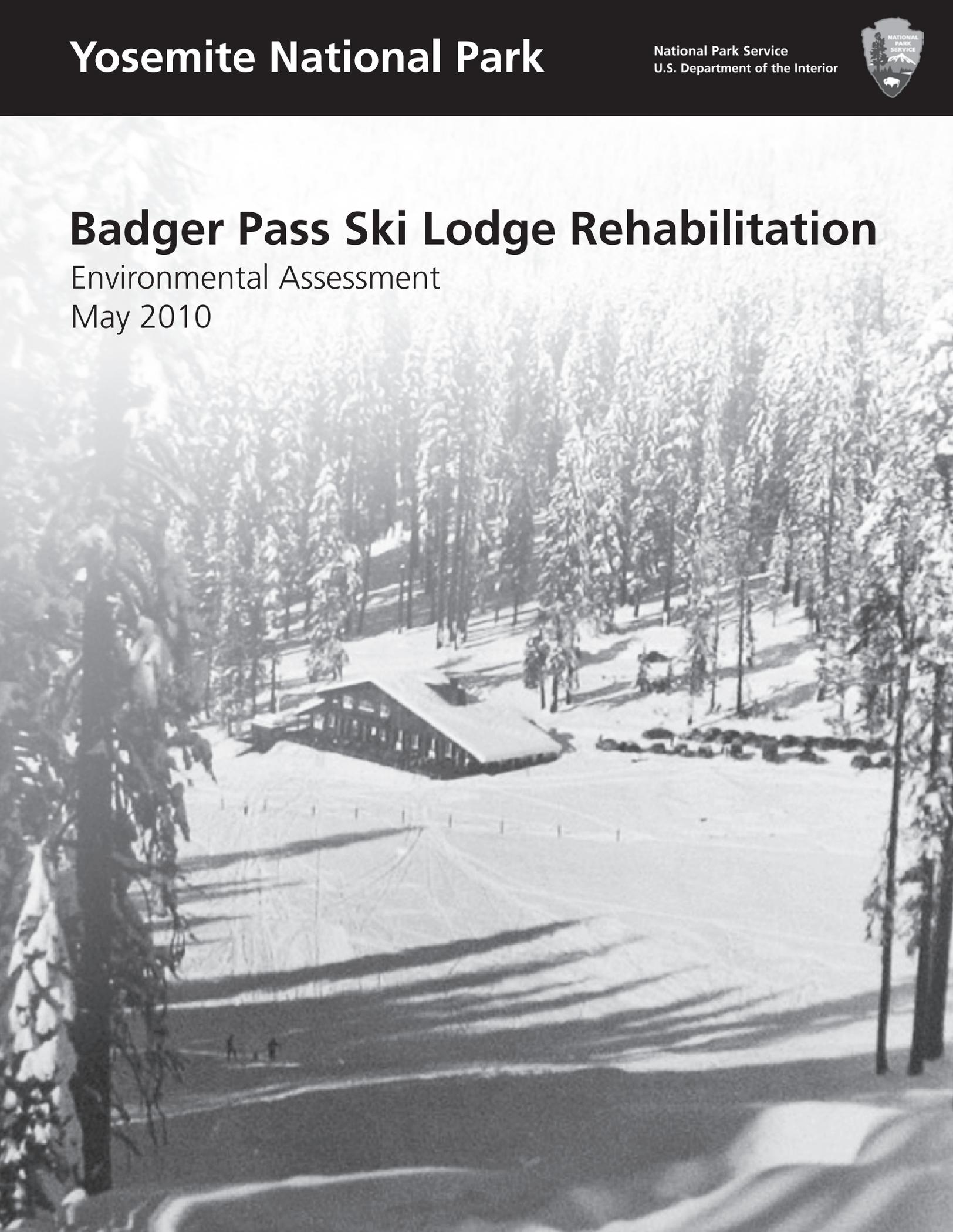




## Badger Pass Ski Lodge Rehabilitation

Environmental Assessment

May 2010





Badger Pass Ski Lodge Rehabilitation  
Environmental Assessment

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# Yosemite National Park

Lead Agency: National Park Service

## ABSTRACT

Since its construction in 1935, Badger Pass Ski Lodge has supported winter recreation at the Badger Pass Ski Area, a site that is historically significant as one California's earliest developed downhill ski areas. The building continues to function as a ski lodge during the winter months, and also serves as a summer base camp for the National Park Service-administered Youth Conservation Corps (YCC) program. Over time, a combination of environmental stress, heavy use, and inadequate drainage has led to the deterioration of the building's structural integrity. In addition, the building does not fully meet current building code standards. This rehabilitation project would repair and stabilize deteriorated structural and exterior elements to prevent further damage, and contribute to rehabilitation of the ski lodge and associated support facilities.

This document analyzes four alternatives that the National Park Service is considering for public review and comment, in accordance with the National Environmental Policy Act and the National Historic Preservation Act. Alternative 1-the No Action Alternative, represents continuing the existing operation and maintenance of the Badger Pass Ski Lodge. The three action alternatives: Alternative 2-Essential Repairs and Upgrades; Alternative 3 (Preferred)-Rehabilitation and Improvements; and Alternative 4-Emphasize Historic Character, represent a reasonable range of options to satisfy the purpose of and need for the project, while also meeting all relevant legal requirements.

The National Park Service initiated public scoping for this project in January 2009. Following the release of this environmental assessment, there will be a 30-day public comment period. Park staff will be available to answer questions and written comments will be accepted at the monthly parkwide public open house scheduled during the comment period.

Please refer to the project website for the comment review period and open house dates, and to submit comments electronically: <http://www.parkplanning.gov/yose> (click on the 'Open for Comment' link and select 'Badger Pass Ski Lodge Rehabilitation Environmental Assessment').

Comments postmarked within the 30-day comment period can also be submitted to:

Mail: Superintendent, Yosemite National Park  
Attn: Badger Pass Ski Lodge Rehabilitation Project  
P.O. Box 577  
Yosemite National Park, CA 95389

Fax: (209) 379-1294

To request a printed copy or CD of this environmental assessment (available in limited number), please email: [Yose\\_Planning@nps.gov](mailto:Yose_Planning@nps.gov).



# Yosemite National Park

National Park Service  
U.S. Department of the Interior



## **Badger Pass Ski Lodge Rehabilitation**

Environmental Assessment

May 2010



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# Executive Summary

## Introduction

The National Park Service (NPS) has prepared an environmental assessment identifying and evaluating four alternatives for the rehabilitation of Badger Pass Ski Lodge. This document is intended to meet the requirements of Section 102(2) (C) of the National Environmental Policy Act and Section 106 of the National Historic Preservation Act.

Since its construction in 1935, Badger Pass Ski Lodge has supported winter recreation at the Badger Pass Ski Area in Yosemite National Park, a site that is historically significant as one of California's first developed downhill ski areas. Located at the base of Monroe Meadow, the original ski lodge building is characteristic of NPS Rustic architecture with Swiss chalet influences and is an important contributing feature to the Badger Pass Ski Area historic site. The building continues to function as an active ski lodge, and also serves as a summer base camp for the National Park Service-administered Youth Conservation Corps (YCC) program. Over time, a combination of environmental stress, heavy use, and inadequate drainage have led to the deterioration of the building's structural integrity.

## Purpose and Need

The Badger Pass Ski Lodge is a National Park Service-owned facility that is operated by a park concessioner to provide commercial visitor services. The purpose of this project is to meet the policy goals stated in NPS management policies by correcting structural and design deficiencies that are contributing to the deterioration of the Badger Pass Ski Lodge and/or are affecting visitor services, and to support the park management goals for Badger Pass, as identified in the Yosemite *General Management Plan*, by maintaining opportunities for family-oriented downhill skiing and other forms of winter recreation at Badger Pass. This rehabilitation project would repair and stabilize deteriorated structural and exterior elements to prevent further damage, and contribute to full rehabilitation of the ski lodge and associated support facilities.

Badger Pass Ski Lodge is suffering from structural degradation and design deficiencies, and is in need of repairs to ensure that the facility can support winter recreation for generations to come. In addition, the mechanical, electrical, plumbing, and safety systems need to be upgraded to meet current codes. The current layout of facilities contributes to congestion and other inefficiencies. Employee facilities are insufficient. Finally, some past additions to the ski lodge are incompatible with the historic character of the ski area, and temporary structures detract from the cultural landscape of the Badger Pass Ski Area historic site and the Glacier Point Road Historic District.

## Relationship to Other Plans

The Badger Pass Ski Lodge Rehabilitation Environmental Assessment is an implementation plan tiered from the *General Management Plan*. The goals for the Badger Pass area described in the *General Management Plan* all relate to visitor use: to provide opportunities for family-oriented downhill skiing and other forms of winter recreation with existing facilities and capacities, to

alleviate congestion and overflow parking during winter, to promote increased summer use of the area, and to interpret activities and resources along Glacier Point Road.

## Overview of the Alternatives

The Badger Pass Ski Lodge Rehabilitation Environmental Assessment presents and analyzes four alternatives. The No Action Alternative represents continuing the existing operation and maintenance of the Badger Pass Ski Lodge. The three action alternatives represent a reasonable range of options to satisfy the purpose of and need for the project, while also meeting all relevant legal requirements. Each of the action alternatives aims to achieve the goals of this project, but varies in how to rehabilitate the Badger Pass Ski Lodge. An overview of each alternative, along with a list of Actions Common to All Action Alternatives is presented in Table ES-1.

The National Park Service has identified Alternative 3: Rehabilitation and Improvements, as the preferred alternative. This alternative succeeds in protecting sensitive natural and cultural resources, and enhancing the visitor experience.

## Environmental Analysis

Chapter 3 of this document presents the Affected Environment and the Environmental Consequences for the Badger Pass Ski Lodge Rehabilitation Environmental Assessment, which fulfills the requirements of the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA). The Affected Environment section under each resource topic discussed in Chapter 3 describes the existing conditions of the resource in the area affected by the project. The Environmental Consequences section under each resource topic discussed in Chapter 3 analyzes the environmental effects associated with each of the alternatives described in Chapter 2. Table 2-5 in Chapter 2 presents a summary comparison of the Environmental Consequences for each alternative.

## Environmentally Preferable Alternative

The Council on Environmental Quality (CEQ) regulations implementing NEPA and the National Park Service NEPA guidelines require that “the alternative or alternatives which were considered to be environmentally preferable” be identified (CEQ Regulations, Section 1505.2).

Environmentally preferable is defined as “the alternative that will promote the national environmental policy as expressed in NEPA’s Section 101. Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative that best protects, preserves, and enhances historic, cultural, and natural resources” (CEQ 1981).

Section 101 of NEPA states that:

*It is the continuing responsibility of the Federal Government to . . . (1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations; (2) assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings; (3) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences; (4) preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment*

*which supports diversity, and variety of individual choice; (5) achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life's amenities; and (6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.*

Upon full consideration of the elements of Section 101 of NEPA, Alternative 3 represents the environmentally preferable alternative for the Badger Pass Ski Lodge Rehabilitation Project. This conclusion is analyzed in detail in Chapter 2.

## Consultation and Coordination Process

Public scoping was initiated for the Badger Pass Ski Lodge Rehabilitation Environmental Assessment on January 14, 2009, and the National Park Service accepted scoping comments through February 13, 2009. During the scoping period, the park received 44 individual letters from 40 individuals and 4 organizations. The analysis of these letters identified almost 200 discrete comments, from which 78 general concern statements were generated. The Public Scoping Comment and Response Report prepared for the Badger Pass Ski Lodge Rehabilitation Project, as well as copies of the original comments, can be reviewed online at <http://www.nps.gov/yose/parkmgmt/badgerlodge.htm>.

Internal scoping and consultation with other government agencies and American Indian governments and organizations informed the planning process.

The public outreach called for in Section 106 of NHPA was integrated with the NEPA process described above, in accordance with the *Programmatic Agreement Among the National Park Service at Yosemite, the California State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding Planning, Design, Construction, Operations, and Maintenance, Yosemite National Park, California* (NPS 1999).

**Table ES-1  
Summary of Alternatives**

<b>Alternative 1: No Action</b>	<b>Actions Common To All Action Alternatives</b>	<b>Alternative 2: Essential Repairs and Upgrades</b>	<b>Alternative 3: Rehabilitation and Improvements</b>	<b>Alternative 4: Emphasize Historic Character</b>
<ul style="list-style-type: none"> <li>▪ Emergency repairs and routine maintenance would continue to take place as needed, but no comprehensive, long-term rehabilitation, restoration, or renovation would occur.</li> <li>▪ Underlying causes of structural damage to the Badger Pass Ski Lodge due to water intrusion, exposure to the elements, and aging infrastructure, would not be addressed.</li> <li>▪ All current program functions at the ski lodge would be maintained (e.g., ski school, the Pups and daycare programs, food service, etc.)</li> <li>▪ The historic elements of the Badger Pass Ski Lodge that are still intact would be retained. However, elements that have been lost would not be restored. The structure would not be treated as recommended, and without stabilization measures, would likely deteriorate further and further lose integrity.</li> <li>▪ Circulation would continue to be crowded and inconvenient at peak times, and path of travel between some visitor services would remain unclear and not ADA-accessible.</li> <li>▪ The building’s architectural character would be retained, but vantages where the historic character has been lost would not be addressed. The character of the original ski lodge structure would continue to be masked by later additions.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The original 1935 ski lodge building would be retained and structural strengthening would take place throughout the facility.</li> <li>▪ All current program functions at the ski lodge would be maintained (e.g., ski school, the Pups and daycare programs, food service, etc.), although some program elements would be relocated under various alternatives.</li> <li>▪ The temporary buildings housing Nordic and Alpine rental and repair would be removed and replaced with permanent structures of similar size and location as the temporary buildings. The new structures would incorporate an architectural vocabulary compatible with the historic character of the site.</li> <li>▪ Fire, life safety, mechanical, electrical, plumbing, roofing, decks, and drainage systems would be upgraded or replaced as necessary.</li> <li>▪ Accessibility would be improved by the addition of an elevator, ramps, floor leveling for improved path of travel, new stairs, and new accessible restrooms on each floor.</li> <li>▪ Engineering and related site improvements would be implemented. Advances in energy efficiency would be implemented wherever new systems are installed to support park sustainability goals.</li> <li>▪ Construction activities would be confined to previously disturbed areas.</li> <li>▪ NPS Interpretation and Wilderness Permitting functions would be relocated from the Ranger Station to the west building.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Badger Pass Ski Lodge would be rehabilitated within the current building envelope, involving minimal action to fulfill the basic project needs for repair and code upgrades.</li> <li>▪ Rehabilitation would halt continued deterioration and establish basic protective measures where repair or upgrade work is conducted. Features that contribute to the historic character of the site and existing spatial relationships would be maintained and protected. Ski lodge construction that does not contribute to the historic character of the site would also remain.</li> <li>▪ The current visitor arrival and circulation organization through the ski lodge would be retained. Improvements would be made to provide accessible paths of travel to program uses at three floors.</li> <li>▪ Program functions would remain almost entirely in their current locations.</li> <li>▪ The building’s architectural character would be retained, but vantages where the historic character has been lost would not be addressed. The character of the original ski lodge structure would continue to be masked by later additions.</li> <li>▪ Implementation would require two seasons of work.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Badger Pass Ski Lodge would be rehabilitated to address needs for repair, code upgrades and historic integrity, operational and visitor service improvements. The existing building footprint would be maintained with some alteration. A portion of construction dating from after the historic period of significance of the site would be removed, and some additions would be added to existing buildings.</li> <li>▪ The current Winter Club Room and breezeway connection would be removed, and modifications and additions would be made to the west building and main lodge. Exterior plazas and decks would be slightly modified. Road side plazas and paving would be modified.</li> <li>▪ Existing features that contribute to the historic character of the site would be maintained, strengthened, and made a focus. The main lodge would be freed from adjoining construction.</li> <li>▪ The historic lounge with fireplace, open to the second floor, would be restored.</li> <li>▪ Some program elements would be relocated, and visitor circulation would be improved.</li> <li>▪ The sense of arrival to the ski lodge would be improved, and significant spatial relationships and site view corridors would be enhanced.</li> <li>▪ Implementation would require four seasons of work.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The original 1935 ski lodge building would be restored to prominence and the non-historic buildings would be replaced with new facilities. The second floor deck and south dining room extension (window wall) at the main lodge would be removed, and the south façade of the main lodge would be restored. New construction would be added both east and west of the main lodge.</li> <li>▪ The current Winter Club Room and breezeway connection would be removed, the west building would be replaced, and modifications would be made to the main lodge. Exterior plazas and decks, and road side plazas and paving would be modified. The west building would incorporate a new elevator.</li> <li>▪ The main lodge would be freed from adjoining construction and all façades restored close to their condition during the period of significance of the site.</li> <li>▪ The historic lounge with fireplace, open to the second floor, would be restored.</li> <li>▪ Program elements and circulation would be reconfigured greatly to improve visitor service and circulation.</li> <li>▪ The sense of arrival to the ski lodge would be improved, and significant spatial relationships and site view corridors would be enhanced.</li> <li>▪ Implementation would require five seasons of work.</li> </ul>

# Chapter 1: Purpose and Need

## Introduction

The National Park Service (NPS) is considering the rehabilitation of the Badger Pass Ski Lodge, located at the Badger Pass Ski Area, on Glacier Point Road within Yosemite National Park, California (Figure 1-1). The ski lodge is in need of rehabilitation and repair in order to assure visitor safety, maintain ski-area visitor services, and to continue to contribute to the significance of the Badger Pass Ski Area historic site within the Glacier Point Road Historic District.



