyzes potential effects to historic properties under section 106 of the NHPA.

The National Park Service proposes to improve the visitor camping experience by reducing the density of existing campsites up to 50%, while achieving a maximum number of 110 campsites in the area, redesigning the existing parking lot-based Oak Bottom RV campground area, relocating the general store and amphitheater to an area closer to the campground, and providing other improvements and amenities described herein. This proposed action is needed to provide a high-quality recreation experience; reduce safety hazards; provide facilities adequate to meet the concessioner contract for numbers of campsites and services; and to alleviate visitor conflicts, extensive soil compaction, erosion, and vegetation degradation.

PURPOSE AND SIGNIFICANCE OF THE NATIONAL RECREATION AREA

An essential part of the planning process is to understand the purpose of the NRA, for which this environmental assessment is prepared, as follows:

Origin and Purpose of the National Recreation Area

The U.S. Bureau of Reclamation constructed Whiskeytown dam and reservoir in the early 1960s and manages the flood control, power, and water supply functions. Whiskeytown NRA was established by the act of November 8, 1965, in part: ". . .to provide . . . for the public outdoor recreation use and enjoyment of Whiskeytown reservoir and surrounding lands . . . by present and future generations and the conservation of scenic, scientific, historic and other

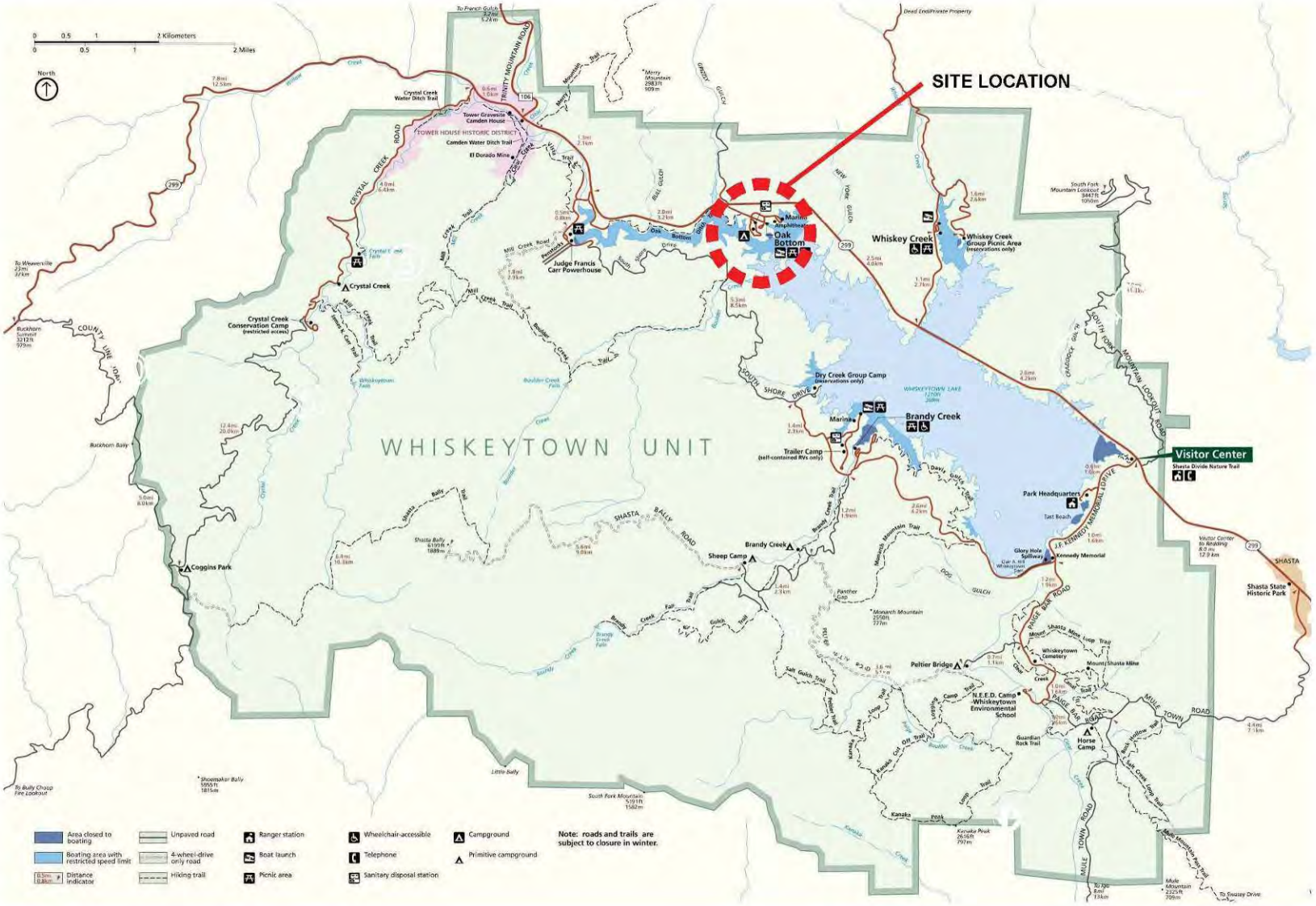


FIGURE 2. PROJECT LOCATION MAP

FIGURE 3. RV CAMPING AREA

FIGURE 4. CROWDED CAMPSITES IN TENT CAMPING AREA

FIGURE 5. DETERIORATED FIRE PIT AND RETAINING WALL IN TENT CAMPING AREA

FIGURE 6. EROSION, COMPACTION, AND VEGETATION DEGRADATION

values contributing to public enjoyment of such lands and waters . . .” The terms reservoir and lake will be used interchangeably within this document to refer to the Whiskeytown body of water.

Whiskeytown Lake provides high-quality reservoir recreation opportunities because of the forested mountain setting and the lake-like appearance due to a mode of operation that maintains the reservoir at a full level throughout the high- and moderate-use recreation season. In this regard, Whiskeytown is unlike most other major California reservoirs, including the two companion reservoir units of the Whiskeytown-Shasta-Trinity (Shasta-Trinity) NRA system, which are managed by the U.S. Forest Service. The water levels of all three reservoirs are managed by the U.S. Bureau of Reclamation. Shasta and Trinity reservoirs experience large drawdowns during summer months, leaving extended denuded beaches, mudflats, or rock fields between the vegetated uplands and water surface. During the summer, considerable distances can occur between the lake shoreline and permanent facilities. At Whiskeytown NRA, the lake is kept at full pool from April through October providing reliable, quality swimming beaches and lakeside camping and picnic areas for visitors (NPS 1999).

RELATIONSHIP TO EXISTING PLANS

The proposed action and alternatives would implement goals in Whiskeytown general management plan (GMP) dated July 1999. The GMP identifies the following actions to achieve the goal of providing visitors with a wide range of compatible activities including:

> *Improve visitor experience at Oak Bottom tent campground and Dry Creek group campground by reducing density by approximately fifty percent. Oak Bottom campground would be expanded to the northwest to reduce density while retaining approximately the existing number of sites.*
>
> *Designate and develop small-scale boat-in/walk-in (from lakeshore) low density campgrounds at various locations on the lake shore where environmentally acceptable and economically feasible.*

The proposed action would reduce the density of campsites at Oak Bottom Campground while maintaining the number of campsites available for visitors.

Previous Project Planning

In 2009, the National Park Service conducted a planning charrette that included preliminary layouts for the redesign and expansion of Oak Bottom Campground. The campground, originally developed as a picnic area in the 1960s, does not provide a quality camping experience due to overcrowding, resulting in deferred maintenance, increased law enforcement involvement, and degradation in the natural environment. The intent of charrette designs were to explore alternatives for improving the visitor camping experience by updating the campground to provide modern visitor amenities, reducing the density of existing campsites up to 50% while maintaining a maximum number of 110 campsites in the area,

redesigning the existing parking lot-based Oak Bottom RV campground area to improve visitor experience and aesthetics, relocating the general store and amphitheater nearer to the campground to address safety concerns and convenience, and providing modern visitor amenities. Five alternative layouts, including a preferred alternative, were developed during the charrette.

The preferred alternative identified in the design charrette is included in this environmental assessment as alternative B. Alternatives C and D expand on the concepts developed for alternative B as a means to further improve the visitor experience and aesthetics of the campground, and offer additional types of camping experiences.

Scoping

Scoping is an effort to involve agencies and the general public in determining issues to be given detailed analysis in the environmental assessment and eliminate issues not requiring detailed analysis. Scoping seeks to obtain early input from any interested stakeholder and any agency with jurisdiction by law or expertise. A press release initiating scoping and describing the proposed action was issued on September 26, 2010 (appendix B). A public meeting was held on September 30, 2010, at Redding City Hall. Approximately 10 people were in attendance. Comments were solicited during a public scoping period that ended on October 26, 2010. See the "Consultation and Coordination" section of this environmental assessment for additional scoping information.

ISSUES AND IMPACT TOPICS

Issues

Issues and concerns affecting this proposed action were identified from past NPS planning efforts, and agency and public input from the scoping process. The important issues that were identified are potential impacts to soils, vegetation, wildlife, NRA operations, threatened and endangered species and species of special concern (TES), concession operations, archeological resources, visitor use and experience, and viewsheds and lightscapes.

NEPA requires the consideration of impacts on affected ecosystems and is the basic national charter for protection of the environment (CEQ Part 1500). NEPA requires federal agencies to use all practicable means to restore and enhance the quality of the human environment and to avoid and minimize any possible adverse effects of their actions on the environment. The proposed action would minimize impacts to natural resources and visitor use and experience, while protecting health and safety. Issues and mitigation measures are included in the rationale for selection of impact topics for further consideration or for dismissal from further consideration per the ensuing discussion.

Derivation of Impact Topics

Specific impact topics were developed to focus discussion and to allow comparison of the environmental consequences of each alternative. Selected impact topics were identified based on federal law, regulations, executive orders, NPS *Management Policies 2006*, and NPS knowledge of special or vulnerable resources. A brief rationale for the selection of each impact topic is given below, as well as the rationale for dismissing specific topics from further consideration.

Impact Topics Included in this Document

Impact topics for this project have been identified on the basis of federal laws, regulations, and orders; NPS *Management Policies 2006*; and NPS knowledge of resources at Whiskeytown NRA. Impact topics that are carried forward for further analysis in this environmental assessment are listed below, along with the reasons why the impact topic is further analyzed as described in the "Affected Environment" chapter and potential impacts analyzed in the "Environmental Consequences" chapter.

Soils. The proposed action to expand Oak Bottom Campground would disturb soils in the construction area through grading, construction of roads and campsites, and installation of utilities. Soil series that occur at the Oak Bottom proposed development site include the Auburn, Chawanakee, Goulding, and Maymen. The general soil characteristics include: (1) 30 centimeters (cm) to 152 cm deep; (2) clay loam and loam to sandy and gravelly loam to coarse sand in texture; (3) slightly to moderately acid; (4) parent material of granite, greenstone, shale, conglomerate, schist, and sandstone; (5) high to very high erosion hazard; (6) steep to very steep slope position; and (7) very low to moderate fertility (SCS 1967, NRCS 2010). Because the proposed action would include soil-disturbing activities on slopes in a moderately high precipitation regime, soils are addressed in detail in this environmental assessment.

Biological Resources. The policy of the National Park Service is to protect the components and processes of naturally occurring vegetation and wildlife communities including the natural abundance, diversity, and ecological integrity of plants (NPS 2006). Because the proposed action for expansion of the campground would temporarily and permanently disturb pine-oak-manzanita woodland and shrubland vegetation types and have the potential to affect wetlands, wildlife, and/or wildlife habitat, biological resources are addressed in detail in this environmental assessment.

National Recreation Area Operations. NRA operations that could be affected by the alternatives are law enforcement, emergency response, and maintenance. Resource management and interpretive staff also expend time at Oak Bottom Campground. Resource management staff monitor impacts and implement restoration activities and interpretive staff present programs at the campground amphitheater. NRA operations could be affected by the no-action and action alternatives. Therefore, NRA operations are addressed in detail in this environmental assessment.

Concession Operations. The concessioner operates the campground and amenities for profit. The expanded campground and facilities would have an effect on concession operations. The concessioners would be affected by the no-action and action alternatives. Therefore, NRA operations are addressed in detail in this environmental assessment.

Archeological Resources. The area of potential effect for the proposed project includes site CA-SHA-272, which is a diffuse, undated lithic scatter. In addition, the Oak Bottom Water Ditch Trail is an archeological site (also known as CA-SHA-2165H), but is actually only one section of the longer Clear Creek Ditch that was filled in after use of the ditch terminated in 1882 (Vaughan 1997). The National Register of Historic Places (NRHP) status of site CA-SHA-2165H has not been determined; however, the site is managed as though it is eligible for listing in the NRHP. Because archeological resources occur in and adjacent to the proposed action area, archeological resources are addressed in detail in this environmental assessment.

Threatened and Endangered Species and Species of Special Concern. The Endangered Species Act of 1973, as amended, requires examination of impacts on all federally listed threatened, endangered, and candidate species; section 7 of the Endangered Species Act requires all federal agencies to consult with the U.S. Fish and Wildlife Service (USFWS) to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitats. In addition, NPS *Management Policies 2006* and Director's Order 77: *Natural Resources Management Guidelines* require the National Park Service to examine the impacts on federal candidate species, as well as state-listed threatened, endangered, candidate, rare, declining, and sensitive species (NPS 2006).

Further, NPS policy mandates that sensitive species be treated as if they were listed species—this policy is consistent with the statutory duty of the National Park Service to conserve the scenery, natural and historic objects, and wildlife in national parks and monuments by such means as will leave them unimpaired for future generations (NPS Organic Act; 16 *United States Code* [USC] 1).

For the purposes of this analysis, the U.S. Fish and Wildlife Service and the California Department of Fish and Game (CDF&G) were contacted with regard to federally and state-listed species to determine those species that could potentially occur on or near the project area.

The NRA biologists provided lists of sensitive plant and wildlife species that are known to occur in or near the recreation area, and reports and studies that have been conducted relative to the sensitive species and habitats. The NRA wildlife biologist and ecologist performed a field review of the project area prior to preparation of this environmental assessment.

Sixteen plant species of special concern (threatened, endangered, candidate, or sensitive species), 25 wildlife and fish species of special concern (threatened, endangered, candidate, or sensitive species), and two unique habitats known within the NRA were summarized in support tables (AARCHER 2010), habitat and known distribution discussed, and an informal assessment of effect was applied by AARCHER, Inc., and NRA biologists.

Based on the documents reviewed and the field assessment of the proposed action area, threatened/endangered species or designated critical habitat would not be affected by the

proposed project, but some sensitive species would be affected; the proposed actions are consistent with section 1.4.7.1 of NPS *Management Policies 2006*. It should be noted that the informal biological assessment was conducted in accordance with the scope of work and does not constitute a section 7 biological assessment under the Endangered Species Act (50 CFR Part 402.01). Endangered, threatened, and sensitive species that may be present in on-site habitats are addressed in detail in the "Affected Environment" section of this environmental assessment.

Visitor Use and Experience. The primary purpose of the proposed action is to improve visitor experience at Oak Bottom Campground. Visitors currently camp, swim, boat, picnic, fish, hike, and have the opportunity to attend interpretative programs. Visitors would be affected by overcrowding conditions under the no-action alternative, and inconveniences and closures during construction under the action alternatives. Therefore, visitor use and experience are addressed in detail in this environmental assessment.

Viewsheds and Lightscapes. A viewshed comprises the limits of the visual environment associated with the alternatives. The Oak Bottom Campground has been in place for decades. The proposed action would expand the campground onto adjacent land, and, in one alternative, expand camping into new areas. These actions would have an effect on NRA scenic values; therefore, viewsheds have been included for analysis in this environmental assessment.

A component of visual quality is ambient light and its effect on the night sky. In accordance with NPS *Management Policies 2006*, the National Park Service strives to preserve natural ambient lightscapes, which are natural resources and values that exist in the absence of human-caused light. Commercial and residential development in areas adjacent to the NRA, including the city of Redding, can introduce light into otherwise naturally dark areas. Within the NRA, Oak Bottom Campground is a source of artificial light. This area is directly visible from various vantage and viewing points within the NRA. Therefore, lightscapes are addressed in detail in this environmental assessment.

Impact Topics Dismissed from Further Analysis

In this section of the environmental assessment, the National Park Service provides a limited evaluation and explanation as to why some impact topics are not evaluated in more detail. Impact topics are dismissed from further evaluation in this environmental assessment if

- they do not exist in the analysis area
- they would not be affected by the proposal, or the likelihood of impacts are not reasonably expected
- through the application of mitigation measures, there would be minor or less effects (i.e., no measurable effects) from the proposal and there is little controversy on the subject or reasons to otherwise include the topic

Because there is no effect or no measurable effect, there would either be no contribution toward cumulative effects or the contribution would be low. For each issue or topic presented below, if the resource is found in the analysis area or the issue is applicable to the proposal,

then a limited analysis of direct and indirect, and cumulative effects is presented. There is no impairment analysis included in the limited evaluations for the dismissed topics because the NPS threshold for considering whether there could be impairment is based on "major" effects.

Cultural Landscapes. As described by Director's Order 28: *Cultural Resource Management Guideline*, a cultural landscape is:

> *. . . a reflection of human adaptation and use of natural resources and is often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, and the types of structures that are built. The character of a cultural landscape is defined both by physical materials such as roads, buildings, walls, and vegetation, and by use reflecting cultural values and traditions.*

Cultural resources investigations at Whiskeytown NRA have recorded two cultural landscapes (Tower House and NEED Camp) within the NRA; however, none were identified within this area of the NRA; therefore, cultural landscapes have been dismissed from further analysis in this environmental assessment.

Historic Structures. Section 106 of the NHPA and NPS policy require that the effects of NPS actions on properties eligible for or listed in the NRHP be considered, and that appropriate steps be taken to avoid, minimize, or mitigate these effects.

A review of the records for existing structures at Oak Bottom Campground, including those that may be demolished, indicate that none are over 50 years of age and do not meet the threshold for exceptional importance within the last 50 years. Since no historic structures, buildings, or objects would be affected by this project; historic buildings, structures, and objects have been dismissed from further analysis in this environmental assessment.

Geologic and Paleontological Resources. The NRA lies within the Pacific Border Geologic Province, Klamath Mountains Physiographic Subprovince. The region is considered an extension of the Sierra Nevada mountain range (NPS 2007).

Oak Bottom Campground occurs atop Devonian Copley Greenstone composed of keratophyre, spilite, and meta-andesite (metamorphosed volcanic rocks); the formation is considered suitable for development (NPS 2007). There would be no or negligible impacts to geological or paleontological resources because Copley Greenstone is common in the region, is suitable for development, and does not contain fossils; therefore, geologic and paleontological resources have been dismissed from further analysis in this environmental assessment.

Museum Collections. More than 133,000 museum objects, specimens, and archives are stored in the NRA storage facility. This proposed project would not affect the size of the collection or the collection facility; therefore, museum collections have been dismissed from further analysis in this environmental assessment.

Ethnographic Resources. The National Park Service defines ethnographic resources as any:

> *. . . site, structure, object, landscape, or natural resource feature assigned traditional legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it.*
>
> Director's Order 28: *Cultural Resource Management Guideline*, p. 191

An "Ethnographic Overview and Traditional Use Study of American Indian Affiliations within the NRA" was completed in 2000. This report and subsequent discussions with Wintu groups affiliated with the NRA have resulted in a determination that no ethnographic resources are known to exist in or near the project area. Therefore, ethnographic resources have been dismissed from further analysis in this environmental assessment.

Indian Trust Resources. Secretarial Order 3175 requires that any anticipated impacts to Indian trust resources from a proposed project or action by Department of the Interior agencies be explicitly addressed in environmental documents. The federal Indian trust responsibility is a legally enforceable fiduciary obligation on the part of the United Sates to protect tribal lands, assets, resources, and treaty rights, and represents a duty to carry out the mandates of federal law with respect to American Indian and Alaska Native tribes. Because no Indian trust resources exist in, or proximal to, the project area, Indian trust resources have been dismissed from further analysis in this environmental assessment.

Floodplains. Executive Order 11988, "*Floodplain Management"* requires an examination of impacts to floodplains and the potential risk involved in placing facilities within floodplains. NPS *Management Policies 2006*, Director's Order 2: *Planning Guidelines*, and Director's Order 12: *Conservation Planning, Environmental Impact Analysis, and Decision-making* provide guidelines for proposed actions in floodplains. The proposed action would occur at a higher elevation than the ordinary high water line of Whiskeytown Lake (1,210 ft) and the floodplains of adjacent Boulder Creek and Grizzly and New York gulches; therefore, floodplains have been dismissed from further analysis in this environmental assessment.

Prime and Unique Farmlands. Soil series that occur at the Oak Bottom Campground proposed development site include the Auburn, Chawanakee, Goulding, and Maymen (SCS 1967, NRCS 2010). This area is not irrigated (soils are addressed in more detail under the "Soils" section). Because there are no prime or unique farmlands associated with the project area, prime and unique farmlands have been dismissed from further analysis in this environmental assessment.

Ecologically Critical Areas. The project site is within the Cascade Ranges Foothills Subregion of Hickman (1996). One ecologically critical area occurs near the junction of U.S. Highway 299 and Clear Creek consisting of approximately 1.0 acre of alkaline wetland, the California Significant Natural Area designated for Howell's alkaligrass (*Puccinellia howellii*). Activities anticipated for Oak Bottom Campground alternatives would occur down-drainage, approximately 3.0 miles, and would not affect the aquifer or the species habitat; therefore, ecologically critical areas have been dismissed from further analysis in this environmental assessment.

Wild and Scenic Rivers. There are no designated wild or scenic rivers within the project area. Therefore, wild and scenic rivers have been dismissed from further analysis in this environmental assessment.

Air Quality. The 1963 Clean Air Act, as amended (42 USC 7401 et seq.), requires land managers to protect air quality. Section 118 of the Clean Air Act requires NRAs to meet all federal, state, and local air pollution standards. NPS *Management Policies 2006* address the need to analyze potential impacts to air quality during planning. The proposed action could have a slight effect on air quality through use of heavy equipment operation during construction; however, best management practices would be used for dust reduction and emissions abatement for construction equipment. This activity would have negligible and very short-term effects on air quality; therefore, air quality has been dismissed from further analysis in this environmental assessment.

Environmental Justice. Executive Order 12898, "*Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*," requires all agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations or communities. No alternative under consideration would have disproportionately high and adverse health or environmental effects on minorities or low-income populations or communities as defined in the Environmental Protection Agency's *Draft Environmental Justice Guidance* (July 1996). Therefore, environmental justice has been dismissed from further analysis in this environmental assessment.

Soundscapes. In accordance with NPS *Management Policies 2006* and Director's Order 47: *Sound Preservation and Noise Management*, an important part of the NPS mission is preservation of natural soundscapes associated with NRAs. Natural soundscapes exist in the absence of human-caused sound. The natural ambient soundscape is the aggregate of all the natural sounds that occur in NRAs, together with the physical capacity for transmitting natural sounds. Natural sounds occur within and beyond the range of sound that humans can perceive and can be transmitted through air, water, or solid materials. The frequency, magnitude, and duration of human-caused sound considered acceptable varies among national park system units, as well as potentially throughout each NRA, being generally greater in developed areas and less in undeveloped areas. The NRA is a popular recreation locale, and the expectation for natural sounds is low. The expansion of the campground would have noise consequences during the construction phase; however, these consequences would be short term and negligible and not result in a measurable increase in noise following the construction phase. Reducing the density of the campsites would have a negligible beneficial effect for campers by increasing space and vegetative buffers. The campground implements a quiet time between 10:00 p.m. and 6:00 a.m. Because adverse impacts to soundscapes would be negligible and short term, and beneficial effects would be negligible, soundscapes have been dismissed from further analysis in this environmental assessment.

Water Quality. The 1972 Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977, is a national policy to restore and maintain the chemical, physical, and biological integrity of the nation's waters; to enhance the quality of water resources; and to prevent, control, and abate water pollution. NPS *Management Policies 2006* provide direction

for the preservation, use, and quality of water in NRAs. The existing septic systems and lift stations are believed to have adequate capacity to support the proposed improvements. Mitigation measures would be employed to reduce any potential effects to negligible or less (Table 1. Mitigation Measures). There would be negligible effects to water quality as a result of the proposed boat-in campsites due to the installation of composting toilets; therefore, water quality has been dismissed from further analysis in this environmental assessment.

Wetlands. Executive Order 11990, "*Protection of Wetlands*" requires an examination of impacts to wetlands. Wetlands are uncommon at and near Oak Bottom Campground and occur as five vegetation alliances consisting of wetland/riparian tall shrub stands along stream courses (white alder), narrow bands of emergent species along the lake shoreline (cattail and spikerush), and as submerged or floating aquatic stands in shallow inlets (pondweed and duckweed). Wetlands vegetation will be discussed under the "Biological Resources" section of this document. There would be no effect to wetlands due to the proposed project. Additionally, standard best management practices would be implemented as noted in the mitigation table. Therefore, wetlands have been dismissed from further analysis in this environmental assessment.

Land Use. None of the alternatives would affect present or future NRA land use or the use of surrounding lands. The Oak Bottom Campground is currently used for NRA operations and zoned in the general management plan for the type of use proposed. Potential effects to NRA operations are discussed in this environmental assessment. Use of the shoreline for recreation is currently occurring, and boat-in campsites are part of the action program discussed in the general management plan. The proposed action would not change or affect current or future use of the proposed project area. Therefore, land use has been dismissed from further analysis in this environmental assessment.

Socioeconomics. The concessioner manages the campground and other visitor amenities at Oak Bottom Campground. This aspect of the proposed project is addressed under concession operations. Additional beneficial effects to the economy would occur during the construction of the proposed campground expansion. The construction would be phased as funding becomes available and could span over many years. There would be beneficial effects to the local economy; however, due to the phasing of the project, the benefits would be negligible and inconsistent. Therefore, socioeconomic resources have been dismissed from further analysis in this environmental assessment.

Climate Change. Climate change may potentially be the greatest environmental challenge relative to natural resource management in national parks. The National Park Service has a fiduciary responsibility to protect natural and cultural resources unimpaired for future generations, which could be negatively affected. In response to the potential effects related to climate change (September 14, 2009), Secretary of the Interior Ken Salazar signed Secretarial Order No. 3289: *Addressing the Impacts of Climate Change on America's Water, Land, and Other Natural and Cultural Resources*. This secretarial order established as priorities the development of environmentally responsible renewable energy on U.S. public lands, and the protection of cultural and natural resources from the potential effects of climate change. In addition, the secretarial order established a framework through which Department of the Interior bureaus will coordinate climate change science and resource management strategies to address climate change. President Barack Obama signed Executive Order 13514, "*Federal*

Leadership in Environmental, Energy, and Economic Performance" on October 5, 2009. This executive order requires federal agencies to measure, manage, and reduce greenhouse gas emissions toward agency-defined targets. Subsequently, the Department of the Interior and the National Park Service recommend that all national park system units consider climate change during the NEPA planning process.

Several gases are referred to as greenhouse gases because increased concentration in the atmosphere creates a layer of gases acting as a greenhouse over the Earth, generally resulting in warming trends: carbon dioxide (CO_2), chlorofluorocarbons (CFCs), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6). Climate change scenarios foresee potential changes in local conditions, including the possibility for a shift to less snowfall and more precipitation in the form of rain.

There would be no measureable effects on climate change with the proposed actions; the proposed actions are consistent with section 1.4.7.1 of NPS *Management Policies 2006* (NPS 2006). The proposed actions would not result in any unacceptable impacts. Therefore, climate change has been dismissed from further analysis in this environmental assessment.

ALTERNATIVES

INTRODUCTION

The alternatives section describes the no-action alternative (figure 7) and three action alternatives, including the preferred alternative, for the expansion of Oak Bottom Campground.

The no-action alternative describes the continuation of existing conditions without implementation of the proposed actions (figure 8). It does not imply or direct discontinuance of the present action or removing existing uses, developments, or facilities. The no-action alternative provides a basis for comparing the management direction and environmental consequences of the preferred and other action alternatives. Should the no-action alternative be selected, the National Park Service would respond to future needs and conditions associated with the campground without major actions or changes in management direction.

The action alternatives present options for meeting the purpose and need of the proposed action and define the rationale for the action in terms of resource protection and management, visitor and operational use, costs, and other applicable factors. A summary table comparing the environmental consequences of the no-action and action alternatives is presented in table 5 at the end of the "Environmental Consequences" section.

Additional alternatives considered and dismissed from detailed analysis are also discussed in this section.

ALTERNATIVE A: NO-ACTION ALTERNATIVE

Alternative A, the no-action alternative, would continue the existing conditions at Oak Bottom Campground.

Oak Bottom Campground is one of two campgrounds (the other is Dry Creek Campground) on the shoreline of Whiskeytown Lake. It is open year-round and operated and maintained under contract with the concessioner, Forever Resorts, LLC. The tent campground contains 98 sites. Seventeen of the sites are on the shoreline and boats may be moored at these sites. Each tent site has a table, fire grate, space to erect a tent, and bear-proof storage locker; a maximum of six people per campsite is allowed. There are two comfort stations with flush toilets. All sites are walk-in; the distance from the parking area to campsites varies from approximately 10 ft to 500 ft. Some sites can accommodate back-in RVs; however, the two back-in sites are reserved for campground hosts and not available to the public. The tent sites are all within an area of approximately 29.5 acres. Sites are close together (between 25 ft to 50 ft apart, occasionally more distance) and generally provide little to no privacy.

The RV campground is in the large parking area near the boat launch ramp and contains 22 sites. The campground surface is asphaltic concrete and provides no shade or RV-designed amenities. There is a restroom facility in the RV campground; however, individual sites do not

have picnic tables, hookups, or fire grates; a dump station and potable water source is nearby. Tent camping is not allowed in the RV campground.

Other facilities at Oak Bottom Campground include a newly constructed marina providing boat mooring and rental; a small convenience store stocked with basic camping and boating supplies; a boat launch ramp adjacent to the RV campground; a swim beach with a large picnic area, restrooms, and showers; an amphitheater for interpretive programs and day use; and a fishing pier accessible to visitors with disabilities.

ALTERNATIVE B: EXPANSION OF CAMPGROUND TO THE WEST

Alternative B focuses on expansion of the existing campground onto two undeveloped peninsulas adjacent to and west of the existing campground (figure 9). Under this alternative, the existing campground area would be redesigned to reduce the density of campsites, and develop several boat-in campsites. The newly developed peninsulas would provide drive-in campsites for tent camping or RV sites. In this alternative, there would be approximately 92 to 95 campsites on the three peninsulas, of which approximately 28 would be tent camping only, 7 to 9 would be RV campsites in the parking lot, 12 would be boat-in sites, and 45 would accommodate both RVs and tent camping. Two each of the tent, RV, and boat-in campsites would be wheelchair accessible. Development of the two peninsulas would result in the campground occupying approximately 49 acres.