Figure 1-1 Yosemite National Park, California.

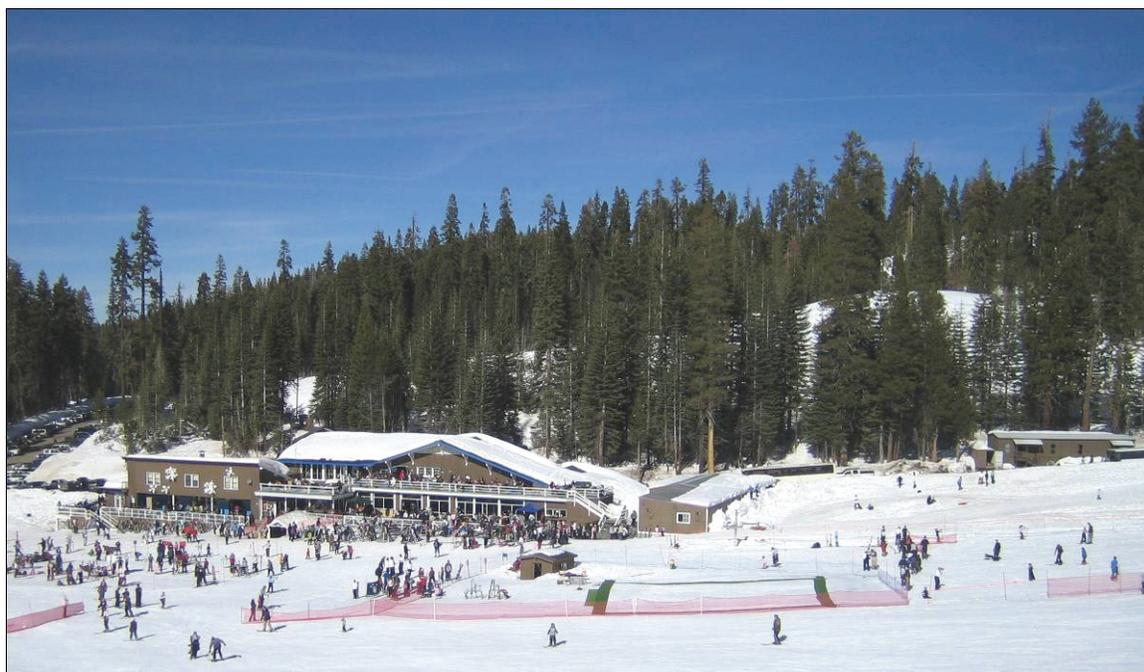
## Project Background

Badger Pass Ski Lodge is located at an elevation of 7,200 feet at the Badger Pass Ski Area, midway between Wawona and Yosemite Valley in Yosemite National Park. The ski lodge is situated in Monroe Meadow on the south side of Glacier Point Road, approximately 5.1 miles east of Chinquapin, and is accessible year round via Glacier Point Road.

Since its construction in 1935, Badger Pass Ski Lodge has supported winter recreation at the Badger Pass Ski Area, a site that is historically significant as one California's earliest developed downhill ski areas. Badger Pass Ski Area is inextricably linked to the history of cross country and

downhill skiing in the United States and is associated with the development of recreation and winter sports in Yosemite National Park. The ski area was the setting for professional and amateur downhill competitions and the Badger Pass Ski School was a leader in ski instruction until the 1950s.

With vertical half-log siding, wood frame multi-light windows, a front gable, and an asymmetrical roof with wide overhanging eaves, the original ski lodge building is characteristic of NPS Rustic architecture with Swiss chalet influences. From 1936 through the 1990s, the original building underwent multiple expansions and modifications to meet the changing needs of the ski industry. Some of the changes implemented after 1953 were not compatible with the original NPS Rustic architecture of the 1935 building. For example, more modern clerestory construction with vertical wood siding was added in 1954. As visitor demand increased, further additions were constructed at the ski area to provide expanded services, including ski rentals and merchandise sales.



**Figure 1-2** Badger Pass Ski Lodge, view to north from slopes, 2008.

*Photo courtesy Page & Turnbull*

More recently, temporary structures have been added to the main lodge to support recreational use at Badger Pass Ski Area. The Nordic rental building was added to the east side of the lodge in 1986 and was subsequently relocated to its current site in 2001 to be closer to cross-country trailheads and to reduce congestion at the main lodge. The downhill (Alpine) ski rental building, constructed in 1968, was condemned and removed in 2005, and was replaced with a temporary building on the east side of the ski lodge in 2006.

Although the current appearance of the building reflects the many additions and alterations since its construction, the overall character, use, and function of the ski lodge within the historic site remains clearly evident. The Badger Pass Ski Lodge is an important contributing feature of the Badger Pass Ski Area historic site (Page & Turnbull 2009e).

Currently, the Badger Pass Ski Lodge encompasses approximately 21,500 square feet and has both steel and wood frame structural members. The building continues to function as an active ski

lodge, and also serves as a summer base camp for the National Park Service-administered Youth Conservation Corps (YCC) program. Over time, a combination of environmental stress, heavy use, and inadequate drainage has led to the deterioration of the building's structural integrity. In addition, the building does not fully meet current building code standards.

## Policy and Planning Context

Several established policies and plans provide direction for management of visitor facilities and historic properties at Yosemite National Park.

### Regulations and Policies

#### **National Park Service Organic Act**

In 1916, the Organic Act established the National Park Service in order to “promote and regulate the use of parks. . .” The stated purpose of national parks is “to conserve the scenery and natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.” The Organic Act establishes the management responsibilities of the National Park Service. While Congress has given the National Park Service the management discretion to allow certain impacts within parks, that discretion is limited by the statutory requirement that park resources and values be left unimpaired. It ensures that park resources and values will continue to exist in a condition that allows future generations to enjoy them. NPS Management Policies provide additional guidance on impairment of park resources and values (NPS 2006).

#### **1970 National Park Service General Authorities Act (as amended in 1978—Redwood amendment)**

This act prohibits the National Park Service from allowing any activities that would cause derogation of the values and purposes for which the parks have been established (except as directly and specifically provided by Congress in the enabling legislation for the parks). Parks also adhere to other applicable federal laws and regulations, such as the Endangered Species Act, the National Historic Preservation Act, the Wilderness Act, and the Wild and Scenic Rivers Act. To articulate its responsibilities under these laws and regulations, the National Park Service has established management policies for all units under its stewardship.

#### **National Environmental Policy Act (NEPA) (1969) (42 USC 4341 et seq.)**

NEPA requires the identification and documentation of the environmental consequences of federal actions. Regulations implementing NEPA are set by the President's Council on Environmental Quality (CEQ) (40 CFR Parts 1500-1508). CEQ regulations establish the requirements and process for agencies to fulfill their obligations under the act. In compliance with NEPA, this environmental assessment will evaluate potential project impacts on the human environment. Compliance with the National Historic Preservation Act (see below) is integrated into the NEPA compliance process, using NHPA criteria for the analysis of impacts on cultural resources. The NEPA process is also used to coordinate compliance with other federal laws and regulations applicable to this environmental assessment, including but not limited to

- Clean Water Act (33 USC 1241 et seq.)
- Clean Air Act (as amended) (42 USC 7401 et seq.)

- Endangered Species Act (16 USC 1531 et seq.)
- Americans with Disabilities Act (42 USC 12101 et seq.)
- Executive Order 11593: Protection and Enhancement of the Cultural Environment
- Executive Order 11990: Protection of Wetlands
- Executive Order 13514: Federal Leadership in Environmental, Energy, and Economic Performance

### **National Historic Preservation Act (NHPA) (1966 as amended) (16 USC 470)**

Section 106 of the NHPA directs federal agencies to take into account the effect of any undertaking (a federally funded or assisted project) on historic properties. A “historic property” is any district, building, structure, site, or object, including resources that are considered by American Indians to have cultural and religious significance, that is eligible for listing in the National Register of Historic Places because the property is significant at the national, state, or local level in American history, architecture, archeology, engineering, or culture. Section 106 also provides the Advisory Council on Historic Preservation (ACHP) and the State Historic Preservation Officer (SHPO) an opportunity to comment on assessment of effects by the undertaking. Yosemite National Park’s Section 106 review process is governed by the *1999 Programmatic Agreement Among the National Park Service at Yosemite, the California State Historic Preservation Officer and the Advisory Council for Historic Preservation regarding Planning, Design, Construction, Operations and Maintenance, Yosemite National Park, California* (1999 Programmatic Agreement [NPS 1999]) developed in consultation with associated American Indian tribes and the National Trust for Historic Preservation. In compliance with Section 106 of the NHPA, this environmental assessment will evaluate potential project effects on historic properties.

### **The Archeological Resources Protection Act of 1979 (ARPA) (16 USC 470aa-470ll)**

ARPA prohibits unauthorized excavation of archeological sites on federal land, as well as other acts involving cultural resources, and implements a permitting process for excavation of archeological sites on federal or Indian lands (see regulations at 43 CFR 7). ARPA also provides civil and criminal penalties for removal of, or damage to, archeological and cultural resources. There are no known archeological resources present in the project area.

### **The Native American Graves Protection and Repatriation Act of 1990 (NAGPRA) (25 USC 3001 et seq.; see regulations at 43 CFR 10)**

NAGPRA provides for the protection and repatriation of Native American human remains and cultural items and requires notification of the relevant Native American tribe upon accidental discovery of cultural items. No cultural resources covered by NAGPRA are present within the project area.

### **The American Indian Religious Freedom Act of 1979 (AIRFA) (42 USC 1996)**

AIRFA preserves for American Indians and other indigenous groups the right to express traditional religious practices, including access to sites under federal jurisdiction. Regulatory guidance for AIRFA is lacking, although most land-managing federal agencies have developed internal procedures to comply with AIRFA. Access to American Indian traditional religious practice sites is not relevant to the proposed project alternatives.

## **Executive Order No. 13007: Indian Sacred Sites**

Executive Order 13007 directs federal agencies with statutory or administrative responsibility for the management of federal lands, to the extent practicable, permitted by law to accommodate access to and ceremonial use of Indian sacred sites by American Indian religious practitioners and avoid adversely affecting the physical integrity of such sacred sites. No American Indian sacred sites are present within the project area.

## **2006 National Park Service Management Policies**

*Management Policies 2006* is the basic service-wide policy document of the National Park Service. The following sections of the Management Policies specifically pertain to the Badger Pass Ski Lodge Rehabilitation Project. NPS Management Policies state that,

*The National Park Service will provide visitor and administrative facilities that are necessary, appropriate, and consistent with the conservation of park resources and values. Facilities will be harmonious with park resources, compatible with natural processes, esthetically pleasing, functional, energy and water efficient, cost-effective, universally designed, and as welcoming as possible to all segments of the population. NPS facilities and operations will demonstrate environmental leadership by incorporating sustainable practices to the maximum extent practicable in planning, design, siting, construction, and maintenance (NPS 2006, Chapter 9).*

*Through the use of concession contracts or commercial use authorizations, the National Park Service will provide commercial visitor services that are necessary and appropriate for public use and enjoyment. Concession operations will be consistent to the highest practicable degree with the preservation and conservation of resources and values of the park unit. Concession operations will demonstrate sound environmental management and stewardship (NPS 2006, Chapter 10).*

## **National Park Service Director's Orders**

*Director's Order 28 (DO-28)* regarding cultural resources management and the accompanying *Cultural Resource Management Guideline (NPS-28)*—Chapter 8 of the guideline discusses management of historic structures, including their identification, documentation, stewardship, and use, and states:

*According to both federal law and NPS Management Policies, all historic structures in which the Service has a legal interest are to be managed as cultural resources. Regardless of type, level of significance, or current function, every structure is to receive full consideration for its historical values whenever a decision is made that might affect its integrity. Historic structures that are central to the legislated purposes of parks, especially those that are to be interpreted, may be subjects of additional, specialized efforts appropriate to their functions and significance (NPS 1998).*

## **Planning Context**

Planning in Yosemite National Park takes two forms: programmatic planning and implementation planning. General management plans are programmatic plans that are required for national parks by the National Park and Recreation Act of 1978. The purpose of general management plans is to set a “clearly defined direction for resource preservation and visitor use” (NPS 2006), provide general directions and policies, and guide planning and management in the park. The 1980 *General Management Plan* is the overall planning document for Yosemite National Park. Implementation plans, which tier off of programmatic plans (like the *General Management Plan*) focus on “how to

implement an activity or project needed to achieve a long-term goal” (NPS 2006). Implementation plans may direct specific projects as well as ongoing management activities or programs. They provide a more extensive level of detail and analysis than do general management plans. The Badger Pass Ski Lodge Rehabilitation Environmental Assessment is an implementation plan tiered from the *General Management Plan*. The following plans pertain to the Badger Pass Ski Lodge Rehabilitation Project:

### **1980 Yosemite National Park General Management Plan**

The goals for the Badger Pass area described in the *General Management Plan* all relate to visitor use: to provide opportunities for family-oriented downhill skiing and other forms of winter recreation with existing facilities and capacities, to alleviate congestion and overflow parking during winter, to promote increased summer use of the area, and to interpret activities and resources along Glacier Point Road. The *General Management Plan* calls for the following eight specific actions at Badger Pass:

- Retain existing facilities and enforce a safe [ski] slope capacity
- Provide ski equipment rental and sales
- Retain first-aid station
- Provide storage and repair facilities for snowshoes
- Retain 600-car parking area
- Continue winter bus service from Yosemite Valley and Wawona
- Retain lodge for fast-food service, rest rooms, and gift and clothing sales
- Provide seasonally changing interpretive exhibits in the lodge

### **1992 Concession Services Plan**

The *Concession Services Plan/SEIS* presented guidance for management of concession services in Yosemite National Park to meet *General Management Plan* goals. The *Concession Services Plan* amended the *General Management Plan*. The *Concession Services Plan* is consistent with the *General Management Plan* regarding actions at Badger Pass, with the following additions:

- Under the *Concession Services Plan*, use of the Badger Pass area for downhill and cross-country skiing would continue, as called for in the *General Management Plan*, however, skiing operations would be reviewed periodically to determine if activities should continue or be modified as use, environmental considerations, and economics might dictate.
- The *General Management Plan* called for ski rental and sales to be provided. These services were added since the *General Management Plan*. The *Concession Services Plan* calls for these services to be retained.
- Child care at Badger Pass Ski Area is not mentioned in the *General Management Plan*. Under the *Concession Services Plan* it is to be retained.

### **1999 Programmatic Agreement**

Under this agreement, the park has the responsibility to review most undertakings without further review by the SHPO or the ACHP, provided the stipulations of the agreement have been fulfilled. The agreement stipulates required consultation with SHPO, ACHP, Indian tribes, and interested

persons: when an undertaking may affect a National Historic Landmark, properties of national significance listed on the National Register of Historic Places, or a human burial; when an undertaking may adversely affect a traditional cultural property; or when an undertaking generates significant public controversy or involves a disagreement among the park, the SHPO, any Indian Tribe, or any Interested Persons regarding proposed use of standard mitigating measures. The agreement applies to undertakings performed by NPS lessees, permittees, concessioners, cooperators and park partners. It also requires Yosemite to “make every reasonable effort to avoid adverse effects to Historic Properties identified . . . through project design, facilities’ location or other means” and to document avoidance alternatives through the NEPA process (NPS 1999).

## Purpose of and Need for the Project

### Purpose of the Project

The Badger Pass Ski Lodge is a National Park Service-owned facility that is operated by a park concessioner to provide commercial visitor services. The purpose of this project is to meet the policy goals stated in the NPS Management Policies above by correcting structural and design deficiencies that are contributing to the deterioration of the Badger Pass Ski Lodge and/or are affecting visitor services, and to support the park management goals for Badger Pass, as identified in the Yosemite *General Management Plan*, by maintaining opportunities for family-oriented downhill skiing and other forms of winter recreation at Badger Pass. More specifically, this plan identifies actions needed to:

- Assure visitor and employee safety
- Maintain and protect the integrity of Badger Pass Ski Lodge, a contributing element of the Badger Pass Ski Area historic site
- Maintain and protect natural resources
- Maintain ski lodge operations and service functions
- Protect the winter recreation visitor experience at Badger Pass Ski Area

This rehabilitation project would repair and stabilize deteriorated structural and exterior elements to prevent further damage, and contribute to full rehabilitation of the ski lodge and associated support facilities. Major work elements could include:

- Replacement of the ski lodge roof and decks, and correction of structural and design deficiencies to prevent further damage due to water infiltration
- Removal of temporary buildings and installation of permanent, compatible structure(s) to house current programs at Badger Pass Ski Area
- Address deficiencies in seismic, accessibility, fire, and building codes; eliminate water intrusion; reduce snow load build-ups; and correct design deficiencies for more efficient operations
- Replacement or relocation of kitchen and dining facilities to better handle visitor needs and meet health code requirements
- Restoration and/or repair of ski lodge elements to preserve and enhance the historic character of the ski area, combined with possible renovation or replacement of non-historic elements in a manner that is compatible with the historic character of the ski area

- Other site modifications or improvements deemed necessary to support current ski lodge operations and programs, contribute to attainment of NPS sustainability goals, and allow for continued use of the ski lodge while maintaining the cultural landscape and protecting natural resources

Certain ancillary facilities at the Badger Pass Ski Area that extend beyond the immediate build area of the ski lodge, retail shop, and Alpine and Nordic rental buildings are not included in the ski lodge rehabilitation scope. Such facilities, including the potable water production wells, storage tank, and primary distribution pipeline; the wastewater treatment system septic tanks, leach fields, and sanitary sewer lines; the high voltage electrical service to the ski area; and the non-contributing NPS Ranger Station (A-frame) and ski area maintenance building, extend, or lie entirely, outside the built area of the ski lodge and rental/retail shops, and are not concessioner operated. The National Park Service maintains the site infrastructure and Ranger Station facilities, and would complete NEPA and NHPA compliance for these facilities as discrete projects as rehabilitation or upgrade needs arise.

## **Need for the Project**

Badger Pass Ski Lodge is suffering from structural degradation and design deficiencies, and is in need of repairs to ensure that the facility can support winter recreation for generations to come. In addition, the mechanical, electrical, plumbing, and safety systems need to be upgraded. The current layout of facilities contributes to congestion and other inefficiencies. Employee facilities are insufficient. Finally, some past additions to the ski lodge are incompatible with the historic character of the original lodge building and ski area, and temporary structures detract from the cultural landscape of the Badger Pass Ski Area historic site and the Glacier Point Road Historic District.

The ski lodge has sustained damage associated with the climatic extremes of its location at 7,200 feet, including those relating to heavy snow loads, a shallow water table, and siting at the lower end of a bowl-shaped meadow where runoff and snow melt from surrounding uplands collect. Roof and deck runoff is conveyed through the building by corroded and leaking pipes, and collects at downspouts near the building foundation. Runoff from surrounding areas also converges on the building, and inadequate perimeter drains allow runoff to infiltrate the basement and weaken building foundations. During periods of elevated water table, groundwater also infiltrates into ski lodge sewer piping upstream from the onsite wastewater treatment system. There is a critical need to repair current damage caused by water infiltrating the Badger Pass Ski Lodge structure, and to make changes that will prevent future damage. Site grading and drainage control corrections are required to intercept and divert runoff away from the building. A structural conditions assessment was completed for the lodge and is included in the draft Badger Pass Ski Lodge Historic Structure Report (Page & Turnbull 2009f).

Structural degradation in parts of the building envelope, due to water damage and dry rot, also has occurred and must be corrected. Most of the ski lodge windows and doors need repair, and in some cases, entire window walls need replacement.



*Photos courtesy Page & Turnbull (2009f, Appendix F, B1010-03 and C1012-02)*

**Figure 1-3** Examples of deteriorated floor beam and wood decay at structural members of the north wall and ceiling, basement level.

Mechanical and electrical systems throughout the building are obsolete and need to be repaired, upgraded, or replaced. All plumbing and heating systems, other than the recently installed sidewalk heating system at the front entryway, are outdated and have exceeded their expected service lifetimes. The automatic fire suppression sprinkler system in the lodge is in need of major upgrades or replacement (Page & Turnbull 2009f, Appendix G). In addition, the utility infrastructure for water production, storage, and treatment, and wastewater conveyance to the onsite wastewater treatment system is in need of repair or replacement to improve efficiency and restore integrity.

As noted above under “Project Background,” a temporary replacement structure was installed at the ski area in 2006, after the downhill ski rental building was condemned and removed in 2005. Another temporary structure northeast of the main lodge houses Nordic ski and snowshoe rental. These temporary structures are incompatible with the historic character of the ski area and should be replaced with permanent buildings in order to maintain visitor services into the future.

Within the main lodge building, access for people with disabilities is limited, and both general and disabled-access restrooms need improvements to meet regulatory requirements. Improvements also are needed to meet code requirements related to periodic overnight use of the ski lodge by NPS and concessioner employees such as slope groomers, snow removal staff, emergency crews, and YCC work crews.

In addition to structural repairs and upgrades to correct code deficiencies, improvements are needed to address building layout and space constraints that contribute to operational inefficiencies and negatively affect visitor experience. These issues include:

- Congestion in queuing, rental shops, and dining areas
- Inadequate indoor dining space
- Inadequate food and garbage storage
- Lack of restrooms in rental buildings
- Inadequate rental equipment inventory due to lack of storage space
- Inadequate employee facilities (break rooms, bunk room, dedicated restrooms)

## Public Scoping Process

Public scoping was initiated for the Badger Pass Ski Lodge Rehabilitation Environmental Assessment on January 14, 2009, and the National Park Service accepted scoping comments through February 13, 2009. Two public scoping meetings were held during the public scoping period, one each in Yosemite Valley and at Badger Pass. Written public scoping comments were received at public scoping meetings, and by fax, email, U.S. mail, and online through the Planning, Environment, and Public Comment (PEPC) website. As a result of the public scoping period, the park received comments from 40 individuals and 4 organizations. The analysis of these letters identified almost 200 discrete comments, from which 78 general concern statements were generated. The concern statements were categorized and considered for incorporation in the planning process. The Public Scoping Comment and Response Report prepared for the Badger Pass Ski Lodge Rehabilitation Project, as well as copies of the original comments, can be reviewed online at <http://www.nps.gov/yose/parkmgmt/badgerlodge.htm>. Internal scoping and consultation with other government agencies and American Indian communities also informed the planning process. See Chapter 4, Consultation and Coordination, for more information on consultation procedures.

### **Issues and Concerns Addressed in this Document**

The following issues were identified during the public scoping process and through input from National Park Service staff, Yosemite National Park concessioner Delaware North Companies, Inc. staff, and American Indian communities:

- Maintain the rustic character of the ski lodge and features of the lodge that contribute to the significance of the historic site
- Improve the ski lodge to accommodate visitor use
- Protect natural and cultural resources

These issues are addressed in the analysis presented in Chapter 3, Affected Environment and Environmental Consequences.

### **Issues and Concerns Not Addressed in this Document**

Issues and concerns generated through public scoping that, while relevant to the management of Yosemite National Park, will not be affected by this project, were determined to be outside the scope of this project. Issues that are beyond the scope of this project and therefore will not be addressed in the environmental assessment include the following items:

- Interpretive programs and specific visitor services offered by the National Park Service and the concessioner at the ski area
- Ski area facilities other than the ski lodge and rental shops (e.g., the Badger Pass Ranger Station (“A-frame” building), ski lifts, and maintenance buildings)
- Wastewater treatment septic system at the ski area
- Shuttle bus service to the ski area

All comments received during the scoping period have been duly considered and are now part of the administrative record for this project.

# Organization of Environmental Assessment

The proposed action and alternatives for the Badger Pass Ski Lodge Rehabilitation Project, and the evaluation of potential impacts of the No Action and three action alternatives, will be referred to collectively as the *Badger Pass Ski Lodge Rehabilitation Environmental Assessment*. The contents of this document are as follows:

**Executive Summary** – The Executive Summary succinctly summarizes all pertinent information contained within the document.

**Chapter 1, Purpose and Need** – The first chapter includes a discussion of the project’s purpose and need, planning context, issues and concerns that are and are not addressed in this environmental assessment, and the overall organization of the document.

**Chapter 2, Alternatives** – This chapter discusses the No Action Alternative and three action alternatives under consideration by the National Park Service for the Badger Pass Ski Lodge Rehabilitation Project and provides a summary table comparing the alternatives.

**Chapter 3, Affected Environment and Environmental Consequences** – This chapter provides an overview of the affected environment and presents an analysis of the potential environmental impacts of each alternative on natural/physical and sociocultural resources in the Badger Pass Ski Lodge Rehabilitation Project area.

**Chapter 4, Consultation and Coordination** – This chapter summarizes how this environmental assessment was prepared and reviewed.

**Chapter 5, List of Preparers** – This chapter lists the names and positions of the persons who are primarily responsible for preparing and reviewing the document.

**Chapter 6, Glossary** – This chapter defines the technical terms and acronyms used in this document.

**Chapter 7, Bibliography** – This chapter lists the references cited in this document.

In addition, Appendices to this document provide supplemental information to that presented in the above sections.

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# Chapter 2: Alternatives

This chapter describes the No Action Alternative along with three action alternatives associated with the Badger Pass Ski Lodge Rehabilitation Project, a list of actions common to all action alternatives, alternatives considered but dismissed, a summarized comparison of the environmental consequences of each alternative, and identification of the environmentally preferable alternative.

## Description of the Alternatives

### Alternative 1: The No Action Alternative

#### Overview

Under Alternative 1, rehabilitation of Badger Pass Ski Lodge would not occur.

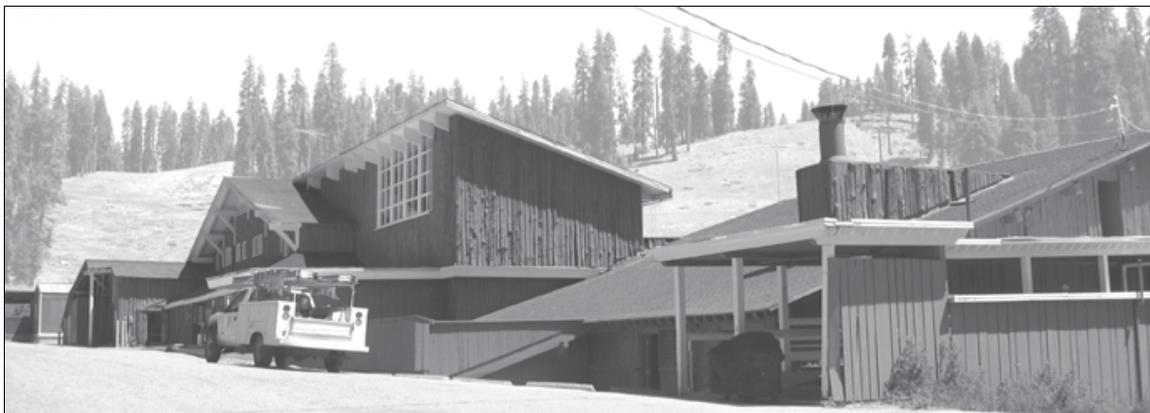
#### Objective

Under this alternative, emergency repairs and routine maintenance would continue to take place as needed, but no comprehensive, long-term rehabilitation, restoration, or renovation would occur. This alternative would result in the continuation of current conditions, which are described in detail below. Figures 2-1 and 2-2 show views of the current facility.



*Source: Page & Turnbull (2009a)*

**Figure 2-1** Existing Vantage from Slope.



*Source: Page & Turnbull (2009a)*

**Figure 2-2** Existing Arrival Vantage.

### **Historic Rehabilitation**

Under the No Action Alternative, the character of the original ski lodge structure would continue to be masked by later additions. Underlying causes of structural damage to the Badger Pass Ski Lodge due to water intrusion, exposure to the elements, and aging infrastructure would not be addressed. Under this alternative, the structure would not be treated as recommended and, without stabilization measures, would likely further lose integrity (Page & Turnbull, 2009f).

The historic elements of the Badger Pass Ski Lodge that are still intact would be retained. However, some elements of the structure's historic character have disappeared or have lost integrity over the years. For example, the oversized flagstone hearth fireplace, a distinctive characteristic of the NPS Rustic style, was removed from the lounge in 1954. This feature would not be restored or replaced under this alternative.

The current conditions of program elements and buildings described in detail below would continue under the No Action Alternative. Figure 2-3 illustrates the current layout of the facility within Badger Pass Ski Area. Figures 2-4, 2-5, and 2-6 provide floor plans of the ski lodge and the location of specific program elements.

### **Existing Conditions**

#### **Visitor Arrival and Circulation**

Ticketing points of sale are located at: a station at the north end of breezeway, a station at the south end of breezeway, the Activities desk inside the ski lodge on the first floor, and the cashier station in the Alpine rental building (east building). Lift tickets, ski rental, ski school, and tubing tickets are available for purchase at all the ticketing stations. The dispersed location of the ticketing stations contributes to long waiting lines on peak days. Queue space for ticketing conflicts both with queue space for the Pups program and daycare next to the Activities desk and with circulation space in the breezeway. Ticketing for Nordic skiing only is available in the Nordic rental building. NPS wilderness permits and ranger interpretation services, such as ranger-led snowshoe walks, are available at the Ranger Station (A-frame), located southwest of the ski lodge.

There is no clear path of travel between the various visitor services in the ski lodge, and circulation is crowded and inconvenient at peak times. Bottlenecks occur at the main lodge entryway, at the Activities desk, at ticketing in the breezeway, and at the ground floor exit to the slopes. Restrooms located in the basement are isolated and inconvenient. Ground floor access from the lounge to the deck and second floor access between seating areas to the deck is limited. Many parts of the building are not ADA-accessible due to floor level changes, and a lack of either an elevator or a stair lift.

#### **Visitor Service and Programmatic Requirements**

**Main Lodge and West Building:** The main ski lodge provides food and beverage service, dining and lounge area, interior and exterior seating, ticketing, locker facilities, restrooms, ski rental facilities, a children's ('Pups') ski program and daycare, an Activities/Information desk, and a retail store, as well as administrative and operational space. Dining, seating, and restroom facilities are of adequate capacity at non-peak times and are insufficient during peak times. Interior seating is insufficient at times of unfavorable weather.

The main dining facilities are located on the first floor, with secondary service in the Snowflake Room on the second floor. The secondary food service is open only on weekends and peak days.

The main food service facilities include: a cashier station with three points of sale, queue space, a food pick-up area, and kitchen facilities (see Operational and Employee Facilities, below, for details). The secondary food service facility includes: a food service area with one point of sale, a bar service station with one point of sale, and queue space. Queuing at the dining areas on both the first and second floors takes up seating space.

Retail space is located on the first floor of the west building, and includes a retail display area, a sales counter with two cashier stations, a prepackaged food area with refrigerators, office space, storage space, and a changing room. No restroom is provided in this space.

Three types of lockers are provided for ski and equipment storage: full-size, small day-use, and cubbies. Full-size lockers are located in locker rooms A, B, and C on the ground floor. Locker rooms A and C are for public use and include season pass holder lockers and overnight lockers for multi-day pass holders. Locker room B is primarily used by the Yosemite Ski Team and Ski School instructors. Small day-use lockers are located on the first floor, adjacent to the retail shop, and directly inside the main entrance. Small open storage cubbies are provided in the main lounge area on the first floor.

The Pups program and the daycare facility are located together on the first floor of the main lodge building. The Pups program area includes a sign-in desk for both programs and a ski equipment area. Storage space for Pups program ski rentals is currently inadequate to meet the demand for equipment on peak days. Queuing at the Pups program counter extends into the space in front of the Activities desk, which often causes congestion in this area. The daycare program area includes a play area, TV area, counter with sink and cabinets, and two children's restrooms.

***Alpine and Nordic Rental Buildings:*** Alpine (including downhill ski and snowboard) and Nordic (including cross-country ski, snowshoe, and inner tube) rental facilities are provided in temporary buildings detached from the main lodge. On peak use days, these facilities are of inadequate size for visitor demand, and there is insufficient inventory due to lack of storage space. No restroom facilities are available in these structures. On busy days, queuing at the Alpine rental building spills into the vehicular drive, and the boot fitting counter creates a bottleneck. The temporary buildings detract from the character of the historic site, and as they are not permanent buildings, they would eventually require replacement.

The temporary Alpine rental building is located on the east side of the main lodge building. Facilities include: a cashier station with two points of sale, queue space at the cashier station, a boot rental area, a ski/snowboard/pole rental area, seating areas for fitting, a "tech desk" for ski repair and maintenance, an administrative office, and circulation space. Flow of activity begins at the queue for the cashier, moves from the point of sale to boots, to skis and poles or snowboards, and terminates at the exit on the southwest side of the building, towards the slopes.

Nordic rental is also available in a separate, temporary building, detached from the main lodge building to the northeast across the roadway. Facilities include: a cashier station with one point of sale, queue space at the cashier station, a small retail space behind the cashier station, a boot rental area, a ski/snowshoe/pole rental area, a seating area for fitting, a repair work table, an administrative office, and circulation space. Snow tube rentals are also available in the Nordic building. Storage space for rental equipment is provided in a separate storage container west of the building. Flow of activity begins at the queue for the cashier, moves from the point of sale to boots,

to skis and poles or snowshoes, and terminates at the exit on the southeast side of the building, towards the cross-country trailheads.

**Operational and Employee Facilities:** Offices are located on the second floor of the retail building, including an auditor's office, a bank drop/safe, two workstations, a restroom, and storage. Overnight grooming and snow removal staff stay in a bunk room above the kitchen, which includes a sleeping area for four staff, two storage closets, and a full bathroom. Staff restrooms are located only in these two areas. Additionally, two administrative offices and a work room are located in an addition at the southwest corner of the original lodge building, adjacent to the Activities desk. Ski patrol facilities located in the ski lodge consist of a staff room at the ground floor, which provides staff locker space. There is no employee breakroom in the ski lodge. Lift operations are housed in a room below the breezeway on the ground floor.