In addition to expanding the existing campground onto the adjacent peninsulas, the following additional improvements would be made:

- improved vehicular access, circulation, and parking for cars and RVs
- new restrooms/showers within the campground
- a new, larger camp store adjacent to the campground
- new campground entrances
- the RV campground (in the parking lot) would be reduced by half with spaces separated by shade trees and shade structures, natural surface areas for tents and lawn chairs, picnic tables, and fire grates would be added to these sites
- floating docks would be added to boat-in campsites
- initiating long-term erosion control and revegetation of existing disturbed sites and new temporarily disturbed areas
- improved and additional walkways, paths, and lighting throughout the campground area
- amphitheater moved from current isolated location to a site near the campground
- each new campsite would include a picnic table, tent-pitching site, grill, and bear-proof storage unit
- a 30 ft buffer around the shoreline of Whiskeytown Lake and the historic Water Ditch Trail; fencing may be installed to protect some areas from social trails and erosion

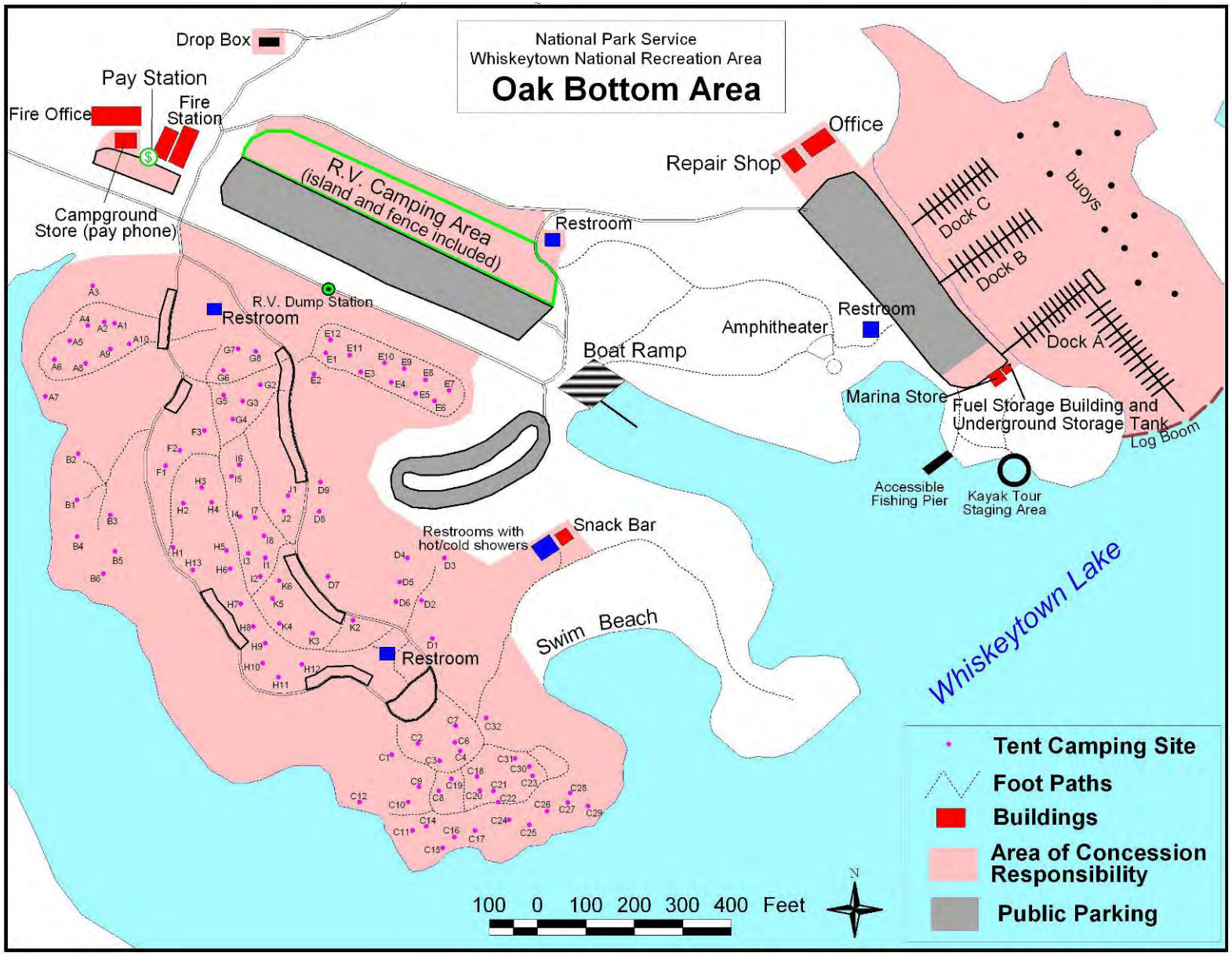
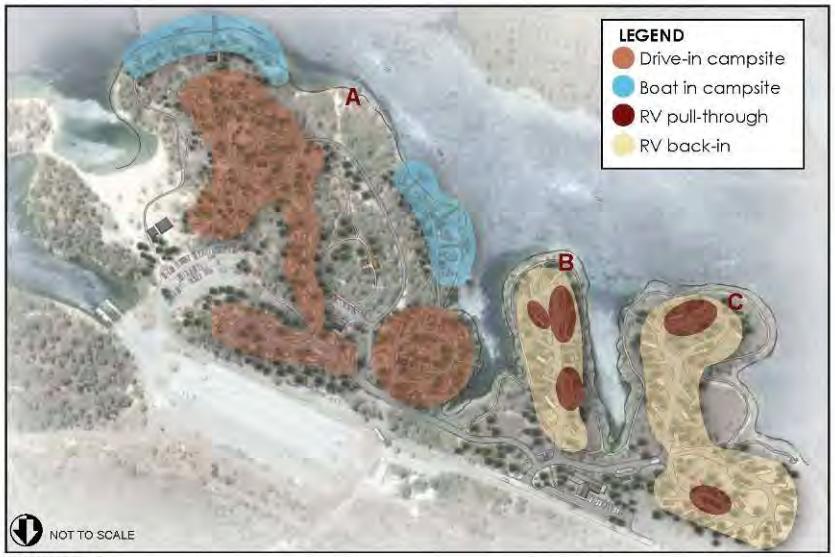
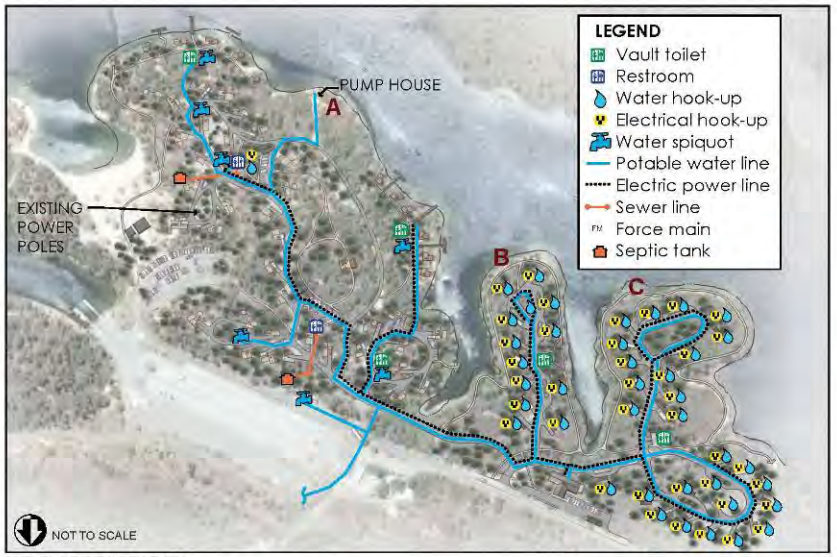


FIGURE 7. OAK BOTTOM AREA NO-ACTION ALTERNATIVE MAP

FIGURE 8. EXISTING CONDITIONS / SITE ANALYSIS MAP



USE ZONE



UTILITY DIAGRAM

GENERAL NOTES:

1. Main entrance to the campground has been moved further west for ease of access, visibility, and separation of park users. A secondary entrance is introduced off the day use parking lot.
2. Peninsula "A" maintains some of the existing walk-in sites and introduces new walk-in and boar-in sites. Sites were located within close proximity to the beach for swimmers. Three premier tent sites were located on the top of the hill behind the beach store capturing the expansive lake view.
3. Peninsula "B" and "C" are designed for RV sites.
4. The density of the walk-in sites has been reduced to provide space for screening and privacy. All new sites have been sufficiently spaced to provide an intimate campground experience.
5. Grading efforts on all peninsulas would require retaining walls at the majority of sites due to the existing terrain; slopes range from 2%-50%. Grading and wall efforts will be reduced as much as possible by terracing the sites and benching in the vehicular circulation. Segments of the campground roads without attached sites will be used as steeper vertical incline to compliment existing grades.
6. All sites will be graded with level tent pads, amenity pads and 2% max slopes for vehicular pads.
7. Views to the lake will be optimized by strategically locating sites.
8. Vegetative buffers and setbacks protect the views from the lake to the campgrounds.
9. Shade trees have been provided to protect the visitors from the hot summer months.
10. Each site contains a tent pad, picnic tables, bar-b-que grill and bear proof containers.

ALTERNATIVE	TENT (WALK-IN)	TENT (DRIVE-IN)	RV (BACK-IN)	RV (PULL-THROUGH)	BOAT-IN	RV GROVE	TOTAL
4	0	35	28	10	12	7/9	90

OAK BOTTOM CAMPGROUND
WHISKEYTOWN NATIONAL RECREATION AREA

FIGURE 9. OAK BOTTOM CAMPGROUND, ALTERNATIVE B

Note: This graphic illustrates a potential design layout from the design charrette, it is conceptual and not to be considered a final design.

General Construction Schedule

It is anticipated that the project would be conducted in phases as funds become available or line item budget requests are filled. An example of phasing would be to construct the new campground facilities on the eastern adjacent peninsulas so that the existing campground could remain open during this phase of construction. Construction within the existing campground would occur at a later date, so that visitors could use the new facilities while the existing campground is rehabilitated.

ALTERNATIVE C: EXPANSION OF CAMPGROUND TO THE WEST AND NORTHEAST

Under alternative C, the existing campground and peninsulas to the west would be redesigned and developed as described in alternative B, with expansion of the existing campground onto two undeveloped peninsulas adjacent to and west of the existing campground. Alternative C would include the additional improvements described under alternative B. This alternative would also include adding walk-in or drive-in campsites northeast of the existing campground, i.e., between the present boat launch ramp and marina. These sites would include tent pads, picnic tables, barbeques, bear-proof containers, water, and a vault toilet. The area northeast of the existing campground may accommodate one to five additional walk-in tent sites, resulting in approximately 100 to 102 campsites on the three peninsulas and hill, of which approximately up to 33 would be tent camping only, 7 to 9 would be RV campsites in the parking lot, 12 would be boat-in sites, and 45 would accommodate both RVs and tent camping (figure 10). Two each of the tent, RV, and boat-in sites would be wheelchair accessible. This alternative encompasses approximately 53 acres.

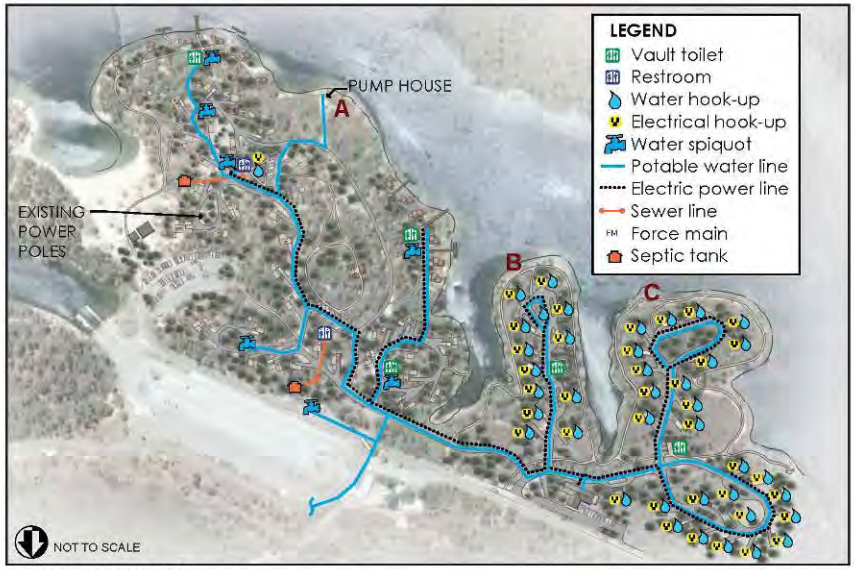
General Construction Schedule

It is anticipated that the project would be conducted in phases as funds become available or line item budget requests are filled. An example of phasing would be to construct the new campground facilities on the eastern adjacent peninsulas so that the existing campground could remain open during this phase of construction. Construction within the existing campground would occur at a later date, so that visitors could use the new facilities while the existing campground is rehabilitated.

ALTERNATIVE D: PREFERRED ALTERNATIVE—EXPANSION OF CAMPGROUND TO WEST, NORTHEAST, AND BOAT-IN SITES

Alternative D includes expansion of the campground onto two undeveloped peninsulas adjacent to and west of the existing campground, and development of the area northeast of the campground, i.e., between the present boat launch ramp and marina as described in alternative C. Alternative D would include the additional improvements described under alternative B. Alternative D also includes development of boat-in only campsites on selected sites on the shoreline of Whiskeytown Lake (figures 10 and 11). The boat-in campsites would vary in size

USE ZONE



UTILITY DIAGRAM

GENERAL NOTES:

1. Main entrance to the campground has been moved further west for ease of access, visibility, and separation of park users. A secondary entrance is introduced off the day use parking lot.
2. Peninsula "A" maintains some of the existing walk-in sites and introduces new walk-in and boar-in sites. Sites were located within close proximity to the beach for swimmers. Three premier tent sites were located on the top of the hill behind the beach store capturing the expansive lake view.
3. Peninsula "B" and "C" are designed for RV sites.
4. The density of the walk-in sites has been reduced to provide space for screening and privacy. All new sites have been sufficiently spaced to provide an intimate campground experience.
5. Grading efforts on all peninsulas would require retaining walls at the majority of sites due to the existing terrain; slopes range from 2%-50%. Grading and wall efforts will be reduced as much as possible by terracing the sites and benching in the vehicular circulation. Segments of the campground roads without attached sites will be used as steeper vertical incline to compliment existing grades.
6. All sites will be graded with level tent pads, amenity pads and 2% max slopes for vehicular pads.
7. Views to the lake will be optimized by strategically locating sites.
8. Vegetative buffers and setbacks protect the views from the lake to the campgrounds.
9. Shade trees have been provided to protect the visitors from the hot summer months.
10. Each site contains a tent pad, picnic tables, bar-b-que grill and bear proof containers.

ALTERNATIVE	TENT (WALK-IN)	TENT (DRIVE-IN)	RV (BACK-IN)	RV (PULL-THROUGH)	BOAT-IN	RV GROVE	TOTAL
4	0	35	28	10	12	7/9	90

OAK BOTTOM CAMPGROUND
WHISKEYTOWN NATIONAL RECREATION AREA

FIGURE 10. OAK BOTTOM CAMPGROUND, ALTERNATIVE C

Note: This graphic illustrates a potential design layout from the design charrette, it is conceptual and not to be considered a final design.

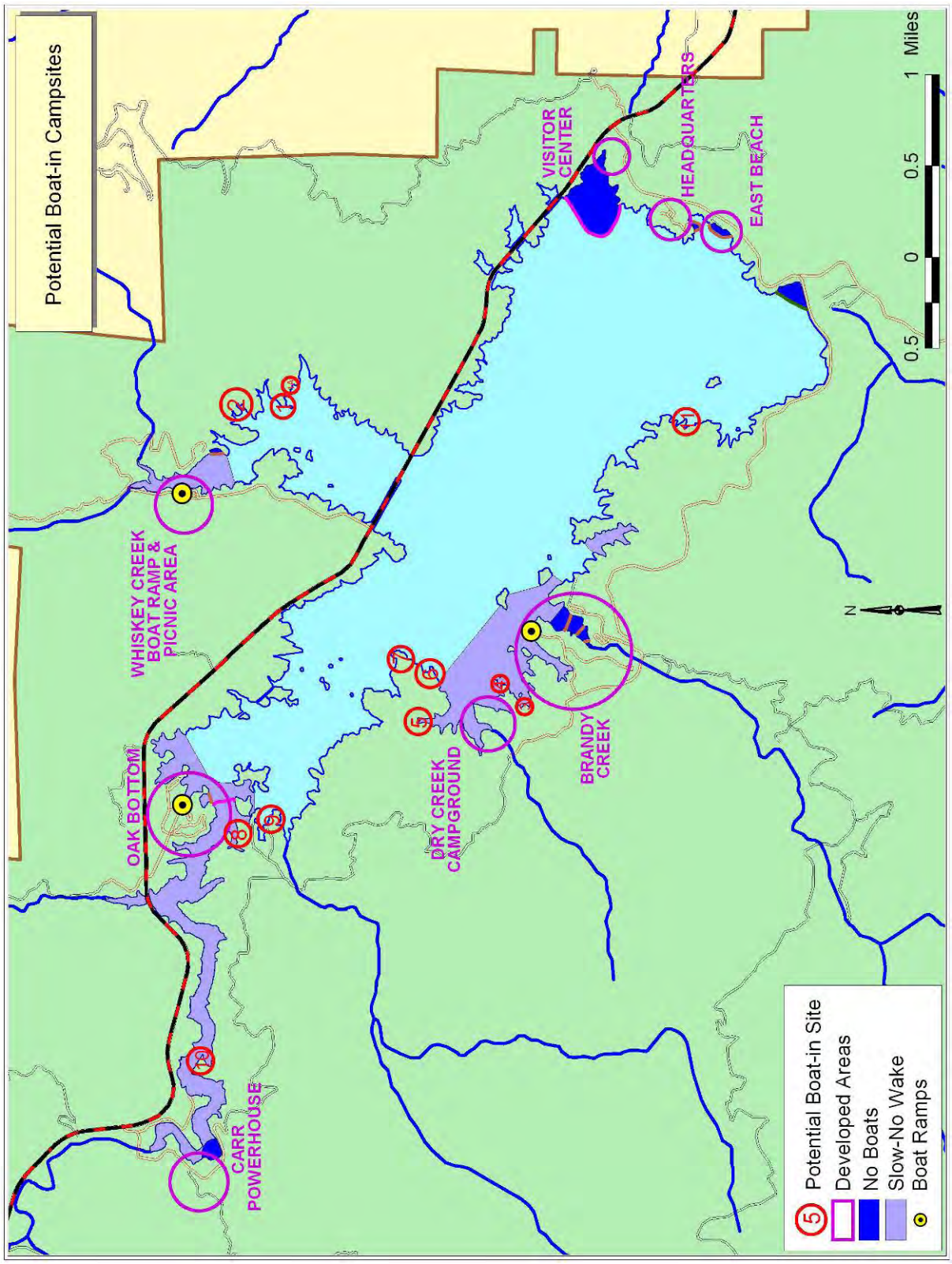


FIGURE 11. BOAT-IN SITES 2, 4, 5, 6, 7, 8, 9, 10, 11, AND 12 (SITES 1 AND 3 DISMISSED)

to accommodate from six to eight campsites, or be smaller and accommodate two to four campsites. Some sites may be designated as accessible only to kayaks or canoes. Each boat-in camping area would typically contain two campsites, but a few would contain three and include a picnic table, tent pad, fire ring, bear-proof storage unit, and composting toilet. The boat-in campsites would be established inland (approximately 50 ft from shore) with floating docks. These sites would be operated and maintained by the concessioner, as would all campsites associated with the Oak Bottom Campground Expand and Redesign Project.

The setting for the boat-in sites would be spread out along the lakeshore and removed from vehicle traffic, RV generators, and up to several hundred other campers that are typically associated with conventional campground settings. These boat-in sites would be less crowded and would provide a more primitive and innovative camping experience for visitors.

This alternative would consider 10 sites with the goal of developing six boat-in sites allowing for the maximum of 110 campsites to be achieved. These sites would only be used during the summer peak season between May and September when the lake is at "full pool."

General Construction Schedule

It is anticipated that the project would be conducted in phases as funds become available or line item budget requests are filled. An example of phasing would be to construct the new campground facilities on the eastern adjacent peninsulas so that the existing campground could remain open during this phase of construction. Construction within the existing campground would occur at a later date, so that visitors could use the new facilities while the existing campground is rehabilitated.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

In accordance with Director's Order 12, the National Park Service is required to identify the "environmentally preferred alternative" in all environmental documents, including environmental assessments. The environmentally preferred alternative is determined by applying the criteria suggested in NEPA, guided by the Council on Environmental Quality, which provides direction that "[t]he environmentally preferred alternative is the alternative that will promote the national environmental policy as expressed in Section 101 of NEPA, which considers:

1. fulfilling the responsibilities of each generation as trustee of the environment for succeeding generations
2. assuring for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings
3. attaining the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable and unintended consequences

4. preserving important historic, cultural, and natural aspects of our national heritage and maintaining, wherever possible, an environment that supports diversity and variety of individual choice
5. achieving a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities
6. enhancing the quality of renewable resources and approaching the maximum attainable recycling of depletable resources" (NEPA, section 101).

The no-action alternative is not the environmentally preferred alternative because it would not:

- assure safe facilities and the widest range of uses within the NRA (criteria 2 and 3)
- achieve a balance between population and resource use to permit high standards of living and a wide sharing of life's amenities (criterion 5)

The environmentally preferred alternative in this environmental assessment is the NPS preferred alternative (alternative D). This alternative was selected based on the following criteria:

- best fulfills criterion 1 by fulfilling the responsibilities of the National Park Service as trustee of the environment for succeeding generations by improving the visitor experience and the natural landscape
- best meets criterion 2 by creating safe and aesthetically pleasing recreational facilities for visitors to Oak Bottom Campground and the NRA; safety is improved by reducing campground density, thereby reducing visitor conflicts
- better addresses criterion 3 by specifying sustainability in construction of facilities at the campground without compromising the environment and without degradation, risk of health or safety, or other undesirable and unintended consequences
- better meets criterion 4 by preserving important historic, cultural, and natural aspects of our national heritage by allowing revegetation of degraded areas due to overcrowding, and by preserving a historic trail
- best meets criterion 6 by constructing an energy efficient building

Alternatives B and C also meet Council on Environmental Quality criteria for:

- better fulfills criterion 1 by fulfilling the responsibilities of the National Park Service as trustee of the environment for succeeding generations by improving the visitor experience and the natural landscape
- better meets criterion 2 by creating safe and aesthetically pleasing recreational facilities for visitors to Oak Bottom Campground and the NRA; alternatives B and C improve safety by reducing campground density, thereby reducing visitor conflicts
- best addresses criterion 3 by specifying sustainability in construction of campground facilities without compromising the environment and without degradation, risk of health or safety, or other undesirable and unintended consequences

- best meets criterion 4 by preserving important historic, cultural, and natural aspects of our national heritage by providing for revegetation of degraded areas caused by overcrowding, and preserving a historic trail
- best meets criterion 6 by constructing an energy efficient building

Alternative D would protect visitor and employee health, safety, and welfare and provide the most recreational diversity, while minimizing the disturbance to natural resources for Oak Bottom Campground; therefore, alternative D is the environmentally preferred alternative regarding aesthetic, cultural, and natural resources.

MITIGATION MEASURES OF THE ACTION ALTERNATIVES

Mitigation measures are presented as part of the action alternatives. These actions have been developed to lessen the adverse effects of the proposed action. Mitigation measures would be funded through the construction budget unless specifically noted in table 1. Appropriate mitigation measures would be included in the construction contract specifications.

TABLE 1. MITIGATION MEASURES FOR ALL ACTION ALTERNATIVES

Resource Area	Mitigation
General Considerations	**The NPS project manager would ensure that the project remains confined within the parameters established in compliance documents and that mitigation measures would be properly implemented.**
	Construction zones would be identified and flagged before beginning construction and all disturbances would be confined to the flagged areas. All project personnel would be instructed that their activities must be confined to locations within flagged areas and all equipment and materials must remain within these areas. Disturbances beyond the construction zone would be prohibited. This mitigation does not exclude necessary temporary structures such as silt-control barriers.
	All tools, equipment, barricades, signs, surplus materials, and rubbish would be removed from the project work limits upon project completion. Any asphalt or concrete surfaces damaged due to work on the project would be repaired to original condition. All demolition debris would be removed from the project site, including all visible metal and concrete.
	Construction vehicle engine idling would be limited to reduce emissions.
	Best management practices to reduce spills would be used during refueling and other activities that may release petroleum products into the environment.
	A hazardous spill plan would be in place, stating what actions would be taken in the case of a spill and the preventive measures to be implemented such as placement of refueling facilities, storage, and handling hazardous materials, etc.
	All fuel, transmission, or brake fluid leaks, or other hazardous waste leaks, spills, or releases would be reported immediately to the designated safety officer. The safety officer would be responsible for spill material removal and disposal to an approved off-site landfill and, if necessary, would notify the appropriate federal agency.

TABLE 1. MITIGATION MEASURES FOR ALL ACTION ALTERNATIVES

Resource Area	Mitigation
General Considerations	All equipment on the project site would be maintained in a clean and well-functioning state to avoid or minimize contamination from automotive fluids and unnecessary noise.
	Staging for construction vehicles and equipment would be located in previously disturbed areas approved by the National Park Service, outside of high visitor use areas, and would be clearly identified in advance.
	Dust abatement measures would be used to reduce deposition on vegetation adjacent to and downwind of project sites.
	Silt fencing or other approved erosion-control techniques would be installed/used to prevent sedimentation to the lake using best management practices for controlling nonpoint source pollution during construction and sedimentation and erosion during small storm events The contractor would ensure all applicable permits are obtained prior to construction, including section 401 and 404 permits.
	All potential contaminants (rubbish or debris, introduction of nonnative species, etc.) would be excluded or removed from the environment.
	Demolition debris such as asphalt and concrete would be recycled when possible.
	Before any equipment is brought into the NRA, it would be pressure washed or steam cleaned in order to remove nonnative seeds. Cleaning shall consist of the removal of all dirt, grease, debris, and material that may harbor noxious weeds and their seeds. Cleaning shall occur off the project site. Examples of equipment are backhoes, tractors, loaders, excavators, dozers, bobcats, wheeled compressors, or trucks and trailers that have traveled off-road. This restriction shall not apply to equipment responding to the initial attack of wildland fire where fire spread is threatening life or property.
	Fueling project-related vehicles and equipment would take place away from the lake, and a contingency plan to control petroleum product spills during the project would be developed. Absorbent pads and containment booms would be stored on-site to facilitate cleanup of any accidental petroleum spills.
	Any soil exposed near water as a result of the project shall be protected from erosion (with plastic sheeting, filter fabric, etc.) after exposure, and stabilized as soon as practicable (with vegetation matting, hydroseeding, etc.). If erosion-control materials are used, only tightly woven fiber netting or nonbinding materials, e.g., rice straw shall be used for erosion control or other purposes at the project site to ensure that small mammals and reptiles do not become trapped. No plastic-tied wattles shall be used.
Lightscapes	The project would have no incandescent or mercury vapor lighting, and would use compact fluorescent and LED low wattage light bulbs.
Viewshed	The new buildings would be low-profile in design.
	The buildings would be constructed with low reflectivity materials, finishes, and compatible colors.
Natural Resources	To avoid introduction of nonnative/noxious plant species, no imported hay bales would be used.
	Reclaimed areas would be monitored after construction to determine if reclamation efforts are successful, or if additional remedial actions are necessary. Remedial actions could include installation of erosion-control structures and controlling nonnative plant species. Additional remedial actions would be funded by the National Park Service.

TABLE 1. MITIGATION MEASURES FOR ALL ACTION ALTERNATIVES

Resource Area	Mitigation
Natural Resources	After completing construction, contractor would revegetate the area or cover bare soil with local litter and duff mulch as soon as possible. This mulch would provide a source of seeds to reestablish native vegetation and reduce the risk of nonnative seeds germinating. Ideally, the litter and duff should be collected from surrounding areas without denuding the collection area; leaving at least 50% of the material in place without disturbing vegetation.
	Construction and restoration materials would be free of invasive weed seeds or other propagative plant parts. Such materials include boulders, soil, sand, gravel, rock, road base, straw, and silt and erosion-control materials. Weed-free status may be ensured by pressure washing, steam cleaning, fumigation, heat sterilization, or certification from the supplier. Eliminating invasive plant seeds may raise the cost of some projects, but would prevent much more costly and prolonged invasive plant control efforts in the future.
	Large quantities of construction and restoration materials may be prohibitively expensive to sterilize. The risk of importing invasive plants in bulk materials would be minimized by inspecting proposed quarries or source sites for presence of invasive plants. If no local weed-free sources can be located, potentially contaminated materials may be accepted if mitigation is implemented. Mitigation might include stripping the top 12 inches of material or requiring fresh material stored less than one month, as specified by vegetation management staff. For construction projects, the project manager and/or COR would be responsible for contacting vegetation management staff to inspect sources. For materials procured by the NRA for use by NRA staff, the NRA contracting officer would be responsible for contacting vegetation management staff to inspect sources.
	Rare habitats, especially aquatic and wetland habitats, would be avoided to the extent possible to protect TES and populations, fish species, waterfowl, etc. If wetland impacts cannot be avoided, efforts would be made to restore them on similar shoreline sites on a 1:1 basis.
	A biological monitor would be present to mark rare plant sites for avoidance and identify bat roosts to ensure that individuals are not killed, to identify and move hibernating western pond turtles or eggs, and active bird nests, and advise construction personnel.
	To limit the impact to nesting birds, construction would occur outside the bird nesting and rearing season and the major recreation season; construction could occur from August to March.
Archeological Resources	If, during construction, archeological resources are discovered, all work in the immediate vicinity of the discovery would be halted until the resources could be identified. If it is determined that the archeological resources are significant, they would be documented and an appropriate mitigation strategy developed, if necessary, in consultation with the California state historic preservation office (SHPO).
	Should human remains, funerary objects, sacred objects, or objects of cultural patrimony be discovered during construction, provisions outlined in the Native American Graves Protection and Repatriation Act of 1990 (25 USC 3001) would be followed.
	If construction impacts an area where artifacts were historically present, a qualified archeologist must be present during construction. A tribal monitor would be present during construction activities in the area of site CA-SHA-272. Investigate the area and mitigate any possible impacts to the possible cultural resource of interest to the Wintus identified during the site visit. Consult with the Wintus, as appropriate, per previous discussions.

Alternatives Considered But Dismissed

During the design charrette, four alternatives were developed as possible options for the siting and design of the rehabilitated campground. Each of the alternatives examined construction on adjacent land to the west of the existing campground. NPS staff, the concessioner, and the architectural/engineering firm participated in a mini-value analysis to determine the number of campsites and the best location for the campsites and the infrastructure needed to support the campground. From the value analysis and charrette, it was determined that the best location for the RV sites was in the existing campground; the peninsulas would be better for drive-in tent camping sites. The decisions and conclusions from the design charrette and value analysis form the basis for what is presented in this environmental assessment as alternative B.

During the scoping period, one public comment suggested moving the RV camping area to the picnic area near the Judge Francis Carr powerhouse. The picnic area currently does not have utilities, and installation of RV hook-ups would be cost prohibitive. This area is also a distance away from Oak Bottom Campground, which would cause an economic burden to the concessioner for maintenance and management; therefore, this alternative was dismissed from detailed analysis in this environmental assessment.

The NRA resource management, law enforcement, and maintenance staff conducted a survey of additional boat-in sites around the lake. The NRA staff investigated and evaluated a total of 13 boat-in sites during the alternatives development stage of this project (appendix C). Fourteen criteria were used to evaluate each site and each criterion was weighted for importance. Through this evaluation process, it was determined that sites 2, 4, 5, 6, 7, 8, 9, 10, 11, and 12 would be carried forward in alternative D, and that all remaining sites were determined not to be suitable for campsite development and were eliminated from further consideration.

ALTERNATIVES COMPARISON TABLE

Alternative A: No-Action Alternative	Alternative B: Expand Oak Bottom Campground to the West	Alternative C: Expand Oak Bottom Campground to the West and Northeast	Alternative D: Expand Oak Bottom Campground to the West and Northeast, and Add Boat-in Sites
There would be no expansion of Oak Bottom Campground. Concession management and NPS staff would respond to law enforcement, safety concerns, and maintenance on an as-needed basis.	Oak Bottom Campground would be expanded onto two peninsulas to the west of the existing campground. New amenities and utilities would be provided. The existing RV parking areas would be redesigned to include shade trees and other camping amenities.	Oak Bottom Campground would be expanded onto two peninsulas to the west of the existing campground and onto the hill northeast of the campground. New amenities and utilities would be provided. Existing RV parking would be redesigned to include shade trees and other camping amenities.	Oak Bottom Campground would be expanded onto two peninsulas to the west of the existing campground and onto the hill northeast of the campground. The existing RV parking area would be redesigned to include shade trees and other camping amenities. New amenities and utilities would be provided. This alternative also includes primitive boat-in only campsites, adding a new visitor experience.
<u>Meets project objectives?</u> No. This alternative does not provide a long-term solution to campground overcrowding. This alternative does not protect public and employee health, safety, and welfare; protect cultural and natural resources, and improve visitor experience.	<u>Meets project objectives?</u> Yes. This alternative does provide a long-term solution to campground overcrowding. This alternative does protect public and employee health, safety, and welfare; protect cultural and natural resources; and improve visitor experience. This alternative does reduce the maximum number of campsites allowed by contract.	<u>Meets project objectives?</u> Yes. This alternative does provide a long-term solution to campground overcrowding. This alternative does protect public and employee health, safety, and welfare; protect cultural and natural resources; and improve visitor experience. This alternative has an increased number of campsites over alternative B.	<u>Meets project objectives?</u> Yes. This alternative does provide a long-term solution to campground overcrowding. This alternative does protect public and employee health, safety, and welfare; protect cultural and natural resources; and improve visitor experience. This alternative allows for the maximum number of campsites. This alternative also achieves the action plan identified in the general management plan to "designate and develop small-scale boat-in/walk-in (from lake shore) low density campgrounds at various locations on the lake shore where environmentally acceptable and economically feasible."

AFFECTED ENVIRONMENT

The "Affected Environment" section provides a brief description of Whiskeytown NRA and describes resources that may potentially be affected by the proposed campground rehabilitation and expansion.

THE PROJECT AREA

Oak Bottom Campground, RV park, marina, amphitheater, picnic area, general store, restrooms, water tank, and Oak Bottom Water Ditch Trail are located south of U.S. Highway 299 on the northwestern shoreline and adjacent uplands on two small peninsulas adjacent to Whiskeytown Lake. Regionally, Oak Bottom Campground is in central, northern California within Shasta County, approximately 13.1 miles (21.2 kilometers [km]) northwest of Redding, California, and 5.1 miles (8.2 km) northwest of the Whiskeytown NRA visitor center. The project area discussed herein occupies approximately 50 acres (20.2 hectares) and the lake elevation at ordinary high water is 1,210 ft (369 meters [m]). This water level is maintained, in part, to support recreation during the spring and summer seasons—it is lowered approximately 12.0 ft (3.7 m) for the fall and winter seasons. It is mandated that the lake be at full capacity by Memorial Day and remain full until Labor Day each year.

Before Whiskeytown Dam construction, Oak Bottom was on the wooded slope above Clear Creek between Grizzly and New York gulches. Site topography varies on each of three former ridgetops now appearing as peninsulas jutting into the open water: (1) the existing campground peninsula ranges from 2% to 50% slopes on rolling to steep hills; (2) the middle peninsula ranges from 2% to 10% slopes with short steeper slopes adjacent to the Oak Bottom Water Ditch Trail; and (3) the western peninsula ranges from 5% to 50% slopes for a short distance, then flattens to a gradual slope. It supports the gently sloped Oak Bottom Water Ditch Trail around its perimeter (DHM Design 2009). In general, the upland vegetation consists of mixed pine (knobcone, ghost, and ponderosa) and oak (black, blue, canyon live, and Oregon white) woodlands, and whiteleaf manzanita chaparral. The pine species, particularly knobcone, are subject to wind-throw due to shallow soils (root into bedrock cracks), tall height, and relatively short lifespan. The average lifespan of the common pine species varies from 30 to 40 years for knobcone, 125 years for ponderosa, and 200 years for ghost pine (Howard 1992).

Oak Bottom Campground is one of two campgrounds (the other is Dry Creek Campground) on the 36.0-mile- (57.9 km) long shoreline of the approximately 3,200-acre (1,294-hectare) Whiskeytown Lake (NPS-WHIS 2009). The campground is operated by Forever Resorts (www.whiskeytownmarinas.com; an authorized concessioner of the National Park Service), offers tent and RV camping, and is open year-round. There are currently 98 campsites in the campground of which 17 are boat-in campsites.

The RV campground contains 22 sites in a large, unshaded, asphalt-surfaced parking area near the boat launch ramp. There is one restroom to serve visitors using the RV campground; the sites do not offer tables, hookups, shade, or fire grates, but there is a dump station and a water source adjacent to the parking area. The RV campground is a 5 to 15 minute walk from the tent campground. Boat operation near the marina and around Oak Bottom Campground is designated as a boating area with restricted speed limit (NPS-WHIS 2009).

CLIMATE

California, east of the North Coast Ranges, retains the Mediterranean climate of the coast in terms of precipitation (dry summers and wetter winters), but temperature variance from winter to summer increases with distance from the ocean. The NRA lies at the juncture of several physiographic provinces including the Klamath Mountains, the Great Central Valley, the Inner North Coast Ranges, and the Cascade Range (Hickman 1996); with variable weather patterns in Shasta and Trinity counties. The regional complex topography results in extreme fluctuations in weather patterns over short linear distances. Because Trinity and Shasta counties are located where the Pacific Ocean influence on climate weakens, varying amounts of precipitation, wind speed and direction, and relative humidity interact with topography to produce heterogeneous microclimatic effects.

On average, the NRA is one of the drier areas of the Klamath Mountains region; Whiskeytown Reservoir staff and weather station recorded a 50-year average rainfall of 63 inches (160 cm) (WRCC 2010). Most rain falls between December and March; winter snowfall is light and averages 3.1 inches (7.9 cm) annually (WRCC 2010). The NRA experiences hot summers (sometimes exacerbated by warm air escaping from the Great Basin and flowing westward through California) (WRCC 2010), and cool winters. Average maximum temperatures at Whiskeytown Reservoir range from 52.9 degrees Fahrenheit (°F) (11.6 degrees Celsius [°C]) in December to 95.8°F (35.4°C) in July; average minimum temperatures range from 36.1°F (2.3°C) in January to 63.9°F (17.7°C) in July (WRCC 2010). Summer temperatures above 100°F (38°C) commonly occur in the Oak Bottom area. Lightning strikes typically occur in July and August (Frost and Sweeney 2000), a time period when moisture in live fuels is low and volatile oils in flammable shrubs are concentrated. Fires that result from lightning strikes may burn for weeks in steep or remote topographic locations where suppression is difficult.

SOILS

The NRA lies within the Pacific Border Geologic Province, Klamath Mountains Physiographic Subprovince, Redding subterrane; the region is considered an extension of the Sierra Nevada range (Thornberry-Ehrlich 2007). Exposures of the NRA from which soils have developed are a portion of the terminus of the Eastern Klamath belt, which is composed of 12,000 m to 15,000 m thick rock columns originating from the Paleozoic era, Ordovician period (500 million years before present) to the Paleozoic era, Jurassic period (160 million years before present). Oak Bottom Campground occurs atop, and the soils are developed from Devonian Copley Greenstone, metamorphosed volcanic rocks comprising keratophyre, spilite, and

meta-andesite; the formation is considered suitable for development (Thornberry-Ehrlich 2007).

The U.S. Soil Conservation Service mapped several soil associations within the NRA (SCS 1967), and the Natural Resources Conservation Service (NRCS 2010) provided the soil series descriptions. The principle soils supporting vegetation at Oak Bottom Campground and the lake shoreline include: (1) Auburn series: consists of shallow to moderately deep, well-drained soils formed in material weathered from amphibolite schist, developed on foothills, and have slopes of 2% to 75%; (2) Chawanakee series: shallow, somewhat excessively drained soils formed in material weathered from granitic rock, developed on mountainsides and ridges and have slopes of 2% to 110%; (3) Goulding series: shallow, somewhat excessively drained soils formed in material weathered from metavolcanic or metasedimentary rocks, developed on mountains and have slopes of 5% to 75%; and (4) Maymen series: shallow, somewhat excessively drained soils that formed in residuum weathered from shale, schist, greenstone, sandstone, and conglomerate; developed on mountains and have slopes that range from 5% to 100%. Other soil series that may be present in small amounts include the Mariposa series, Brandypeak series, Josephine series, and Corbett series.

Most soils encountered within the existing Oak Bottom Campground can be characterized generally as thin deposits, fine-textured, formed on steep slopes, and are subject to erosion if not protected by vegetation and leaf litter. General characteristics of the mapped Oak Bottom Campground soil series include: (1) 30 cm–152 cm deep; (2) clay loam and loam to sandy and gravelly loam to coarse sand in texture; (3) slightly to moderately acid; (4) parent material of granite, greenstone, shale, conglomerate, schist, and sandstone; (5) high to very high erosion hazard; (6) steep to very steep slope position; and (7) very low to moderate fertility (SCS 1967, NRCS 2010).

BIOLOGICAL RESOURCES

Vegetation

Vegetation that has become established at the Oak Bottom Campground area and Whiskeytown Lake shoreline has been generally classified in the Humid Temperate Domain (200), Mediterranean Division (260), and Sierran Steppe – Mixed Forest – Coniferous Forest – Alpine Meadow Province (M261) of Bailey (1995) and to the California Floristic Province, Cascade Ranges Region, and Cascade Range Foothills Subregion of Hickman (1996).

Vegetation series prepared by the California Department of Fish and Game (2003) that occur within the proposed project area include nine forest and woodland, three shrubland, and six riparian and wetland types.

The plant species composition of the Oak Bottom area is moderately diverse due to the variety of habitats, elevation gradients, and amount of precipitation; a history of natural and anthropogenic disturbances has also contributed to diversity of vegetation at the site. Plant species known to occur within the entire NRA number 941 taxa (NPS-WHIS 2010). Of these,

178 (19%) are nonnative and/or invasive species confirmed as occurring within the NRA and an additional 22 nonnative species listed as unconfirmed or probably present. At Oak Bottom Campground and Marina the most commonly established and managed nonnative plant species include yellow star thistle (*Centauria solstitialis*), black mustard (*Brassica nigra*), curly dock (*Rumex crispus*), Klamath weed (*Hypericum perforatum*), common mullein (*Verbascum thapsus*), and Himalayan blackberry (*Rubus armeniacus = R. discolor*) (NPS-WHIS 2008a).

Whiskeytown NRA vegetation has been classified and mapped under the NPS National Vegetation Inventory Program (Fox III 2006). Stuart et al. (2003) and Fox III et al. (2006) identified 24 vegetation alliances, 41 plant associations, and an additional 9 vegetation types within the entire NRA. Within the project area there are 7 upland vegetation alliances and 5 wetland and riparian vegetation alliances described herein.

The combined Stuart et al. (2003) and Fox III et al. (2006) classification was cross-walked to the National Vegetation Classification presented by NatureServe (2010) where possible and matches were assigned the appropriate vegetation alliance (A.XXX) or plant association (CEGL00XXX) name in the following discussion. Where a National Vegetation Classification does not yet exist, the vegetation type is labeled with an "(NC)." Vegetation alliances and plant associations that have become established on uplands at Oak Bottom Campground and adjacent sites and along the nearby reservoir shoreline include:

Whiteleaf Manzanita Tall Shrubland

- *Arctostaphylos viscida* (Whiteleaf Manzanita) Shrubland Alliance (A.790): Whiteleaf manzanita tall shrublands occur as stands and patches on 20%–25% slopes above Clear Creek on the south- to east-facing shorelines and in Oak Bottom Campground. The vegetation alliance and one plant association (*Arctostaphylos viscida – Heteromeles arbutifolia – Toxicodendron diversiloba* [*Whiteleaf Manzanita – Toyon – Poison Oak*] *Shrubland Association* [NC])were classified for the NRA. Tree cover is absent to low within this tall shrubland (3 m–10 m tall), whiteleaf manzanita provides dense cover, and the understory is characterized by sparse to low (1%–10%) cover by toyon and poison oak short shrubs (figures 12 and 13) (Stuart et al. 2003). At Oak Bottom, whiteleaf manzanita is typically understory to pine and oak trees, as discussed in the ensuing plant community descriptions for woodland and forest types.

Knobcone Pine Woodland

- *Pinus attenuata* (Knobcone Pine) Woodland Alliance (A.508): Knobcone pine emergent trees (20 m–35 m tall) occur commonly around Whiskeytown Lake and at Oak Bottom Campground, provide low to moderate cover, and are established on 5%–25%, predominantly south-facing slopes (figures 14 and 15). The vegetation alliance and one plant association (*Pinus attenuata* – Mixed *Quercus* species / *Arctostaphylos viscida* Woodland Association [NC]) were classified for the NRA (Stuart et al. 2003). Tree cover in the canopy layer is low to moderate, predominantly consisting of mixed oak tree species (canyon live oak, black oak, interior live oak, blue oak) up to 15 m tall. The understory tall shrub layer is 2 m–5 m tall and composed of

FIGURE 12. MANZANITA AND TOYON TALL SHRUB STAND WITHIN OAK BOTTOM CAMPGROUND (NOTE MAINTENANCE OR FIREWOOD GATHERING PRUNING AND COMPACTED SOILS)

FIGURE 13. WHITELEAF MANZANITA TALL SHRUBLAND CHARACTERIZES SOME SLOPES ABOVE THE CLEAR CREEK ARM OF WHISKEYTOWN LAKE ACROSS FROM OAK BOTTOM CAMPGROUND

low to moderate cover by whiteleaf manzanita and 5%–25% cover by toyon. An herbaceous layer is often present; the most consistent species is silver hairgrass (*Aira caryophyllea*), which provides low cover.

Ponderosa Pine Woodland

- *Pinus ponderosa* (Ponderosa Pine) Woodland Alliance (A.530): Ponderosa pine emergent trees (20 m–35 m tall) occasionally occur around Whiskeytown Lake and near Oak Bottom Campground, provide low to moderate cover, and establish on 5%–25%, predominantly south-facing slopes (figures 16 and 17). The vegetation alliance and two plant associations (*Pinus ponderosa – Quercus chrysolepis / Arctostaphylos viscida* Association (NC) and *Pinus ponderosa – Quercus kelloggii / Arctostaphylos viscida – Toxicodendron diversiloba* Woodland Association) (CEGL008694) were classified for the NRA (Stuart et al. 2003). Tree cover in the canopy layer may be moderate, predominantly consisting of mixed oak tree species (canyon live oak, black oak, interior live oak, blue oak) up to 15 m tall. The understory tall shrub layer is 2 m–5 m tall and composed of low to moderate cover by whiteleaf manzanita and toyon. A herbaceous layer is often present; the most consistent species is silver hairgrass, which provides sparse to low cover.

FIGURE 14. KNOBCONE PINE, SPECIES OF OAK, AND WHITELEAF MANZANITA ON A RIDGE ADJACENT TO WHISKEYTOWN LAKE

FIGURE 15. KNOBCONE PINE, SPECIES OF OAK, WHITELEAF MANZANITA, AND TOYON IN OAK BOTTOM CAMPGROUND [NOTE HERBACEOUS UNDERSTORY IS MOSTLY NONNATIVE ANNUAL GRASSES AND FORBS]

FIGURE 16. PONDEROSA PINE WOODLAND STAND WITH SAPLING TREES AND A PREDOMINANTLY WHITELEAF MANZANITA UNDERSTORY ON A DRIER SITE ON THE WHISKEYTOWN LAKE SHORELINE (NOTE EXPOSED BEDROCK AT SHORELINE)

FIGURE 17. PONDEROSA PINE WOODLAND WITH A PREDOMINANTLY OAK UNDERSTORY ON A MESIC SITE ON THE WHISKEYTOWN LAKE SHORELINE

Ghost Pine Woodland

- *Pinus sabiniana* (Ghost Pine) Woodland Alliance (A.525): Ghost pine (15 m–25 m tall) occur uncommonly as dominant emergent trees around Whiskeytown Lake and in the vicinity of Oak Bottom Campground, provide low cover, and establish on 25%–70%, predominantly east- and southeast-facing slopes (figure 18). The vegetation alliance and one plant association (*Pinus sabiniana – Quercus chrysolepis / Arctostaphylos viscida* Woodland Association [NC]) were classified for the NRA (Stuart et al. 2003). Tree cover in the canopy layer may be moderate, predominantly consisting of mixed oak tree species (canyon live oak, black oak, interior live oak) up to 15 m tall. The understory tall shrub layer is 2 m–5 m tall and composed of low to moderate cover by whiteleaf manzanita, toyon, and poison oak.

FIGURE 18. GHOST PINE WITH A PREDOMINANTLY WHITELEAF MANZANITA UNDERSTORY ON THE HILL ADJACENT TO WHISKEYTOWN LAKE SHORELINE

Oak Woodland and Tall Shrubland

- *Quercus garryana* var. *garryana* (Oregon White Oak) Woodland Alliance (A.630): Oregon white oak trees (5 m–10 m tall) occur uncommonly as co-dominant trees with black oak trees of similar height around Whiskeytown Lake and may occur in the Oak Bottom Campground vicinity; together they provide 40%–55% cover, and establish on

15%–55% slopes, predominantly north-facing slopes. The vegetation alliance and one plant association (*Quercus garryana var. garryana – Quercus kelloggii / Toxicodendron diversiloba* Woodland Association) (CEGL000931) were classified for the NRA (Stuart et al. 2003). Dense tree cover in the canopy layer is contributed by mixed oak tree species (Oregon white oak, canyon live oak, black oak) up to 15 m tall. The understory tall shrub layer is 2 m–5 m tall and contributed moderate to dense cover by poison oak and western redbud (*Cercis occidentalis*) and deerbrush (*Ceanothus integrifolia*). The herbaceous layer provides sparse cover.

- *Quercus kelloggii* (Black Oak) Forest Alliance (A.2558): Black oak trees (5 m–10 m tall) or shrubs (1 m–5 m tall) occur commonly around Whiskeytown Lake and may occur in the Oak Bottom Campground vicinity, providing low to dense cover, and established on 15%–65% slopes, predominantly north- to east-facing slopes. The vegetation alliance and five plant associations (*Quercus kelloggii – Pinus sabiniana / Styrax officinalis – Toxicodendron diversiloba* Forest Association [NC], *Quercus kelloggii – Quercus chrysolepis / Heteromeles arbutifolia – Toxicodendron diversiloba* Forest Association [NC], *Quercus kelloggii / Arctostaphylos viscida* Forest Association [NC], *Quercus kelloggii / Heteromeles arbutifolia – Toxicodendron diversiloba* Forest Association [NC], and *Quercus kelloggii / Toxicodendron diversiloba* Forest Association [NC]) were classified for the NRA; often the shrub cover equals or exceeds the tree cover in each stand (Stuart et al. 2003). Tree cover in the canopy layer may be dense, predominantly consisting of black and canyon live oak trees up to 10 m tall. The understory tall shrub layer is 2 m–5 m tall and comprised of low to moderate cover of poison oak, whiteleaf Manzanita, and toyon. The herbaceous layer typically provides sparse to low cover, and is characterized by Bolander's bedstraw (*Galium bolanderi*) and western needlegrass (*Achnatherum occidentale*).

- *Quercus wislizeni* Woodland Alliance (A.591): Interior live oak trees (5 m–10 m tall) or shrubs (1 m–5 m tall) occur commonly around Whiskeytown Lake and may occur in the Oak Bottom Campground vicinity, providing low cover, and established on 25%–65% slopes, predominantly south-facing slopes. The vegetation alliance and three plant associations (*Quercus wislizeni / Arctostaphylos viscida* Woodland Association (CEGL008641), *Quercus wislizeni / Toxicodendron diversiloba* Woodland Association (NC), and *Quercus wislizeni / Toxicodendron diversiloba / Centaurea solstitialis* Woodland Alliance [NC]) were classified for the NRA (Stuart et al. 2003). Tree cover in the canopy layer may be moderate, predominantly consisting of canyon live oak trees up to 10 m tall. The understory tall shrub layer is 2 m–5 m tall and comprised of low to dense cover of poison oak and whiteleaf manzanita. The herbaceous layer typically provides low cover; however, the invasive yellow star-thistle (*Centaurea solistitialis*) can contribute moderate cover in some stands.

Wetland and Riparian Vegetation

Wetland and riparian vegetation alliances and plant associations that have become established on nearby streambanks and drainages, along the shoreline of Oak Bottom Campground, and adjacent peninsula shorelines include:

White Alder Forest

- *Alnus rhombifolia* (White Alder) Temporarily Flooded Forest Alliance (A.306): White alder trees occur in dense stands on the banks of perennial streams flowing into Whiskeytown Lake. Three white alder forest associations (*Alnus rhombifolia* / Sierran Forest Association (CEGL008693), *Alnus rhombifolia / Carex nudata* Forest Association (NC), and *Alnus rhombifolia / Pteridium aquilinum* Forest Association [NC]) were determined during the 2003 fieldwork of Stuart et al. 2003.

Spikerush Herbaceous Vegetation

- *Eleocharis* Species (Spikerush) Temporarily Flooded Herbaceous Alliance (NC): a narrow band (1 m–3 m wide) of spikerush was observed rooted in sediments deposited along the shoreline of a small peninsula (figure 19).

FIGURE 19. NARROW BAND OF SPIKERUSH ADJACENT TO A PENINSULA GROWING FROM SHALLOW WATER

Duckweed Floating Aquatic Herbaceous Vegetation

- *Lemna* species (Duckweed) Permanently Flooded Herbaceous Alliance (A.1747): a small patch of duckweed was observed floating among driftwood and debris in a shallow cove fringed with cattail (figure 20).

FIGURE 20. DUCKWEED FLOATING AMONG DRIFTWOOD AND DEBRIS IN BACKWATER; RIMMED BY A BAND OF CATTAIL AT THE SHORELINE

Pondweed Submerged Aquatic Herbaceous Vegetation

- *Potamogeton* Species (Pondweed) Permanently Flooded Herbaceous Alliance (NC): pondweed stands providing moderate cover have become established in a few shallow bays fed with runoff from perennial streams (figure 21).

Cattail Emergent Herbaceous Vegetation

- *Typha* (*latifolia, angustifolia*) (Broad-leaved Cattail, Narrow-leaved Cattail) Western Herbaceous Vegetation (CEGL002010): cattail stands have become established in narrow bands (1 m–5 m wide) along the lake shoreline, rooted in sediments that have eroded from adjacent slopes or have been transported and deposited by intermittent drainages and perennial streams (figure 22).

WILDLIFE

The aquatic, wetland, riparian, foothill montane, and alpine habitats available within the NRA are diverse and support a variety of wildlife species including 67 mammals, 210 birds, 25 reptiles, 14 amphibians, and 26 fish and lamprey (NPS-WHIS n.d.). Discussed herein are the

FIGURE 21. PONDWEED ROOTED IN THE BOTTOM SEDIMENT OF A SHALLOW INLET

FIGURE 22. TYPICAL SHORELINE LINEAR STAND OF CATTAIL IN A SMALL BAY

common to abundant species that occur in lakeshore aquatic, wetland and riparian, manzanita chaparral, mixed low- to mid-elevation conifer and oak woodlands, and developed habitats that typify the Oak Bottom Campground area.

Mammals

Over 20% of the mammals using Oak Bottom Campground habitats are species of bats that forage over land and water and in foliage for insects and arachnids. Because they are highly mobile, bats may roost within or outside of the NRA in mines, caves, under tree bark, in snags and stumps, and in/under human-constructed structures during the daytime and forage during the evening and night (Morrell and Duff 2005).

Arboreal mammals that may use project area woodland stands include the Virginia opossum (*Didelphus virginiana*), porcupine (*Erythizon dorsatum*), and gray and Douglas's squirrels (*Glaucomys sabrinus, Sciurus griseus, and Tamiasciurus douglassii*). Common herbivores using most available upland habitats include the mule deer (*Odocoileus hemionus*), black-tailed jackrabbit (*Lepus californicus*), brush rabbit (*Sylvilagus bachmani*), woodrats (*Neotoma* spp.), deer and brush mice (*Peromyscus maniculatus* and *P. boylii*), ground squirrels (*Spermophilus* spp.), and chipmunks (*Tamias* spp.). Mammal species that predominantly use aquatic, wetland, and riparian habitats in the area include the river otter (*Lontra canadensis*), beaver (*Castor canadensis*), muskrat (*Ondatra zibethicus*), common raccoon (*Procyon lotor*), and shrews (*Sorex* spp.). Common carnivores of the Oak Bottom Campground area include the American black bear (*Ursus americanus*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), gray fox (*Urocyon cinereoargenteus*), and long-tailed weasel (*Mustela frenata*). Nonnative mammals known for the NRA that may use the project area include the feral pig (*Sus scrofa*), black rat (*Rattus rattus*), and house mouse (*Mus musculus*).

Birds

The NRA provides habitats for many year-round resident species, in addition to a number of migrant birds. Raptors and vultures commonly observed over and in Oak Bottom Campground and Whiskeytown Lake habitats include the turkey vulture (*Cathartes aura*), bald eagle (*Haliaeetus leucocephalus*), osprey (*Pandion haliaetus*), red-tailed hawk (*Buteo jamaicensis*), species of falcons, and species of owls. Corvids associated with Oak Bottom include the common raven (*Corvus corax*), American crow (*C. brachyrhynchos*), scrub jay (*Aphelocoma coerulescens*), and Steller's jay (*Cyanocitta stelleri*). Common aquatic and wetland bird species include: red-winged blackbird (*Agelaius phoeniceus*); species of swallows, swifts, and martins; great blue heron (*Ardea herodias*) and green heron (*Butorides virescens*); great egret (*Casmerodius albus*); double-crested cormorant (*Phalacrocorax auritus*); gulls of the genus *Larus* – herring, California ring-billed, glaucous-winged, Bonaparte's, and Thayer's; American coot (*Fulica americana*), Canada goose (*Branta canadensis*); dabbling ducks of the genus *Anas* – mallard, northern pintail, American widgeon, northern shoveler, gadwall, and green-winged and cinnamon teal; diving ducks of the genus *Aythya* – canvasback, redhead, ring-necked, and lesser and greater scaup; and species of mergansers (*Mergus* spp.).

Upland bird species, including migrants common to the project area shrubland and mixed woodland habitats, include the American robin (*Turdus migratorius*), California quail (*Calipepla californica*), and species of hummingbirds, finches and goldfinches, warblers, fly- and gnatcatchers, woodpeckers and sapsuckers, sparrows, and several other species and species groups. Nonnative bird species include the European starling (*Sturna vulgaris*), English sparrow (*Passer domesticus*), and rock dove (*Columba livia*).

Reptiles and Amphibians

Reptile species common to aquatic, wetland, riparian, and associated upland habitats include the regionally rare but NRA common western pond turtle (*Actinemys* [*Clemmys*] *marmorata*) and garter snakes (*Thamnophis* spp.); the nonnative red-eared slider (*Trachemys scripta*) rarely occurs (Bury and Germano 2004). Terrestrial reptiles common to Oak Bottom Campground habitats include western rattlesnake (*Crotalus viridis*), sagebrush and western fence lizards (*Sceloporous graciosus* and *S. occidentalis*), and alligator lizards (*Elgaria* spp.).

Common aquatic amphibians in the Oak Bottom Campground area include the Pacific tree frog (*Pseudacris regilla*) and the nonnative bullfrog (*Rana catesbeiana*). Upland habitats may be used by species of salamander including the black salamander (*Aneides flavapunctatus*), Oregon ensatina (*Ensatina eschscholtzii oregonensis*), and by the western toad (*Bufo boreas*) and western spadefoot (*Spea hammondii*). Eggs and larvae of frogs, salamanders, and toads require warm, shallow water to successfully develop.

Fish

The Whiskeytown Lake fishery supports both warm- and cold-water fish species, the most common and popular among anglers camped at Oak Bottom include large- and smallmouth bass (*Micropterus salmoides* and *M. dolomieu*), black crappie (*Pomoxis nigromaculatus*), bluegill (*Lepomis macrochinus*), channel catfish (*Ictalurus punctatus*), rainbow trout (*Onchorhynchus mykiss*), brook trout (*Salvelinus fontinalis*), and brown trout (*Salmo trutta*). Rainbow and brook trout are stocked annually by the California Department of Fish and Game; brown trout and kokanee salmon (*Oncorhynchus nerka*) were stocked historically. Anadromous fish (e.g., chinook salmon and steelhead [*Onchorhynchus tshawytscha* and *O. mykiss*]), which spend a portion of their life cycle in the Pacific Ocean, cannot swim farther upstream in Clear Creek than Whiskeytown Dam; they spawn in Clear Creek below the dam.

Brown and May (2007) sampled fish species at 12 sites in 7 high elevation, high gradient, headwater creeks within the NRA, 11 above the dam (Whiskey, Clear, Crystal, Mill, Boulder, and Brandy creeks and Grizzly Gulch) and one (Paige-Boulder Creek) below the dam. Native fish species identified in the flowing water included rainbow trout, riffle sculpin (*Cottus gulosus*), Sacramento sucker (*Catostomus occidentalis*), California roach (*Hesperoleucas symmetricus*), Sacramento pikeminnow (*Ptychocheilus grandis*), hardhead (*Mylopharodon conocephalus*), and lamprey (*Lampetra* sp.). Nonnative fish sampled within the creeks and gulches included brook trout, largemouth bass, and green sunfish (*Lepomis cyanellus*) (Brown and May 2007).

THREATENED AND ENDANGERED SPECIES AND SPECIES OF SPECIAL CONCERN

Forty-one rare species occur in the vicinity of the NRA, 16 plant species and 25 wildlife and fish species (tables 2 and 3). These species have been discussed and evaluated in detail by the contractor and NRA ecologists and biologists in a support document (AARCHER 2010) and those known to occur or with the potential to occur within the habitats associated with the Oak Bottom Campground site, including proposed boat-in sites, are summarized herein.

TABLE 2. CALIFORNIA NATIVE PLANT SOCIETY RARE PLANT LIST AND STATUS FOR WHISKEYTOWN NRA

Family	Scientific Name	California Native Plant Society	Park Status
Alismataceae	*Sagittaria sanfordii*	1B.2	Verified
Asteraceae	*Arnica venosa*	4	Verified
Caprifoliaceae	*Sambucus mexicana*	None[1]	Verified
Cupressaceae	*Cupressus macnabiana*	None[2]	Verified
Cyperaceae	*Carex geyeri*	4	Needs verification
Cyperaceae	*Carex vulpinoidea*	2	Needs verification
Ericaceae	*Arctostaphylos malloryi*	4.3	Verified
Liliaceae	*Allium sanbornii* var. *sanbornii*	4	Verified
Liliaceae	*Trillium ovatum* ssp. *oettingeri*	4	Verified
Liliaceae	*Triteleia crocea* var. *crocea*	4	Needs verification
Orchidaceae	*Cypripedium fasciculatum*	4	Verified
Poaceae	*Puccinellia howellii*	1B	Verified
Polemoniaceae	*Navarretia heterandra*	4	Needs verification
Potamogetonaceae	*Potamogeton epihydrus ssp. nuttallii*	2	Verified
Crassulaceae	*Sedum paradisum*	1B.3	Verified on boundary

[1] *Sambucus mexicana* is not a California Native Plant Society-listed species; however, it is potential habitat for the federally threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*).

[2] *Cupressus macnabiana*, although not listed on the California Native Plant Society rare plant list, is considered sensitive by NRA staff because of its recent and rapid decline within the NRA over the past 70 years.

TABLE 3. THREATENED, ENDANGERED, SENSITIVE, OR RARE WILDLIFE AND FISH SPECIES WITHIN THE NRA AND THEIR FEDERAL AND CALIFORNIA STATUS

Common Name	Scientific Name	CESA*	USFWS / NMFS
Northern Spotted Owl	*Strix occidentalis caurina*	Unlisted	Threatened
Bald Eagle	*Haliaeetus leucocephalus*	Endangered	Delisted

TABLE 3. THREATENED, ENDANGERED, SENSITIVE, OR RARE WILDLIFE AND FISH SPECIES WITHIN THE NRA AND THEIR FEDERAL AND CALIFORNIA STATUS

Common Name	Scientific Name	CESA*	USFWS / NMFS
Bank Swallow	*Riparia riparia*	Threatened	Neotropical Migrant
Little Willow Flycatcher	*Empidonax traillii brewsteri*	Unlisted	Sensitive Species
Western Yellow-billed Cuckoo	*Coccyzus americanus*	Endangered	Sensitive Species
Yellow-breasted Chat	*Icteria virens*	Unlisted	Neotropical Migrant
Yellow Warbler	*Dendroica petechia brewsteri*	Unlisted	Neotropical Migrant
Northern Goshawk	*Accipiter gentilis*	Unlisted	Sensitive Species
Olive-sided Flycatcher	*Contopus cooperi*	Unlisted	Sensitive Species
Rufous Hummingbird	*Selasphorus rufus*	Unlisted	Sensitive Species
Red-breasted Sapsucker	*Sphyrapicus ruber*	Unlisted	Sensitive Species
California Thrasher	*Toxostoma redivivum*	Unlisted	Sensitive Species
Pacific Fisher	*Martes pennanti pacifica*	Candidate	Sensitive Species; Candidate
Long-eared Myotis Bat	*Myotis evotis*	Unlisted	Sensitive Species
Fringed Myotis Bat	*Myotis thysanodes*	Unlisted	Sensitive Species
Yuma Myotis Bat	*Myotis yumanensis*	Unlisted	Sensitive Species
Pacific Western Big-eared Bat	*Corynorhinus townsendii townsendii*	Unlisted	Sensitive Species
Foothill Yellow-legged Frog	*Rana boylii*	Unlisted	Sensitive Species
California Red-legged Frog	*Rana aurora draytonii*	Threatened	Threatened
Tailed Frog	*Ascaphus truei*	Unlisted	Unlisted
Western Pond Turtle	*Actinemys marmorata marmorata*	Unlisted	Declining Population
Valley Elderberry Longhorn Beetle	*Desmocerus californica dimorphus*	Threatened	Threatened
Central Valley Steelhead (CVS)	*Oncorhynchus mykiss*	Threatened	Threatened
CVS Critical Habitat	*Oncorhynchus mykiss*		
Central Valley Chinook (CVC) Salmon (spring run)	*Oncorhynchus tshawytscha*	Threatened	Threatened
CVC(SR) Critical Habitat	*Oncorhynchus tshawytscha*		
CVC (fall run/late fall run)	*Oncorhynchus tshawytscha*	Unlisted	Species of Concern

*California Endangered Species Act

The three potentially affected sensitive plant species (summarized below) include Sanborn's onion (*Allium sanbornii*) on upland habitats and valley or Sanford's arrowhead (*Sagittaria sanfordii*) and Nuttall's pondweed (*Potamogeton epihydrus* ssp. *nuttalii*) in wetland and aquatic habitats. Geyer's or elk sedge (*Carex geyeri*) and fox sedge (*Carex vulpinoidea*) are unconfirmed in the NRA, and could occur in wetland habitats (summarized below). The 11 potentially affected sensitive wildlife species (summarized below) include bald eagle (*Haliaeetus leucocephalus*), yellow-breasted chat (*Icteria virens*), olive-sided flycatcher (*Contopus cooperi*), rufous hummingbird (*Selasphorus rufus*), California thrasher (*Toxostoma redivivum*), Pacific fisher (*Martes pennanti pacifica*), long-eared myotis bat (*Myotis evotis*), fringed myotis bat (*M. thysanodes*), Yuma myotis bat (*Myotis yumanensis*), Pacific western big-eared bat (*Corynorhinus townsendii townsendii*), and western pond turtle (*Actinemys marmorata marmorata*).

Sanborn's onion occurs on upland habitats in the Oak Bottom area, has a white to deep pink perianth, and is generally distributed on serpentine outcrops of the Cascade Range foothills and Sierra Nevada foothills up to southern Oregon (Hickman 1996).

Valley or Sanford's Arrowhead suitable habitat occurs at proposed boat-in campsites 2, 8, 9, and 10; the species is: (1) an obligate wetland forb; (2) always rooted in shallow water, freshwater marshes, and saturated soils; and (3) endemic to California (North Coast, Central Valley, northern South Coast) (Hickman 1996). The distribution within the NRA is unknown beyond recently observed sites, but the species could occur in emergent wetland stands of cattail and spikerush that have become established on the shoreline of Whiskeytown Lake in the Oak Bottom Campground area. Surveys would need to be conducted.

Nuttall's Pondweed occurs in shallow water habitats including lakes, ponds, streams, and ditches. This aquatic species is rare in California in the outer North Coast Ranges, high Sierra Nevada, and Modoc Plateau. It ranges from Colorado to California to Alaska (Hickman 1996). Nuttall's pondweed is an aquatic species rooted in bottom sediments and supports floating leaves; this habitat occurs within the NRA.

McNab Cypress occurs east of the Whiskey Creek arm of Whiskeytown Lake as a stand of tall shrubs/ small trees. Although it is not listed as threatened, endangered, or sensitive by federal or state governments or the California Native Plant Society, the NRA considers McNab Cypress to be a species of concern due to its limited range and apparent decline within the NRA. The NRA is the type locality for the species (the largest population along Clear Creek was inundated historically when the reservoir filled). McNab cypress is endemic to the northern California—inner North Coast Ranges, High Cascade Range, and northern Sierra Foothills (Hickman 1996). Seedlings/saplings have been transplanted in several locations within the NRA including the Oak Bottom Campground parking lot; several transplants have survived.

Geyer's or Elk Sedge is unconfirmed within the NRA, but occurs on open forest slopes in the Klamath Ranges of California, ranging to western Canada and to Colorado (Hickman 1996). Elk sedge grows in clumps connected by rhizomes and could occur within the NRA; the proposed boat-in campsite number 10 represents potential elk sedge habitat.

Fox Sedge is unconfirmed within the NRA, but was reported below the Whiskeytown Lake Dam on Lower Clear Creek and is generally distributed on wet sites in the southeastern Klamath Ranges, northern high Cascade Range, and northern Sacramento Valley of California to British Columbia, Colorado, and Arizona (Hickman 1996). Fox sedge inhabits marshes, freshwater swamps, and riparian woodland; these habitats occur within the NRA.

Bald Eagles using NRA habitats include two to four breeding pairs and several migrant individuals; they are typically within 2.0 miles of the shoreline. Bald eagles are dependent on large, dominant trees for nesting and perching; the majority of foraging activity occurs on Whiskeytown Lake; prey species include a variety of fish, ducks, coots, and grebes. Closures of 0.5 mile radius are enacted when feasible (some years nests are established where buoy lines cannot be safely placed) around bald eagle nest sites once they are determined by monitoring. The Boulder Creek Trail, southwest of Oak Bottom Campground, has been closed historically during nesting season (but not in the past several years as the bald eagles moved the nest site to a new location away from the trail), which begins in March of most years and ends when young birds are fledged, typically by July. Nesting sites are known in the South Fork of Dog Gulch, and along Brandy, Boulder, and Whiskey creeks. The NRA participates in the USFWS mid-winter bald eagle survey; bald eagles were observed during the 2010 site visit.