An office located on the first floor of the west building is used for ski school administrative services and lesson scheduling. The ski area operator's offices and front desk administrative space are located in an addition to the original lodge on the ground floor. A room in the basement north of locker room A is used as a locker room for ski school instructors. The Rusty Rust Room, adjacent to locker room B, is used for ski school storage and race equipment for the Yosemite Winter Club.

Kitchen facilities on the first floor include: kitchen space, a hot prep area, a finishing area, two walk-in freezers (one accessed from outside the building, which is problematic when the door freezes over), storage space, and a dishwashing area. Additionally, a barbeque is set up on the exterior deck on peak days. Food, waste, and recycling storage facilities are insufficient, and kitchen layout is inefficient. Increased frequency of deliveries from Yosemite Valley is sometimes required due to a lack of cold storage. Deliveries are unloaded on the north side of the lodge adjacent to the bus loading, pedestrian entry, and ADA-accessible parking areas.

During summer months (June - August), the ski lodge is used as a base camp for Yosemite National Park's Youth Conservation Corps (YCC) program, which employs approximately 40 corps members and 25 NPS staff. During this time, the ski lodge is not open to the general public. A portable shower unit is placed to the west of the ski lodge in the parking lot for summer YCC use.

### **Sense of Place**

The ski lodge retains its presence and purpose as an intimate public ski facility within a protected mountain meadow. The building's architectural character and use of natural timber cladding, which is compatible with the surrounding landscape, are intact and contribute to the sense of place of the facility. Non-historic additions and temporary structures, however, detract from the sense of place, and some vantages have been changed. Orientation and wayfinding through the facility is not optimal and can be confusing to visitors.

### **Sustainability**

The existing mechanical and plumbing systems and building insulation at the ski lodge are older and not as efficient as newer water- and energy- conserving systems would be.

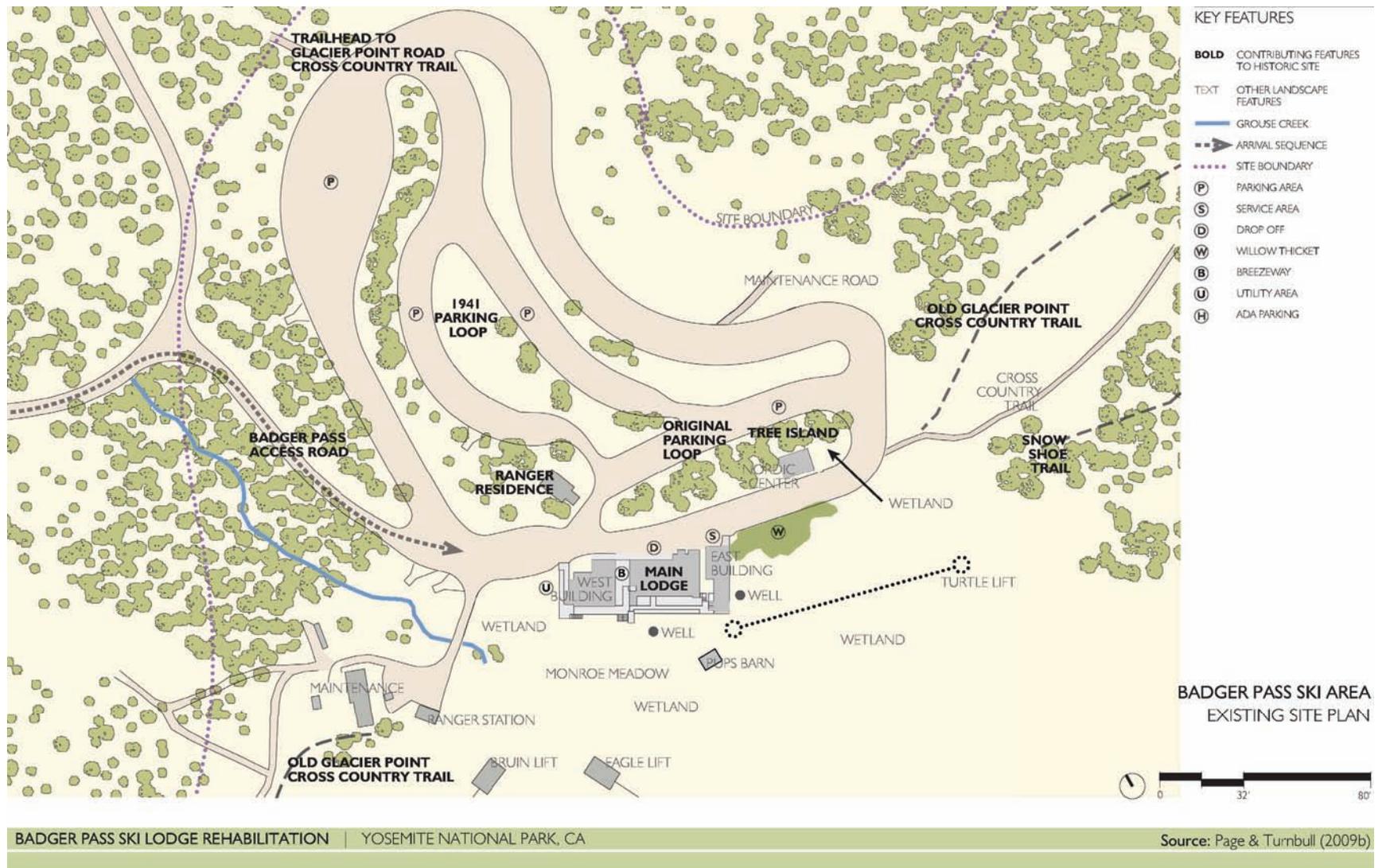
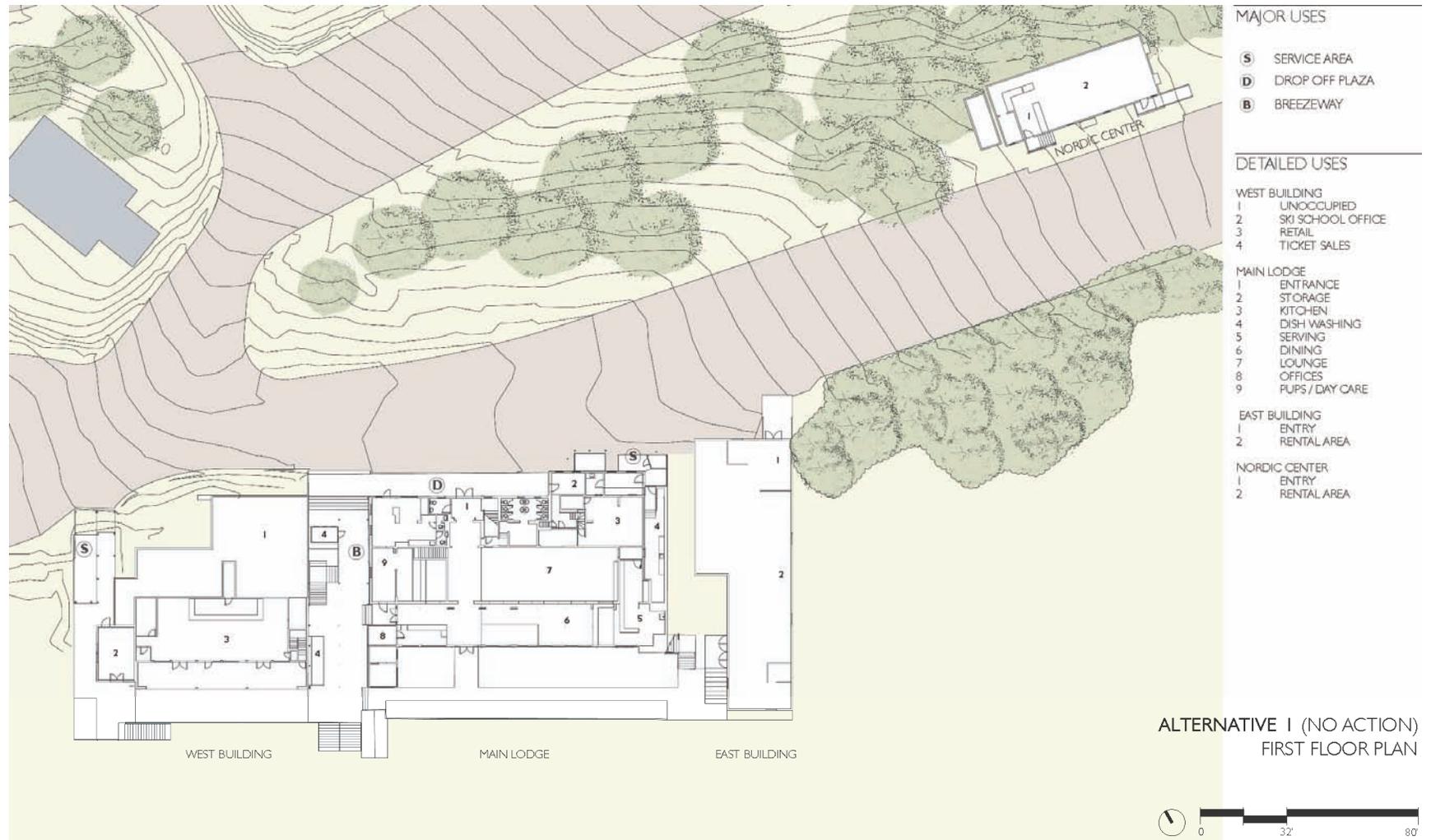
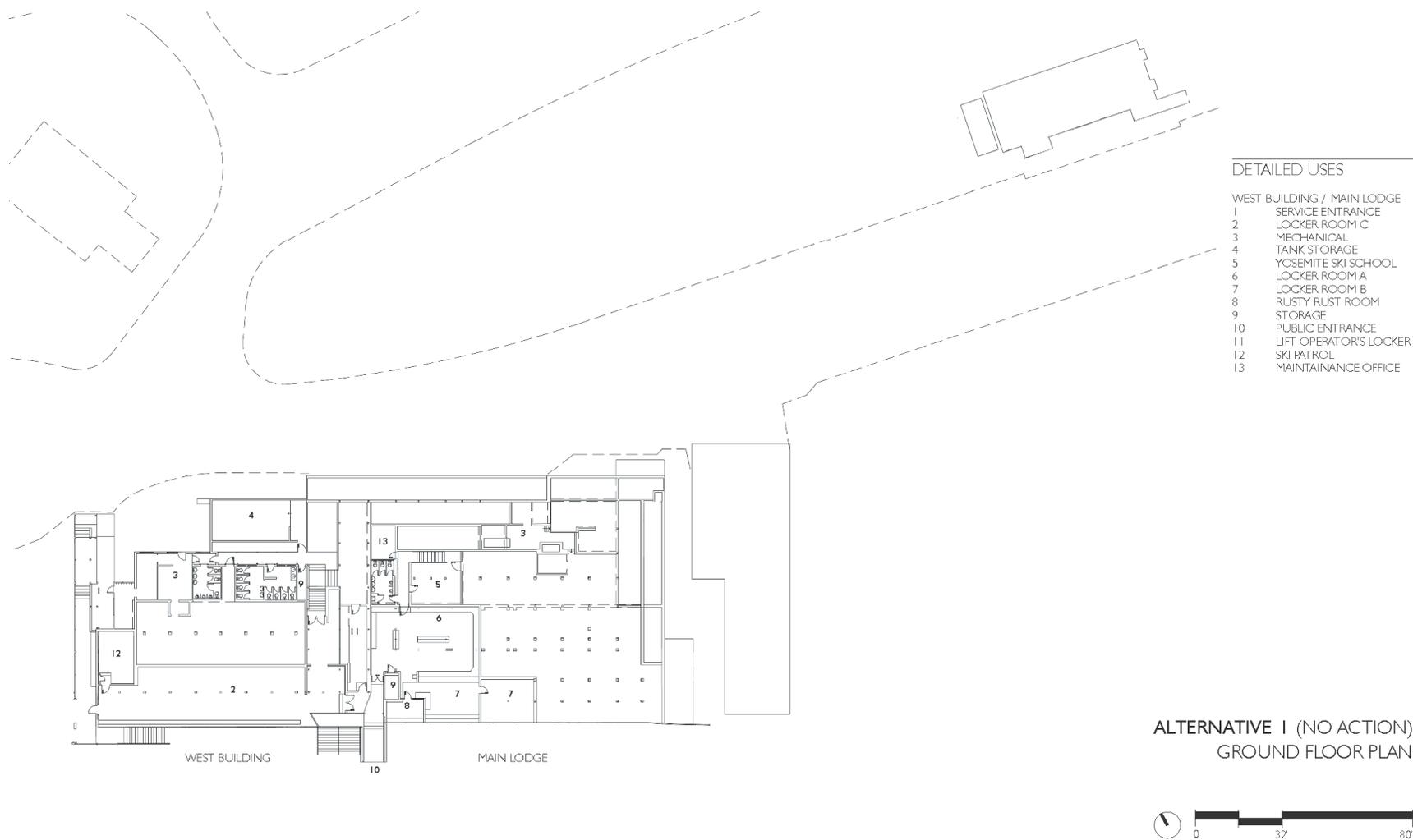


Figure 2-3 Badger Pass Ski Area Facility Layout.

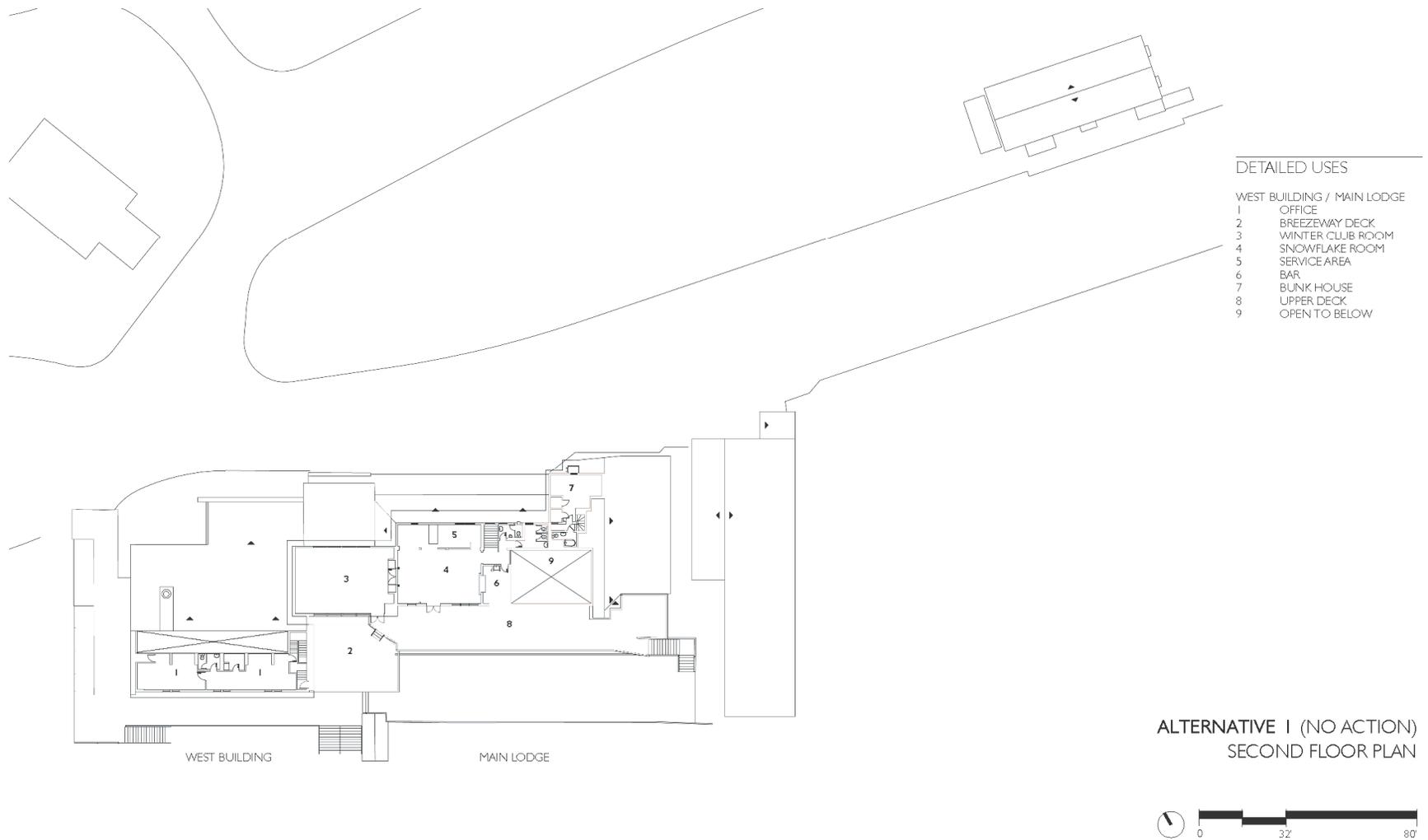


**Figure 2-4** Badger Pass Ski Lodge – Existing First Floor Plan.



ALTERNATIVE I (NO ACTION)  
GROUND FLOOR PLAN

Figure 2-5 Badger Pass Ski Lodge – Existing Ground Floor Plan.