Yellow Warblers uncommonly breed and nest in white alder riparian stands of the Whiskeytown Lake area and also may use mountain shrub communities for nesting, which occurs from April to July. On Clear Creek, low nest density was determined (0.26 nests per hectares) below the Whiskeytown Lake Dam. Stands of white alder tall shrubs and trees characterize the perennial streams and stands of whiteleaf manzanita that have become established on south-facing slopes north of California Highway 299. This thick shrubland represents potential yellow warbler nesting habitat at Oak Bottom Campground and the proposed boat-in sites. A generalist insectivore, yellow warblers forage in vegetation for ants, bees, wasps, true bugs, caterpillars, flies, and spiders.

Olive-sided Flycatchers are common in the NRA and the multiple-layer pine/oak/manzanita woodland stands of the Oak Bottom Campground area and proposed boat-in sites could provide nesting habitat; nesting occurs from May to July. The flycatchers forage on insects and arachnids, primarily.

Rufous Hummingbirds are uncommon within the NRA and could nest and forage in all of the upland habitats associated with the proposed Oak Bottom Campground site and proposed boat-in sites. They forage on nectar sources and on small insects including gnats, midges, and whiteflies. Rufous hummingbird migration to Whiskeytown NRA and the species breeding/ nesting status in the NRA are unknown; nesting typically occurs from March to May.

California Thrashers are uncommon visitors to the NRA and typically use montane chaparral and adjacent oak and pine woodlands that have become established north of California Highway 299 as nesting and foraging sites. They are ground foragers taking insects and arachnids, primarily, and some fruits when in season. Thick chaparral plant communities occur across the road from the Oak Bottom Campground area (an area where California thrashers have been observed) and thick chaparral occurs on south-facing slopes at and near

some boat-in campsites (no records of California thrasher use of this habitat are known). Nesting typically occurs in February and March.

Pacific Fishers occur in most wooded upland and riparian habitats within the NRA that have adequate overstory; observations have been made in the NRA in wooded habitats, excluding thick manzanita chaparral. Forest type is probably not as important to Pacific fishers as structural characteristics, e.g., dense canopies, large trees, snags, and downed logs. Pacific fishers would likely avoid areas of human occupation, including the Oak Bottom Campground area, during the summer. To date, there have been no Pacific fisher sightings at the campground location.

Long-eared Myotis Bats occur in the NRA and use coniferous forest and woodland habitats such as those established adjacent to Whiskeytown Lake and its tributary streams. This bat species is relatively uncommon and large groups would not be anticipated. Long-eared myotis bats would potentially be present in the vicinity of Oak Bottom Campground while foraging in-flight or gleaning vegetation surfaces for moths, beetles, arachnids, and other insects over many surfaces including water, or if they are roosting in stumps, snags, or cracks and crevices on or adjacent to construction sites.

Fringed Myotis Bats occur in the NRA and use mixed oak – coniferous forest and woodland habitats such as those established adjacent to Whiskeytown Lake and its tributary streams. This bat species is relatively uncommon regionally and large groups would not be anticipated. Fringed myotis bats would potentially be present in the vicinity of Oak Bottom Campground while foraging for beetles, moths, arachnids, and orthopterans over water, open spaces, and by gleaning from vegetation or if they are roosting in snags, stumps, vegetation, structures, or cracks and crevices on or adjacent to construction sites.

Yuma Myotis Bats occur in the NRA and use mixed oak – coniferous forest and woodland habitats such as those established adjacent to Whiskeytown Lake and its tributary streams. This bat species is relatively common year-round and larger groups would be anticipated during the spring/summer seasons. Yuma myotis bats would potentially be present in the vicinity of Oak Bottom Campground while foraging for airborne insects (moths, beetles, aquatic insects, etc.) during the nighttime or if they are roosting in snags, stumps, vegetation, structures, or cracks and crevices on or adjacent to construction sites.

Pacific Western Big-eared Bats occur in the NRA and use montane chaparral and mixed oak-coniferous forest and woodland habitats such as those established at Oak Bottom Campground and adjacent to Whiskeytown Lake and its tributary streams. This bat species is relatively common year-round and larger groups would be anticipated during the spring/summer seasons. Pacific western big-eared bats would potentially be present in the vicinity of Oak Bottom Campground while foraging in vegetation for moths and other insects during the nighttime, or if they are roosting in caves, structures, or bedrock ledges on or adjacent to construction sites.

Western Pond Turtles occur around the entire Whiskeytown Lake margin and are often observed sunning atop floating debris (Bury and Germano 2004, Bury 2010). Western pond turtles are common within Whiskeytown Lake and the tributary drainages, inhabiting shallow

water and uplands along the shoreline and in drainages. Individuals are distributed around the lake in no particular pattern (Bury 2010). The NRA population has a wide range of ages with 93% between 5 to >13 years old, a 51:47 male-to-female ratio, and was considered stable following a 2004 trapping study (Bury and Germano 2004). They may use upland habitats adjacent to the lake for a few months each year for egg laying and limited hibernation.

NATIONAL RECREATION AREA OPERATIONS

NRA operations that are principally affected by the alternatives are law enforcement, emergency response, and maintenance. Resource management and interpretive staff also expend time at Oak Bottom Campground. Resource management staff monitor impacts and implement restoration activities and interpretive staff present programs at the campground amphitheater.

Law Enforcement / Emergency Response

The law enforcement unit for the NRA currently has 10 permanent park rangers and one seasonal ranger. Responsibilities of this staff include search and rescue, emergency medical assistance, assistance with traffic accidents, providing resource protection messages, and maintaining law and order in the NRA. In addition, the fire management unit staff works with the maintenance staff in hazard tree removals, cleanup and repair from storm damage, and clearing trails and roads of brush. The fire cache is located at Oak Bottom, and the primary EMS response comes from this area.

Oak Bottom Campground has historically been the number one "call area" in the NRA, resulting in as many as 250 arrests per year (before alcohol was banned from the beach and strict law enforcement activities transformed the NRA). Arrests at Oak Bottom have decreased to 35 to 70 per year since then. After-hours noise has been a problem, as well as car clouts (automobile breaking and entering) and thefts. Vandalism has not been a major issue. Emergency response incidents in the area generally involve rattlesnakes, poison oak, excessive boat speeds, heat-related injuries, and traffic accidents on State Route 299. Table 4 represents the law enforcement statistics for 2010 at Oak Bottom.

Maintenance

The maintenance division has 10 permanent employees and approximately 19 seasonal employees, in aggregate totaling 3 FTE (fulltime equivalents). Maintenance staff are responsible for the care and maintenance of park facilities, infrastructure, and physical and cultural resources. The maintenance staff performs a variety of duties including hazard tree removal and brushing trailside vegetation, inspecting and maintaining picnic areas and campgrounds, and maintaining water and wastewater systems throughout the NRA. Roughly 7%–10% of the division's time is focused on activities at Oak Bottom Campground, including maintenance of the water and sewer system, beach-front maintenance, one restroom, amphitheater grounds, fish cleaning station, trash cans, boat ramps, snack bar grounds, and the

fishing pier. Three operators are required to manage and maintain the water and sewer system that services the campground and associated facilities.

TABLE 4. 2010 LAW ENFORCEMENT STATISTICS FOR OAK BOTTOM CAMPGROUND

Type of Law Enforcement Activity	Number	Percentage of Total for Entire NRA
Citations	68	10%
Arrests	3	17%
Medical Calls	6	7%
Thefts	18	28%
Alarm Calls	4	19%
Voided Citations	6	8%
Callouts	15	43%
Other Contacts (warnings)	409	11%
Visitor Contact/Assists	68	5%
Complaints	4	24%

Concession Operations

Since 2007, Oak Bottom Campground has been operated by Forever Resorts, an authorized concessioner of the National Park Service. Forever Resorts is currently under a 20-year concession contract, which was signed on December 30, 2008. The contract requires the concessioner to provide 100 tent campsites and 23 RV campsites at Oak Bottom Campground, and in addition, provide marina moorage, patio and ski boat rentals, and fuel sales at the marina. The facilities at the Oak Bottom Campground area assigned to the concessioner include the tent campground, the RV campground, the camp store, two tent campground comfort stations, an RV campground comfort station, a garage/storage building, a gas storage building, swim beach, swim beach bathhouse and snack bar, paved trail walkways, and marina facilities. Marina facilities are extensive, including three docks, buoys, fuel dispenser and lines, 12,000-gallon underground storage tank, wave attenuators (log boom), dock anchors and cables, and a marina store. In addition to the Oak Bottom facilities, the concessioner also manages moorage and a snack bar at Brandy Creek, across the lake from Oak Bottom. Forever Resorts is responsible for all operations and some maintenance of structures, facilities, and personal property, and must provide the NRA with preventive maintenance procedures and schedules, as well as cyclic maintenance schedules (NPS 2008b).

The concessioner is authorized, but not required, to provide the following services: marina store, campground store, rental of nonmotorized boats, sale of fishing licenses and tackle, retail and snack bar operations, and an RV dump station (NPS 2008b).

The concessioner is also required to provide all the personnel necessary to provide required visitor services. In the summer of 2010, there were 4 permanent and 26 seasonal employees performing boat maintenance, general maintenance, managing the snack bars and stores, and campground maintenance (NPS 2008b).

In order to protect concession workers, visitors, and the environment, the concessioner is responsible for safety training, health and safety inspections, and an environmental management program that identifies green procurement, integrated pest management, spill prevention, and spill notification procedures (NPS 2008b).

Occupancy data provided by Forever Resorts indicate there were 8,954 unit-days of occupancy at Oak Bottom Campground from January 1, 2010 to November 1, 2010. The busiest months were June (20% of total unit-days), July (28% of the total), and August (22% of the total). Of total visitation, 60% stay in tents, 17% stay in RVs, and 23% stay at the tent water sites. During the summer, occupancy rates range from 36% to 54% for RVs, 45% to 67% for tents, and 84% to 99% for tent water sites. Gross revenue for the period January 1, 2010 to November 1, 2010, is about $135,000, slightly higher than in 2009.

ARCHEOLOGICAL RESOURCES

The 2001 cultural resource overview for Whiskeytown NRA documented 10 intensive archeological surveys of 3,520 acres within the NRA. There were 116 recorded archeological sites of which 11 had been excavated to some degree (Bevill and Nilsson 2001). In 2004, a phase I cultural resource inventory of fuel treatment units in the NRA was recorded. A total of 4,715 acres were inventoried resulting in 18 previously unrecorded sites being documented, and 16 previously recorded sites being re-documented (Brunzell 2004). The existing Oak Bottom Campground and the hill to the northeast of the existing campground between the boat ramp and marina were archeologically surveyed in 1986 by Ann King Smith, and again in 2004 by David Bruzell. The peninsulas to the west were also surveyed in 1986 by Ann King Smith.

One archeological site has been recorded on the fitness trail on the peninsula immediately west of the existing campground. A fitness trail was built sometime between 1977 (when the site was first recorded) and 1986 (when it was re-visited) and now bisects the site. Site CA-SHA-272 was first recorded in 1977 by Keith Johnson as a lithic scatter with projectile points and lithic debitage on the ground surface. The site was relocated in 1986 by Smith during an archeological survey of the entire area (Smith 1986); however, it could not be relocated in 1987. An examination of the ground surface was conducted and 13 shovel test probes were excavated in 2008, but the site was not relocated. Thirteen additional shovel probes were excavated in the area, along with another pedestrian survey in early 2009. The site was relocated after a heavy rain event through surface lithic debitage and one positive shovel probe. The 2009 investigation documented CA-SHA-272 as a diffuse lithic scatter with little potential to contain buried archeological remains (Martin 2009). The NRA archeologist conducted extensive surface testing in the fall of 2010, which yielded no surface debitage. Based on the 2009 and 2010 findings and the previous work conducted on the site, the NRA

concluded the site was not eligible for listing in the NRHP; the California SHPO concurred with that determination on May 4, 2011.

Currently, Oak Bottom Water Ditch Trail, which is a portion of site CA-SHA-2165H, is a multiuse trail used by bikers, hikers, and horseback riders. The Oak Bottom Water Ditch Trail is a portion of the Clear Creek Ditch, which was filled in after use of the ditch terminated in 1882 (Vaughan 1997). The Clear Creek Ditch was a long, complex water canal system. As early gold mining depleted the easily obtainable resources, mining became a more complicated process that, in many cases, required long distance water diversion to the mines. The Clear Creek Ditch was constructed by the Clear Creek Ditch Company in 1855 to bring water from upper Clear Creek, near Tower House stage coach stop, to the northwest section of Oak Bottom Campground. The ditch passed through the peninsulas to the west of the current location of Oak Bottom Campground on its way to the historic mining areas west of the city of Redding. The NRA has determined that site CA-SHA-2165H is eligible for listing in the NRHP.

A records examination of the proposed boat-in campsites was conducted by NPS staff in October 2010. It was found that the proposed boat-in campsite locations had previously been archeologically surveyed and did not contain archeological sites. The NPS staff performed on-site examinations of the boat-in campsites and confirmed there are no archeological resources in those areas.

VISITOR USE AND EXPERIENCE

The NRA attracts an average of about 800,000 visitors per year, mostly drawn to the recreational opportunities provided by Whiskeytown Lake. Boating, kayaking, wakeboarding, fishing, swimming, and sailing are popular pastimes. The NRA also offers numerous land-based activities such as hiking, backpacking, mountain biking, hunting, horseback riding, wildlife viewing, and gold panning. Several campgrounds are available, ranging from RV camping at Brandy Creek, RV and tent camping at Oak Bottom, and primitive camping at six locations throughout the area. Oak Bottom Campground is one of two campgrounds on Whiskeytown Lake.

Visitation at the park is 50% from Redding (about 10 miles away), 75% (total) from northern California, and 25% from other states (NPS 2010). According to the 1999 general management plan, a 1985 visitor use study by Oregon State University indicated that 90% of visitors to the NRA were California residents, 50% live within 20 miles of the NRA and tend to be young (60% less than 30 years old), 55% are repeat visitors, and they tend to spend less than four hours at the park on a typical visit (NPS 1999).

The population in Redding was estimated at just over 90,500 in 2009. The medium income for a family in Redding in 2009 was $45,830, which was approximately 22% less than the median income for California (U.S. Census Bureau).

Most visitor use occurs from Memorial Day to Labor Day, when air and lake temperatures are warm and students are out of school. Weekends in the fall can also be busy if the weather is mild. Whiskeytown Lake maintains a fairly stable water level from May to October, as opposed to many other reservoirs in the area, which makes it even more attractive. In October it is drawn down to 12 feet until the following May when it is allowed to fill again.

State Route 299 traverses the northern shoreline of Whiskeytown Lake and is the major access route to the NRA. This highway is heavily traveled by commercial and recreational traffic, as it links the Central Valley with the coast (NPS 1999). Oak Bottom Campground is less than 0.5 mile from the highway.

The concession-operated Oak Bottom Campground includes two camping areas—the 22-site RV campground and the 100-site walk-in tent campground. Occupancy data provided by Forever Resorts indicate there were 8,954 unit-days of occupancy at Oak Bottom Campground from January 1, 2010, to November 1, 2010. The busiest months were June (20% of the total unit-days), July (28% of the total), and August (22% of the total). Popular activities at this campground include swimming, boating, fishing, and hiking (NPS 2010). Personal watercraft use was prohibited on the lake beginning in 2003 or 2004. The historic Water Ditch Trail is accessed at the campground and runs west. It is a popular trail, especially with families and novice mountain bikers because of its relatively flat terrain. The swim beach (no lifeguard), boat ramp, and nearby marina offer swimming and boating opportunities.

RV Campground

The RV campground contains 22 sites and is adjacent to the boat ramp. The campground offers 17 sites for RVs up to 40 ft long and 5 sites for RVs from 20 ft to 22 ft long. All RVs park on asphalt with no shade, picnic tables, hookups, or fire grates available. Visitors feel crowded at this site due to a lack of screening and congestion from boat trailers (Lee, Field, and Martinson 1988). Many RV campers like the proximity of the RV sites to the boat launch and boat launch parking, but these sites do not offer a high quality visitor experience (DHM Design 2009). Of the total campground occupancy, 17% stay in RVs, with summer occupancy rates ranging from 36% to 54%.

In a survey conducted by the U.S. Department of Transportation, Volpe Center, RV ownership increased 6% from 1990 to 1995 (Pickrell 1998). A study conducted by the University of Michigan's Survey Research Center found that nearly 8 million U.S. households owned at least one RV in 2006 (an increase of 15% since 2001) and an increase of 58% since 1980 (RVIA 2006). The study predicted that RV ownership, driven by an aging population and larger numbers of people retiring, would increase another 8% by 2010.

Walk-in Tent Campground

The tent campground is very popular and has an occupancy rate of 45% to 67% during the summer. The 17 sites on the water have a summer occupancy range of 84% to 99%, and all of these sites have already been reserved for the summer of 2011. This campground, originally a picnic area when developed by the Bureau of Reclamation in the mid-1960s, consists of closely

spaced campsites with little privacy. This area has been the topic of NPS discussion for many years due to concerns with overcrowding, resource damage, littering, and loud noise. Visitor-crowding research conducted in 1988 found that visitors at the Oak Bottom tent camping area felt the most crowded of anywhere in the NRA; found no screening and lots of foot and vehicle traffic; experienced conflicts with boating, fishing, water skiers, swimmers, and sunbathers; and were concerned with loud music and shouting. The research found that the campground had exceeded its social carrying capacity (Lee, Field, and Martinson 1988). A 1988 study on human use issues noted frequent visitor responses about facilities, litter, erosion, loud music, inconsiderate behavior, shouting and yelling, drinking, and dogs at this location (Lee and Field 1988).

Until recently, the campground was noted for unruly behavior and after-hours partying, especially by noncamping friends who do not vacate at the 10:00 p.m. posted time. Alcohol consumption is allowed in the campground, but not at the swim beach or the picnic area. User conflicts are high, averaging between 35 to 70 arrests per year (which is down from 250 arrests per year before alcohol was banned from the beach) (NPS 2010). Although noise is still a problem, the situation has improved. Campers either love or hate this campground, depending on their expectations or desires. Because of campsite density, there are occasional conflicts between campers and those visitors wishing to access the water. Some car clouts and thefts occur, but little vandalism.

Visitor health and safety hazards at or near the campground include rattlesnakes, poison oak, excessive boat speeds, heat-related injuries, and traffic accidents on State Route 922. In 2010, at Oak Bottom Campground, the NRA had one search, one assault, one vehicle accident with injuries, four medical aid with basic life support, three domestic violence calls, and one boat collision adjacent the campground.

VIEWSHEDS AND LIGHTSCAPES

Oak Bottom Campground, RV park, marina, amphitheater, picnic area, general store, restrooms, water tank, and Oak Bottom Water Ditch Trail are south of U.S. Highway 299 on the northwestern shoreline adjacent to Whiskeytown Lake. The views around the campground are those of development within a diversely wooded environment. Views within the campground are not expansive due to the vegetation and topography. The overall appearance of Oak Bottom Campground is of a developed area in a natural setting, highly impacted by use. Views from the lakeshore are more expansive and are of the lake and surrounding wooded mountains.

Views of the campground are generally from boaters on the lake or hikers on opposite shores or hiking trails. Boaters represent the largest number of viewers of the campground. The public traveling on State Highway 299 would have minimal glimpses of the campground due to traveling speed and shielding vegetation. Views of the campground from the lake comprise small areas of exposed shoreline and areas cleared of vegetation, trees and shrubs, and some aquatic vegetation, and campsites that are exposed due to loss of vegetative cover. Portions of the historic Water Ditch Trail are adjacent to the lake, the marina, and the day-use area; portions of the campground are visible from specific vantage points on the water.

Night skies in the NRA are relatively clear—moonlight kayak tours are popular with visitors. Oak Bottom Campground is the only campground on the shoreline of Whiskeytown Lake and is open year-round. Current illumination in the facilities includes low-level lighting around comfort stations in the campground, marina, camp store, and fire station. The two parking lots have overhead lighting. The National Park Service minimizes extraneous light sources and protects the dark night sky by using shielded lighting, downward-directed lighting, and strategically placed light sources.

Other sources of light would be from individual campsites such as lanterns, flashlights, and fires. Light sources along the water would be reflected creating a doubling of the light source. External light sources emanate primarily from the city of Redding and traffic along State Highway 299.

These light sources would be visible within the campground and from external vantage points along the shoreline, parts of the backcountry, and during the moonlight kayak tours. Most of the permanent light sources are screened or partially screened by vegetation around the campground and the topography with the exception of the swim beach, marina, and boat ramps.

ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This section describes potential environmental consequences associated with the no-action and preferred alternatives. The methodologies and assumptions for assessing environmental consequences are discussed, including consideration of context, intensity, and duration of impacts; cumulative impacts; and measures to mitigate impacts. As mandated by NPS policy, resource impairment is explained and then assessed for each alternative. Subsequent sections under the "Environmental Consequences" section are organized by impact topic, first for the no-action alternative, and then for the NPS preferred alternative.

METHODOLOGY

Overall, the National Park Service based these impact analyses and conclusions on the review of existing literature and NRA studies, information provided by experts at the NRA and in other agencies, professional judgments, and NRA staff insights.

CONTEXT, DURATION AND INTENSITY, AND TYPE OF IMPACT

The following definitions were used to evaluate the context, intensity, duration, and cumulative nature of impacts associated with project alternatives.

Context

Context is the setting within which an impact is analyzed such as local, NRA-wide, or regional. The Council on Environmental Quality requires that impact analyses include discussions of context. For this environmental assessment, local impacts would occur within the general vicinity of the campground, while NRA-wide impacts would affect a greater portion of the NRA, and regional impacts would extend outside the limits of the NRA.

Duration

The duration of an impact is the time period for which the impacts are evident and are expressed in the short term or in the long term. A short-term impact would be temporary in duration and would be associated with campground improvements, as well as the period of site restoration. Depending on the resource, impacts may last as long as construction takes place, or a single year or growing season, or longer. Impact duration for each resource is unique to that resource. Impact duration for each resource is presented in association with impact intensities.

Intensity

Impact intensity is the degree to which a resource would be beneficially or adversely affected. The criteria that were used to rate the intensity of the impacts for each resource topic is presented later in this section under each topic heading.

Type of Impact

Impacts can be beneficial or adverse. Beneficial impacts would improve resource conditions, while adverse impacts would deplete or negatively alter resources.

Soils

All available information on soils was compiled from previous studies, soil descriptions, and geotechnical reports. Predictions about short- and long-term impacts were based on previous projects with similar soils and recent studies. The thresholds of change for the intensity of an impact to soils are defined as follows:

Impact Intensity	Intensity Definition
Negligible	**Soils would not be affected or the effects to soils would be below or at the lower levels of detection. Any effects to soils would be slight.**
Minor	**The effects to soils would be detectable. Effects to soil area would be small and localized. Mitigation may be needed to offset adverse effects and would be relatively simple to implement and likely be successful.**
Moderate	**The effect on soils would be readily apparent and result in a change to the soil character over a relatively wide area. Mitigation measures would be necessary to offset adverse effects and likely be successful.**
Major	**The effect on soils would be readily apparent and substantially change the character of the soils over a large area. Mitigation measures to offset adverse effects would be needed, extensive, and their success could not be guaranteed.**

Soils impacts would be considered short term if the area recovers in less than three years and long term if the recovery takes longer than three years.

Biological Resources

All available information on biological resources potentially impacted in the NRA was compiled from biological staff, previous studies, and current site reviews. Predictions about short- and long-term site impacts were based on previous projects and recent studies. The thresholds of change for the intensity of an impact to biological resources are defined as follows:

Impact Intensity	Intensity Definition
Negligible	**An action that could affect biological resources or degraded sites. But the change would be so small that it would not be of any measurable or perceptible consequence. Mitigation is rarely required.**
Minor	**An action that could affect biological resources or degraded sites, but the change would be slight and localized with few measurable consequences. Mitigation may be needed to offset adverse effects and would be relatively simple to implement and likely successful.**
Moderate	**An action that would result in readily apparent changes to affect biological resources with measurable consequences. Mitigation would be needed to offset adverse effects, would be somewhat complex to implement, and its success would require monitoring and management prescriptions.**
Major	**A severely adverse or exceptionally beneficial effect to biological resources would result. Mitigation measures to offset adverse effects would be needed, extensive, and success could not be guaranteed; monitoring would be required to inform management direction.**

Biotic community impacts would be considered short term if the community recovers in less than one year (one growing season) and long term if the recovery requires longer than one year.

Threatened and Endangered Species and Species of Special Concern

All available information on protected species potentially impacted in the NRA was compiled from previous NRA studies. Predictions concerning short- and long-term site impacts were based on previous projects and recent studies. The thresholds of change for the intensity of an impact to protected species are defined as follows:

Impact Intensity	Intensity Definition
Negligible	**An action that could affect protected species, but the change would be so small that it would not be of any measurable or perceptible consequence.**
Minor	**An action that could affect protected species, but the change would be slight and localized with few measurable consequences.**
Moderate	**An action that would result in readily apparent changes to affect protected species with measurable consequences.**
Major	**A severely adverse or exceptionally beneficial effect to protected species would result.**

Protected species impacts would be considered short term if the habitat, population, or individual recovers in less than one year and long term if the recovery takes longer than one year.

National Recreation Area Operations

Knowledge of the NPS staff regarding operational efficiency was used to determine the intensity levels of potential impacts. For purposes of analyzing potential impacts, the threshold of change is defined as follows:

Impact Intensity	Intensity Definition
Negligible	**The impact could change NRA maintenance operations, but the change would be so small that it would not be of any measurable or perceptible consequence.**
Minor	**The impact could change NRA maintenance operations, but the change would be slight and localized, with few measurable consequences.**
Moderate	**The impact would result in readily apparent changes to NRA maintenance operations with measurable consequences.**
Major	**The impact would result in a substantial adverse or beneficial change in NRA maintenance operations.**

Concession Operations

Knowledge of the concessioner staff regarding operational efficiency was used to determine the intensity levels of potential impacts. For purposes of analyzing potential impacts, the threshold of change is defined as follows:

Impact Intensity	Intensity Definition
Negligible	**The impact could change the concessioner's maintenance operations and ability to fulfill contract obligations and collect necessary revenue, but the change would be so small that it would not be of any measurable or perceptible consequence.**
Minor	**The impact could change the concessioner's maintenance operations and ability to fulfill contract obligations and collect necessary revenue, but the change would be slight and localized, with few measurable consequences.**
Moderate	**The impact would result in readily apparent changes to the concessioner's maintenance operations and ability to fulfill contract obligations and collect necessary revenue with measurable consequences.**
Major	**The impact would result in a substantial adverse or beneficial change in the concessioner's maintenance operations and ability to fulfill contract obligations and collect necessary revenue.**

Impacts to Cultural Resources / Section 106 of the National Historic Preservation Act

In this environmental assessment, impacts to cultural resources are described in terms of type, context, duration, and intensity, which is consistent with the regulations of the Council on Environmental Quality that implement NEPA. These impact analyses are intended, however, to comply with the requirements of both NEPA and section 106 of the NHPA. In accordance with the Advisory Council on Historic Preservation's regulations implementing section 106 of the NHPA (36 CFR 800, *Protection of Historic Properties*), impacts to cultural resources were also identified and evaluated by: (1) determining the area of potential effects; (2) identifying cultural resources present in the area of potential effects that are either listed in or eligible to be listed in the NRHP; (3) applying the criteria of adverse effect to affected NRHP-eligible or listed cultural resources; and (4) considering ways to avoid, minimize, or mitigate adverse effects.

Under Advisory Council on Historic Preservation regulations, a determination of either *adverse effect* or *no adverse effect* must also be made for affected NRHP-listed or eligible cultural resources. An *adverse effect* occurs whenever an impact alters, directly or indirectly, any characteristic of a cultural resource that qualifies it for inclusion in the NRHP, e.g., diminishing the integrity (or the extent to which a resource retains its historic appearance) of its location, design, setting, materials, workmanship, feeling, or association. Adverse effects also include reasonably foreseeable effects of the alternatives that would occur later in time, be farther removed in distance, or be cumulative (36 CFR 800.5, *Assessment of Adverse Effects).* A determination of *no adverse effect* means there is an effect, but the effect would not diminish the characteristics of the cultural resource that qualify it for inclusion in the NRHP.

Council on Environmental Quality regulations and NPS *Conservation Planning, Environmental Impact Analysis, and Decision-making* (Director's Order 12) also require a discussion of mitigation, and an analysis of how effective the mitigation would be in reducing the intensity of a potential impact, e.g., from major to moderate. Any resultant reduction in the intensity of an impact due to mitigation, however, is an estimate of the effectiveness of mitigation under NEPA only. It does not suggest that the level of effect, as defined by section 106, is similarly reduced. Cultural resources are nonrenewable resources and adverse effects generally consume, diminish, or destroy the original historic materials or form, resulting in a loss in the integrity of the resource that can never be recovered. Therefore, although actions determined to have an adverse effect under section 106 may be mitigated, the effect remains adverse.

A section 106 summary is included in the applicable impact analysis sections. This summary is an assessment of the effect of the undertaking (implementation of the alternative) on NRHP-eligible or listed cultural resources only, based on the criterion of effect and criteria of adverse effect found in Advisory Council regulations.

Archeological Resources

The NHPA and NEPA require consideration of impacts on archeological resources listed in or eligible for listing in the NRHP. Archeological resources have the potential to contain important information about the way humans lived in the past. If an archeological resource had yielded or is likely to yield information important to our understanding of past lifeways, it is eligible for listing in the NRHP at a local, regional, or national level of significance. For the purposes of analyzing impacts to archeological resources, the thresholds for the intensity of an impact are based on the potential for a site(s) to yield information important to our understanding of the past lifeways of humans. The thresholds for the intensity of an impact are defined as follows:

Impact Intensity	Intensity Definition
Negligible	**Impact is at the lowest levels of detection with neither adverse nor beneficial consequences. The determination of effect for section 106 would be *no adverse effect*. Resources exist, but are not eligible for or listed in the NRHP.**
Minor	**Alteration of a pattern(s) or feature(s) would not diminish the overall integrity of the resource. The determination of effect for section 106 would be *no adverse effect*.**
Moderate	**Alteration of a pattern(s) or feature(s) would diminish the overall integrity of the resource. The determination of effect for section 106 would be *adverse effect*. A memorandum of agreement is executed among the National Park Service and applicable state or tribal historic preservation officer and, if necessary, the Advisory Council on Historic Preservation, in accordance with 36 CFR 800.6(b). Measures identified in the memorandum of agreement to minimize or mitigate adverse impacts reduce the intensity of impact under NEPA from major to moderate.**
Major	**Alteration of a pattern(s) or feature(s) would greatly diminish the overall integrity of the structure or landscape or remove overall integrity of the structure or landscape. The determination of effect for section 106 would be *adverse effect.* Measures to minimize or mitigate adverse impacts cannot be agreed upon and the National Park Service and applicable state or tribal historic preservation officer and/or Advisory Council on Historic Preservation are unable to negotiate and execute a memorandum of agreement in accordance with 36 CFR 800.6(b).**

Visitor Use and Experience

NPS *Management Policies 2006* state that the enjoyment of park resources and values by the people of the United States is part of the fundamental purpose of all parks and that the National Park Service is committed to providing appropriate, high-quality opportunities for people to enjoy the parks.

Part of the purpose of the NRA is to offer opportunities for recreation, education, inspiration, and enjoyment. Consequently, one of the NRA's management goals is to ensure that visitors

safely enjoy and are satisfied with the availability, accessibility, diversity, and quality of NRA facilities, services, and appropriate recreational opportunities.

Public scoping input and NRA staff observation of visitation patterns were used to estimate the effects of the actions in the various alternatives of this document. The impact on the ability of the visitor to experience a full range of NRA resources and recreational opportunities were analyzed. The potential for change in visitor use and experience proposed by the alternatives was evaluated by identifying projected increases or decreases in and determining how these projected changes would affect the desired visitor experience (to what degree, and for how long). The thresholds of change for the intensity of an impact to visitor experience are defined as follows:

Impact Intensity	Intensity Definition
Negligible	**The visitor would not be affected or changes in visitor experience would be below or at the level of detection. The visitor would not likely be aware of the effects associated with the alternative.**
Minor	**Changes in visitor experience would be detectable, although the changes would be slight. Some visitors would be aware of the effects associated with the alternative, but the effects would be slight and not noticeable by most visitors.**
Moderate	**Changes in visitor experience would be readily apparent to most visitors. Visitors would be aware of the effects associated with the alternative and might express an opinion about the changes.**
Major	**Changes in visitor experience would be readily apparent to all visitors—severely adverse or exceptionally beneficial. Visitors would be aware of the effects associated with the alternative and would likely express a strong opinion about the changes.**

Impacts to visitor experience would be considered short term if the effects last only as long as the duration of the treatment action (i.e., repair or construction period). Impacts would be considered long term if the effects last longer than the duration of the treatment action.

Viewsheds and Lightscapes

Impacts were evaluated by comparing projected changes resulting from the proposed action to existing conditions or the no-action alternative, as appropriate. These evaluations were based on consideration of the NRA's fundamental resources and values, information about what contributes or detracts from lightscapes and night skies in and around the NRA, and professional experience. For purposes of analyzing potential impacts, the thresholds of change for the intensity of an impact are defined as follows:

Impact Intensity	Intensity Definition
Negligible	**The impact to viewsheds and lightscapes is at the lowest levels of detection, barely perceptible, and not measurable.**
Minor	**The impact to viewsheds and lightscapes would be noticeable, but would not alter the feeling, character, or setting associated with the views of or from the NRA.**
Moderate	**The impact to viewsheds and lightscapes would be more noticeable and may alter the feeling, character, or setting associated with the views of or from the NRA. Impacts can be adverse or beneficial.**
Major	**The impact to viewsheds and lightscapes would be readily apparent and would alter the feeling, character, or setting associated with the views of or from the NRA. Impacts can be adverse or beneficial.**

Direct Versus Indirect. The following definitions of direct and indirect impacts are considered:

> *Direct* – an effect that is caused by an action and occurs at the same time and in the same place.
>
> *Indirect* – an effect that is caused by an action that is later in time or farther removed in distance, but is still reasonably foreseeable.

Cumulative Effects. Council on Environmental Quality regulations, which implement NEPA, requires assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative effects can result from individually minor, but collectively significant, actions taking place over a period of time.

Cumulative impacts are considered for all alternatives and are presented at the end of each impact topic discussion analysis.

Projects that Make Up the Cumulative Impact Scenario. To determine potential cumulative impacts, projects within the project area and surrounding NRA were identified. Potential projects identified as cumulative actions included any planning or development activity that was completed, that is currently being implemented, or that would be implemented in the reasonably foreseeable future.

These cumulative actions are evaluated in the cumulative impact analysis in conjunction with the impacts of each alternative to determine if they would have any additive effects on a particular natural resource, cultural resource, visitor use and experience, or the socioeconomic environment. Because some of these cumulative actions are in the early planning stages, the evaluation of cumulative effects was based on a general description of the project.

A number of other projects ongoing in the NRA were discussed relative to cumulative impacts. These projects are listed below.

- The National Park Service recently invested $1 million in a new dock at the Oak Bottom marina (past).
- The National Park Service recently completed improvements to Oak Bottom beach including adding shade trees and other vegetation (past).
- The wastewater treatment plant constructed in 1970 needs to be replaced (future, earliest 2012).
- NPS management implementation – banning personal watercraft from the lake (which has been instituted), banning alcohol on beach (past, present).
- Road/gate closures (past) – one gate in the area of project will be placed on a short administrative road that leads to water storage tanks.

The National Park Service is considering an aquatic center for water sports and water safety at the Brandy Creek Marina, which would include a boathouse, boats, office, and multiuse/ meeting room. This possible project was considered, is not in planning, and was deemed to be too far into the future to be a viable project to be considered in the cumulative impacts assessment.

IMPAIRMENT OF WHISKEYTOWN NATIONAL RECREATION AREA OR VALUES

In addition to determining the environmental consequences of the preferred and other alternatives, NPS *Management Policies 2006* and Director's Order 12 require analysis of potential effects to determine if actions would impair NRA resources.

The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve NRA resources and values. NPS managers must always seek ways to avoid or minimize, to the greatest degree practicable, adverse impacts on NRA resources and values. However, the laws do give NPS management discretion to allow impacts to NRA resources and values when necessary and appropriate to fulfill the purposes of a national recreation area, as long as the impact does not constitute impairment of the affected resources and values. Although Congress has given NPS management discretion to allow certain impacts within national recreation areas, that discretion is limited by statutory requirements that the National Park Service must leave NRA resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of NRA resources or values, including opportunities that otherwise would be present for the enjoyment of those resources or values. An impact to any NRA resource or value may constitute impairment. However, an impact would more likely constitute impairment to the extent that it affects a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the NRA

- key to the natural or cultural integrity of the NRA or to opportunities for enjoyment of the NRA
- identified as a goal in the NRA general management plan or other relevant NPS planning documents

Impairment may result from NPS activities in managing the NRA, visitor activities, or activities undertaken by concessioners, contractors, and others operating in the NRA. An impairment determination is not made for visitor experience, socioeconomics, public health and safety, environmental justice, land use, and park operations because impairment findings relate back to park resources and values, and these impact areas are not generally considered to be park resources or values according to the Organic Act, and cannot be impaired in the same way that an action can impair park resources and values. In addition, an impairment determination is not made for topics dismissed from further analysis. Impairment determinations for the impacted topics are required for the preferred alternative (alternative D). An impairment determination has been prepared pursuant to interim guidance (July 6, 2010) and is in appendix D.

ENVIRONMENTAL CONSEQUENCES—ALTERNATIVE A: NO ACTION

Soils

Under the no-action alternative, Oak Bottom Campground would function as currently designed; there would be no development on the two Oak Bottom peninsulas, the northeast area, the RV parking lot (which would function as currently designed), or the Whiskeytown Lake boat-in, day use sites (the boat-in sites would retain day use status). The Maymen series soils that have developed from Devonian Copley Greenstone in recent times would remain protected by vegetation cover and leaf litter on the two peninsulas and northeast area and subject to natural erosion during precipitation events; would continue to be subject to day use, compaction, and accelerated erosion on the 17 designated Oak Bottom Campground shoreline campsites and 6 to 10 boat-in, day use sites due to current boater shoreline and day use access; would continue to be subject to campground use, compaction, and erosion on the Oak Bottom Campground site; and would be managed under the general management plan; therefore, there would be no change on approximately 29.5 acres under the no-action alternative, resulting in long-term negligible to minor adverse impacts to soils of the boat-in, day use sites and all Oak Bottom Campground sites.

Cumulative Impacts. The projects listed previously under the "Projects that Make Up the Cumulative Impact Scenario" section collectively have negligible long-term impacts on soils. The new dock at Oak Bottom Marina, prohibiting personal watercraft, and road closure and gate installation would have negligible impacts to soils. The alcohol ban at the beach would have no effect on soils. The no-action alternative would contribute a long-term negligible to minor adverse impact to overall cumulative impacts to soils within the NRA.

Conclusion. There would be no change under the no-action alternative that would result in continued long-term minor adverse impacts to soils of boat-in, day use sites and long-term, negligible impacts to soils of all Oak Bottom Campground sites under the no-action alternative. The no-action alternative would contribute to cumulative impacts to soils.

Vegetation

Vegetation types occurring on approximately 29.5 acres, including the existing Oak Bottom Campground, proposed two-peninsulas area, northeast area, and the Whiskeytown Lake boat-in, day use sites as proposed for this project include predominantly mixed pine – mixed oak – mixed chaparral woodland with moderate cover, whiteleaf manzanita chaparral with dense cover, narrow bands of shoreline emergent wetlands, and aquatic wetlands in shallow coves. The upland vegetation has become established on generally thin deposits of Maymen series soils; woody species are typically rooted into bedrock cracks. Under the no-action alternative, there would be no development at the two-peninsulas area, northeast area, Whiskeytown Lake boat-in, day use sites, or unvegetated RV parking lot sites. The vegetation that has become established would remain intact and subject to routine clearing for defensible space and to reduce fuels, firewood harvesting, harvesting to construct shelters, toppling by wind-throw and/or wave action (shoreline sites only), provide habitat for nonnative plant species, and would be managed under the GMP provisions for native and nonnative plant species.

In the existing Oak Bottom Campground, northeast area, and on boat-in, day use sites, woody vegetation has been used as a firewood source (cutting trees and shrubs, branch removal, less cover by woody litter, and stand thinning) resulting in short- and long-term, minor, adverse impacts to native vegetation. Campground development and use and cutting native vegetation for firewood exposes soils to erosion during precipitation events resulting in short- and long-term negligible to minor adverse impacts to soils. Wave action occasionally topples trees and shrubs along the shoreline and has resulted in sediment deposition that supports linear stands of emergent wetlands resulting in long-term negligible adverse impacts to native vegetation. Due in part to continued disturbance to soils of Oak Bottom Campground, annual nonnative plant species have become established in the woodland understory and along footpaths resulting in short- and long-term minor adverse impacts to native vegetation requiring management actions to control invasive species. Wetland communities established on sediment deposits along the shorelines and in the coves currently receive little impact from wave action, are typically avoided by boaters, and annually would be exposed up to six months as lake levels are lowered in the fall and winter seasons by the Bureau of Reclamation for runoff management, resulting in short- and long-term minor adverse impacts to shoreline stands (predominantly cattail) and cove-bottom patches (pondweed) of wetland vegetation.

Cumulative Impacts. The projects listed previously under the "Projects that Make Up the Cumulative Impact Scenario" section collectively have negligible long-term impacts on vegetation. The new dock at Oak Bottom Marina, prohibiting personal watercraft, and road closure and gate installation would have negligible impacts to vegetation. The alcohol ban at the beach would have no effects on vegetation. The no-action alternative would not contribute to overall cumulative impacts to vegetation.

Conclusion. There would be no change under the no-action alternative that would result in continued long-term negligible to minor adverse impacts to vegetation, including wetlands of Oak Bottom Campground, the northeast area, RV parking lot, and the boat-in, day use sites under the no-action alternative. The no-action alternative would contribute to cumulative impacts to vegetation.

Wildlife

Wildlife habitat types occurring on the existing Oak Bottom Campground, two-peninsulas area, northeast area, and Whiskeytown Lake boat-in, day use sites as proposed for this project includes upland, wetland, and aquatic habitat for vertebrate and invertebrate species. Uplands predominantly support mixed pine – mixed oak – mixed chaparral woodland with diverse structure and moderate cover, whiteleaf manzanita chaparral with uniform structure and dense cover, narrow bands of shoreline emergent wetlands with uniform structure and moderate cover, and aquatic wetlands with low to moderate cover within shallow coves. Each habitat may be used exclusively by wildlife species, or more typically, a variety of habitats are used by individual species within each species' home range. For example, open water and emergent wetlands provide habitat for species of fish, exclusively, but amphibian and reptile species may use both these habitats (breeding, egg-laying, larval development, foraging, escape cover) and adjacent upland habitats (foraging, escape cover, migration, hibernation). Under the no-action alternative, there would be no development at the two-peninsulas area, northeast area, Whiskeytown Lake boat-in, day use sites, or RV parking lot sites. The wildlife habitat that has become established would remain intact and subject to fire- and shelter-wood harvesting, toppling by wind-throw and/or wave action (shoreline sites only), altered by wildfires, and would be managed under the GMP provisions for wildlife species.

In the existing Oak Bottom Campground northeast area and on boat-in, day use sites, the woody vegetation has been altered somewhat, particularly in the understory, due to routine clearing by NRA staff for defensible space and to reduce fire fuels and for firewood and shelter-wood collecting by recreationists resulting in short- and long-term negligible to minor adverse impacts to wildlife habitat structure. Human presence is elevated during the months of May through September of each year, resulting in avoidance of these habitats by more sensitive wildlife species resulting in short- and long-term minor adverse impacts to wildlife species distribution. Some common and tolerant wildlife species are attracted to humans that entice them with food for close-up viewing and photographic opportunities resulting in short- and long-term negligible to minor adverse impacts to individual small mammal and bird species. Vehicle traffic on access and egress roads would result in collisions and/or crushing death of individual wildlife resulting in short- and long-term negligible to minor adverse impacts primarily to small mammals, reptiles, amphibians, and invertebrates. Wetland habitats established along the shoreline and in shallow coves would lose some wildlife habitat value for approximately six months due to exposure as lake levels are lowered in the fall and winter seasons by the Bureau of Reclamation for runoff management, resulting in short- and long-term minor adverse impacts to shoreline and shallow cove wildlife and fisheries habitat.

Cumulative Impacts. The projects listed previously under the "Projects that Make Up the Cumulative Impact Scenario" section collectively have negligible long-term impacts on wildlife. The new dock at Oak Bottom Marina, alcohol ban, prohibiting personal watercraft,

and road closure and gate installation would have negligible to minor beneficial impacts to wildlife. The no-action alternative would not contribute to overall cumulative impacts to wildlife species or habitats.

Conclusion. There would be no change under the no-action alternative that would result in continued long-term negligible to minor adverse impacts to wildlife species and habitats of Oak Bottom Campground, two-peninsulas area, the northeast area, RV parking lot, and boat-in, day use sites under the no-action alternative. The no-action alternative would contribute to cumulative impacts to wildlife species and vegetation as wildlife habitat.

Threatened and Endangered Species and Species of Special Concern

Threatened and endangered species and species of special concern may use an array of habitats on or adjacent to the Whiskeytown Lake shoreline; aquatic and emergent wetland plant species are associated only with mesic and inundated habitats. TES that are known to occur in NRA aquatic and wetland habitats of the boat-in, day use sites and potentially at Oak Bottom Campground shoreline campsites include Sanford's arrowhead and western pond turtle (for egg laying and hibernation this turtle also uses upland shrub and woodland habitats within about 300 m of the shoreline); TES species that may potentially occur in (elk sedge, fox sedge, and Nuttall's pondweed) or use wetland and aquatic habitats for foraging include the bald eagle, long-eared myotis bat, fringed myotis bat, Yuma myotis bat, and Pacific western big-eared bat. The McNab cypress occurs naturally within the NRA, but has been transplanted into the proposed project area only in vegetated islands at the RV parking lot site. Mixed pine – oak / whiteleaf manzanita forest, woodland, and shrubland habitats could support Sanborn's onion and breeding/nesting/roosting/foraging bald eagles, bat species, yellow warblers, olive-sided flycatchers, rufous hummingbirds, and California thrashers. The Pacific fisher is more associated with forest and woodland habitat, but could use all wetland and upland habitats within the NRA. Under the no-action alternative, there would be no development at the two-peninsulas areas, northeast area, Whiskeytown Lake boat-in, day use sites, or RV parking lot sites. The TES aquatic, wetland, and upland habitats and species that have become established on or otherwise use these sites would remain intact and subject to avoidance due to human presence, firewood and shelter wood harvesting, toppling by wind-throw and/or wave action, altered by prescribed burns or wildfires, and would be managed under the GMP provisions for TES species and habitat.

In the existing Oak Bottom Campground and on the boat-in, day use sites, human presence is elevated during the months of May through September of each year and avoidance of these habitats by more sensitive TES species occurs (e.g., foraging Pacific fishers, nesting and roosting bald eagles, and roosting bats), resulting in short- and long-term negligible impacts to mobile TES. Camping activities and fishing pressure at the existing campground and boat-in, day use sites would result in short- and long-term negligible to minor adverse impacts to western pond turtles seeking to bask at the shoreline, lay eggs, or hibernate on adjacent uplands, and/or that are inadvertently hooked by anglers or collected by recreationists. Wetland and aquatic communities established along the shoreline and in the shallow coves would lose some TES habitat value for approximately six months due to exposure as lake levels are lowered in the fall and winter seasons by the Bureau of Reclamation for runoff

management, resulting in short- and long-term minor adverse impacts to shoreline and shallow cove TES habitat.

Cumulative Impacts. The projects listed previously under the "Projects that Make Up the Cumulative Impact Scenario" section collectively have negligible long-term impacts on TES habitat. The new dock at Oak Bottom Marina, alcohol ban, prohibiting personal watercraft, and road closure and gate installation would have negligible beneficial impacts to TES habitat. The no-action alternative would not contribute to overall cumulative impacts to TES or their habitats.

Conclusion. There would be no change under the no-action alternative that would result in continued long-term minor adverse impacts to TES species and habitats of Oak Bottom Campground, two-peninsulas areas, the northeast area, and boat-in day use sites under the no-action alternative. The no-action alternative would not contribute to cumulative impacts to TES.

National Recreation Area Operations

The no-action alternative, alternative A, would not measurably change current NRA operations associated with Oak Bottom Campground. It is expected that law enforcement and emergency services staff would continue to respond to calls at current levels, maintenance staff would continue to service those Oak Bottom facilities not operated by the concessioner, resource management staff would continue limited monitoring and restoration activities, and interpretive staff would offer programs at the amphitheater.

Cumulative Impacts. The projects listed previously under the "Projects that Make Up the Cumulative Impact Scenario" section collectively have beneficial long-term impacts on NRA operations. The new dock at the Oak Bottom Marina and the improvements to Oak Bottom beach are positive developments that are currently being enjoyed by visitors. The alcohol ban at the beach and prohibiting personal watercraft require law enforcement efforts, but have significantly reduced arrests and injuries. The road closure and gate installation is a management activity that requires staff time, but ultimately would help to reduce resource damage or visitor conflicts.

Conclusion. Under the no-action alternative (alternative A), existing conditions at both the RV and tent campgrounds would continue, resulting in negligible long-term impacts to NRA operations.

Concession Operations

The no-action alternative (alternative A), would not measurably change current concession operations associated with Oak Bottom Campground. In addition to the campground, the concessioner manages the Oak Bottom Marina, the campground and marina stores, and a snack bar.

Cumulative Impacts. The projects listed previously under the "Projects that Make Up the Cumulative Impact Scenario" section collectively have beneficial long-term impacts on concession operations. The new dock at Oak Bottom Marina and the improvements to Oak Bottom beach are positive developments that are currently being enjoyed by visitors. The alcohol ban at the beach and prohibiting personal watercraft have reduced problems associated with those activities. The road closure and gate installation is a NPS management activities that has no direct impact on Oak Bottom Campground concessioner operations.

Conclusion. Under the no-action alternative (alternative A), existing conditions at the both the RV and tent campgrounds would continue, resulting in negligible long-term impacts to concession operations.

Archeological Resources

Oak Bottom Campground is open year-round and operated and maintained under contract with the concessioner, Forever Resorts. The tent campground contains 98 sites. The RV campground contains 22 asphaltic concrete-covered sites without shade or RV-designed amenities such as picnic tables, hookups, or fire grates. There is a nearby dump station and a potable water source. Tent camping is not allowed in the RV campground.

Under the no-action alternative, construction would not occur, but the fitness trail would continue to be used, which could result in additional inadvertent damage to the site. Overall, impacts would be long term negligible; although this site is not listed or eligible to be listed in the NRHP.

Cumulative Impacts. Past projects to improve the marina and beach area, banning personal watercraft from the lake, and banning alcohol from the beach have resulted in no adverse effects to archeological resources. Construction of a new wastewater treatment plant could result in minor adverse effects to archeological resources. Implementation of road closure and gate installation would be sited to avoid archeological sites have no effect to archeological resources. The no-action alternative would not contribute to cumulative impacts to NRHP-listed or eligible archeological resources because no sites exist in the area of potential effect. The no-action alternative would contribute a long-term negligible and adverse impact to site CA-SHA-272.

Conclusion. Under the no-action alternative, there would be negligible short- and long-term impacts to archeological sites. The no-action alternative would contribute a short- and long-term negligible cumulative impact.

Section 106 Summary. Under 36 CFR 800, *Protection of Historic and Cultural Properties*, an adverse effect occurs whenever an impact alters, directly or indirectly, any characteristic of a cultural resource that qualifies it for inclusion in the NRHP, e.g., diminishing the integrity (or the extent to which a resource retains its historic appearance or ability to provide information) of its location, design, setting, materials, workmanship, feeling, or association.

Under the no-action alternative, there would be no effect to site CA-SHA-272 associated with the construction expansion of the campground onto the peninsulas west of Oak Bottom

Campground. In accordance with 36 CFR 800.4(c), the National Park Service determined that the site was not eligible for listing in the NRHP and the California SHPO concurred with this determination on May 4, 2010. Therefore, the activities proposed in this alternative would have no adverse effect to archeological sites.

Visitor Use and Experience

The no-action alternative (alternative A), would not measurably change current visitor uses and experiences at Oak Bottom Campground. The RV campground would continue to offer few amenities and the sites in the tent campground would continue to be closely spaced, with little privacy, a high incidence of visitor conflicts, and frequent complaints. Health and safety hazards would be mitigated to the extent possible. Visitation levels would remain constant due to the popularity of the tent campground and the record of occupancy.

Cumulative Impacts. The projects listed previously under the "Projects that Make Up the Cumulative Impact Scenario" section would have beneficial long-term impacts on visitor use and experience. The new dock at Oak Bottom Marina and the improvements to Oak Bottom beach are positive developments that are currently being enjoyed by visitors. The alcohol ban at the beach and prohibiting personal watercraft have improved the experience for the majority of NRA visitors. The road closure and gate installation is a manage activity that would not have direct visitor use and experience impacts on this proposed project.

Conclusion. Under the no-action alternative (alternative A), existing conditions at both the RV and tent campgrounds would continue, resulting in negligible long-term impacts to visitor use (since the campgrounds tend to fill regularly in the summer), and moderate adverse long-term impacts to visitor enjoyment from crowding, noise, litter, and other activities that detract from a positive camping experience.

Viewsheds and Lightscapes

The views around the campground are those of development within a diversely wooded environment. Views within the campground are not expansive due to the vegetation and topography; however, the overall appearance of Oak Bottom Campground and recreational facilities are of a developed area highly impacted by use. Much of the ground within the campground is trodden and exposed; the removed understory exposes campsites to each other and affords little privacy. Although in some areas dense vegetation and topography offer some privacy from other activities. Views from the lakeshore are more expansive and are of the lake and surrounding forested mountains.

Views of the campground are generally from boaters on the lake or hikers on opposite shores or hiking trails. Boaters represent the largest number of viewers of the campground. Views of the campground from the lake comprise small areas of exposed shoreline and areas cleared of vegetation, trees, and shrubs, and some aquatic vegetation, and campsites that are exposed due to loss of vegetative cover. Portions of the historic Water Ditch Trail are adjacent to the lake, the marina, day-use area, and portions of the campground are visible from specific vantage points on the water.

Current illumination at Oak Bottom Campground includes low-level lighting around comfort stations in the campground, the marina, store, and fire station, and overhead lighting at the two parking lots. The lights in the parking lots are shielded and downward directed. The lighting is for safety purposes for campers using the facilities and for security. Other sources of light come from individual campsites such as lanterns, flashlights, and fires. Light sources along the water are reflected, creating a doubling of the light source. External light sources emanate primarily from the city of Redding and traffic along State Highway 299.

The light sources would be visible within the campground and from external vantage points along the shoreline, parts of the backcountry, and during moonlight kayak tours. Most permanent light sources are screened or partially screened by the topography and vegetation around the campground, with the exception of the swim beach, marina, and boat ramps. Under the no-action alternative, no additional lighting would be installed unless it becomes necessary for security or safety reasons. The city of Redding is anticipated to grow and additional effects to night skies in the area would be anticipated.

The no-action alternative would result in a long-term minor and adverse effect on viewsheds and lightscapes (night skies).

Cumulative Impacts. The projects listed previously under the "Projects that Make Up the Cumulative Impact Scenario" section would have no to negligible long-term impacts on viewsheds and lightscapes. The new dock at Oak Bottom Marina, improvements to Oak Bottom beach would have negligible long-term impacts. The alcohol ban at the beach, prohibiting personal watercraft and road closure and gate installation would not have direct impacts on viewsheds and lightscapes. The no-action alternative would contribute long-term negligible impacts to cumulative impacts.

Conclusion. The no-action alternative would result in a long-term minor and adverse effect on viewsheds and lightscapes. The no-action alternative would make a long-term negligible contribution to cumulative impacts.

ENVIRONMENTAL CONSEQUENCES—ALTERNATIVE B: EXPANSION OF CAMPGROUND TO THE WEST

Soils

Under alternative B, the two Oak Bottom peninsulas would be developed primarily to support drive-in tent camping, the Oak Bottom Campground (including 14 shoreline campsites) would be redesigned primarily to support RV camping, and the RV parking lot would be redesigned to provide shade and privacy. Post-development soils of the approximately 49-acre area would be managed under the provisions of the General Management Plan. The Maymen series soils that have developed from Devonian Copley Greenstone in recent times on the two peninsulas would be cleared of vegetation and litter and exposed on approximately 50% of the site; these soils would be leveled, some bedrock removed to allow placement of road base and an asphalt overlay, trenched to install underground utilities (e.g., water, power, and sewerlines, etc.) and

compacted on individual campsites resulting in long-term minor adverse impacts to soil structure. Excess soils would be stockpiled for revegetation and reclamation of selected Oak Bottom Campground areas resulting in long-term negligible beneficial impacts to soils so distributed. Exposing, redistributing, and stockpiling excess soils would result in short-term minor adverse impacts due to soil displacement and erosion during natural precipitation events.

Redesign of the existing Oak Bottom Campground would provide RV use for selected campsites and would include site leveling, some bedrock and soil removal, trenching for new underground utility installation and existing utility relocation or removal, and covering over by road base and an asphalt overlay of approximately 33% of the site, resulting in long-term negligible to minor adverse impacts to soils that have been exposed and compacted by campers over several decades. Excess soils from all construction areas would be stockpiled and used for revegetation and reclamation of selected existing campsites on high-density areas in Oak Bottom Campground; these sites would be abandoned to provide buffer areas and wildlife habitat, resulting in short- and long-term negligible beneficial impacts to the Oak Bottom Campground site due to restoration and revegetation of presently used campsites. Reconstruction of the current RV parking lot would expose soils that are covered by an asphalt overlay and allow revegetation to support shade and privacy elements for the site, resulting in an impact to site soils that would be long term negligible and beneficial.

Cumulative Impacts. The projects listed previously under the "Projects that Make Up the Cumulative Impact Scenario" section collectively have negligible adverse and beneficial long-term impacts on soils. The new dock at Oak Bottom Marina, prohibiting personal watercraft and road closure and gate installation would have negligible impacts to soils. The alcohol ban at the beach would have no effects on soils. Alternative B would contribute a long-term negligible impact to overall cumulative impacts to soils within the NRA.

Conclusion. There would be long-term negligible impacts to soils of Oak Bottom Campground, the two-peninsulas area, and the RV parking lot under this alternative. Additionally, alternative B would contribute to cumulative impacts to soils within the NRA.

Vegetation

Affected plant communities and sites would be those described under alternative A. Under alternative B, the entire affected area would encompass approximately 49 acres; post-development vegetation types, including wetlands and reclaimed upland sites, would be managed under the provisions of the general management plan. The upland woodland and shrubland vegetation types that have become established on the two-peninsula sites would be cleared on approximately 33% of the site resulting in short- and long-term minor adverse impacts to mixed woodland and shrubland communities due to loss of cover, structure, and vegetation diversity from a regionally common plant community within the NRA. Excess soil, small rocks, and associated seed bank would be stockpiled for revegetation and reclamation of Oak Bottom Campground sites to be abandoned, resulting in long-term negligible to beneficial impacts due to site restoration using native plant species. Selected trees and shrubs may be transplanted to abandoned Oak Bottom Campground and the RV parking lot sites resulting in

short- and long-term negligible to beneficial impacts due to campsite and parking lot rehabilitation to a structured, native vegetation type.

Wetland vegetation that has become established on the shoreline near campsite locations in Oak Bottom Campground and along the two-peninsula sites would be avoided through site design (including buffering the shoreline by 30 ft) resulting in short- and long-term negligible impacts on emergent wetlands characterized by cattail. Nonnative plant species currently present would invade the newly disturbed sites and require management prescriptions for control or elimination, resulting in long-term negligible to minor adverse impacts.

Cumulative Impacts. The projects listed previously under the "Projects that Make Up the Cumulative Impact Scenario" section collectively have negligible long-term impacts on vegetation. The new dock at Oak Bottom Marina, prohibiting personal watercraft and road closure and gate installation would have negligible impacts to vegetation. The alcohol ban at the beach would have no effects on vegetation. Alternative B would contribute long-term negligible impacts to overall cumulative impacts to vegetation within the NRA.

Conclusion. There would be long-term negligible to minor beneficial and adverse impacts to upland vegetation types of Oak Bottom Campground, two-peninsulas area, and the RV parking lot sites, and to shoreline emergent wetlands under this alternative. Additionally, alternative B would contribute to cumulative impacts to vegetation within the NRA.

Wildlife

Affected wildlife species and habitats would be those described under alternative A. Under alternative B, the entire affected area would encompass approximately 49 acres and post-development wildlife habitat, including wetlands, undisturbed buffer habitat, and reclaimed upland sites, would be managed under the provisions of the general management Plan. The upland woodland and shrubland habitats that have become established on the two-peninsulas area would be cleared of vegetation cover on approximately 33% of the sites, resulting in short- and long-term minor adverse impacts to wildlife habitat and resident avian and mammal species due to loss of cover, structure, and vegetation diversity from a regionally common habitat within the NRA. Clearing vegetation would cause the deaths of small mammals and other burrow-dwelling wildlife species directly by crushing and suffocation and indirect impacts due to dispersal and stress resulting in short-term negligible to minor adverse wildlife impacts. Revegetation and reclamation of Oak Bottom Campground sites to be abandoned and the RV parking lot area would provide additional shrubland and woodland wildlife habitat following restoration resulting in long-term negligible to beneficial impacts due to wildlife habitat reintroduction primarily supporting avian species. Introduction of paved roads would increase the chance of vehicle collisions with wildlife (primarily small mammals, reptiles, amphibians, and insects) resulting in short- and long-term negligible to minor adverse impacts.

Emergent wetland habitat that has become established near the shoreline campsite locations would be avoided through campsite design and applying a 30 ft upland vegetation buffer resulting in short- and long-term negligible impacts on narrow emergent wetland stands used by fish, reptile, and amphibian wildlife, primarily. Human presence is elevated during the months of May through September of each year resulting in avoidance of habitats in or near

developed sites by more sensitive wildlife species resulting in short- and long-term minor adverse impacts to wildlife species distribution. Some common and tolerant wildlife species are attracted to humans that entice them with food for close-up viewing and photography opportunities resulting in short- and long-term negligible to minor adverse impacts to individual small mammal and bird species.

Cumulative Impacts. The projects listed previously under the "Projects that Make Up the Cumulative Impact Scenario" section collectively have negligible long-term impacts on wildlife. The new dock at Oak Bottom Marina, alcohol ban, prohibiting personal watercraft and road closure and gate installation would have negligible to beneficial impacts to wildlife. Alternative B would contribute long-term negligible impacts to overall cumulative impacts to wildlife within the NRA.

Conclusion. There would be long-term minor beneficial and adverse impacts to upland and emergent wetland wildlife habitat of the Oak Bottom Campground, two-peninsula areas, and RV parking lot sites under this alternative. Additionally, alternative B would contribute to cumulative impacts to wildlife habitat within the NRA.

Threatened and Endangered Species and Species of Special Concern

Affected TES plant and wildlife species and habitats would be those described under alternative A. Under alternative B, the entire affected area would encompass approximately 49 acres and post-development TES emergent wetland and upland shrubland, woodland, and forested habitats would be managed under the provisions of the general management plan. Emergent wetland potential habitat for Sanford's arrowhead and for potentially occurring elk and fox sedge and Nuttall's pondweed would receive short- and long-term negligible to beneficial impacts due to buffering from campgrounds by 30 ft of upland vegetation and adverse impacts due to the development of floating docks. The western pond turtle may use new docks for basking, but access to the shoreline and adjacent upland vegetation for egg laying and hibernation activities would be reduced at campsites, resulting in short- and long-term negligible to minor adverse impacts due to human presence, potential destruction of nest and hibernation sites, and the potential for inadvertent harassment or illegal collecting.

The upland woodland and shrubland habitats used by TES would be altered to support recreation use in the vicinity of the shoreline and increased human presence resulting in short- and long-term minor adverse impacts to TES that would avoid the area (e.g., bald eagles) and potential roosting habitat for bats (stumps, tree bark, etc.), nesting sites for rare birds (yellow warbler, olive-sided flycatcher, rufous hummingbird, California thrasher, etc.), and foraging sites for all vertebrate TES including the Pacific fisher. Habitat reclaimed on abandoned Oak Bottom Campground and RV parking lot sites would result in long-term negligible impacts to TES, primarily passerine bird species.

Cumulative Impacts. The projects listed previously under the "Projects that Make Up the Cumulative Impact Scenario" section collectively have negligible long-term impacts on TES habitat. The new dock at Oak Bottom Marina, alcohol ban, prohibiting personal watercraft and road closure and gate installation would have negligible to beneficial impacts to TES

habitat. Alternative B would contribute to overall cumulative impacts to TES habitat within the NRA.

Conclusion. There would be short- and long-term negligible to minor adverse impacts to upland TES habitat of Oak Bottom Campground, two-peninsulas area, and RV parking lot campsites and to shoreline emergent wetland TES habitat under this alternative. Additionally, alternative B would contribute to cumulative impacts to TES habitat within the NRA.

National Recreation Area Operations

Under alternative B, there would be major changes to Oak Bottom Campground. The capacity of the current RV campground would be reduced in half and the spaces separated by shade trees, picnic tables, and fire grates. The existing tent campground area would be redesigned for RV use, with several boat-in campsites with floating docks. The newly developed peninsulas to the west would provide drive-in campsites, primarily used for tent camping. Vehicular access, including new entrances, would be improved, as well as circulation and the availability of parking. New restrooms and showers would be much closer (the existing showers are at the beach area). A new, larger campground store would be built and the existing amphitheater would be moved to a site nearer the campground. Each new campsite would include a picnic table, tent or RV site, grill, and a bear-proof storage unit. Improved and additional walkways, paths, and lighting would be developed throughout the camping areas. A 30 ft buffer around the Whiskeytown Lake shoreline and the historic Water Ditch Trail would be delineated and fenced, if necessary.

Impacts to law enforcement and emergency services operations would be beneficial and long term. Problems associated with overcrowding would be reduced and the new developments would be more attractive to families, also reducing the likelihood of partying and loud noise.

Impacts to maintenance operations would be negligible and long term. Since most of the facilities would be operated by the concessioner, little change is expected. If, however, increased RV use results in significant increases in water and sewer use, there could be moderate adverse long-term impacts on the water and sewer operation. Potential changes in use of the historic Water Ditch Trail may result in greater maintenance activities.

Impacts to resource management would be minor and long term. Once the project is completed and the site restored, additional restoration activities should be minor.

Impacts to interpretive staff would be beneficial and long term. With the likely change to more family groups, there would be more demand and appreciation for amphitheater talks and other forms of interpretation.

Cumulative Impacts. Alternative B, when added to the projects listed previously under the "Projects that Make Up the Cumulative Impact Scenario" section would have minor beneficial long-term impacts on NRA operations. The new dock at Oak Bottom Marina and the improvements to Oak Bottom beach are positive developments that are currently being enjoyed by visitors. The alcohol ban at the beach and prohibiting personal watercraft require law enforcement efforts, but have significantly reduced arrests and injuries. The road closure

and gate installation is a management activity that requires NRA staff time but ultimately would help to reduce resource damage or visitor conflicts.

Conclusion. Impacts to law enforcement and emergency services operations would be minor beneficial and long term. Problems associated with overcrowding would be reduced and the new developments would be more attractive to families, lessening the likelihood of partying and loud noise and resulting in less law enforcement actions. Impacts to maintenance operations would be negligible beneficial and long term. Since most of the facilities would be operated by the concessioner, little change is expected. If increased RV use results in important increases in water and sewer use, there could be moderate adverse long-term impacts on NRA water and sewer operation, which serves both concession and NRA facilities. Potential changes in use of the historic Water Ditch Trail may result in greater maintenance activities. Impacts to resource management would be minor beneficial and long term. Once the project is completed and the site restored, additional restoration activities should be minor. Impacts to interpretive staff would be minor beneficial and long term. With the likely change to more family groups, there would be more demand and appreciation for amphitheater talks and other forms of interpretation.