**Figure 2-6** Badger Pass Ski Lodge – Existing Second Floor Plan.

### Facility Layout

The main lodge building, including the retail (west) building, houses ticketing and visitor information, food service, lounge and dining, locker, retail, daycare, ski school, and restroom facilities. Lift operations and mechanical facilities, office space and a bunk room for overnight staff are also located in the main lodge building. Alpine and Nordic rental and repair facilities are located in temporary buildings near the main lodge building. The ski lodge facility, including the Alpine and Nordic buildings, encompasses approximately 22,900 square feet of interior space, plus another 9,900 feet of exterior deck space.

### Architectural

The original ski lodge, built in 1935, has undergone many extensions, additions, and modifications since its construction. The main lodge building was expanded in 1936, 1941, 1946, 1956, and 1961. A stand-alone comfort station was built to the west of the main lodge in 1940, and in 1954 the retail addition (west building) was built on top of the comfort station, expanding the basement area around it. The breezeway was constructed in 1956, and the Winter Club Room was added above that in 1968. The building was stabilized in 1996, and emergency deck repairs were made in 2005 and 2007. The current ski lodge complex includes the 1935 lodge building in the center, the 1954 addition to the west and the temporary Alpine rental building (added in 2006) to the east, as well as a large deck to the south that creates a connected walkway between these separate buildings.

Although the appearance of the ski lodge reflects the many additions and alterations made to it over time and differs from its appearance during the period of significance of the Badger Pass Ski Area historic site (1934 – 1953), the ski lodge is an important contributing feature of the historic site. Original rustic features of the building that remain include: the wood frame structure, front gable roof with wide overhanging eaves, and natural bark half-log siding (which is partially obscured). Original rustic features of the building that have been removed include the original balconies with railings featuring decorative cut-outs; and the majority of the rectangular, multi-light casement windows. Elements of the ski lodge constructed after 1953, such as the decks, the south extension (window wall) of the lodge, the breezeway, the Winter Club Room, the retail addition, and the basement areas below them, do not contribute to the Badger Pass Ski Area historic site (Page & Turnbull 2009e).

Currently, ADA accessibility at the ski lodge is not fully compliant with current codes. Many parts of the building are inaccessible due to floor level changes and stairs, and accessible restrooms are inadequate.

### Fire Protection

**Buildings:** Life safety of the ski lodge is not fully compliant with current codes. In particular, emergency egresses, separations, signage, and fire detection systems are insufficient, and the sprinkler system is in need of repair or replacement in order to adequately protect the facility. No sprinkler system is in place in the Nordic building.

## Structural

**Main Lodge, West Building, and Exterior Decks:** The building's structural integrity is threatened by damaged roofing, poorly functioning interior and exterior drainage systems, and inadequate foundations and structural support. Basement-level locker rooms have no ventilation and suffer from flooding. These conditions have caused and will continue to cause damage, an ongoing and repeated need for emergency repairs to protect life and safety, and long-term degradation of the building. Examples of emergency stabilization measures that addressed life safety risks in the past year include:

- Stabilization of deteriorated floors
- Shoring of insufficiently supported floors and decks
- Replacement or repair of dangerously unstable exterior stairs and railings.

Additional description of these and other recent emergency measures can be found in Appendix A, Cumulative Projects.

## Civil

**Pedestrian and Vehicle Approaches:** The original parking loop for Badger Pass Ski Area is located directly north of the ski lodge. This parking loop is oriented east to west and features an island with a stand of conifer trees. The parking area has been expanded to the north in several loops, however, the south part of the original loop still serves as the main drop-off point for personal vehicles and buses.

Pedestrians approach the ski lodge from the north via the parking area and roadways. There are several locations where the pedestrian route crosses or follows often icy vehicle drive lanes. There is a sidewalk along the north side of the lodge, but there are no benches or other amenities to facilitate drop-off and pick-up of passengers. The bus drop-off area, the pedestrian entry, and the loading area for deliveries are all located in the same area.

In fall 2009, the National Park Service completed several improvements to the ski area parking lot, as described under the *Glacier Point Road Rehabilitation Environmental Assessment (2007)*. These improvements were undertaken in part to improve drainage by adding new storm drains, additional drop inlets and trench drains, new gutters and curbs, and alteration of the grade of the concrete pad in front of ski lodge to redirect surface runoff. The new paving at the north entrance to the lodge is now flush with the curb that separates the sidewalk and roadway. This improvement is ADA-compliant, however, from the sidewalk there is no ADA-accessible point of entry to the lodge or an ADA-accessible ramp to the stepped breezeway.

**Domestic Water Distribution:** Water for the ski area is provided by a primary production well located immediately east of the temporary Alpine rental building and a backup well located just south of the southern ski lodge deck. Water is treated via a chlorination unit in the basement of the ski lodge, and is pumped during overnight hours to a 96,000-gallon, aboveground storage tank upslope from the ski lodge to the east via a pipeline. During the day, flow is reversed and the same pipeline is used to distribute treated water to the ski lodge and other facilities at the ski area. The pumping system that fills the water tank operates on a timer, and the system lacks water-level controls at the storage tank. When the volume of water pumped to the tanks exceeds the tank capacity, treated water overtops the tank and is released onto the ground.

**Sanitary Waste:** Wastewater from the ski lodge enters a gravity-flow sewer line that drains to onsite septic tanks, located west of the ski lodge, for treatment. Kitchen wastewater is diverted through grease traps located adjacent to the north side of the main building before being discharged to the sewer main. Treated wastewater is pumped from the septic tanks to a leach field located west of the maintenance building for disposal. The sanitary sewer lines downstream from the ski lodge were recently replaced; however, the sewer lines beneath the main building and west building are old and in need of replacement. Analysis of water production, water consumption, and wastewater discharge data suggests that groundwater may infiltrate the sewer lines during seasonal high groundwater levels.

**Snow Removal and Storm Drainage:** The condition of curbs and culverts, a lack of gutters, inadequate drainage, and improper sloping allow snow and storm-water runoff to pond and run directly to the lodge building. An inadequate drainage system along the east and south sides of the ski lodge allows surface water to pond along the building foundations and to pond along the south side of the lodge. During periods of high groundwater levels, groundwater seeps into the ground floor areas of the main building.

Snow removal is particularly problematic on the lower outdoor deck at the south end of the breezeway, and on the steps from the slopes to the basement. Snow removal is also problematic on the upper decks due to snow load structural concerns, the difficulty in maneuvering snow removal equipment up stairs, and the lack of area to put the snow once it is removed.

### **Mechanical/Plumbing**

**Buildings:** Heating for the ski lodge is provided by diesel-fired steam boilers and a steam distribution system. The boilers are nearly 30 years old and are due for replacement, but are in good condition for their age. The steam distribution components are at the end of their useful life. Steam unit heaters are in fair condition. Restroom and kitchen exhaust systems are functional; a fire suppression element to the existing kitchen exhaust hood was upgraded in 2009 with new code-compliant retardant. Dining area and locker room ventilation systems are inadequate.

Hot water is generated by steam-fired hot water generators. Steam-to-hot water heat exchangers are due for replacement. Hot and cold water distribution systems are in good condition. Some wastewater piping within the building has been replaced recently; remaining older piping is due for replacement.

The temporary Alpine rental building and the main lodge kitchen are served by two above-ground propane tanks located in the willow thicket next to the Alpine rental building. The generators and boilers are served by a fuel oil tank located below ground, northwest of the west building.

The snowmelt system at the entrance walkway is functional. The entrance gutter heating element is not working well. No other snow melt systems are in place.

### **Electrical**

**Buildings:** The power distribution and electrical equipment at the site appear to be either original or very old. Most of the devices have reached or exceeded their life expectancy, and many do not meet current safety standards. The emergency generator is tested regularly, and is functional, but is undersized for the loads, and is located in the same room as the boilers.

**Site:** The main feeder from Pacific Gas & Electric (PG&E) is reportedly overloaded.

## **Actions Common to All Action Alternatives**

The original 1935 ski lodge building would be retained and structural strengthening would take place throughout the facility. Proposed actions for all action alternatives will be compliant with The Secretary of the Interior's *Standards for the Treatment of Historic Properties* (U.S. Department of the Interior 1995) and the *Design Guidelines for Yosemite National Park* (NPS 2009a). Also under all action alternatives, historic materials will be retained or replaced in kind, but existing non-historic materials may be altered.

All current program functions at the ski lodge would be maintained (e.g., ski school, the Pups and daycare programs, food service, etc.), although some program elements would be relocated under various alternatives. The temporary buildings housing Nordic and Alpine rental and repair would be removed and replaced with permanent structures of similar size and location as the temporary buildings. The new structures would incorporate an architectural vocabulary compatible with the historic character of the site. Accessibility would be improved by the addition of an elevator, ramps, floor leveling for improved path of travel, new stairs, and new accessible restrooms on each floor. Fire, life safety, mechanical, electrical, plumbing, and drainage systems would be upgraded or replaced as necessary to meet code requirements and to support NPS sustainability goals by improving energy and water use efficiencies. Figure 2-7 illustrates the site utility and drainage improvements that are common to all action alternatives.

Specific actions proposed under all action alternatives are as follows.

### **Phase 1**

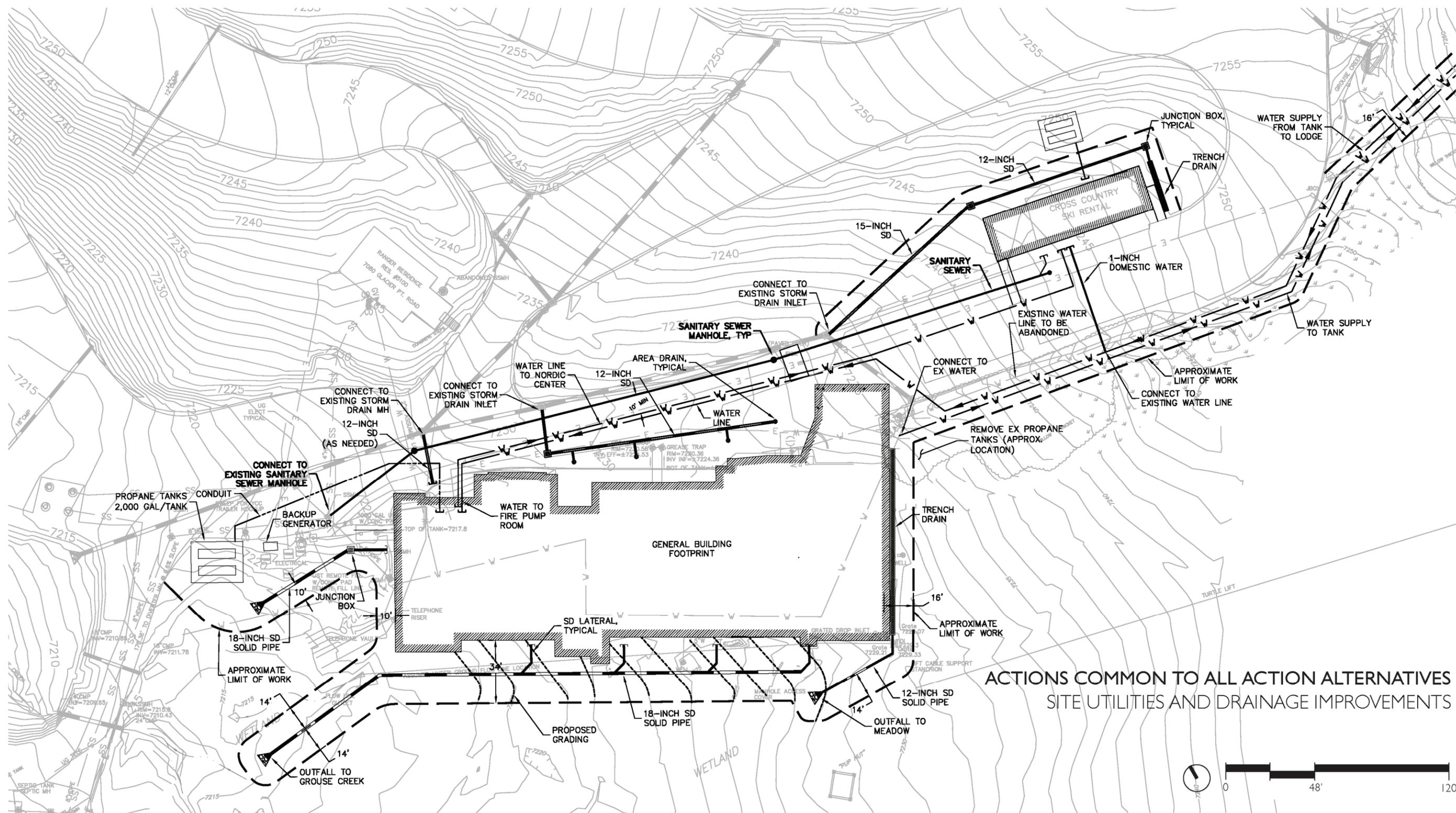
The first phase of work would be common to all action alternatives, and would consist of work to the main lodge, the west building, exterior decks, and site work in the immediate building vicinity outlined below in Table 2-1. All required code upgrades for life-safety, fire protection, accessibility, and building infrastructure including civil, structural, mechanical, plumbing, and electrical systems would be completed. Major repairs and replacement of systems at the main lodge and west building would include exterior decking, roofing, steel framing, and architectural window walls. Engineering systems would be upgraded or replaced, and made more energy efficient.

### **Later Phases**

The timing of the following proposed actions in Table 2-2 would vary by alternative, but they would occur under each action alternative after Phase 1 work is complete.

### **Construction Equipment**

The construction equipment used for the Badger Pass Ski Lodge Rehabilitation Project would be similar for all action alternatives, and would likely include the following: air compressors, backhoes, compactors, concrete mixers, concrete pumps, derrick cranes, mobile cranes, dozers, generators, graders, impact wrenches, jack hammers, loaders, pavers, pneumatic tools, pumps, rock drills, rollers, saws, scrapers, and trucks.



**BADGER PASS SKI LODGE REHABILITATION | YOSEMITE NATIONAL PARK, CA**

Source: Page & Turnbull (2009a)

Figure 2-7 Actions Common to All Action Alternatives – Site Utility and Drainage Improvements.

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**Table 2-1  
Work Common to All Action Alternatives – Phase 1**

---

**Architectural**

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**Main Lodge**

- Remove and replace south decks, deck at the east and west end, railings, and stair access to ski slopes
- Provide a new hydronic snow melt system for exterior decks
- Provide ADA ticket kiosk and platform at breezeway
- Replace roofing material, underlayment and flashings, and repair roof sheathing
- Provide new roof ice melt system at specific locations
- Install three-stop elevator with corridor and elevator machine room at ground level
- Add accessible restrooms at ground, first, and second floors
- Replace floor slab at ground level to provide continuous accessible level; capture new ground floor area from former crawlspace at the main lodge
- Replace ramp to slopes and covered roof structure
- Replace second floor deck, railings, and exterior stair
- Replace south lounge extension (window wall), connections, and flashings
- Remove and salvage exterior half-log cladding, treat, and reinstall over new wall membrane and repaired sheathing
- Replace interior flooring in first floor dining area
- Reconfigure office and Pups program/daycare area on first floor
- Alter kitchen layout and finishes for code compliance
- Remove interior stair to bunk room and replace with exterior stair
- Provide restrooms, and reconfigure locker rooms on ground floor
- Replace interior stair to mechanical room on ground floor
- Provide 1-hour fire rating at mechanical and electrical rooms
- Provide chlorination, mechanical, fire pump, and storage rooms on ground floor
- Install ADA compliant door and window hardware, fixtures, and accessories where necessary
- Install ADA compliant ticket window and information counters

**West Building**

- Replace roofing material, underlayment and flashings, and repair roof sheathing
- Replace Winter Club Room floor level and south window wall
- Reconfigure egress stair to serve Winter Club Room, second floor deck, and second floor office space

**Site**

- Provide designated ADA parking spaces and striping east of the lodge

---

**Fire Protection**

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**Buildings**

- Provide fire pump and new automatic sprinkler system in main lodge and west building
- Repair and stabilize existing sprinkler system in temporary Alpine rental building
- Maintain current condition (no sprinkler system) in temporary Nordic rental building
- Provide fire detection system and alarm system (Notifier system) within main lodge and west building

**Site**

- Provide dedicated fill and supply lines and flow control from existing water tank to supply sprinkler systems in main lodge, west building, and temporary Alpine rental building

---

**Structural**

---

- Provide drilled pier and grade beam foundations under new structural elements
- Retain compaction grouting under existing foundations

**Main Lodge**

- North deck ground floor: replace perimeter foundation wall with concrete foundation and stem wall
  - Main lodge ground floor: add anchor bolting and plywood sheathing crawlspace cripple walls; add concrete shear wall, steel columns, and concrete footings to support new east deck structure
  - Main lodge first floor: provide new shear wall sheathing and connections for select existing walls to remain; provide decay repair to existing framing and sheathing
  - East deck first floor: provide new decking with additional steel beams as required to frame ramp and stairs; remove existing lacing at double steel columns and replace with steel plate web on each face of the columns
  - Main lodge second floor: provide new shear wall sheathing and connections for existing walls to remain
  - North deck roof: check/improve roof framing capacity
  - Main lodge roof: check/improve roof framing capacity at east dishwashing area
-