Concession Operations

Under alternative B, there would be major changes to the Oak Bottom Campground. The capacity of the current RV campground would be reduced by half and the spaces separated by shade trees, picnic tables, and fire grates. The existing tent campground area would be redesigned for RV use, with several boat-in campsites with floating docks. The newly developed peninsulas to the west would provide drive-in campsites, primarily used for tent camping. Vehicular access, including new entrances, would be improved, as well as circulation and parking availability. New restrooms and showers would be much closer (the existing showers are at the beach area). A new, larger campground store would be built and the existing amphitheater would be moved to a site nearer the campground. Each new campsite would include a picnic table, tent or RV site, grill, and a bear-proof storage unit. Improved and additional walkways, paths, and lighting would be developed throughout the camping areas. A 30 ft buffer around Whiskeytown Lake shoreline and the historic Water Ditch Trail would be delineated and fenced, if necessary.

Impacts to concession operations during construction would be moderate adverse and short term. It is expected that the new tent camping areas to the west would be constructed before reconstruction of the existing campground. Transformation of the existing walk-in campground (100 sites) into an RV campground with 14 boat-in sites (64 sites total), could result in a loss of campsites during the construction period, but would be offset by phasing construction over three to four years so that the number of campsites available would be maintained at a constant level. It is expected, however, that some problems with campsite availability would occur. Construction noise and traffic would affect some visitor experiences, causing concession staff to receive the brunt of complaints.

Once the project is complete, impacts to concession operations would be expected to be beneficial and long term. Costs would be higher due to increased electrical, water, and sewer needs and maintenance of modern facilities. However, along with the higher costs would come

higher revenues. The $14 current daily charge for RVs could be increased to as much as $35 once all facilities are constructed (NPS 2010). Problems associated with overcrowding would be reduced and the new developments would be more attractive to families, also lessening the likelihood of destructive partying and loud noise.

Cumulative Impacts. The projects listed previously under the "Projects that Make Up the Cumulative Impact Scenario" section collectively have beneficial long-term impacts on concession operations. The new dock at Oak Bottom Marina and the improvements to Oak Bottom beach are positive developments that are currently being enjoyed by visitors. The alcohol ban at the beach and prohibiting personal watercraft have reduced problems associated with those activities. The road closure and gate installation is a NPS management activity that has no direct impact on Oak Bottom Campground concession operations.

Conclusion. Impacts to concession operations during construction would be moderate adverse and short term due to problems with campsite availability. Construction noise and traffic would affect some visitor experience, causing concession staff to receive the brunt of complaints. Once the project was complete, impacts to concession operations would be expected to be beneficial and long term. Operating costs would be higher, but so would revenue. Problems associated with overcrowding would be reduced and the new developments would be more attractive to families, also lessening the likelihood of destructive partying and loud noise.

Archeological Resources

Under alternative B, the existing campground would be expanded onto two undeveloped peninsulas adjacent to and west of the existing campground, the addition of several new facilities, and the improvement of others within the existing campground. The activities associated with alternative B would have an impact on archeological resources associated with site CA-SHA -272 by disturbance to surface and subsurface features. This site contains a diffused, sparse lithic scatter, which has been previously disturbed by construction of a fitness trail between 1977 and 1986, which bisects the site, and possibly by visitor collection. The site remains a high traffic area that has been damaged beyond repair. As a result, the site was determined ineligible for inclusion in the NRHP; thus, alternative B would have a negligible impact to site CA-SHA-272.

The Oak Bottom Campground expansion would be immediately adjacent to site CA-SHA-2165H / historic Water Ditch Trail, a NRHP-eligible historic water ditch built in 1855. A 30 ft buffer would be maintained around the trail to prevent direct impacts to the archeological resource. However, the trail would likely see increased use by campers accessing other areas of the campground, the marina, and the boat ramp. With alternative B, there would be no adverse impacts to listed or eligible properties; therefore, the effect to site CA-SHA-2165H would be long term minor and adverse.

Cumulative Impacts. Past projects to improve the marina and beach area, banning personal watercraft from the lake, and banning alcohol from the beach have resulted in no adverse effects to archeological resources. Construction of a new wastewater treatment plant could result in minor adverse effects to archeological resources. Implementation of road closure and

gate installation would be sited to avoid archeological sites and have no effect to archeological resources. Alternative B would not contribute to cumulative impacts to NRHP-listed or eligible archeological resources because no sites exist in the area of potential effect. Alternative B would contribute long-term negligible impacts and long-term minor adverse impacts to archeological resources at Whiskeytown NRA.

Conclusion. Archeological site CA-SHA-272 would be damaged by construction activities resulting in local long-term negligible impacts. The cumulative impact of past, present, and reasonably foreseeable future actions would be long term minor and adverse, and negligible and beneficial. Alternative B would not contribute to cumulative impacts to NRHP-listed or eligible resources of past, present, and reasonably foreseeable future actions. Alternative B would contribute a negligible impact, and a long-term, minor adverse impact.

Section 106 Summary. Under 36 CFR 800, *Protection of Historic and Cultural Properties*, an adverse effect occurs whenever an impact alters, directly or indirectly, any characteristic of a cultural resource that qualifies it for inclusion in the NRHP, e.g., diminishing the integrity (or the extent to which a resource retains its historic appearance or ability to provide information) of its location, design, setting, materials, workmanship, feeling, or association.

Under alternative B, there would be effects to site CA-SHA-272 associated with the construction expansion of the campground onto the peninsulas west of Oak Bottom Campground. In accordance with 36 CFR 800.4(c), the National Park Service determined that the site was not eligible for listing in the NRHP, with concurrence of the California SHPO on May 4, 2010. There would be no adverse effect to site CA-SHA-2165H associated with the construction expansion of the campground onto the peninsulas west of Oak Bottom Campground. In accordance with 36 CFR 800 (5), the National Park Service determined that there would be no adverse effect to site CA-SHA-2165H with concurrence of the California SHPO on May 4, 2010. Therefore, the activities proposed in this alternative would have no adverse effect to archeological sites.

Visitor Use and Experience

Under alternative B, there would be major changes to the campground. The capacity of the current RV campground would be reduced in half and the spaces separated by shade trees, picnic tables, and fire grates. The existing tent campground area would be redesigned for RV use, with several boat-in campsites with floating docks. The newly developed peninsulas to the west would provide drive-in campsites primarily used for tent camping. Vehicular access, including new entrances, would be improved, as well as circulation and the availability of parking. New restrooms and showers would be much closer to the campground (the existing showers are at the beach area). A new, larger campground store would be built, providing convenience to visitors; the existing amphitheater would be moved to a site nearer the campground. Each new campsite would include a picnic table, tent or RV site, grill, and a bear-proof storage unit. Improved and additional walkways, paths, and lighting would be developed throughout the camping areas. A 30 ft buffer around the Whiskeytown Lake shoreline and the historic Water Ditch Trail would be delineated and fenced, if necessary.

It is expected that the new tent camping areas to the west would be constructed before reconstruction of the existing campground. Transformation of the existing walk-in campground (100 sites) into an RV campground with 14 boat-in sites (64 sites total), could result in a loss of campsites during the construction period, but would be offset by phasing construction over three to four years so that the number of campsites available would be maintained at a constant level. It is expected, however, that some problems with campsite availability would occur, resulting in minor adverse short-term impacts. Construction noise and traffic would affect some visitors' experience, causing minor adverse short-term impacts.

Alternative B would transform the existing RV parking area and rustic tent campground into a modern campground. With the new amenities in place, there would be negligible long-term impacts to visitor use levels. Impacts to those visitors seeking a walk-in, more rustic experience would be moderate adverse and long-term. Conversely, the addition of modern amenities would provide beneficial long-term impacts to many users of this area by making their experience much more pleasant. Overcrowding would be reduced, along with many of the problems associated with the current tent campground. There could be minor adverse and long-term impacts on the historic Water Ditch Trail, adjacent the new tent campground, by nearby camping developments and activities including campers seeking access to the lake by crossing the trail. There also would be moderate adverse short-term impacts to trail users during campground construction due to construction noise, disturbed land, and the presence of heavy equipment.

The camping fee increases for the campground would result in minor to moderate adverse short- and long-term impacts, particularly for the residents of the city of Redding, which make up about 50% of NRA visitation.

There would be negligible long-term impacts to visitor health and safety. Hazards would continue to be mitigated as needed and, with improved pedestrian and vehicular circulation, better lighting, more privacy, and modern developments, many potential hazards would be eliminated.

Cumulative Impacts. Alternative B, when added to the impacts of the projects and activities considered in the "Projects that Make Up the Cumulative Impact Scenario" section would have beneficial long-term impacts on visitor use and experience. The new dock at Oak Bottom Marina and improvements to the Oak Bottom beach are positive developments that are currently being enjoyed by visitors. The alcohol ban at the beach and prohibiting personal watercraft have improved the experience for a majority of NRA visitors. The road closure and gate installation is a management activity that does not have direct visitor use and experience impacts on this project.

Conclusion. Under alternative B, there could be a loss of campsites during the construction period; a minor adverse short-term impact for those seeking a campsite during the busy summer season. With the new campground amenities in place, there would be negligible long-term impacts to visitor use levels. Impacts to those visitors seeking a walk-in, more rustic experience would be moderate adverse and long-term. Conversely, the addition of modern amenities would provide beneficial long-term impacts to many users of this area by making their experience much more pleasant. There may be minor adverse and long-term impacts to the historic Water Ditch Trail, adjacent the new tent campground, by nearby camping

developments and activities including campers seeking access to the lake by crossing the trail. There also would be moderate adverse short-term impacts to trail users during campground construction due to construction noise, disturbed land, and heavy equipment. There would be minor to moderate adverse short- and long-term impacts to visitors related to increased costs and negligible long-term impacts to visitor health and safety.

Viewsheds and Lightscapes

Alternative B would expand the campground onto adjacent land and reduce the density of the existing campground. During the construction period there would be effects due to the presence of construction equipment, but these effects would be short term. After construction is complete, revegetation would occur in the existing campground. These actions would have a short-term minor adverse, and long-term beneficial effect on viewsheds.

Under alternative B, construction activities would only occur during the day. The project area currently has lighting for the parking lots and marina. Additional lighting would be added to the expanded portion of the campground, but this would be minimal and include lighting around the new comfort station and within the campground for safety. The proposed new buildings would have lighting, which would be offset by the removal of the old buildings and lighting. The new lighting around the facilities and within the campground would be downcast and added only minimally to improve safety. The proposed design would include the use of compact fluorescent and LED low-wattage light bulbs, where possible, and would not use incandescent or mercury vapor lighting (see the "Mitigation Measures" section). New lighting would be introduced on the peninsulas and could be seen from other vantage points on and around the lake. However, with down-lighting, vegetation screening, and by lowering the density of the campground (even though the area with lighting would expand), the intensity would be reduced. This would affect moonlight kayaking, depending on the route. The area surrounding the project has numerous other sources of light including the city of Redding, which is anticipated to grow, thus, additional effects to night skies in the area would be anticipated. The effects of the proposed project to lightscapes with mitigation would be long term adverse and negligible to minor.

Cumulative Impacts. The projects listed previously under the "Projects that Make Up the Cumulative Impact Scenario" section would have no to negligible long-term impacts on lightscapes and night skies. The new dock at Oak Bottom marina and the improvements to Oak Bottom beach would have negligible long-term impacts. The alcohol ban at the beach, prohibiting personal watercraft and road closure and gate installation would not have direct impacts on viewsheds and lightscapes. Alternative B would contribute long-term negligible impacts to cumulative impacts.

Conclusion. Alternative B would result in short-term minor adverse, and long-term beneficial effects on viewsheds; and long-term negligible to minor and adverse effect on lightscapes. This alternative would make a long-term negligible contribution to cumulative impacts.

ENVIRONMENTAL CONSEQUENCES—ALTERNATIVE C: EXPAND OAK BOTTOM CAMPGROUND ON TWO PENINSULAS AND DEVELOP THE NORTHEAST AREA

Soils

Under alternative C, development would include sites described under alternative B, in addition to the northeast area, which would be developed to support walk-in tent camping. Post-development soils of the approximately 53-acre area would be managed under provisions of the general management plan. Impacts to the Maymen series soils and Devonian Copley Greenstone geologic exposures would be the same as described under alternative B for the existing Oak Bottom Campground, on the adjacent two-peninsula sites, and in the RV parking lot. The northeast area occupies approximately 4 acres of well-vegetated, moderately steep slopes with good soil development between the current boat launch ramp and marina and the existing Oak Bottom Campground.

The thin to moderately deep soils of the northeast area would be cleared of vegetation and litter and exposed on approximately 50% of the site; these soils would be leveled and some bedrock removed to allow placement of natural surface material to access walk-in tent sites, resulting in long-term minor adverse impacts due to soil displacement, covering, and compaction. Excess soils from the northeast area would be stockpiled and used for revegetation and reclamation of selected Oak Bottom Campground and RV parking lot sites, resulting in long-term beneficial impacts. Exposed soils would erode during precipitation events resulting in short-term minor adverse impacts.

Cumulative Impacts. The projects listed previously under the "Projects that Make Up the Cumulative Impact Scenario" section collectively have negligible long-term impacts on soils. The new dock at Oak Bottom Marina, prohibiting personal watercraft and road closure and gate installation would have negligible impacts to soils. The alcohol ban at the beach would have no effects on soils. Alternative C would contribute long-term negligible impacts to overall cumulative impacts to soils within the NRA.

Conclusion. There would be long-term negligible to beneficial and adverse impacts to soils of Oak Bottom Campground, the two-peninsulas site, and the north area walk-in developed site under alternative C. Alternative C would contribute to cumulative impacts to soils within the NRA.

Vegetation

Affected plant communities and sites would be those described under alternative A. Under alternative C, the entire affected area would encompass approximately 53 acres and post-development vegetation types, including wetlands, would be managed under provisions of the general management plan. Impacts to the extant vegetation types, including wetlands, would be the same as described under alternative B for Oak Bottom Campground, the adjacent two-peninsulas, and the RV parking lot sites (in addition to the northeast area), which occupies approximately 4 acres of moderately dense to dense mixed pine – mixed oak woodland

established on gentle to moderately steep slopes between the current boat launch ramp and marina and the existing Oak Bottom Campground.

The upland woodland and shrubland vegetation types that have become established in the northeast area would be cleared of vegetation and soils/bedrock exposed on approximately 50% of the site. The site topography would be reduced to level or gentle slopes and some bedrock removed to allow placement of natural surface material to access walk-in tent sites, resulting in short- and long-term minor adverse impacts to a regionally common vegetation type due to loss of cover, structure, and vegetation diversity. Excess soil, small rocks, and associated seed bank would be stockpiled for revegetation and reclamation of Oak Bottom Campground and RV parking lot sites resulting in a long-term negligible impact due to site restoration using native plant species. Selected trees and shrubs may be transplanted to abandoned Oak Bottom Campground and RV parking lot sites resulting in short- and long-term negligible impacts due to site rehabilitation to a more native vegetation type. Nonnative plant species currently present would invade the newly disturbed sites and require management prescriptions for control or elimination resulting in long-term negligible to minor adverse impacts.

Cumulative Impacts. The projects listed previously under the "Projects that Make Up the Cumulative Impact Scenario" section collectively have negligible long-term impacts on vegetation. The new dock at Oak Bottom Marina, prohibiting personal watercraft and road closure and gate installation would have negligible impacts to vegetation. The alcohol ban at the beach would have no effects on vegetation. Alternative C would contribute long-term negligible impacts to overall cumulative impacts to vegetation within the NRA.

Conclusion. There would be long-term negligible to minor adverse impacts to upland vegetation types of Oak Bottom Campground, two-peninsulas area, and the northeast area; to limited patches of shoreline emergent wetlands; and to the rehabilitated RV parking lot under this alternative. Additionally, alternative C would contribute to cumulative impacts to vegetation within the NRA.

Wildlife

Affected wildlife species and habitats would be those described under alternative A. Under alternative C, the entire affected area would encompass approximately 53 acres and post-development wildlife habitats would be managed under provisions of the general management plan. Impacts to the available wildlife habitat and species would be the same as described under alternative B for Oak Bottom Campground, the adjacent two-peninsulas sites, and the RV parking lot. The northeast area occupies approximately 4 acres of moderately dense to dense mixed pine – mixed oak woodland wildlife habitat between the current boat launch ramp and marina and the existing Oak Bottom Campground.

The upland woodland and shrubland wildlife habitats that have become established on approximately 50% of the northeast area would be cleared to provide access to and walk-in tent campsites resulting in short- and long-term minor adverse impacts to a regionally common wildlife habitat due to loss of cover and structure. Clearing vegetation would cause the deaths of small mammals and other burrow-dwelling wildlife species, directly by crushing

and suffocation and indirectly due to dispersal and stress resulting in short-term negligible to minor adverse wildlife impacts. Mobile species, including turkey vultures that use this area to roost, would relocate to other areas and roosts within and adjacent to the NRA, resulting in short- and long-term negligible impacts due to habitat loss. Sensitive species would avoid the area during the May to September high-use season resulting in short- and long-term negligible to minor adverse impacts due to human presence. Some common and tolerant wildlife species would be attracted to humans who would entice them with food for close-up viewing and photographic opportunities resulting in short- and long-term negligible to minor adverse impacts to individual small mammal and bird species. Wildlife habitat potentially restored at Oak Bottom Campground and the RV parking lot sites potentially using transplants and the soil seed bank from the northeast area would result in short- and long-term negligible to beneficial impacts due to reintroduction of native wildlife habitat.

Cumulative Impacts. The projects listed previously under the "Projects that Make Up the Cumulative Impact Scenario" section collectively have negligible long-term impacts on wildlife. The new dock at Oak Bottom Marina, alcohol ban, prohibiting personal watercraft and road closure and gate installation would have negligible to beneficial impacts to wildlife. Alternative C would contribute short- and long-term negligible to minor adverse and beneficial impacts to overall cumulative impacts to wildlife within the NRA.

Conclusion. There would be long-term negligible to minor adverse impacts to upland wildlife habitat of Oak Bottom Campground, two-peninsulas area, RV parking lot, and the northeast area and to limited patches of shoreline emergent wetlands under this alternative. Additionally, alternative C would contribute to cumulative impacts to wildlife habitat within the NRA.

Threatened and Endangered Species and Species of Special Concern

Affected TES plant and wildlife species and habitats would be those described under alternative A. Under alternative C, the entire affected area would encompass approximately 53 acres, and post-development TES aquatic, wetland, and upland shrubland, woodland, and forested habitats would be managed under provisions of the general management plan. Impacts to the available TES habitat would be the same as described under alternative B for Oak Bottom Campground, the adjacent two-peninsulas sites, and the RV parking lot. The northeast area supports moderately dense to dense mixed pine – mixed oak woodland TES habitat between the current boat launch ramp and marina and the existing Oak Bottom Campground. The upland woodland and shrubland habitats used by TES would be altered to support recreation use in the vicinity of the shoreline and increased human presence resulting in short- and long-term minor adverse impacts to TES that would avoid the area (e.g., bald eagles) and potential roosting habitat for bats (stumps, tree bark, etc.), nesting sites for birds, and foraging sites for several vertebrate TES. Habitat reclaimed on abandoned Oak Bottom Campground and RV parking lot sites would result in long-term negligible impacts to TES, primarily passerine bird species.

Cumulative Impacts. The projects listed previously under the "Projects that Make Up the Cumulative Impact Scenario" section collectively have negligible long-term impacts on TES habitat. The new dock at Oak Bottom Marina, alcohol ban, prohibiting personal watercraft and road closure and gate installation would have negligible to beneficial impacts to TES

habitat. Alternative C would contribute to overall cumulative impacts to TES habitat within the NRA.

Conclusion. There would be short- and long-term negligible to moderate adverse impacts to TES habitat of Oak Bottom Campground, two-peninsulas area, RV parking lot, and the northeast area, and to limited patches of shoreline emergent wetlands under this alternative. Additionally, alternative C would contribute to cumulative impacts to TES and habitats within the NRA.

National Recreation Area Operations

The impacts on NRA operations for alternative C would be similar to those described for alternative B, except that additional opportunities for walk-in camping would be available with construction of one to five campsites near the marina. With the additional sites in place, there would be negligible long-term impacts to NRA operations since the campground is operated and maintained by the concessioner.

Cumulative Impacts. Cumulative impacts of alternative C on NRA operations would be similar to those described for alternative B.

Conclusion. Conclusions for alternative C on NRA operations would be similar to those described for alternative B.

Concession Operations

The impacts on concession operations for alternative C would be similar to those described for alternative B, except that additional opportunities for walk-in camping would be available with the construction of one to five campsites near the marina. With the additional sites in place, there would be negligible long-term impacts to concession operations since little maintenance or revenue is expected with these sites.

Cumulative Impacts. Cumulative impacts of alternative C on NRA operations would be similar to those described for alternative B.

Conclusion. Conclusions for alternative C on NRA operations would be similar to those described for alternative B.

Archeological Resources

Alternative C includes all the proposed actions of alternative B, plus additional campground expansion to the northeast of the existing campground. Whiskeytown NRA archeological staff conducted two surveys of the hill northeast of the campground in 1986 (Smith 1986) and 2004 (Bruzell 2004) and recorded no archeological sites. Therefore, under alternative C there would be no adverse impacts to listed or eligible properties.

Cumulative Impacts. Past projects to improve the marina and beach area, banning personal watercraft from the lake, and banning alcohol from the beach have resulted in no adverse effects to archeological resources. Construction of a new wastewater treatment plant could result in minor adverse effects to archeological resources. Implementation of road closure and gate installation would be sited to avoid archeological sites and would have no effect on archeological resources. Alternative C would not contribute to cumulative impacts to NRHP-listed or eligible archeological resources because no sites exist in the area of potential effect. Alternative C would contribute long-term negligible impacts and long-term minor adverse impacts to archeological resources at Whiskeytown NRA.

Conclusion. Archeological site CA-SHA-272 would be damaged by construction activities resulting in local long-term negligible impacts. The cumulative impact of past, present, and reasonably foreseeable future actions would be long-term negligible to minor and adverse. Alternative C would not contribute to cumulative impacts to NRHP-listed or eligible resources of past, present, and reasonably foreseeable future actions. Alternative C would contribute a long-term negligible to minor adverse, impact.

Section 106 Summary. Under 36 CFR 800, *Protection of Historic and Cultural Properties*, an adverse effect occurs whenever an impact alters, directly or indirectly, any characteristic of a cultural resource that qualifies it for inclusion in the NRHP, e.g., diminishing the integrity (or the extent to which a resource retains its historic appearance or ability to provide information) of its location, design, setting, materials, workmanship, feeling, or association.

Under alternative C, there would be effects to site CA-SHA-272 associated with the construction expansion of the campground onto the peninsulas west of Oak Bottom Campground. In accordance with 36 CFR 800.4(c), the National Park Service determined that the site was not eligible for listing in the NRHP, with concurrence of the California SHPO on May 4, 2010. There would be no adverse effect to site CA-SHA-2165H associated with construction expansion of the campground onto the peninsulas west of Oak Bottom Campground. In accordance with 36 CFR 800 (5), the National Park Service determined that there would be no adverse effect to site CA-SHA-2165H, with concurrence of the California SHPO on May 4, 2010. Therefore, the activities proposed in this alternative would have no adverse effect to archeological sites.

Visitor Use and Experience

The impacts on visitor use and experience with alternative C would be similar to those described for alternative B, except that additional opportunities for walk-in camping would be available with the construction of one to five campsites near the marina. With the additional sites in place, there would be negligible long-term impacts to visitor use levels. For those desiring a more rustic camping setting, the addition of a limited number of walk-in sites would not offset the loss of the 100 existing walk-in sites, and for them, impacts would be moderate adverse and long term.

Cumulative Impacts. Cumulative impacts of alternative C on visitor use and experience would be similar to those described for alternative B.

Conclusion. Conclusions for alternative C on visitor use and experience would be similar to those described for alternative B. Alternative C adds a few walk-in sites and has a negligible long-term impact.

For those desiring a more rustic camping setting, the addition of a limited number of walk-in sites would not offset the loss of the 100 existing walk-in sites, and for them, impacts would be moderate adverse and long term.

Viewsheds and Lightscapes

Under alternative C, the impacts to viewsheds and lightscapes would be similar to those under alternative B, with the addition of low-level lighting at the comfort station facilities on the peninsula to the northeast, and additional lighting from the additional campsites. The amphitheater would be removed from the northeast peninsula and a few walk-in campsites would be added, and this area revegetated. The effects of alternative C to viewsheds and lightscapes with mitigation would be short-term minor adverse, and long-term beneficial effect on viewsheds, and long term adverse and negligible to minor on lightscapes.

Cumulative Impacts. The projects listed previously under the "Projects that Make Up the Cumulative Impact Scenario" section would have no to negligible long-term impacts on viewsheds and lightscapes. The new dock at Oak Bottom Marina and the improvements to Oak Bottom beach would have negligible long-term impacts. The alcohol ban at the beach, prohibiting personal watercraft and road closure and gate installation would not have direct impacts on viewsheds and lightscapes. Alternative C would contribute long-term negligible impacts to cumulative impacts.

Conclusion. Alternative C would result in short-term minor adverse impacts to viewsheds and lightscapes, and long-term beneficial effects on viewsheds, and long-term adverse and negligible to minor effects on lightscapes. The alternative would make a long-term negligible contribution to cumulative impacts.

ENVIRONMENTAL CONSEQUENCES—ALTERNATIVE D: PREFFERRED ALTERNATIVE; EXPAND OAK BOTTOM CAMPGROUND TO TWO PENINSULAS, DEVELOP THE NORTHEAST AREA, RECONSTRUCT THE CURRENT RECREATIONAL VEHICLE PARKING LOT, AND DEVELOP BOAT-IN CAMPSITES

Soils

Under alternative D, development would include sites described under alternatives B and C, in addition to six Whiskeytown Lake boat-in sites that would be developed to support boat-in tent camping. Post-development soils of the approximately 55- to 60-acre area would be managed under provisions of the general management plan. Impacts to Maymen series soils and Devonian Copley Greenstone geologic exposures would be the same as described under

alternatives B and C for the existing Oak Bottom Campground, on the adjacent two-peninsula sites, the northeast area, and on the RV parking lot. Impacts to soils and geologic exposures of the six boat-in campsites would result from vegetation and litter clearing, soil removal and redistribution, soil compaction, and erosion during precipitation events resulting in short- and long-term minor adverse impacts to site soils. A buffer area of 30 ft would be applied along the shoreline, reducing erosion related to wave action resulting in short- and long-term beneficial impacts, and minor adverse impacts on shoreline soils. Soils exposed following construction would erode during precipitation events resulting in short-term minor adverse impacts.

Cumulative Impacts. The projects listed previously under the "Projects that Make Up the Cumulative Impact Scenario" section collectively have negligible long-term impacts on soils. The new dock at Oak Bottom Marina, prohibiting personal watercraft and road closure and gate installation would have negligible impacts to soils. The alcohol ban at the beach would have no effects on soils. Alternative D would contribute long-term negligible impacts to overall cumulative impacts to soils within the NRA.

Conclusion. There would be long-term beneficial impacts, and negligible to minor adverse impacts to soils of Oak Bottom Campground, the two-peninsulas and northeast areas, the RV parking lot, and boat-in sites under alternative D. Alternative D would contribute to cumulative impacts to soils.

Vegetation

Affected plant communities and sites would be those described under alternative A. Under alternative D, the entire affected area would encompass approximately 55 to 60 acres and post-development vegetation types, including wetlands, would be managed under provisions of the general management plan. Impacts to the upland woodland and shrubland vegetation types and emergent wetlands would be the same as described under alternatives B and C for the existing Oak Bottom Campground, adjacent two-peninsulas site, the northeast area site, and the RV parking lot, in addition to the six boat-in sites.

The upland woodland and shrubland vegetation types that have become established on the boat-in sites would be cleared of vegetation and soils/bedrock exposed on approximately 50% of the site. The site topography would be reduced to level or gentle slopes and some bedrock removed to allow placement of natural surface material to access walk-in tent sites, resulting in short- and long-term minor adverse impacts to regionally common vegetation types due to loss of cover, structure, and vegetation diversity. A 30 ft buffer would be established at the shoreline resulting in a short- and long-term negligible impact due to site protection from wave action and wind-throw. Nonnative plant species currently present would invade the newly disturbed sites and require management prescriptions for control or elimination resulting in long-term negligible to minor adverse impacts. Impacts to emergent and aquatic wetlands of the boat-in campsites characterized by cattail, spike-rush, and pondweed would be short- and long-term and negligible due to placement of mooring structures or floating docks.

Cumulative Impacts. The projects listed previously under the "Projects that Make Up the Cumulative Impact Scenario" section collectively have negligible long-term impacts on vegetation. The new dock at Oak Bottom Marina, prohibiting personal watercraft and road

closure and gate installation would have negligible impacts to vegetation. The alcohol ban at the beach would have no effects on vegetation. Alternative D would contribute short- and long-term negligible to minor adverse impacts to overall cumulative impacts to vegetation within the NRA.

Conclusion. There would be long-term negligible to minor and adverse impacts to upland and wetland vegetation types of Oak Bottom Campground, the two peninsulas site, the northeast area, the RV parking lot, and shoreline boat-in sites under alternative D. Alternative D would contribute to cumulative impacts to upland vegetation and wetlands.

Wildlife

Affected wildlife species and habitats would be those described under alternative A. Under alternative D, the entire affected area would encompass approximately 55 to 60 acres; post-development wildlife habitat would be managed under provisions of the general management plan. Impacts to the upland woodland and shrubland wildlife habitats and emergent and aquatic wetland habitats would be the same as described under alternatives B and C for the existing Oak Bottom Campground, on the adjacent two-peninsula sites, on the northeast area, RV parking lot, in addition to the boat-in campsites.

The upland woodland and shrubland habitats that have become established on the six boat-in campsites would be cleared of vegetation cover on approximately 33% of the sites resulting in short- and long-term minor adverse impacts to wildlife habitat and resident avian and mammal species due to loss of cover, structure, and vegetation diversity from regionally common habitats within the NRA. Clearing vegetation would cause the deaths of small mammals and other burrow-dwelling wildlife species directly by crushing and suffocation, and indirect impacts due to dispersal and stress resulting in short-term negligible to minor adverse wildlife impacts. Emergent wetland habitat that has become established near the boat-in campsite locations would be avoided through campsite design and applying a 30 ft upland vegetation buffer resulting in short- and long-term negligible impacts on narrow emergent wetland stands used primarily by fish, reptile, and amphibian wildlife. Human presence is elevated during the months of May through September of each year, resulting in avoidance of habitats in or near developed sites by more sensitive wildlife species, resulting in short- and long-term minor adverse impacts to wildlife species distribution. Some common and tolerant wildlife species would be attracted to humans who entice them with food for close-up viewing and photographic opportunities resulting in short- and long-term negligible to minor adverse impacts to individual small mammal and bird species.

Cumulative Impacts. The projects listed previously under the “Projects that Make Up the Cumulative Impact Scenario” section collectively have negligible long-term impacts on wildlife. The new dock at Oak Bottom Marina, alcohol ban, prohibiting personal watercraft and road closure and gate installation would have negligible to beneficial impacts to wildlife. Alternative D would contribute long-term negligible impacts to overall cumulative impacts to wildlife within the NRA.

Conclusion. There would be long-term negligible to minor adverse impacts to upland and wetland habitats of Oak Bottom Campground, the north area, the RV parking lot, and

shoreline boat-in sites under alternative D. Alternative D would contribute to cumulative impacts to wildlife habitat.

Threatened and Endangered Species and Species of Special Concern

Affected TES plant and wildlife species and habitats would be those described under alternative A. Under alternative D, the entire affected area would encompass approximately 55 to 60 acres; post-development TES aquatic, emergent wetland, upland shrubland, woodland, and forested habitats would be managed under provisions of the general management plan.

Emergent wetland habitat potentially supporting Sanford's arrowhead and for potentially occurring elk and fox sedge and Nuttall's pondweed would receive short- and long-term negligible to beneficial impacts due to buffering from campgrounds by 30 ft of upland vegetation and adverse impacts due to development of floating docks. The western pond turtle may use new docks for basking, but access to the shoreline and adjacent upland vegetation for egg laying and hibernation activities would be reduced at campsites resulting in short- and long-term negligible to minor adverse impacts due to human presence, potential destruction of nest and hibernation sites, and the potential for inadvertent harassment or illegal collecting.

The upland woodland and shrubland habitats used by TES would be altered to support recreation use in the vicinity of the shoreline and increased human presence resulting in short- and long-term minor adverse impacts to TES that would avoid the area (e.g., bald eagles) and potential roosting habitat for bats (stumps, tree bark, etc.), nesting sites for rare birds (yellow warbler, olive-sided flycatcher, rufous hummingbird, California thrasher, etc.), and foraging sites for all vertebrate TES including the Pacific fisher. Habitat reclaimed on abandoned Oak Bottom Campground and RV parking lot sites would result in long-term negligible impacts to TES, primarily passerine bird species. Further, reconstruction of the current RV parking lot potentially would result in transplanting additional McNab cypress shrubs and possibly providing introduction sites for additional McNab cypress seedlings and saplings as part of the site shade and privacy screening elements resulting in short- and long-term negligible impacts.

Cumulative Impacts. The projects listed previously under the "Projects that Make Up the Cumulative Impact Scenario" section collectively have negligible long-term impacts on TES habitat. The new dock at Oak Bottom Marina, alcohol ban, prohibiting personal watercraft and road closure and gate installation would have negligible to beneficial impacts to TES habitat. Alternative D would contribute to overall cumulative impacts to TES habitat within the NRA.

Conclusion. There would be long-term, negligible to minor, adverse impacts to TES of wetland and upland habitats of Oak Bottom Campground, the two peninsulas, the north area, the RV parking lot, and shoreline boat-in sites under alternative D. Alternative D would contribute to cumulative impacts to TES.