**Table 2-1**  
**Work Common to All Action Alternatives – Phase 1 (continued)**

**Structural (continued)**

**West Building and Breezeway**

- West building ground floor: provide anchor bolting and plywood sheathing for crawlspace cripple walls, and combination of steel moment frame and concrete stem walls
- Breezeway ground floor: add steel moment frame columns at breezeway from ground floor to underside second floor, new foundation grade beams at column locations, and provide new wood framed shear walls between existing steel columns
- West building first floor: add steel columns and concrete footings to support covered walk at north west corner; remove and replace existing west deck from south face to front of enclosed retail store; repair decay to existing floor framing and sheathing
- Breezeway first floor: continue columns from ground floor; remove existing wood framed floor and replace with new deck; provide new wood framed shear walls between existing steel columns
- West building second floor: provide new steel beams at underside office floor between new steel columns; provide plywood soffit on underside of second floor
- Breezeway second floor: provide decay repair to existing nail laminated decking at breezeway ceiling
- Winter Club second floor: verify or add shear wall sheathing from underside of Winter Club room floor to supporting steel structure below
- West building roof: check/improve roof framing capacity in areas other than the retail space and second floor offices; re nail or replace existing roof plywood sheathing; improve shear transfer connections to walls below roof

**Civil**

- Remove and replace heated entry concrete walkway and provide ADA compliant curb cut and steps
- Replace curb along entry drive to direct surface drainage
- Replace paving and curbs at locations of civil/fire-protection improvements (as applicable)
- Provide plaza and deck area drainage system consisting of area drains to new hard pipe system paralleling the south edge of lodge, with a new outfall to Grouse Creek
- Provide a trench drain system along the east side of the Alpine rental building, with a new outfall to Monroe Meadow
- Provide minor regrading along east, south, and west perimeter of building to direct surface run-off away from the building and toward Grouse Creek
- Conduct additional study to finalize site-specific site drainage improvements

**Geotechnical/Abatement**

- Provide soil compaction grouting under existing foundations
- Remove abandoned chlorination tank under deck near kitchen
- Remove contaminated soil in vicinity of former fuel storage tank ( west building ) as needed, where known contamination is disturbed during project construction

**Mechanical/Plumbing**

- Replace propane tanks serving temporary Alpine rental building and main lodge with two 2,000 gallon tanks at western side of west building; provide a vaporizer
- Replace propane tank serving temporary Nordic building with two 1,500 gallon tanks at a code-compliant distance
- Maintain existing diesel fuel storage tanks – provide new distribution lines to serve standby generator and deck heating system

**Electrical**

**Buildings**

- Replace main service panel and distribution panels
- Provide one-hour fire rating for electrical room
- Replace electrical wiring where accessible and where affected by construction – in walls to be opened
- Provide grounding systems throughout
- Provide distribution to roof ice-melt system

**Site**

- Remove existing standby generator and provide new standby generator on exterior pad with weather enclosure west of the west building
- Upsize feeder lines from the utility-owned transformer to the new main switchboard

**Table 2-2  
Work Common to All Action Alternatives – Later Phases**

<b>Architectural</b>
<p><b>Nordic Center</b></p> <ul style="list-style-type: none"> <li>▪ Remove existing temporary Nordic rental building</li> <li>▪ Construct new Nordic Center housing Nordic ski rentals and restrooms; the new Nordic Center would be approximately 725 square feet larger than the existing temporary structure</li> <li>▪ Replace exterior porch, stair and ramp at Nordic Center</li> </ul> <p><b>Alpine Rental Building</b></p> <ul style="list-style-type: none"> <li>▪ Remove existing temporary Alpine rental building</li> <li>▪ Construct new Alpine rental building housing Alpine ski rentals, restrooms, and offices; the size of the new structure would vary by alternative</li> </ul>
<b>Fire Protection</b>
<ul style="list-style-type: none"> <li>▪ Provide fire pump and new automatic sprinkler system in Alpine rental building and Nordic Center</li> <li>▪ Extend fire detection system and alarm system (Notifier system) to Alpine rental building and Nordic Center</li> </ul>
<b>Structural</b>
<ul style="list-style-type: none"> <li>▪ Provide concrete foundation, interior foundation and stem wall to underside of first floor at perimeter of Alpine rental building and Nordic Center</li> <li>▪ Provide plywood shear walls at building perimeter and interior of Alpine rental building and Nordic Center</li> </ul>
<b>Civil</b>
<p><b>Site</b></p> <ul style="list-style-type: none"> <li>▪ Replace concrete sidewalk and curb at Alpine rental building and Nordic Center</li> <li>▪ Provide ADA compliant path between Nordic Center and main lodge</li> <li>▪ Replace paving and curbs at locations of civil/fire-protection improvements (as applicable)</li> <li>▪ Provide a trench drain system along the north and east side of the Nordic Center</li> <li>▪ Provide water and sewer service connection to Alpine rental building and Nordic Center</li> </ul>
<b>Geotechnical/Abatement</b>
<p><b>Site</b></p> <ul style="list-style-type: none"> <li>▪ Provide soil compaction grouting under existing foundations</li> <li>▪ Remove abandoned chlorination tank under deck near kitchen</li> <li>▪ Remove contaminated soil in vicinity of former fuel storage tank ( west building ) as needed, where known contamination is disturbed during project construction</li> </ul>
<b>Mechanical/Plumbing</b>
<ul style="list-style-type: none"> <li>▪ Replace two existing diesel-fired boilers with two new energy-efficient boilers in rated mechanical room</li> <li>▪ Provide mechanical heating and ventilation system to serve Alpine rental building and Nordic Center</li> <li>▪ Provide plumbing to new restrooms</li> <li>▪ Provide new steam or duct distribution system for heating</li> <li>▪ Provide new mechanical ventilation system to serve ski lodge</li> <li>▪ Provide rated enclosure or shaft for kitchen exhaust duct</li> <li>▪ Replace waste piping where feasible – in walls to be opened</li> <li>▪ Modify kitchen infrastructure for new equipment and layout</li> </ul>
<b>Electrical</b>
<ul style="list-style-type: none"> <li>▪ Replace electrical wiring where accessible and where affected by new construction – in walls to be opened</li> <li>▪ Provide electrical systems to serve Alpine rental building and Nordic Center</li> </ul>

## **Alternative 2: Essential Repairs and Upgrades**

### **Overview**

Alternative 2 includes the rehabilitation of Badger Pass Ski Lodge within the current building envelope, involving minimal action to fulfill the basic project needs for repair and code upgrades.

### **Objective**

The central objective of Alternative 2 is to repair and upgrade the Badger Pass Ski Lodge to meet essential project requirements as outlined in Chapter 1, Purpose and Need. The existing buildings would be maintained with minor physical alteration, while comprehensively addressing critical life-safety, code, accessibility, drainage and systems improvements. The upgrades would be intended to bring the facility to an acceptable level of safety and code compliance. Building systems with deficiencies that compromise the ski lodge structure or visitor services would be addressed. Failing systems would be repaired or replaced with new systems meeting industry building standards as appropriate, without compromising the historic character of the site. The ski lodge operations would be maintained in their current configuration, with minor improvements where code-compliance and building repairs are necessary. Figures 2-10 and 2-11, which follow the description of this alternative, show projected views of the facility after the implementation of all phases of Alternative 2. Figures 2-12, 2-13, and 2-14 display program functions by location under Alternative 2.

### **Historic Rehabilitation**

The aim of treatments to historic features in Alternative 2 is to halt continued deterioration and establish basic protective measures where repair or upgrade work is conducted. Stabilization, strengthening, and protection of building systems are the primary preservation objectives. Features that contribute to the historic character of the site and existing spatial relationships would be maintained and protected. Ski lodge construction that does not contribute to the historic character of the site would also remain, as improvements outlined in Alternative 2 are aimed to fulfill requirements with minimal disruption and alteration to the building.

### **Primary Rehabilitation Objectives**

- Retention of historic material and spatial relationships
- Emphasis on repair rather than replacement of historic fabric, where feasible
- Improvements to protection of materials from water-intrusion and material deterioration, however long-term preservation, performance, and maintenance of historic features will not necessarily be achieved
- Structural strengthening and repairs to framing systems
- Replacement of failing, non-contributing envelope systems critical to safety and weather protection of occupants and building systems
- Improvements to environmental control within the building
- New construction to replace deficient systems incorporating design character compatible with the original ski lodge
- Maintenance of existing building footprints and minimal alteration to site features

**Visitor Arrival and Circulation**

Alternative 2 would retain the current visitor arrival and circulation organization through the ski lodge. Orientation and wayfinding mechanisms would not be included. Improvements would be made to provide accessible paths of travel to program uses at three floors in the west building and main lodge. Accessibility would be improved with the addition of an elevator, ramps, floor leveling for improved path of travel, new stairs, and new accessible restrooms on each floor. As under all action alternatives, an accessible path of travel would be provided between the new Nordic Center and the ski lodge.

**Visitor Service and Programmatic Requirements**

Alternative 2 would improve visitor service at the ski lodge by addressing user safety, comfort and accessibility. In the implementation of necessary upgrades, benefits to the visitor experience and the operation of the facility would be made as feasible and appropriate. Where new construction would occur, the work is designed to provide optimal functionality and service. Specific program locations are illustrated in Figures 2-12, 2-13, and 2-14 at the end of this alternative description.

**Sense of Place**

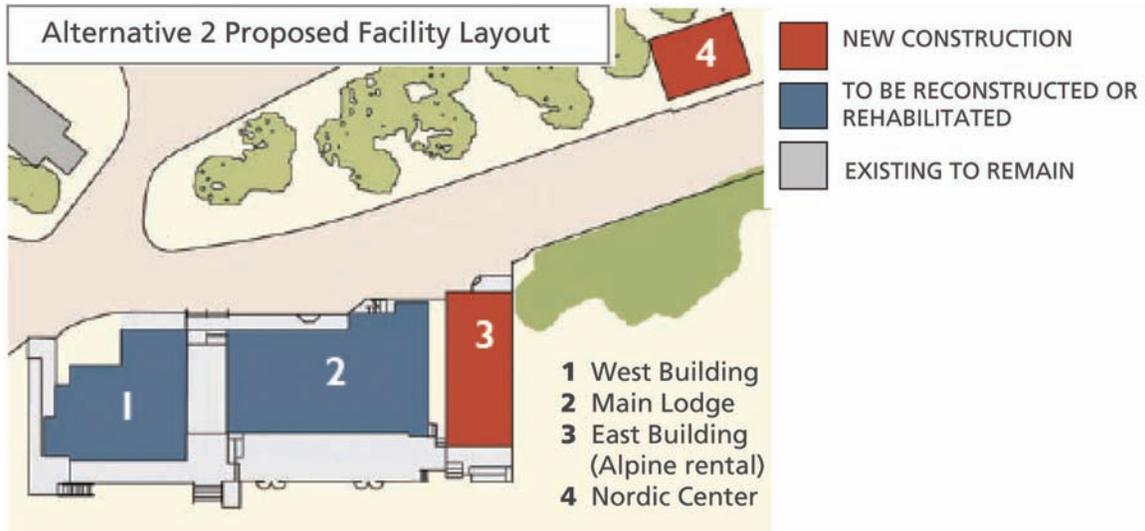
Alternative 2 would maintain the ski lodge's presence and purpose as a public ski facility within a protected mountain meadow. The building's architectural character and use of natural timber cladding, which are compatible with the surrounding landscape, would be retained. Vantages where the sense of place has been lost would not be addressed by Alternative 2. It is also not the objective of this alternative to address historic identity or a sense of place.

**Sustainability**

Advances in energy efficiency would be implemented in Alternative 2 where new systems and equipment are installed for life-safety and code compliance. At locations of roofing, envelope, or foundation replacement, added insulation would assist with reduced energy demands and consumption. Improved mechanical ventilation systems and window wall systems would allow the promotion of natural ventilation during periods of temperate weather. In addition, reduction in water use is anticipated with the use of low-flow fixtures and water efficient equipment. Where possible, the selection of new finish materials would consider recycled content, local sources, low emission of VOCs and reuse of existing materials among other factors that would reduce the waste stream and improve the indoor air quality of the facility.

**Facility Layout**

If Alternative 2 is implemented, there would be only minimal changes to the overall size and layout of any Badger Pass Ski Area facilities. The ski lodge would continue to house the same program and operational functions, in essentially the same locations, as under the No Action Alternative. Alpine and Nordic rental and repair facilities would be reconstructed in single-story, detached buildings in the same location as the current temporary buildings housing these functions. The ski lodge facility, including the Alpine and Nordic buildings, would encompass approximately 23,800 square feet of interior space, plus another 9,400 feet of exterior deck space. The proposed facility layout is shown in Figure 2-8.



Source: Page & Turnbull (2009a)

Figure 2-8 Alternative 2 Facility Layout.

### Specific Actions Proposed

Alternative 2 would implement the work described in the Actions Common to All Action Alternatives section above. All work would be new construction unless noted as existing. Work following the first phase would be focused on replacing the temporary Alpine and Nordic rental buildings with permanent construction. In addition, Alternative 2 would include the following engineering and related site improvements:

#### Architectural

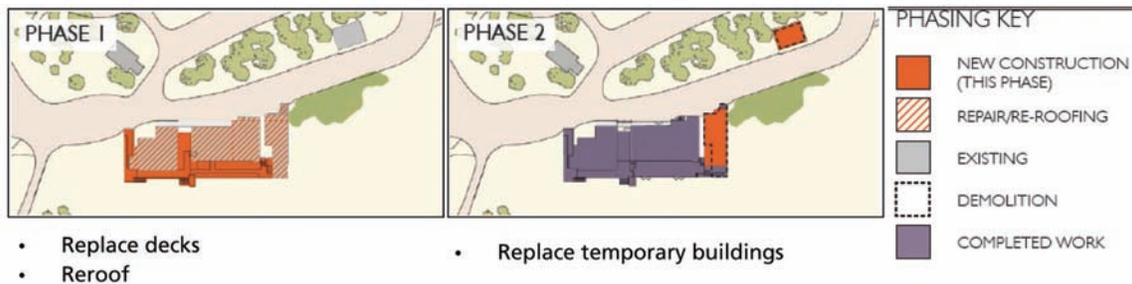
**Main Lodge:** Add accessible ramp at breezeway.

**Exterior Decks:** Replace all exterior decks in kind, and replace stair and ramp connections at south deck.

### Estimated Cost and Schedule

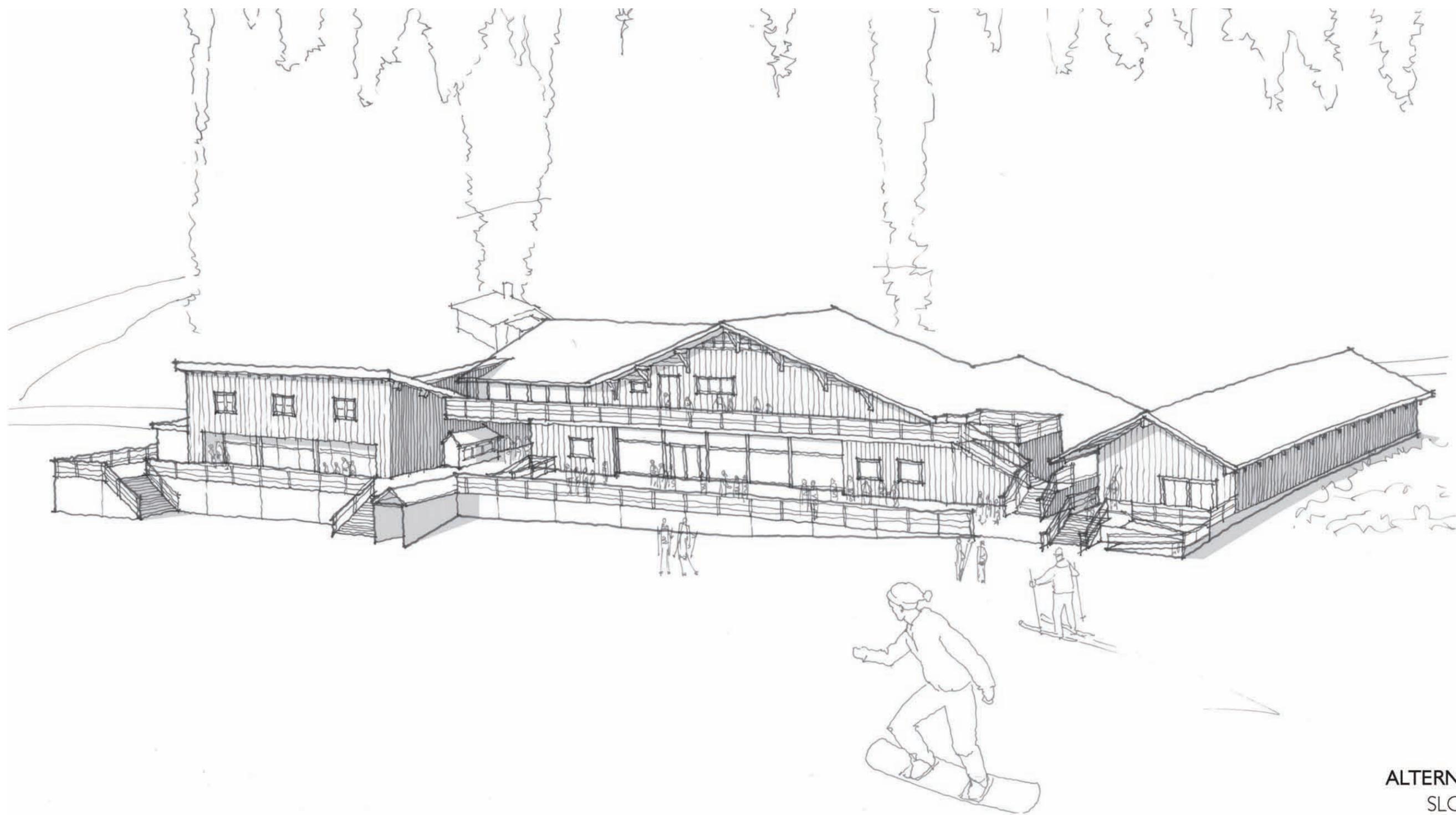
The overall cost of implementing Alternative 2 would be approximately \$23,811,400.

Construction would primarily take place during the summer season, so as not to disrupt ski facility operations. Construction would be implemented in phases, with each phase being one season's worth of work. Full service operation of the ski facility will be possible at the completion of each phase. This alternative could be implemented in two phases, so would be expected to be complete in two years, assuming funding is available. A diagram illustrating the organization of phasing is in Figure 2-9.



Source: Page & Turnbull (2009a)

Figure 2-9 Alternative 2 Phasing.



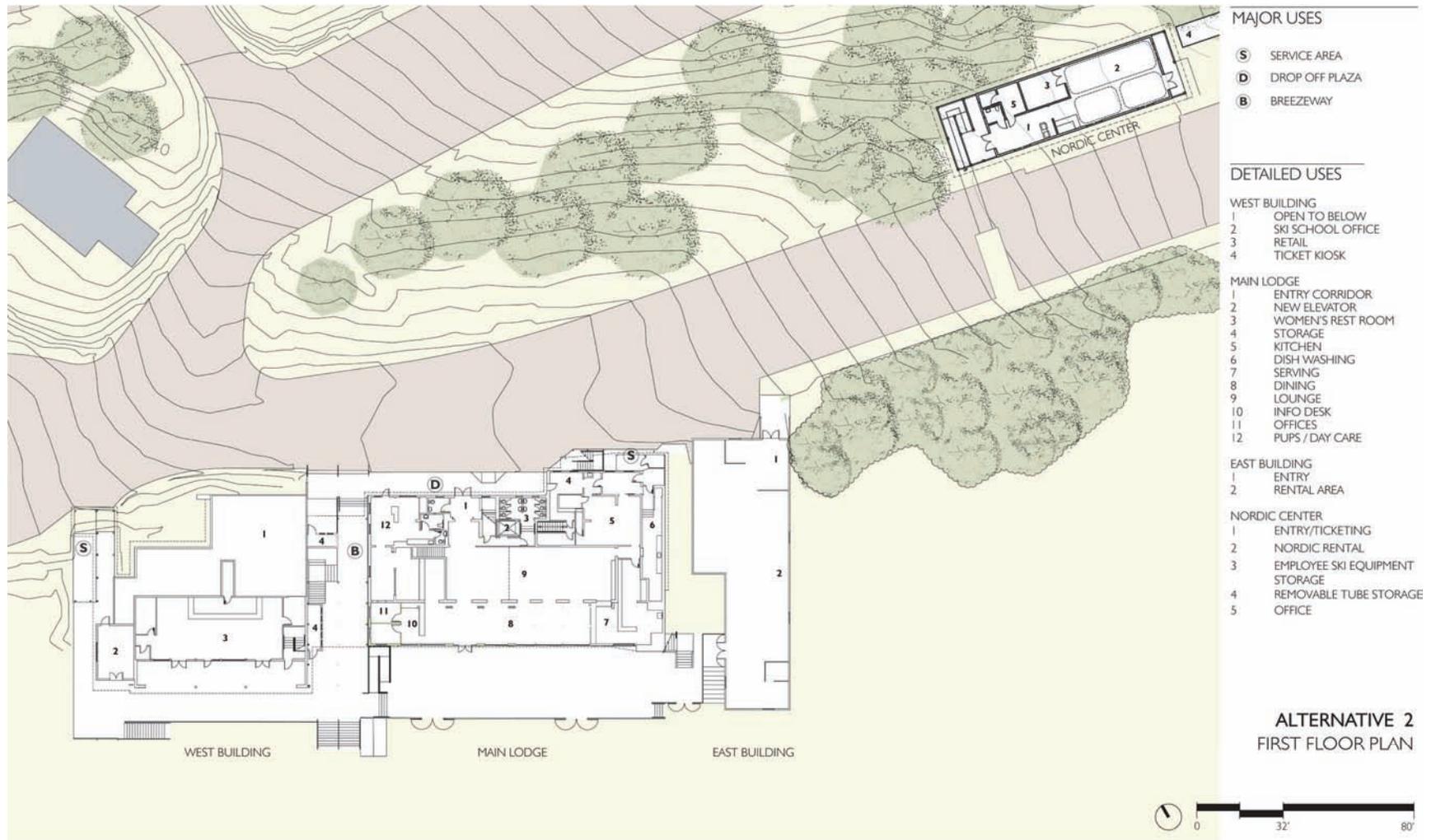
**ALTERNATIVE 2**  
SLOPE VIEW

Figure 2-10 Vantage from Slope, Alternative 2.



**ALTERNATIVE 2**  
ARRIVAL VIEW

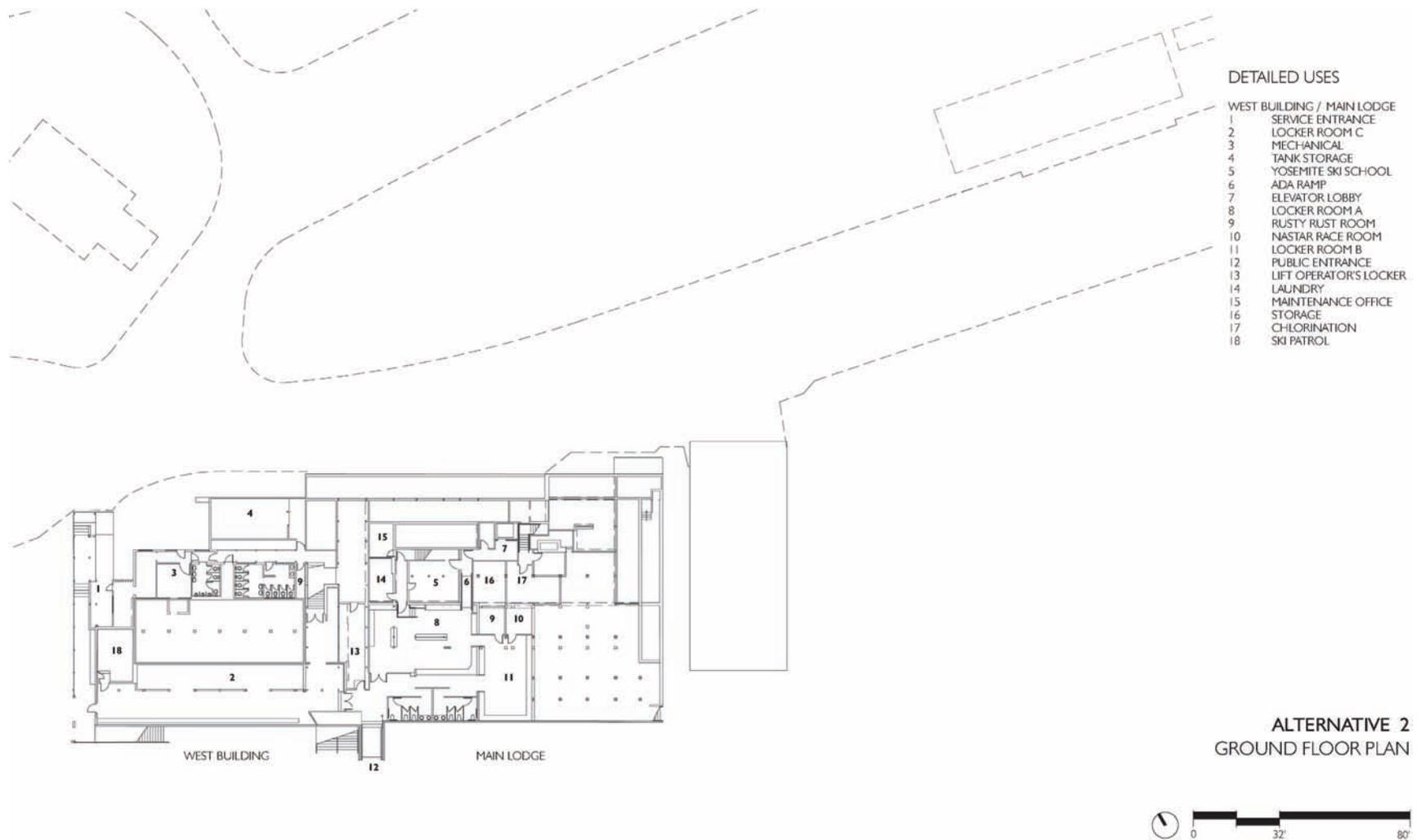
**Figure 2-11** Arrival Vantage, Alternative 2.



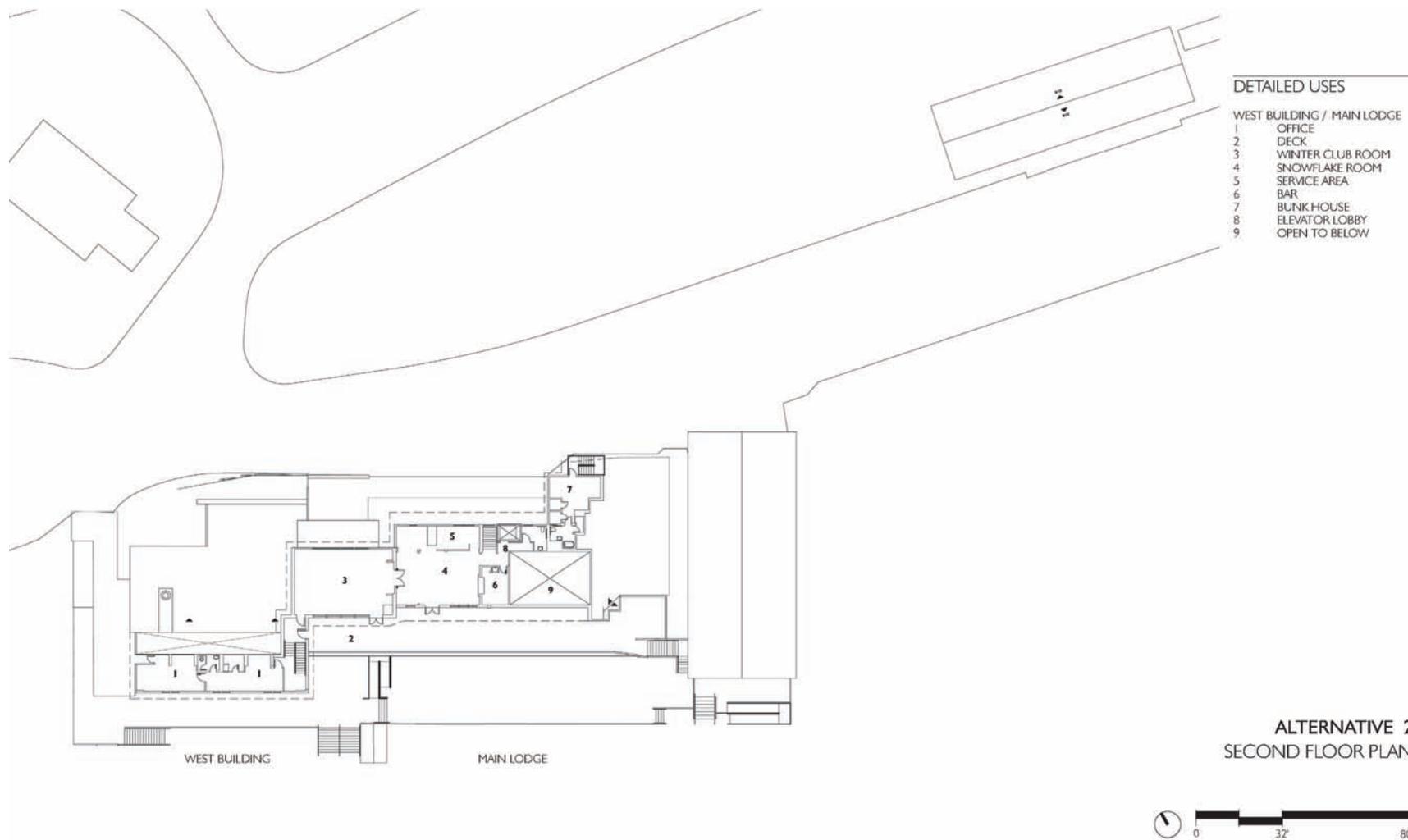
BADGER PASS SKI LODGE REHABILITATION | YOSEMITE NATIONAL PARK, CA

Source: Page & Turnbull (2009a)

Figure 2-12 Badger Pass Ski Lodge – Alternative 2 First Floor Plan.



**Figure 2-13** Badger Pass Ski Lodge – Alternative 2 Ground Floor Plan.



**Figure 2-14** Badger Pass Ski Lodge – Alternative 2 Second Floor Plan.

## **Alternative 3 (Preferred): Rehabilitation and Improvements**

### **Overview**

Alternative 3 includes the rehabilitation of the ski lodge facility, maintaining historic and some non-historic building volumes. This alternative addresses needs for repair, code upgrades, and operational and visitor service improvements while maintaining the existing historic integrity of the original building.

### **Objective**

The aim of Alternative 3 is to address project requirements while making improvements to the historic character of the lodge, enhancing building performance, and optimizing facility operations and levels of visitor service. The existing building footprint would be maintained with some physical alteration. Historic features and relationships in the main lodge would be preserved. A portion of construction dating from after the historic period of significance of the site would be removed, and some additions would be added to existing buildings. As in Alternative 2, building systems with deficiencies would be addressed and failing systems would be repaired or replaced with new systems. In addition, Alternative 3 would remove a portion of later additions that do not contribute to the historic character of the site and reorganize program uses to better accommodate functional needs. Figures 2-17 and 2-18, which follow the description of this alternative, show projected views of the facility after the implementation of all phases of Alternative 3. Figures 2-19, 2-20, and 2-21 display program functions by location under Alternative 3.

### **Historic Rehabilitation**

Treatments to historic features in Alternative 3 would both protect and improve the historic character of the original main lodge. Existing features that contribute to the historic character of the site would be maintained, strengthened, and made a focus of the scheme. Later additions that obscured the original west roof slope of the main lodge would be removed. The fireplace would be restored at the main lodge and circulation redirected to allow gathering and dining within the historic central lounge. Significant spatial relationships and site view corridors would be enhanced by removing building construction that obstructed views to and from the main lodge.

### **Primary Rehabilitation Objectives:**

- Retention of historic material and spatial relationships
- Measures outlined in Actions Common to All Action Alternatives; material repair, structural strengthening, and improvements to protection of materials from water-intrusion and material deterioration (including features identified as needing immediate attention, such as decks and roof)
- Removal of adjoining non-contributing construction west of the main lodge and reestablishment of the main lodge roof line and west façade
- Replacement of non-contributing maintenance elements at the front entry of the main lodge with public functions
- Containment and screening of the non-contributing kitchen loading area at the front entry of the main lodge
- Reconstruction of the lounge fireplace and other improvements to the historic lounge
- Improvements to environmental control within the building

- New construction with a design character compatible with the original ski lodge and the Badger Pass Ski Area historic site
- Clarified spatial relationships and enhanced site view corridors
- Minimized alterations to the existing building footprint and adjoining site

### **Visitor Arrival and Circulation**

Alternative 3 would provide key improvements to visitor circulation and queue space at the ski lodge. Upon arrival to the ski lodge facility, visitors would approach a plaza with prominent ticket/information windows and public restrooms. The primary entrance to the main lodge would be centered on the plaza. An exterior passage between the main lodge and west building would connect to the south deck, and at the eastern end a secondary pass would lead directly to the ski slopes. To the west, visitors would be guided to a walkway leading to the Nordic Center, the Alpine rental building, or an exterior passage to the south deck. The south deck would provide a continuous slope-side linkage across all buildings and circulation passageways, maintaining its important relationship to the ski slopes, and would serve as the primary public gathering zone. Orientation and wayfinding mechanisms would be incorporated into the final design solution.

### **Visitor Service and Programmatic Requirements**

Visitor accommodation in Alternative 3 would be enhanced with reconfiguration and relocation of some program elements within the ski lodge. Improvements to food and beverage points of service, extended indoor dining (the Winter Club Room), and new restrooms would be located on the first floor of the main lodge. The second floor dining would be open to overlook the lounge area on the first floor and the second floor exterior deck would be maintained. The Pups program, daycare, and office areas would be relocated to the west building with a separate entry from the public plaza. At the west building, a café food service facility would be provided within the retail space adjoining the south deck. Specific program locations are illustrated in Figures 2-19, 2-20, and 2-21 at the end of this alternative description.