National Recreation Area Operations

The impacts to NRA operations in alternative D would be similar to those described for alternatives B and C, except that this alternative also includes constructing a number of boat-in only campsites at selected locations on the Whiskeytown Lake shoreline. These sites, which would range in size from small (two to four campers) to larger (six to eight campers), would include a picnic table, tent pad, fire ring, bear-proof storage unit, composting toilet, and dock. These sites would be managed by the concessioner, which would be responsible for all facets of the operations. It is likely, however, that law enforcement, emergency services, and maintenance would be involved in some facets of the operation due to the dispersed locations of the sites. Also, there could be some impacts to the park's invasive plant crew, should they need to treat weeds that have spread into these remote areas. Additionally, natural resource staff may need to haze bears that have been habituated to camp food. An increase in fire starts is also a possibility, which could increase wildland suppression operations and costs. Even so, the overall impacts to park operations from this alternative remain similar to those described in alternatives B and C.

Cumulative Impacts. Cumulative impacts of alternative D on NRA operations would be similar to those described in alternatives B and C.

Conclusion. Conclusions on NRA operations under alternative D would be similar to those described for alternatives B and C. Alternative D adds a number of boat-in only campsites at selected locations on the Whiskeytown Lake shoreline. These sites would be managed by the concessioner, who would be responsible for all operations. It is likely, however, that law enforcement, emergency services, and maintenance would be involved in some facets of the operation due to the dispersed locations of the sites. Also, the park's invasive plant crew, natural resources staff, and fire management staff may be impacted by new activities at these remote locations.

Concession Operations

The impacts to concession operations in alternative D would be similar to those described for alternatives B and C, except that this alternative also includes construction of a number of boat-in only campsites at selected locations on the Whiskeytown Lake shoreline. These sites, ranging in size from small (two to four campers) to larger (six to eight campers), would include a picnic table, tent pad, fire ring, bear-proof storage unit, composting toilet, and dock. These sites would be managed by the concessioner who would be responsible for all facets of the operations including maintaining facilities, litter pickup, and seasonal dock maintenance. These remote boat-in campsites could be far less profitable for the concessioner than the main campground sites due to the logistical problems in servicing them.

Cumulative Impacts. Cumulative impacts of alternative D on concession operations would be similar to those described in alternatives B and C.

Conclusion. Conclusions for alternative D on concessions would be similar to those described for alternatives B and C. However, alternative D adds a number of boat-in only campsites at

selected sites on the Whiskeytown Lake shoreline, which could be far less profitable for the concessioner than the main campground sites due to the logistical problems in servicing them.

Archeological Resources

Alternative D includes all the activities listed under alternative C, plus additional boat-in campsites on Whiskeytown Lake. Whiskeytown NRA archeological staff conducted a survey of the boat-in sites included in alternative D in October 2010—no archeological sites were recorded. Therefore, under alternative D, there would be no adverse impacts to listed or eligible properties.

Cumulative Impacts. Past projects to improve the marina and beach area, banning personal watercraft from the lake, and banning alcohol from the beach have resulted in no adverse effects to archeological resources. Construction of a new wastewater treatment plant could result in minor adverse effects to archeological resources. Implementation of road closure and gate installation would be sited to avoid archeological sites ad would have no effect to archeological resources. Alternative D would not contribute to cumulative impacts to NRHP-listed or eligible archeological resources because no sites exist in the area of potential effect. Alternative D would contribute long-term negligible impacts and long-term minor adverse impacts to archaeological resources at Whiskeytown NRA.

Conclusion. Archeological site CA-SHA-272 would be damaged by construction activities resulting in local long-term negligible impacts. The cumulative impact of past, present, and reasonably foreseeable future actions would be long term minor and adverse. Alternative D would not contribute to cumulative impacts to NRHP-listed or eligible resources of past, present, and reasonably foreseeable future actions. Alternative D would contribute a negligible impact, and long-term minor adverse impacts.

Section 106 Summary. Under 36 CFR 800, *Protection of Historic and Cultural Properties*, an adverse effect occurs whenever an impact alters, directly or indirectly, any characteristic of a cultural resource that qualifies it for inclusion in the NRHP, e.g., diminishing the integrity (or the extent to which a resource retains its historic appearance or ability to provide information) of its location, design, setting, materials, workmanship, feeling, or association.

Under alternative D, there would be effects to site CA-SHA-272 associated with the construction expansion of the campground onto the two peninsulas west of Oak Bottom Camp-ground. In accordance with 36 CFR 800.4(c), the National Park Service determined that the site was not eligible for listing in the NRHP, with concurrence of the California SHPO on May 4, 2010. There would be no adverse effect to site CA-SHA-2165H associated with the construction expansion of the campground onto the two peninsulas west of Oak Bottom Camp-ground. In accordance with 36 CFR 800 (5), the National Park Service determined that there would be no adverse effect to site CA-SHA-2165H, with concurrence of the California SHPO on May 4, 2010. Therefore, the activities proposed in this alternative would have no adverse effect to archeological sites.

Visitor Use and Experience

The impacts to visitor use and experience in alternative D would be similar to those described for alternatives B and C, except that this alternative also includes constructing a number of boat-in only campsites at selected locations on the Whiskeytown Lake shoreline. These sites, which would range in size from small (two to four campers) to larger (six to eight campers), would include a picnic table, tent pad, fire ring, bear-proof storage unit, composting toilet, and dock. Adding these sites would provide an opportunity not previously available in the NRA—boat-in camping at some distance from large numbers of visitors. This type of camping would result in beneficial long-term impacts to visitor experience. However, impacts could be moderate adverse and short term in the event that injuries or visitor conflicts occur at areas some distance from response services.

Cumulative Impacts. Cumulative impacts of alternative D on visitor use and experience would be similar to those described in alternatives B and C.

Conclusion. Conclusions for alternative D on visitor use and experience would be similar to those described for alternatives B and C. Alternative D adds a number of boat-in only campsites at selected locations on the Whiskeytown Lake shoreline. Adding these sites would provide an opportunity not previously offered in the NRA—boat-in camping at some distance from large numbers of visitors. This type of camping would result in beneficial, long-term impacts to visitor experience. However, impacts could be moderate adverse and short term in the event that injuries or visitor conflicts occur at areas some distance from response services.

Viewsheds and Lightscapes

Under alternative D, the impacts to viewsheds and lightscapes would be similar to those under alternative C, with the addition of additional lighting from the additional campsites along Whiskeytown Lake shoreline (flashlights, fires, etc.). Comfort station facilities at these sites would not have external lighting, and additional docks and campsites dispersed along the lake shore. This would add new development along the lake shore and illumination to previously dark shores, but would not affect the ability to see the night skies. The effects of the proposed project to viewsheds and lightscapes with mitigation would be short- and long term, adverse, and minor.

Cumulative Impacts. The projects listed previously under the "Projects that Make Up the Cumulative Impact Scenario" section would have no to negligible long-term impacts on viewsheds and lightscapes. The new dock at Oak Bottom Marina and the improvements to Oak Bottom beach would have negligible long-term impacts. The alcohol ban at the beach, prohibiting personal watercraft and road closure and gate installation would not have direct impacts on viewsheds and lightscapes. Alternative D would contribute long-term negligible impacts to cumulative impacts.

Conclusion. Alternative D would result in a short- and long-term minor and adverse effect on viewsheds and lightscapes. The no-action alternative would make a long-term negligible contribution to cumulative impacts.

TABLE 5. SUMMARY OF ENVIRONMENTAL CONSEQUENCES / IMPACT COMPARISON MATRIX

Potential Environmental Impacts				
Impact Topic	**Alternative A: No-Action Alternative**	**Alternative B: Expansion of Campground onto West Peninsulas**	**Alternative C: Expansion of Campground onto West and Northeast Peninsulas**	**Alternative D: Preferred Alternative; Expansion of Campground onto West and Northeast Peninsulas and Boat-in Sites**
Soils	There would be no change under the no-action alternative resulting in continued long-term negligible to minor adverse impacts to soils of all Oak Bottom Campground.	There would be long-term negligible impacts to soils of Oak Bottom Campground, the two peninsula areas, and the RV parking lot.	There would be short-term minor adverse impacts and long-term beneficial and minor adverse effects to soils of Oak Bottom Campground, the two peninsulas site, and the northeast area walk-in developed site.	There would be long-term beneficial impacts, and negligible to minor adverse impacts to soils of Oak Bottom Campground, the two peninsulas, and northeast area, the RV parking lot, and boat-in sites.
Vegetation	There would be no change under the no-action alternative resulting in continued long-term negligible to minor adverse impacts to vegetation.	There would be long-term impacts to vegetation types in Oak Bottom Campground, two peninsulas area, and the RV parking lot sites and along the shoreline.	There would be long-term negligible to minor adverse impacts to vegetation of Oak Bottom Campground, two peninsulas area, the northeast area, shoreline, and RV parking lot.	There would be long-term negligible to minor adverse impacts to vegetation of Oak Bottom Campground, the two peninsulas site, the northeast area, the RV parking lot, and shoreline boat-in sites.
Wildlife	There would be no change under the no-action alternative resulting in continued long-term negligible to minor adverse impacts to wildlife species and habitats of Oak Bottom Campground.	There would be long-term negligible to minor adverse impacts to wildlife habitat of Oak Bottom Campground, two peninsulas area, and RV parking lot sites.	There would be long-term negligible to minor adverse impacts to wildlife habitat of Oak Bottom Campground, two peninsulas area, RV parking lot, the northeast area, and shoreline habitats.	There would be long-term negligible to minor adverse impacts to upland and wetland habitats of Oak Bottom Campground, the northeast area, the RV parking lot, and shoreline boat-in sites.
Threatened & Endangered Species & Species of Special Concern	There would be no change under the no-action alternative that would result in continued long-term minor adverse impacts to TES species and habitats of Oak Bottom Campground.	There would be short- and long-term negligible to minor adverse impacts to TES habitat of Oak Bottom Campground, two peninsulas area, RV parking lot campsites, and to shoreline boat-in sites.	There would be short- and long-term negligible to moderate adverse impacts to TES habitat of Oak Bottom Campground, two peninsulas area, RV parking lot, northeast area, and shoreline boat-in sites.	There would be long-term negligible to minor adverse impacts to TES of habitats of Oak Bottom Campground, the two peninsulas, the northeast area, the RV parking lot, and shoreline boat-in sites.

TABLE 5. SUMMARY OF ENVIRONMENTAL CONSEQUENCES / IMPACT COMPARISON MATRIX

Potential Environmental Impacts				
Impact Topic	**Alternative A: No-Action Alternative**	**Alternative B: Expansion of Campground onto West Peninsulas**	**Alternative C: Expansion of Campground onto West and Northeast Peninsulas**	**Alternative D: Preferred Alternative; Expansion of Campground onto West and Northeast Peninsulas and Boat-in Sites**
Archeological Resources	There would be no change under the no-action alternative; however, the existing conditions would result in negligible short- and long-term impacts.	There would be a negligible to minor long-term adverse impact.	There would be a negligible long-term impact.	There would be a negligible long-term adverse impact.
Visitor Use & Experience	There would be no change under the no-action alternative; however, the existing conditions at both the RV and tent campgrounds would continue, resulting in negligible long-term impacts to visitor use, and moderate adverse long-term impacts to visitor enjoyment.	There would be a minor adverse short-term impact to campers and moderate adverse short-term impacts to trail users. There would be beneficial long-term impacts to many campground users and minor adverse and long-term impacts to trail users. There would be long-term negligible impacts and long- and short-term minor to moderate adverse impacts.	There would be a minor adverse short-term impact to campers and moderate adverse short-term impacts to trail users. There would be beneficial long-term impacts to many users of camping areas and minor adverse and long-term impacts to trail users. There would be long-term negligible impacts, and long- and short-term minor to moderate adverse impacts.	There would be a minor adverse short-term impact for campers and moderate adverse short-term impacts to trail users. There would be beneficial long-term impacts to many users of camping areas and minor adverse and long-term impacts to trail users. There would be long-term negligible impacts and long- and short-term minor to moderate adverse and beneficial impacts.
NRA Operations	There would be no change under the no-action alternative; however, the existing conditions at both the RV and tent campgrounds would continue, resulting in negligible long-term impacts.	Impacts to law enforcement and emergency services operations would be beneficial and long term. Impacts to maintenance operations (including water and sewer systems) would be long term minor to moderate and adverse and beneficial. Impacts to resource management, and interpretive staff would be beneficial and long term.	Impacts to law enforcement and emergency services operations would be beneficial and long-term. Impacts to maintenance operations would be long term minor to moderate and adverse and beneficial. Impacts to resource management and interpretive staff would be beneficial long term.	Impacts to law enforcement and emergency services operations would be beneficial and long term. Impacts to maintenance operations would be long term minor to moderate adverse and beneficial. Impacts to resource management and interpretive staff would be beneficial and long term. Increases in fire suppression costs and response times would result in long-term minor and adverse impacts to resource management.

TABLE 5. SUMMARY OF ENVIRONMENTAL CONSEQUENCES / IMPACT COMPARISON MATRIX

Potential Environmental Impacts				
Impact Topic	**Alternative A: No-Action Alternative**	**Alternative B: Expansion of Campground onto West Peninsulas**	**Alternative C: Expansion of Campground onto West and Northeast Peninsulas**	**Alternative D: Preferred Alternative; Expansion of Campground onto West and Northeast Peninsulas and Boat-in Sites**
Concession Operations	There would be no change under the no-action alternative; how-ever, the existing conditions at both the RV and tent campgrounds would continue, resulting in negligible long-term impacts.	There would be short-term moderate adverse impacts and long-term beneficial impacts to concession operations upon project completion.	There would be short-term moderate adverse and long-term beneficial impacts to concession operations.	There would be short-term moderate adverse and long-term beneficial impacts to concession operations.
Viewsheds and Lightscapes	There would be no change under the no-action alternative; however, the existing conditions would result in a long-term minor and adverse effect to viewsheds and lightscapes.	There would be short-term minor adverse impacts and long-term beneficial impacts to viewsheds; and long-term negligible to minor adverse impacts to lightscapes.	There would be a short-term minor adverse impact to viewsheds and lightscapes; a long-term beneficial impact to viewsheds and negligible to minor adverse impacts to lightscapes	There would be a short-term minor adverse impact to viewsheds and lightscapes, a long-term beneficial impact to viewsheds and a negligible to minor adverse impact to lightscapes.

CONSULTATION AND COORDINATION

SCOPING

Scoping is the effort to involve agencies and citizens in determining the scope of issues to be addressed in an environmental document. Among other tasks, scoping determines important issues and eliminates issues not important; allocates assignments among the interdisciplinary team members and/or other participating agencies; identifies related projects and associated documents; identifies permits, surveys, consultations, etc., required by other agencies; and creates a schedule that allows adequate time to prepare and distribute the environmental document for public review and comment before a final decision is made. Scoping includes any interested agency, or any agency with jurisdiction by law or expertise (including the California SHPO, and the Redding Rancheria tribes) to obtain early input (see the "Consultation" section below).

A press release initiating scoping and describing the proposed action was issued on September 26, 2010 (appendix B). A public meeting was held on September 30, 2010, at Redding City Hall. Approximately 10 people were in attendance. Comments were solicited during a public scoping period that ended on October 26, 2010.

Thirteen comments were received from the public. Comments included the desire to maintain day use access on the historic Water Ditch Trail (hiking and biking), concerns for potential impacts to natural resources and wildlife from the expansion onto the two peninsulas, and keeping day use and camping fees low. Some specifically stated that they thought the expansion to decrease the density was necessary and others supported the boat-in sites. One felt that the docks at the boat-in sites were not necessary, another thought the boat-in sites would cause additional erosion, and another felt that the boat-in sites would compete with day users. One commenter responded that the drive-in sites would be an improvement due to the current distance to the walk-in sites. One commenter requested maps of the different alternatives.

There were comments about specifics for the design of the campground including not overdeveloping it and keeping the tent and RV campers separate. One commenter proposed specific RV site amenities and RV site sizes and circulation patterns, and another proposed specific amenities to the campground and facilities. One commenter suggested more tent sites than proposed. The program for the campground expansion has been determined and is outlined in the alternatives description; however, specific design for the campground expansion would not occur until the decision has been made on the final alternative and the NEPA process is completed.

The public and agencies will have an opportunity to review and comment on this environmental assessment.

CONSULTATION

In accordance with the NHPA, a letter (appendix A) requesting tribal consultation was mailed in November 2010 to the Redding Rancheria. Consultation with the Wintu tribes and Redding Rancheria to identify culturally sensitive sites was completed for this project on December 13, 2010, and February 4, 2011. The local Wintu tribal representative met with the NRA staff on-site on February 4, 2011. Wintu tribal representatives concurred site CA-SHA-272 is not eligible for the NRHP, but requested a tribal monitor be present during construction activities in the area. In addition, a second possible cultural resource of interest to the Wintus was identified during the site visit. A plan was agreed upon by the NRA staff and Wintu representatives to investigate the area and mitigate any possible impacts. In accordance with 36 CFR 800.4(c), the National Park Service sent a letter to the California SHPO requesting concurrence that site CA-SHA-272 was not eligible for listing in the NRHP. Concurrence was received on May 4, 2011.

Whiskeytown NRA falls within the area covered under the Northwest Forest Plan. Under the streamlined consultation process, agency actions that would result in a "no effect" determination do not require further section 7 consultation with the U.S. Fish and Wildlife Service. Therefore, consultation with the U.S. Fish and Wildlife Service was not initiated (see appendix A, guidelines incorporated by reference and not included in the appendix).

LIST OF PREPARERS

This environmental assessment was prepared by AARCHER, Inc., under the direction of the National Park Service.

The preparers of this document are:

AARCHER, Inc.

Jayne Aaron	Project Manager, Environmental Planner
James Von Loh	Senior Biologist, Associate
Kari Carmany-George	Archeologist
Wanda Gray Lafferty	Technical Publications Specialist

Duwe Environmental, LLC

Michael Duwe	Health and Safety, Visitor Experience, NRA and Concessions Operations

Whiskeytown NRA staff provided invaluable assistance in the development and technical review of this environmental assessment. NRA staff that provided information include:

Whiskeytown National Recreation Area

Jim Milestone	Superintendent
Sean Denniston	Chief, Division of Interpretation and Resources Management
Danica Willis	Archeologist
Jim Richardson	Chief Ranger
Colleen Bloxham	Administrative Officer
David Larebee	Chief of Maintenance
Stephen Femmel	NEPA Specialist
Jennifer Gibson	Natural Resources Specialist
Brian Rasmussen	Geologist
Russ Westherbee	Wildlife Biologist

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APPENDIX A: AGENCY AND TRIBAL CONSULTATION AND COORDINATION

APPENDIX A

United States Department of Agriculture Forest Service	United States Department of Commerce National Marine Fisheries Service	United States Department of Interior Bureau of Land Management	United States Department of Interior Fish and Wildlife Service

Reply to: 2670 Date: MAY 31 1995

Subject: Streamlining Consultation Procedures Under Section 7 of the Endangered Species Act

To: USDA Forest Service Supervisors (OR/WA, ID and CA); USDI Bureau of Land Management District Managers (CA, ID, OR/WA); USDI Fish and Wildlife Service Project Managers (OR/WA, ID and CA); USDC National Marine Fisheries Service Project Managers (OR/WA, ID and CA)

On March 8, 1995, agency heads of the Forest Service (FS), National Marine Fisheries Service (NMFS), Bureau of Land Management (BLM) and Fish and Wildlife Service (FWS) issued a joint letter directing that consultation procedures for forest health and salvage projects be streamlined to occur within shortened time frames.

We have broadened this direction to include all consultation efforts.[1/] Our success will be determined by a number of factors--especially important will be the amount of interagency involvement during the earliest phases of project development and the degree to which consultation can be concluded at the field level without additional reviews or oversight.

To accomplish this goal, we are chartering two interagency field teams: Level One Teams and Level Two Teams (Enclosure 1).

Level One Teams will consist of interagency biologists with the experience and expertise to make biological determinations and bring consultation to conclusion at the field level. Level One Teams will coordinate with FS District Rangers, BLM Area Managers and their staffs in the early phases of project planning and promptly raise issues they cannot resolve to Level Two Teams (Enclosure 2).

Level Two Teams will consist of FS Forest Supervisors, BLM Ecosystem/District Managers, and NMFS and FWS personnel with decision-making authority. Level Two Teams will establish priorities, secure resources, monitor performance, and resolve issues elevated by Level One Teams. Issues that cannot be resolved by Level Two teams will be forwarded on to us for resolution.

A regional interagency technical staff will be available to assist field teams, if requested (Enclosure 3). In addition, each regional office has appointed an individual to serve as a Key Contact with the responsibility to monitor accomplishment, facilitate issue resolution, and keep us informed of progress and issues that require our involvement (Enclosure 4).

We expect the following:

1. Recognizing that consultations have already occurred on the Northwest Forest Plan, PACFISH, and the eight eastside Land and Resource Management Plans with critical habitat for listed salmon stocks, we expect consultation to be rapidly concluded on projects that comply with the standards and guidelines of these programmatic plans and the provisions of their Biological Opinions.

2. Level One Teams will agree on information, documentation, format, and timeframes before proceeding with the development of Biological Evaluations/Assessments (BE/BA) and Biological Opinions.

3. The Section 7 consultation process will be simplified and streamlined (e.g., batching similar projects in same area or with similar timing needs; combined interagency consultations, etc.) to complete informal consultations within 30 days and formal consultations within 60 days after submission of agreed-upon BA.

4. Issues, barriers, or disagreements that would preclude meeting these timeframes will be promptly elevated to the appropriate level for resolution.

5. Performance will be assessed regularly by each team to evaluate progress and make adjustments as needed.

We will be conducting workshops to ensure our expectations are clear and to discuss more fully the concepts behind this strategy.

Achieving our goal will require unprecedented interagency cooperation and bold new ways of doing business. It will require an interagency work environment based on professionalism, trust, mutual respect, and accountability. We will build on our interagency successes of the past to make this new, more streamlined and effective consultation process a reality.

/s/ John E. Lowe
JOHN E. LOWE
Regional Forester, Region 6
USDA Forest Service

/s/ James Caswell for
JOHN HUGHES
Regional Forester, Region 1
USDA Forest Service

/s/ Jack Blackwell for
DALE BOSWORTH
Regional Forester, Region 4
USDI Forest Service

/s/ James Lawrence for
G. LYNN SPRAGUE
Regional Forester, Region 5
USDA Forest Service

/s/ William Stelle Jr.
WILLIAM STELLE, JR.
Regional Director
USDC National Marine Fisheries Service

/s/ William Bradley for
ELAINE Y. ZIELINSKI
State Director, OR/WA
USDI Bureau of Land Management

/s/ Jack B,L. Sept for
MARTHA HAHN
State Director, ID
USDI Bureau of Land Management

See footnote 1/ /s/ Ed Hastey
ED HASTEY
State Director, CA
USDI Bureau of Land Management

/s/ Michael J. Spear
MICHEAL J. SPEAR
Regional Director
USDI Fish and Wildlife Service

/s/ Hilda Diaz Soltero
HILDA DIAZ-SOLTERO
Regional Director
USDC National Marine Fisheries Service

Enclosures (4)

1/ For public lands managed by the BLM in the State of California, this direction will only apply to Section 7 consultations involving forest ecosystem activities.

United States Department of Agriculture Forest Service	United States Department of Commerce National Marine Fisheries Service	United States Department of Interior Bureau of Land Management	United States Department of Interior Fish and Wildlife Service

Reply to: 6840 (BLM-OR931) / 2670 (FS) Date: Feb. 26, 1997

FS/NMFS/FWS-Memorandum **BLM-Information Bulletin No. OR-97-**

To: USDA Forest Service Supervisors (OR/WA, ID, MT, and CA); USDC National Marine Fisheries Service Project Managers (OR/WA, ID, and CA); USDI Bureau of Land Management District Managers (OR/WA, ID, MT, and CA); USDI Fish and Wildlife Service Project Managers (OR/WA, ID, and CA)

Subject: Streamlining Consultation Procedures Under Section 7 of the Endangered Species Act - February 1997 Procedure Guidance

Attached is the revision of the August 29, 1995, guidance document for the interagency streamlined consultation procedures that were signed by the Regional Executives in California, Oregon, Washington, and Idaho on May 31, 1995. This updated guidance is the result of input and application by field staff since 1995 and the 12 workshops held in Oregon, Washington, and California in 1996. Workshops are being held this winter in Idaho that may supplement this guidance; a placeholder has been added for amendments from Idaho and western Montana.

Overall, this guidance continues the intent, process, and direction of the original August 1995 version. Specific changes include updating the team lists, eliminating redundant or out-of-date information, presentation of the guidance in more logical and concise categories, and providing for area or subject-specific guidance. It clarifies major subjects, such as team roles, compliance with existing plans and guidance, elevation of consultation issues, interagency coordination on project design, and the use of programmatic approaches. Extensions beyond the 60-day timeframe for biological opinion responses are allowed under specific and limited situations. The monthly reporting of level 1 teams has been changed to quarterly.

We recognize there are variations in application of this guidance by teams. This flexible and adaptive aspect of the procedures is valid and allows for innovation to enhance its implementation and our ability to address area-specific needs.

The streamlined consultation procedures have been successful in meeting the 30- and 60-day response times in all but a few consultations since May 1995. Of great significance is the increased interagency cooperation and understanding among our staffs at all levels that has resulted from this proactive and collaborative approach.

This February 1997 guidance will be in effect until further notice. It applies to the Northwest Forest Plan area and much of the Columbia River Basin. The intent is to expand this guidance to the entire area of the Interior Columbia Basin Ecosystem Management Project. As future needs

are identified, it will be updated. Please contact your respective Regional Technical Team members or Interagency Coordinators for questions or comments.

Robert W. Williams
Regional Forester, Region 6
USDA Forest Service

for Elaine Y. Zielinski
State Director, OR/WA
USDI Bureau of Land Management

Hal Salwasser
Regional Forester, Region 1
USDA Forest Service

Martha Hahn
State Director, ID
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Dale Bosworth
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William Stelle, Jr.
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Michael J. Spear
Regional Director, Region 1
USDI Fish and Wildlife Service

Hilda Diaz-Soltero
Regional Director, Southwest
USDC National Marine Fisheries Service

1/ For public lands managed by BLM in the State of California, this direction will only apply to Section 7 consultations involving forest ecosystem activities.

2/ For public lands managed by BLM in the State of Montana, this direction will apply only to Section 7 consultations involving forest ecosystem activities in the Garnet Resource Area.

1 Attachment
1 - Streamlined Consult. Procedures & Guidance (Jan. 1997)

BLM Distribution
WO-230 (Room 204 LS) - 1
OR-930 - 1
REO (Knowles, Pietrzak) - 2

IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE
WHISKEYTOWN NATIONAL RECREATION AREA
WHISKEYTOWN-SHASTA-TRINITY NATIONAL RECREATION AREA
P.O. BOX 188
WHISKEYTOWN, CA 96095-0188

WHIS L7617

December 13, 2010

James Hart, Chairperson
Redding Rancheria
2000 Redding Rancheria Road
Redding, CA 96001

Dear Chairperson Hart:

Reference: Whiskeytown National Recreation Area – Expansion of Oak Bottom Campground
Subject: Compliance with Section 106 of the National Historic Preservation Act and the National Environmental Policy Act (NEPA)

Whiskeytown National Recreation Area (Whiskeytown) proposes to improve the visitor camping experience by reducing the density of existing campsites while maintaining a maximum number of 110 campsites in an expanded area, redesigning the existing parking lot-based Oak Bottom Recreational Vehicle Campground area; relocating the general store and amphitheater nearer to the campground, and providing other visitor improvements and amenities. This proposed action is needed to provide a high-quality recreation experience, provide facilities adequate to meet the demand for numbers of camp sites and services, and alleviate visitor conflicts, extensive soil compaction, erosion, and vegetation degradation. A portion of the proposed work may include the addition of campsites on the two peninsulas west of the existing campground as well as the addition of up to 10 boat-in campsites around Whiskeytown Lake (see enclosed map for locations).

Archaeological surveys of the potential areas of impact have identified one archaeological site that will be impacted by the expansion of the existing campground. Site CA-SHA-272 is an undated, sparse, surface, lithic scatter with no evidence of intact buried archaeological resources. We have determined the site is not eligible for the National Register and are requesting your concurrence with this finding. Please see attached documentation regarding the site for further details. Archaeological monitoring will occur during ground disturbing activities. Another archaeological site, CA-SHA-2165H (a portion of the historic Clear Creek Ditch system that has been filled in and used as a trail), is immediately adjacent to the project area but will be avoided during construction activities.

In accordance with Section 106 of the National Historic Preservation Act and its implementing regulation, 36 CFR 800, and the NEPA, we are soliciting your comments and inviting you to review the attached information. Please contact us by January 31, 2011 with any questions, comments, or concerns regarding the proposed project and attached information. We are currently writing an Environmental Assessment and it will be provided to you for comment in the next few months.

We intend to call you in the near future to discuss this project and offer you to opportunity to visit the proposed project locations. If you have any questions, requests for information, concerns or would like to provide any information you feel is useful during our decision making process, please do not hesitate to contact me at the above address. You may also contact Whiskeytown Chief of Interpretation and Resources Management, Sean Denniston, by email at sean_denniston@nps.gov or telephone: (530) 242-3445. I would be more than willing to meet with you to discuss this project.

We look forward to consulting with you on this and future projects.

Sincerely,

Jim Richardson

for Jim Milestone
Superintendent

Enclosures:
Map of Proposed Project Locations
Determination of Eligibility for Site CA-SHA-272

United States Department of the Interior

NATIONAL PARK SERVICE
WHISKEYTOWN NATIONAL RECREATION AREA
WHISKEYTOWN-SHASTA-TRINITY NATIONAL RECREATION AREA
P.O. BOX 188
WHISKEYTOWN, CA 96095-0188

IN REPLY REFER TO:

WHIS L7617

December 13, 2010

Milford Wayne Donaldson
State Historic Preservation Officer
California State Parks
Office of Historic Preservation
1725 23rd Street, Suite 100
Sacramento, California 95816

Subject: Whiskeytown National Recreation Area – Expansion of Oak Bottom Campground: Compliance with Section 106 of the National Historic Preservation Act and the National Environmental Policy Act (NEPA)

Dear Mr. Donaldson:

Whiskeytown National Recreation Area (Whiskeytown) proposes to improve the visitor camping experience by reducing the density of existing campsites while maintaining a maximum number of campsites in an expanded area, redesigning the existing parking lot-based Oak Bottom Recreational Vehicle Campground area; relocating the general store and amphitheater nearer to the campground, and providing other visitor improvements and amenities. This proposed action is needed to provide a high-quality recreation experience, provide facilities adequate to meet the demand for numbers of camp sites and services, and alleviate visitor conflicts, extensive soil compaction, erosion, and vegetation degradation. A portion of the proposed work may include the addition of campsites on the two peninsulas west of the existing campground as well as the addition of boat-in campsites around Whiskeytown Lake (see enclosed map for locations).

In accordance with Section 106 of the National Historic Preservation Act and its implementing regulation, 36 CFR 800, and the NEPA, the NPS is initiating consultation with your office on this project with this letter. Archaeological surveys of the potential areas of impact by Ann King-Smith in 1986 and David Bruzell in 2004 and National Park Service staff in 2010 have identified one archaeological site that will be impacted by the expansion of the existing campground and another site that is immediately adjacent to the expansion but will not be affected. No archaeological sites were identified in at the boat-in campsite locations.

Site CA-SHA-272 is an undated, sparse, surface, lithic scatter with no evidence of intact buried archaeological resources. We have determined the site is not historically significant and are requesting your concurrence with this finding. Please see attached documentation regarding the site for further details. Archaeological monitoring will occur during ground disturbing activities.

Oak Bottom Water Ditch Trail, which is portion of site CA-SHA-2165H (known as Clear Creek Ditch), is a multiuse trail used by bikers, hikers, and horse-riders. The Clear Creek Ditch was a long, complex water canal system. As early gold mining depleted the easily obtainable resources, mining became a more complicated process that in many cases required the diversion of water for long distances to the mines. The Clear Creek Ditch was constructed by the Clear Creek Ditch Company in 1855 to bring water from upper Clear Creek near the Tower House stage coach stop to the northwest of Oak Bottom Campground. The ditch passed through the peninsulas to the west of current location of the Oak Bottom Campground on its way to the historic mining areas to the west of the current town of Redding. This portion of the Clear Creek Ditch was filled in after use of the ditch was terminated in 1882 (Vaughan 1997). The Bureau of Land Management determined Site CA-SHA-2165H was eligible for the National Register in 1997 and the National Park Service have managed the property accordingly. A 30 foot buffer will be maintained around the trail so there will be no direct impact to the resource. However, the trail will likely see increased use by campers accessing other areas of the campground, the marina, and the boat ramp. The increased use of the trail, which is already maintained on a regular basis, will result in no adverse effect to the resource.

Buildings within the APE for the project include the campground store and two comfort stations constructed in 1967, and the RV campground comfort station that was built in 1995. A review of the records for the existing structures, including those within the existing campground that may be demolished or renovated, show that they are not over 50 years old and do not meet Criteria Consideration G for exceptional importance within the last 50 years. Therefore, no historic structures, buildings, districts or objects will be affected by this project.

We are inviting you to review the attached information and concur with our finding that site CA-SHA-272 is not eligible for listing on the National Register of Historic Places. We are also requesting your concurrence that site CA-SHA-2165H will not be adversely affected by the proposed project and that overall project will have no adverse effect to historic properties. Please contact us by January 31, 2011 with any questions, comments, or concerns regarding the proposed project and attached information. We are currently writing an Environmental Assessment that will be provided to you for comment in the next few months.

If you have any questions, requests for information, concerns or would like to provide any information you feel is useful during our decision making process, please do not hesitate to contact me at the above address. You may also contact Whiskeytown Chief of Interpretation and Resources Management, Sean Denniston, by email at sean_denniston@nps.gov or telephone: (530) 242-3445.

We look forward to consulting with you on this and future projects.

Sincerely,

Jim Richardson

for Jim Milestone
Superintendent

Enclosures:
Maps of Proposed Project Locations
Determination of Eligibility for Site CA-SHA-272
Primary Record for Site CA-SHA-2165H

STATE OF CALIFORNIA – THE NATURAL RESOURCES AGENCY EDMUND G. BROWN, JR., *Governor*

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
1725 23rd Street, Suite 100
SACRAMENTO, CA 95816-7100
(916) 445-7000 Fax: (916) 445-7053
calshpo@parks.ca.gov
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May 4, 2011 Reply In Reference To: NPS101215A

Jim Milestone, Superintendent
National Park Service
Whiskeytown National Recreation Area
P.O. Box 188
Whiskeytown, CA 96095-0188

RE: Oak Bottom Campground Expansion, Whiskeytown National Recreation Area, CA

Dear Mr. Milestone:

Thank you for your letter requesting my review and comment with regard to the proposed undertaking in the City of San Jose, Santa Clara County, California in compliance with Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470f), as amended, and its implementing regulation found at 36 CFR Part 800. Along with your letter, you also submitted a report entitled "National Register of Historic Places Eligibility Assessment, CA-SHA-272" dated November 2010, the 1997 site record for CA-SHA-2165-H, and an Area of Potential Effect (APE) map.

The proposed undertaking, as I understand it, involves improvements to the Oak Bottom Campground. These improvements include: redesigning the existing parking lot based campground area, relocating the general store and amphitheater, adding campsites on the two peninsulas west of the existing campground, and adding boat-in campsites around Whiskeytown Lake.

According to the map included with your letter, NPS has identified the Area of Potential Effect (APE) as the existing Oak Bottom camping area and RV area, the new camping area on the peninsulas, and the new boat-in camping areas around the lake. The Oak Bottom campground store and two comfort stations, all built in 1967, and another comfort station at the RV campground, built in 1995, are the only architectural resources within the APE. NPS has evaluated these buildings and found them not eligible for listing on the National Register of Historic Places (NRHP). The APE has been surveyed for archaeological resources a number of times over the years, including in 1986, 2004, and 2010. These efforts identified two archaeological sites. The Clear Creek Ditch (CA-SHA-2165H) was found eligible for listing on the NRHP in 1997 by the Bureau of Land Management. The NPS survey in 2010 identified a sparse lithic scatter (CA-SHA-272), which NPS finds not eligible for listing on the NRHP.

NPS has applied the Criteria of Adverse Effect (36 CFR § 800. 5(a)(1)) and proposes a finding of No Adverse Effect. After reviewing the information submitted with your letter, I offer the following comments:

- I concur that this action qualifies as a federal undertaking as defined in 36 CFR 800.
- I concur that the proposed APE is sufficient.
- I concur that the efforts to identify and evaluate properties within the APE were sufficient and that CA-SHA0272 is not eligible for listing on the NRHP.

- I concur with your finding and agree that pursuant to 36 CFR § 800.5(b), a Finding of No Adverse Effect is appropriate for the undertaking as described.
- Please be advised that under certain circumstances, such as an unanticipated discovery or a change in project description, you may have future responsibilities for this undertaking under 36 CFR Part 800.

Thank you for seeking my comments and considering historic properties as part of your project planning. If you have any questions or concerns, please contact Mark Beason, at (916) 445-7047 or mbeason@parks.ca.gov.

Sincerely,

Susan K Stratton for

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

APPENDIX B: PUBLIC SCOPING

National Park Service
U.S. Department of the Interior

Whiskeytown National
Recreation Area

P.O. Box 188
Whiskeytown, CA 96095

530-242-3400 phone
530-246-5154 fax

Whiskeytown News Release

September 20, 2010
For Immediate Release
Jim Milestone 530-242-3410

Public Meeting on September 30th to Discuss the Proposed Expansion and Redesign of the Oak Bottom Campground

A public scoping meeting will be held on September 30, 2010 at 6:30 p.m. to assist the National Park Service in developing an Environmental Assessment for planning an expansion and redesign of the campground at Oak Bottom within Whiskeytown National Recreation Area. The meeting will be held in the *Community Room of Redding City Hall at 777 Cypress Avenue, Redding, California*. National Park Service staff seeks public input about the future size and layout of the Oak Bottom Campground serving tent, recreational vehicle, and boat users.

It is the intent of the National Park Service to share with the public and state and local agencies various alternatives for expanding, redesigning, and managing Oak Bottom Campground. All public scoping meeting attendees will be given an opportunity to provide oral and written comments, which will be collected and considered as part of the Environmental Assessment process.

The National Park Service is proposing this redesign to improve the visitor experience at the Oak Bottom Campground by increasing the area occupied by the campground, while reducing campsite density and retaining a similar number of campsites (approximately 110). The existing tent campground at Oak Bottom does not offer a high-quality recreational experience due to overcrowding. This results in user conflicts and extensive soil compaction, erosion, and vegetation degradation. Alternatives could include expansion of the campground into undeveloped areas in the Oak Bottom area and the development of boat-in only campsites on selected accessible sites along the shoreline of Whiskeytown Lake.

Evaluation of campsite expansion includes impacts to campground and maintenance operations, tree removal, vegetation management, and utility expansion. The Environmental Assessment will also evaluate the environmental impacts of the existing campground facilities on other park resources. Additionally, the Environmental Assessment will evaluate the environmental impacts of three-to-five alternatives which will range from a No Action Alternative to a full expansion of facilities alternative.

All interested individuals and agencies are encouraged to review the alternatives and provide comments either at this meeting, online at http://parkplanning.nps.gov/OakBottomRedesign, or by mail to Whiskeytown National Recreation Area, Oak Bottom Campground Comments, P.O. Box 188, Whiskeytown, CA 96095-0188.

National Park Service
U.S. Department of the Interior

Whiskeytown National
Recreation Area

P.O. Box 188
Whiskeytown, CA 96095

530-242-3400 phone
530-246-5154 fax

Whiskeytown News Release

September 20, 2010
For Immediate Release
Jim Milestone 530- 242- 3410

Expand and Redesign Oak Bottom Campground Environmental Assessment Public Scoping

A public scoping meeting will be held on September 30, 2010 at 6:30 p.m. to assist the National Park Service in developing an Environmental Assessment for planning an expansion and redesign of the campground at Oak Bottom within Whiskeytown National Recreation Area. The meeting will be held in the *Community Room of Redding City Hall at 777 Cypress Avenue, Redding, California*. National Park Service staff seeks public input about the future size and layout of the Oak Bottom Campground serving tent, recreational vehicle, and boat users.

It is the intent of the National Park Service to share with the public and state and local agencies various alternatives for expanding, redesigning, and managing Oak Bottom Campground. All public scoping meeting attendees will be encouraged to and given an opportunity to provide oral and written comments, which will be collected and considered as part of the Environmental Assessment process.

Alternatives could include expansion of the campground onto the two undeveloped peninsulas adjacent to and to the west of the existing campground; development of the area to the northeast of the campground, i.e., between the present boat launch ramp and marina; and up to 10 boat-in only campsites on selected accessible sites on the shoreline of Whiskeytown Lake. Some sites may be designated for tent camping, recreational vehicle parking, accessible to powerboats, or reserved for sailboats, kayaks, and/or canoes. Each camping site/area area would include a picnic table, tent pad or RV park as appropriate, fire ring, bear-proof storage unit, and toilet. The overall number of campground sites will not exceed 110.

Evaluation of campsite expansion includes impacts to campground and maintenance operations, tree removal, vegetation management, and utility expansion. The Environmental Assessment will also evaluate the environmental impacts of the existing campground facilities on other park resources. Additionally, the Environmental Assessment will evaluate the environmental impacts of three-to-five alternatives which will range from a No Action Alternative to a full expansion of facilities alternative.

The public and agency staffs are encouraged to review the alternatives and provide comments either at this meeting, online at http://parkplanning.nps.gov/OakBottomRedesign, or by mail to Whiskeytown National Recreation Area, Oak Bottom Campground Comments, P.O. Box 188, Whiskeytown, CA 96095-0188.

EXPERIENCE YOUR AMERICA

The National Park Service cares for special places saved by the American people so that all may experience our heritage.

APPENDIX C: BOAT-IN SITE EVALUATION

Boat-in Campsites
Resource Management Evaluation
October and November 2010

The Whiskeytown GMP calls for investigation and potential implementation of boat-in campsites on Whiskeytown Lake in conjunction with the Oak Bottom Campground redesign and expansion. Twelve boat-in sites were evaluated (figure C-1). Five resource management staff members participated in the evaluation including: Sean Denniston, Steve Femmel, Brian Rasmussen, Russ Weatherbee, and Danica Willis. All sites were visited by boat on October 15th and 20th of 2010. Fourteen criteria (listed below) were used to evaluate each site and each criterion was weighted for importance:

- **Shade** (2.5x) -The amount of shade available at the campsite, particularly tent locations. Ranked 1 to 3, with 1 as little to no shade and 3 with abundant shade.
- **Level Ground** (2x) - The amount of level ground for campsite development and recreational activities. Ranked 1 to 3, with 1 as little to no level ground and 3 with abundant level ground.
- **Boat Access** (2x) – The ease to land a motorized boat on shore. Ranked 1 to 3, with 1 as little to no ability to get the boat to shore due to shallow water and 3 with abundant areas to land a boat.
- **Multiple Sites** (2x) – The quantity of sites that will fit in an area. Ranked 1 to 3 with 1 as only one site, 2 as two sites, and 3 as three or more sites.
- **Long term Shade** (2x) – The type of trees and will they survive. Ranked 1 to 3, with 1 as predominately knobcone pine and 3 with predominately ponderosa pine and oak.
- **Current Impacts** (1.5x) - To what degree is the site already impacted by visitation. Ranked 1 to 3, with 1 as little to no impacts and 3 with abundant impacts.
- **Shore Access** (1.5x) - Ease to access the site from the boat. Ranked 1 to 3, with 1 as difficult to access and 3 as easy to access.
- **Swimming** (1.5x) - The quality of swimming at the site. Ranked 1 to 3, with 1 as poor swimming areas and 3 with excellent swimming areas.
- **Beach** (1.5x) - The quality of the beach at the site. Ranked 1 to 3, with 1 as little to no beach area and 3 with abundant beach areas.
- **Seclusion** (1x) – The seclusion of a site. Ranked 1 to 3, with 1 as little to no seclusion and 3 being secluded.
- **Noise** (1x) – The amount of noise present at the site from boats, highway, and other activities. Ranked 1 to 3, with 1 as very noisy and 3 with little noise.
- **No Wake Zone** (1x) – Is the site located within a no wake zone. Ranked 1 or 2 with 1 outside of the no wake zone and 2 for inside no wake zone.
- **Water Temperature** (1x) – Water temperature for swimming. Ranked 1 to 3 with 1 being cold and 3 being warm.
- **Ease to Find** (1x) – Ease for visitors to find the site. Ranked 1 to 3 with 1 being difficult to find and 3 being easy to find.

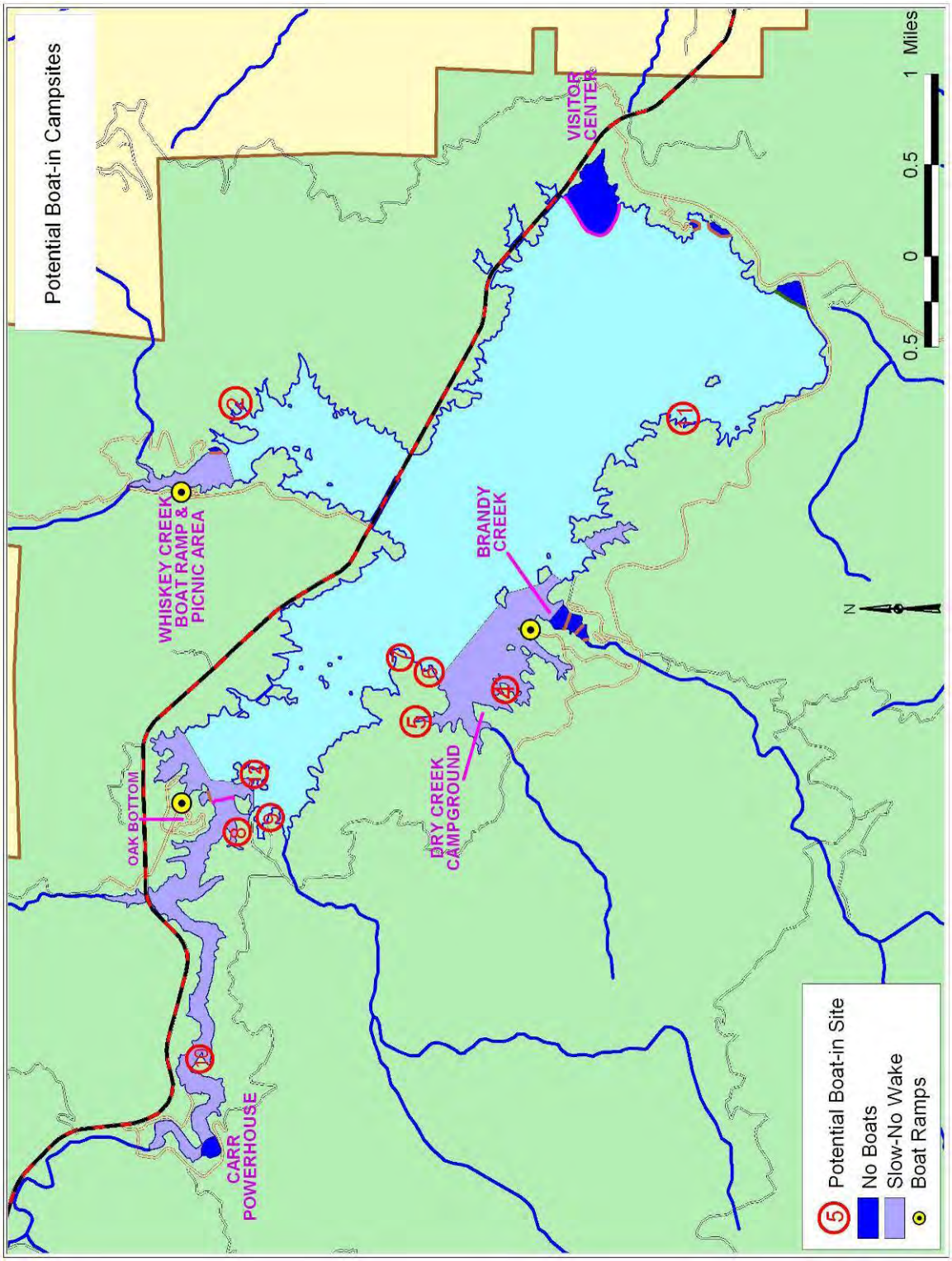

Figure C-1. Location Map of Potential Boat-in Campsites

Table C-1 and C-2 show the results of the of the rating exercise expressed in two columns for each site, the first column is the rating score applied for each attribute, and the second column shows the weighted value based upon the rating.

Table C-1. Numerical Rating of Boat in Campsites 1 through 7 (Sites 1, 1a and 3 removed from analysis)

Attribute	Weighted	Site 2		Site 4		Site 5		Site 6		Site 7	
Shade	2.5x	2	5	3	7.5	2	5	1	2.5	3	7.5
Level Ground	2x	2	4	3	6	3	6	3	6	2	4
Boat Access	2x	2	4	3	6	3	6	3	6	2	4
Multiple Sites	2x	1	2	2	4	1	2	1	2	3	6
Long Term Shade	2x	2	4	3	6	3	6	1	2	3	6
Current Impacts	1.5x	1	1.5	3	4.5	1	1.5	3	4.5	1	1.5
Shore Access	1.5x	2	3	3	4.5	2	3	3	4.5	3	4.5
Swimming	1.5x	3	4.5	2	3	3	4.5	2	3	2	3
Beach	1.5x	2	3	3	4.5	1	1.5	3	4.5	2	3
Seclusion	1x	3	3	2	2	3	3	1	1	2	2
Noise	1x	2	2	2	2	3	3	2	2	2	2
No Wake Zone	1x	2	2	2	2	2	2	1	1	1	1
Water Temp	1x	3	3	3	3	3	3	3	3	3	3
Ease to Find	1x	1	1	2	2	1	1	3	3	3	3
Weighted Totals			42.0		57.0		45.5		45.0		50.5

Table C-2. Numerical Rating of Boat in Campsites 8 through 12 (Site 12 added)

Attribute	Multiplier	Site 8		Site 9		Site 10		Site 11		Site 12	
Shade	2.5x	3	7.5	3	7.5	3	7.5	1	2.5	3	7.5
Level Ground	2x	2	4	2	4	3	6	3	6	3	6
Boat Access	2x	2	4	2	4	1	2	2	4	3	6
Multiple Sites	2x	3	6	3	6	3	6	2	4	3	6
Long-term Shade	2x	1	2	1	2	3	6	2	4	2	4
Current Impacts	1.5x	1	1.5	1	1.5	1	1.5	1	1.5	2	3
Shore Access	1.5x	2	3	1	1.5	1	1.5	1	1.5	3	4,5
Swimming	1.5x	3	4.5	3	4.5	1	1.5	3	4.5	3	4.5
Beach	1.5x	1	1.5	1	1.5	1	1.5	1	1.5	2	1.5
Seclusion	1x	3	3	2	2	3	3	2	2	2	3
Noise	1x	2	2	2	2	1	1	2	2	2	2

Table C-2. Numerical Rating of Boat in Campsites 8 through 12 (Site 12 added)

Attribute	Multiplier	Site 8		Site 9		Site 10		Site 11		Site 12	
No Wake Zone	1x	2	2	2	2	2	2	1	1	1	1
Water Temp	1x	3	3	3	3	1	1	3	3	3	3
Ease to Find	1x	2	2	2	2	2	2	3	3	2	2
Weighted Totals			46.0		43.5		42.5		40.5		54.5

Based on the results of the rating and weighting exercise, the sites are ranked for development into boat-in campsites (table C-2) and sites 4, 7, 3, and 8 are the best sites for development and sites 1a, 11, and 2 are the worst for development.

Table C-3. Ranking for Proposed Campsite Locations (Site 1, 1a, and 3 removed, Site 12 added)

Site Number	Weighted Score	Ranking
4	57.0	1
12	54.5	2
7	50.5	3
8	46.0	4
5 and 6	45.0	5
9	43.5	6
10	42.5	7
2	42.0	8
11	40.5	9

On October 26, 2010, Jim Richardson offered the following comments in response to rating of the campsites:

“I like your methodology and weighting of the attributes of the sites. I have maybe 4 issues that may have only partially been thought about on the criteria. I believe one of the primary criteria was that sites should not be easily reached by people on foot. While I have not actually tried on foot, I bet the two potential sites near Dry Creek, sites 3 and 4, are probably reachable on foot. For anti-party purposes, we really want only sites that can easily be reached only by boat.

I'm sure you are aware of: sites 1 and 2 in Whiskey Creek are currently very popular and used often as illegal campsites. Essentially, the public has "self selected" what are some of the best locations for isolation/privacy, not caring so much about shade etc. That doesn't mean there aren't good reasons to rate them lower, just that the public already has this idea. I think if current users make themselves known, they will ask specifically for these sites.

Third issue was potential to co-locate two or more sites within walking distance of a common toilet. The biggest infrastructure and maintenance investment will for sure be the toilets. It would be nice to have one toilet serve more than one site.

Last issue is related to the idea of placing docks at each of the sites. I believe docks are unnecessary and will prove to be a maintenance nightmare for Forever Resorts if they in fact maintain the sites. The current illegal sites in Whiskey Creek show how docks are unnecessary and in fact I think will over-develop the sites. My recommendations for facilities at each site are the minimum: toilet access, at least two inviting/fairly level tent spots (or actually tent pads), bear box, fire grate, and one picnic table. I do also recommend a single/standard sign at each site that is as much for day user info as it is for the overnighters (paying permit holders)."

On October 30, 2010, a meeting on the boat in campsites was held with the Management Team and several key points were made by Jim Milestone including:

- Another visit to the campsites with the Management Team, proposed for November 29, 2010.
- A goal for campsite development will be six locations for a total of 10 sites.
- An island should be incorporated into the planning process.
- Sites should have a minimum of two sites, and "less sites are better for multiple sites."

On November 29, 2010, the Management Team, LE, Maintenance, and RM revisited the proposed campsites. Those attending included: Jim Milestone, Sean Denniston, Jim Richardson, Dave Larabee, Colleen Bloxham, Wayne Pero, Chris Mengel, Jen Gibson, Russ Weatherbee, Danica Willis, Brian Rasmussen, and Tommie Scherf. As a result of the site visits, sites 1, 1a, and 3 were dropped and site 12 on Star Island was added. Site 1 was dropped because the site is a very popular day use area and the site has potentially significant archeological resources. Site 1a was dropped because of the lack of shade and aesthetics (the site was the lowest ranking site). Site 3 was dropped due to lack of level ground, proximity to Brandy Creek Marina, and close proximity to a popular kayak tour destination. Site 12, Star Island, was added because of the desire to have an island campsite as identified in the October 30th meeting. The revisions have been incorporated into figure 1, and tables 1, 2, and 3. Two overarching comments pertinent to all sites were provided during this trip:

- Camping at the sites will only occur during summer peak season from early May to late September during 'full pool' on the lake.
- Lighted buoys may be need to be installed on the lake to provide visitors navigational aids to sites at night and during night emergencies.

Pros, cons, and comments for the site by site visits are as follows:

Site 2 Pros

- Difficult access during low lake levels
- Good nonmotorized boat only site
- The site is hidden from lake view.

Site 2 Cons

- There is potential for rare plants on nearby shoreline across from proposed site(s).

- Currently the site provides enough shade for only one site; however, construction of a shade structure would allow for development of two sites.

Site 4 Pros
- Two sites, one on the nearby hilltop and one on peninsula.

Site 4 Cons
- The site is a very popular day use area.
- The site is exposed to wind and weather.
- A trail exists that connects the area to Dry Creek Group Campground.

Site 5 Pros
- Good nonmotorized boat only site.
- Excellent seclusion for privacy.

Site 5 Cons
- Difficult boat access during low lake levels.

Site 6 Cons
- This area is a popular day use area.
- The site is exposed to wind and weather.
- Currently the site provides enough shade for only one site; however, construction of a shade structure would allow for development of two sites.

Site 6 Comment
- If the site is kept a day use area install a restroom, potentially a floating restroom.

Site 7 Pros
- Two mooring sites.

Site 7 Cons
- Lots of floating woody debris along western shore blown in by wind.
- Potential for rare plants along shoreline.

Site 8 Pros
- Good view over lake.

Site 8 Cons
- Close to a developed road.
- Potential for rare plants along shoreline.
- Good site for group camping area.
- Requires a dock.

Site 9 Pros

- Good site for group camping area.
- Close to Oak Bottom concessioner for ease of maintenance.

Site 9 Cons

- Nearby access road.
- Requires dock for use
- Potential for rare plants along shore.
- May need two toilets if developed as group.
- Close to Oak Bottom campground and visitors might swim between the two areas.

Site 9 Comments

- Road will not be constructed to link campground with nearby road. This was proposed for ease of site maintenance.

Site 10 (not visited on this trip due to low lake level)

Site 11 Pros

- Good coves for boat anchoring.

Site 11 Cons

- Needs a dock.

Site 12 Pros

- Good boat mooring in several locations.
- Large area.
- Close proximity to Oak Bottom boat launch.
- Archeological survey already preformed.

Site 12 Cons

- Close to Oak Bottom and highway noise.

APPENDIX D: IMPAIRMENT DETERMINATION

APPENDIX D
IMPAIRMENT DETERMINATION

THE PROHIBITION ON IMPAIRMENT OF PARK RESOURCES AND VALUES

NPS *Management Policies 2006*, section 1.4.4, explains the prohibition on impairment of park resources and values:

> *While Congress has given the Service the management discretion to allow impacts within parks, that discretion is limited by the statutory requirement (generally enforceable by the federal courts) that the Park Service must leave park resources and values unimpaired unless a particular law directly and specifically provides otherwise. This, the cornerstone of the Organic Act, establishes the primary responsibility of the National Park Service. It ensures that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them.*

WHAT IS IMPAIRMENT?

NPS *Management Policies 2006*, Section 1.4.5, *What Constitutes Impairment of Park Resources and Values*, and Section 1.4.6, *What Constitutes Park Resources and Values*, provide an explanation of impairment.

> *Impairment is an impact that, in the professional judgment of the responsible National Park Service manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values.*

Section 1.4.5 of NPS *Management Policies 2006* states:

An impact to any park resource or value may, but does not necessarily, constitute impairment. An impact would be more likely to constitute impairment to the extent that it affects a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park
- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park
- identified as a goal in the park's general management plan or other relevant NPS planning documents as being of significance

An impact would be less likely to constitute an impairment if it is an unavoidable result of an action necessary to preserve or restore the integrity of park resources or values and it cannot be further mitigated.

Per section 1.4.6 of *Management Policies 2006*, park resources and values that may be impaired include:

- the park's scenery, natural and historic objects, and wildlife, and the processes and condition that sustain them, including, to the extent present in the park: the ecological, biological, and physical processes that created the park and continue to act upon it; scenic features; natural visibility, both in daytime and at night; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; paleontological resources; archeological resources; cultural landscapes; ethnographic resources; historic and prehistoric sites, structures, and objects; museum collections; and native plants and animals;
- appropriate opportunities to experience enjoyment of the above resources, to the extent that can be done without impairing them;
- the park's role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the national park system, and the benefit and inspiration provided to the American people by the national park system; and
- any additional attributes encompassed by the specific values and purposes for which the park was established.

Impairment may result from NPS activities in managing the park, visitor activities, or activities undertaken by concessioners, contractors, and others operating in the park. Impairment may also result from sources or activities outside the park, but this would not be a violation of the Organic Act unless the National Park Service was in some way responsible for the action.

HOW IS AN IMPAIRMENT DETERMINATION MADE?

Section 1.4.7 of NPS *Management Policies 2006* states, "[i]n making a determination of whether there would be an impairment, an NPS decision-maker must use his or her professional judgment. This means that the decision-maker must consider any environmental assessments or environmental impact statements required by the National Environmental Policy Act of 1969 (NEPA); consultations required under section 106 of the National Historic Preservation Act (NHPA); relevant scientific and scholarly studies; advice or insights offered by subject matter experts and others who have relevant knowledge or experience; and the results of civic engagement and public involvement activities relating to the decision."

Management Policies 2006 further define "professional judgment" as "a decision or opinion that is shaped by study and analysis and full consideration of all the relevant facts, and that takes into account the decision-maker's education, training, and experience; advice or insights offered by subject matter experts and others who have relevant knowledge and experience; good science and scholarship; and, whenever appropriate, the results of civic engagement and public involvement activities relation to the decision

IMPAIRMENT DETERMINATION FOR THE PREFERRED ALTERNATIVE

This determination on impairment has been prepared for the preferred alternative described on pages 21–23 of this environmental assessment. An impairment determination is made for all

resource impact topics analyzed for the preferred alternative. An impairment determination is not made for visitor experience, socioeconomics, public health and safety, environmental justice, land use, and park operations because impairment findings relate back to park resources and values, and these impact areas are not generally considered to be park resources or values according to the Organic Act, and cannot be impaired in the same way that an action can impair park resources and values. In addition, an impairment determination is not made for topics dismissed from further analysis, which include ecologically critical areas, wild and scenic rivers, geological and paleontological resources, air quality, prime and unique farmlands, museum collections, Indian trust responsibilities, soundscapes, climate change, scenic resources, water quality, wetlands, floodplains, ethnographic resources, historic structures, or cultural landscapes.

FINDINGS ON IMPAIRMENT FOR SOILS

The preferred alternative (alternative D) would have long-term negligible to minor adverse and beneficial impacts to soils at Oak Bottom Campground, the two peninsulas and northeast areas, the RV parking lot, and boat-in sites. Impacts would result from vegetation and litter clearing, soil removal and redistribution, soil compaction, and erosion during precipitation events resulting in short- and long-term minor adverse impacts to site soils. A buffer area of 30 feet would be applied along the shoreline, reducing the erosion-related impacts to wave action resulting in short- and long-term beneficial and minor adverse impacts on shoreline soils. Soils exposed following construction would erode during precipitation events resulting in short-term minor adverse impacts.

The preferred alternative would not result in impairment of soils because the impacted resources are not listed by the general management plan as key resources or as significant resources in park planning documents and impacts would be minimized by appropriate mitigation measures. Post-development soils would be managed under the provisions of the general management plan.

FINDINGS ON IMPAIRMENT FOR VEGETATION

The preferred alternative (alternative D) would have long-term negligible to minor beneficial and adverse impacts to upland and wetland vegetation types at Oak Bottom Campground, the two peninsulas and northeast area, the RV parking lot, and shoreline boat-in sites. The upland woodland and shrubland vegetation types that have become established would be cleared of vegetation and soils/bedrock, and the site topography would be reduced in some areas to level or gentle slopes and some bedrock removed to allow placement of natural surface material. A 30-foot buffer would be established to provide some site protection from wave action and wind-throw. Nonnative plant species currently present would invade the newly disturbed sites and require management prescriptions for control or elimination. There would be impacts to emergent and aquatic wetlands of the boat-in campsites characterized by cattail, spike-rush, and pondweed.

The preferred alternative would not result in impairment of vegetation because the impacted resources are not listed by the general management plan as key resources or as significant resources in park planning documents and impacts would be minimized by appropriate

mitigation measures. Post-development vegetation would be managed under the provisions of the general management plan.

FINDINGS ON IMPAIRMENT FOR WILDLIFE

The preferred alternative (alternative D) would have long-term minor beneficial and adverse impacts to upland and wetland habitats at Oak Bottom Campground, two peninsulas and the northeast area, the RV parking lot, and shoreline boat-in sites. The upland woodland and shrubland habitats that have become established would be cleared of vegetative cover resulting in short- and long-term minor adverse impacts to wildlife habitat and resident avian and mammal species due to loss of cover, structure, and vegetation diversity from regionally common habitats within the NRA. Clearing vegetation would cause deaths of small mammals and other burrow-dwelling wildlife species directly by crushing and suffocation and indirect impacts due to dispersal and stress. Emergent wetland habitat that has become established would be avoided through campsite design and applying a 30-foot buffer. Human presence is high during the months of May through September of each year resulting in avoidance of habitats in or near developed sites by more sensitive wildlife species. Some common and tolerant wildlife species are attracted to humans that entice them with food for close-up viewing and photography opportunities.

The preferred alternative would not result in impairment of wildlife because the impacted resources are not listed by the general management plan as key resources or as significant resources in park planning documents and impacts would be minimized by appropriate mitigation measures. Post-development wildlife would be managed under the provisions of the general management plan.

FINDINGS ON IMPAIRMENT FOR THREATENED AND ENDANGERED SPECIES AND SPECIAL-STATUS SPECIES

The preferred alternative (alternative D) would have long-term negligible to minor adverse and beneficial impacts to threatened and endangered species and special-status species (TES) of wetland and upland habitats at Oak Bottom Campground, the two peninsulas, the north area, the RV parking lot, and shoreline boat-in sites. Emergent wetland habitat potentially supporting Sanford's arrowhead and for potentially occurring elk and fox sedge and Nuttall's pondweed would receive short- and long-term negligible to minor beneficial impacts due to buffering from campgrounds by 30 feet of upland vegetation and adverse impacts due to development of floating docks. The western pond turtle may use new docks for basking, but access to the shoreline and adjacent upland vegetation for egg laying and hibernation activities would be reduced at campsites resulting in short- and long-term negligible to minor adverse impacts due to human presence, potential destruction of nest and hibernation sites, and the potential for inadvertent harassment or illegal collecting.

The upland woodland and shrubland habitats used by TES would be altered to support recreation use in the vicinity of the shoreline and increased human presence resulting in short- and long-term minor adverse impacts to TES that would avoid the area (e.g., bald eagles) and potential roosting habitat for bats (stumps, tree bark, etc.), nesting sites for rare birds (yellow warbler, olive-sided flycatcher, rufous hummingbird, California thrasher, etc.), and foraging sites for all vertebrate TES including the Pacific fisher. Habitat reclaimed on abandoned Oak

Bottom Campground and RV parking lot sites would result in long-term negligible beneficial impacts to TES, primarily passerine bird species. Further, reconstruction of the current RV parking lot potentially would result in transplanting additional McNab cypress shrubs and possibly providing introduction sites for additional McNab cypress seedlings and saplings as part of the site's shade and privacy screening elements resulting in short- and long-term negligible impacts.

Although TES special-status species are listed in the general management plan and other park planning documents as significant resources, the preferred alternative would not result in impairment of special-status species. Post-development TES and special-status species would be managed under the provisions of the general management plan.

FINDINGS ON IMPAIRMENT FOR ARCHEOLOGY

The preferred alternative (alternative D) would damage (by construction activities) one archeological site (CA-SHA-272) resulting in local long-term minor adverse impacts. The site that would be damaged is not eligible for listing in the National Register of Historic Places and is, therefore, not an important archeological resource to the park. There would be no adverse effect to site CA-SHA-2165H associated with the construction expansion of the campground onto the peninsulas west of Oak Bottom Campground.

Although archeological sites are discussed in general management plan and other park planning documents as important resources to be protected, the preferred alternative would not result in impairment of archeological sites because site CA-SHA-272 is not eligible for the National Register and site CA-SHA-2165H would not be adversely effected.

FINDINGS ON IMPAIRMENT FOR VIEWSHEDS AND LIGHTSCAPES

The preferred alternative (alternative D) would have long-term adverse and negligible to minor effects to viewsheds and lightscapes. Additional lighting would be added to the expanded portion of the campground, but this would be minimal and include lighting around the new comfort station. The proposed new buildings would have lighting, which would be offset by the removal of the old buildings and lighting. The new lighting around the facilities and within the campground would be downcast and added only minimally to improve safety. The proposed design would include the use of compact fluorescent and LED low-wattage light bulbs, where possible, and would not use incandescent or mercury vapor lighting. New lighting would be introduced on the peninsulas and could be seen from other vantage points on and around Whiskeytown Lake. There would be additional lighting from the added campsites along the shoreline (flashlights, fires, etc.), but comfort station facilities at these sites would not have external lighting. This additional lighting would add new illumination to previously dark shores, but would not affect the ability to see and enjoy the night skies. Down-lighting, vegetation screening, and lowering the density of the campground, even though the area with lighting would expand, would result in a reduced intensity. This would affect moonlight kayaking depending on the route. The area surrounding the project has numerous other sources of light including the city of Redding, which is anticipated to grow, thus, additional effects to night skies in the area would be anticipated.

The preferred alternative would not result in impairment of viewsheds and lightscapes because the impacted resources are not listed by the general management plan as key resources or as significant resources in park planning documents, and mitigation measures would minimize impacts.

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

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