### **Sense of Place**

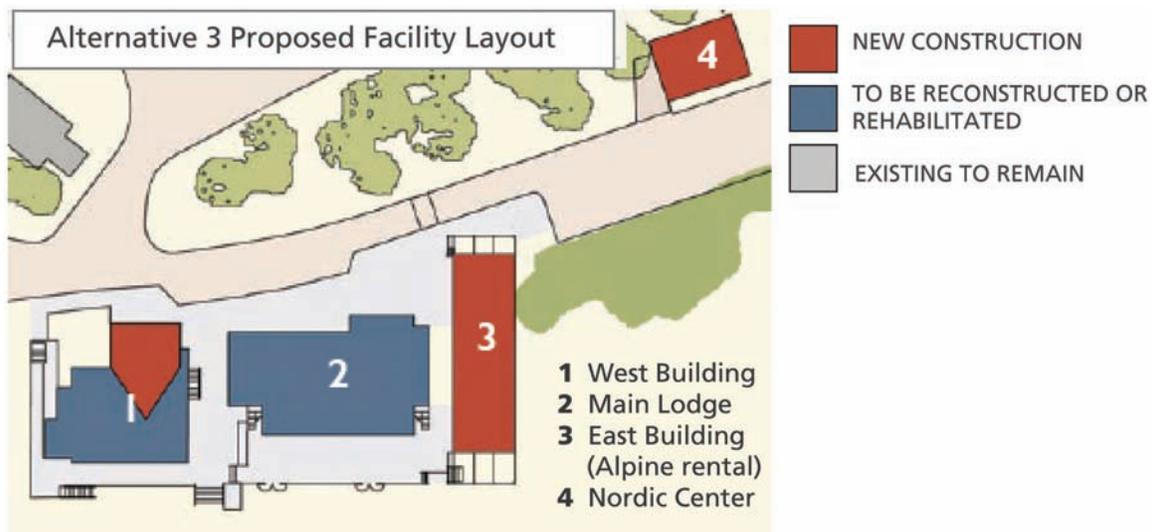
A sense of arrival to the ski lodge would be a primary improvement in Alternative 3. The buildings would have frontage to the street, providing points of service and direct flow. There would also be greater visual presence of the original main lodge upon entry. The main lodge roof lines and overhangs would be distinctly visible and prominent from both the north and south perspectives.

### **Sustainability**

Similar to Alternative 2, energy efficiency would be improved where new systems and equipment are installed. Added insulation, new mechanical ventilation systems, new low-flow fixtures, and other measures implemented with the work would reduce demand for energy and water. As in Alternative 2, there would be an effort in Alternative 3 to incorporate as many materials as possible that minimize the waste stream and improve the indoor air quality.

### Facility Layout

If Alternative 3 is implemented, the breezeway and current Winter Club Room above it would be removed, and the breezeway area would become open deck space. The addition on the west side of the original lodge building would be remodeled and extended, and would house ticketing, retail, prepackaged food service, the Pups and daycare programs, offices, and the bunk room for overnight employees. Alpine and Nordic rental and repair facilities would be reconstructed in single-story, detached buildings in the same location as the current temporary buildings housing these functions. The Alpine rental building would also provide office space. The ski lodge facility, including the Alpine and Nordic buildings, would encompass approximately 23,700 square feet of interior space, plus another 8,800 feet of exterior deck space. The proposed facility layout is shown in Figure 2-15.



Source: Page & Turnbull (2009a)

**Figure 2-15** Alternative 3 Facility Layout.

### Specific Actions Proposed

In addition to the first phase of work described in the Actions Common to All Action Alternatives section above, Alternative 3 would consist of the actions outlined below in Table 2-3. All work would be new construction unless noted as existing. Work following the first phase would include removal of the Winter Club room and breezeway connection, modifications and additions to the west building and main lodge, and replacement of the temporary Alpine and Nordic rental buildings with permanent construction. Engineering and related site improvements would be implemented.

**Table 2-3**  
**Work Proposed under Alternative 3 – Later Phases**

---

**Architectural**

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**Main Lodge**

- Install fireplace and hearth; restore fireplace surround panels
- Remodel kitchen, preparation, loading, and storage areas
- Relocate food serving area
- Remove exterior stair and provide new interior stair to new employee break room
- Provide new stairs from second floor deck
- Provide new restrooms on first floor
- Remove and replace second floor bar and food service
- Remove Breezeway and Winter Club Room; patch exterior facades and rooflines

**West Building**

- Add north building volume housing ticketing and Pups/ daycare program
- Reconfigure retail and food service areas
- Reconfigure mechanical rooms and provide 1-hour rated enclosure
- Provide new ground floor restrooms
- Replace stairway to second floor
- Provide new employee bunkhouse, upper level storage, and offices
- Remodel second floor restroom

**Alpine Rental Building**

- Construct a new Alpine rental facility within the existing footprint
- Provide expanded office space
- Reconfigure connection to entry plaza and south deck

**Site and Exterior Decks**

- Reconfigure plaza areas at entry and connection to decks
- Reconfigure exterior mechanical pit and install new access stairs
- Remove exterior stairway to ground floor
- Reconfigure service loading area and provide bollards/screening

---

**Structural**

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**West Building**

- Ground floor and first floor: provide plywood shear walls at the south side of new restrooms
- Ground, first, and second floors: provide plywood shear walls over existing wall framing where exists and over new wall framing where required
- Remove and replace roof framing over entire roof
- Provide new roof sheathing and nailing over entire roof

---

**Civil**

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**Site and Exterior Decks**

- Reconfigure drive lane, drop-off area, and parking spaces in front of the ski lodge and east of the Alpine rental building
- Reconfigure sidewalk connection between main lodge and Alpine rental building/west building and provide ADA compliant slopes
- Provide area drains at plaza areas

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**Mechanical/Plumbing**

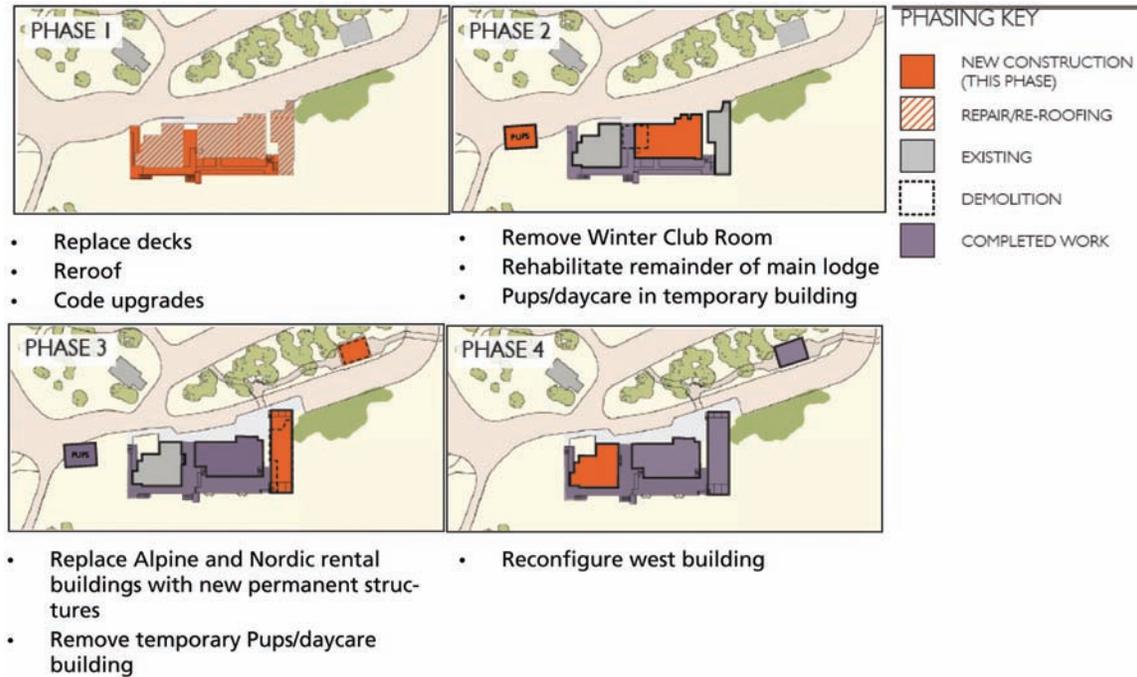
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- Provide mechanical heating and ventilation system to serve west building
-

## Estimated Cost and Schedule

The overall cost of implementing Alternative 3 would be approximately \$25, 873, 500.

Construction would primarily take place during the summer season, so as not to disrupt ski facility operations. Construction would be implemented in phases, with each phase being one season's worth of work. Full service operation of the ski facility will be possible at the completion of each phase. This alternative could be implemented in four phases, so would be expected to be complete in four years, assuming funding is available. A diagram illustrating the organization of phasing is in Figure 2-16.



Source: Page & Turnbull (2009a)

**Figure 2-16** Alternative 3 Phasing.



**ALTERNATIVE 3**  
SLOPE VIEW

BADGER PASS SKI LODGE REHABILITATION | YOSEMITE NATIONAL PARK, CA

Source: Page & Turnbull (2009b)

Figure 2-17 Vantage from Slope, Alternative 3.



**ALTERNATIVE 3**  
ARRIVAL VIEW

**BADGER PASS SKI LODGE REHABILITATION** | YOSEMITE NATIONAL PARK, CA

Source: Page & Turnbull (2009b)

**Figure 2-18** Arrival Vantage, Alternative 3.

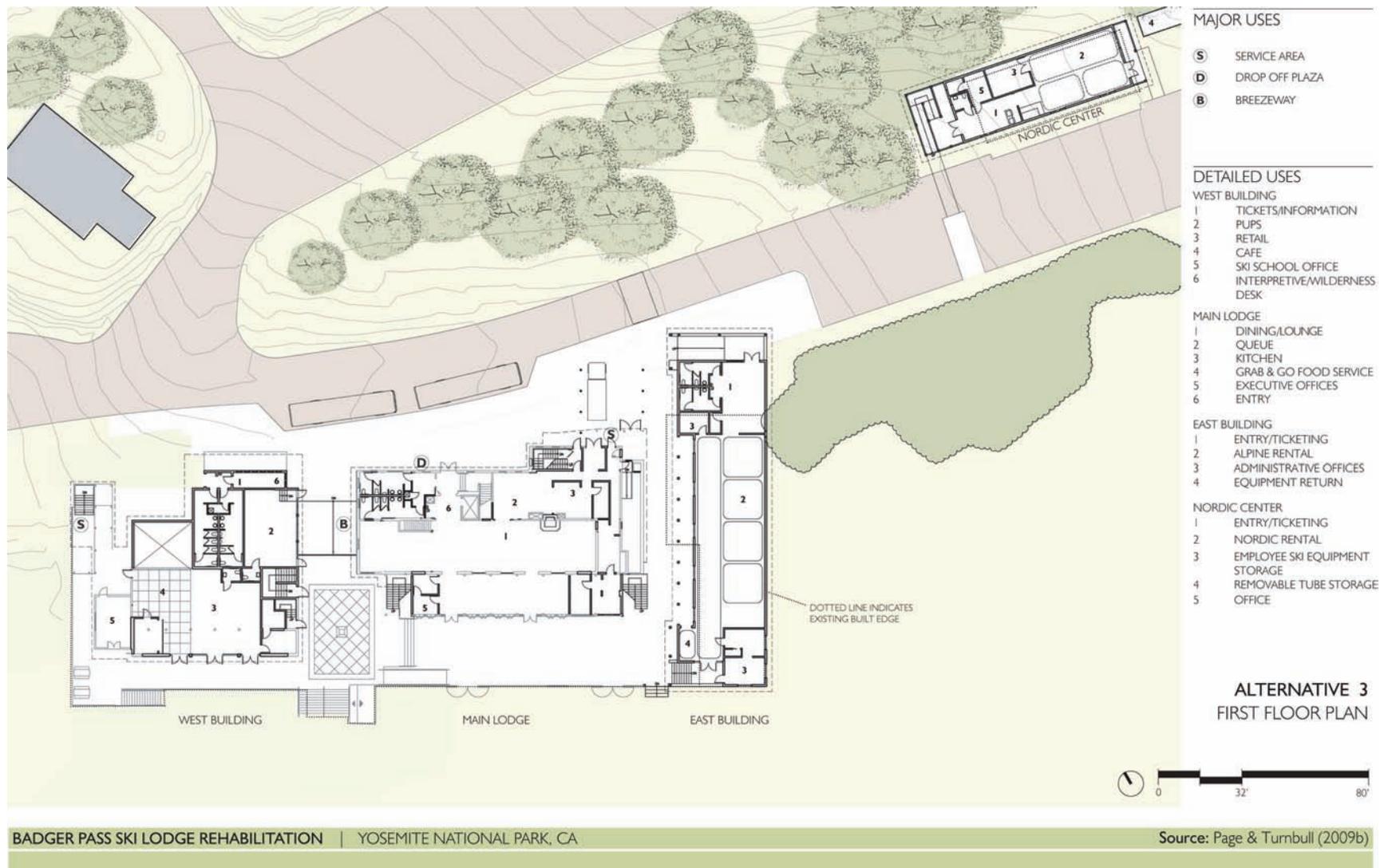
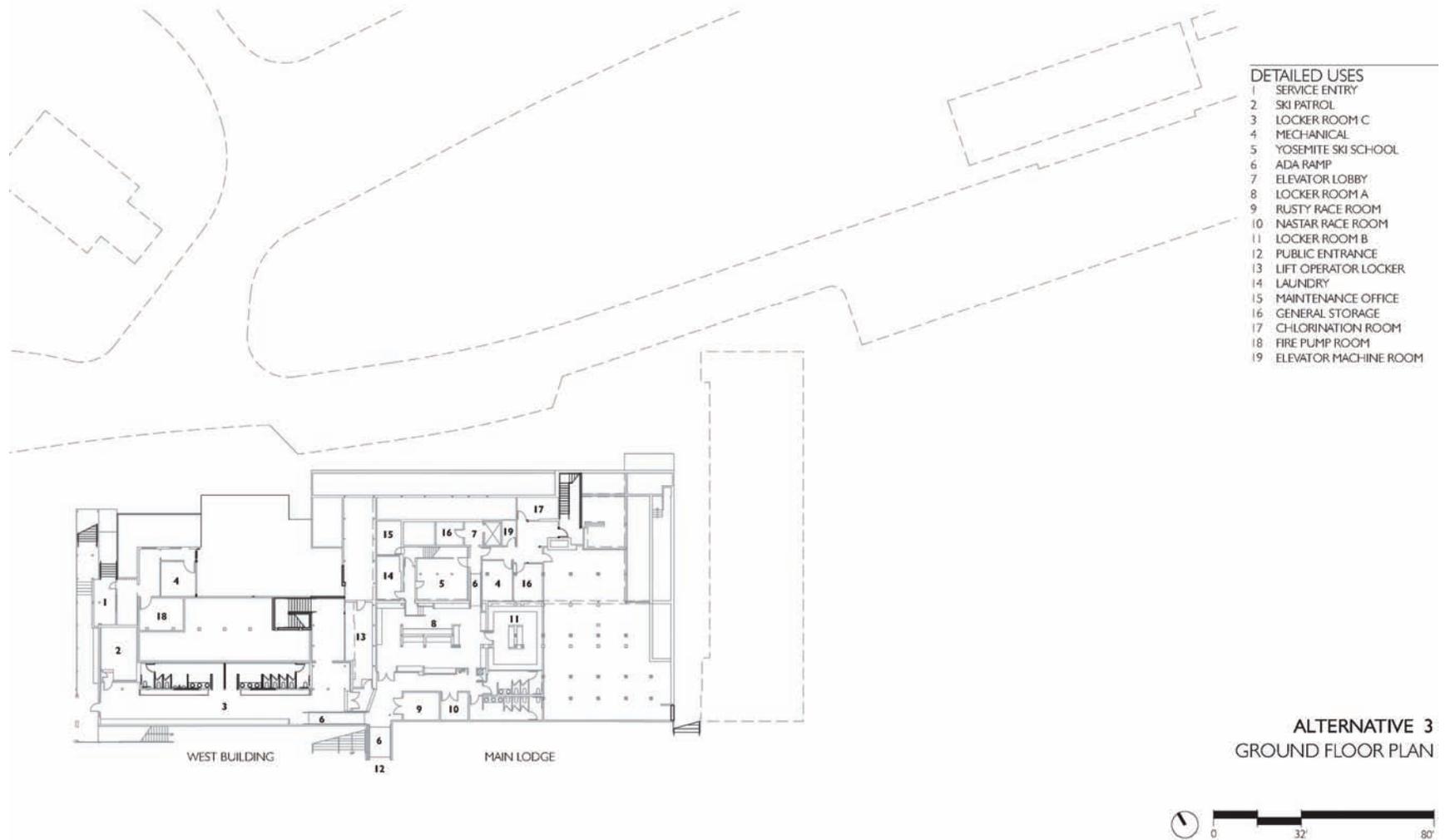
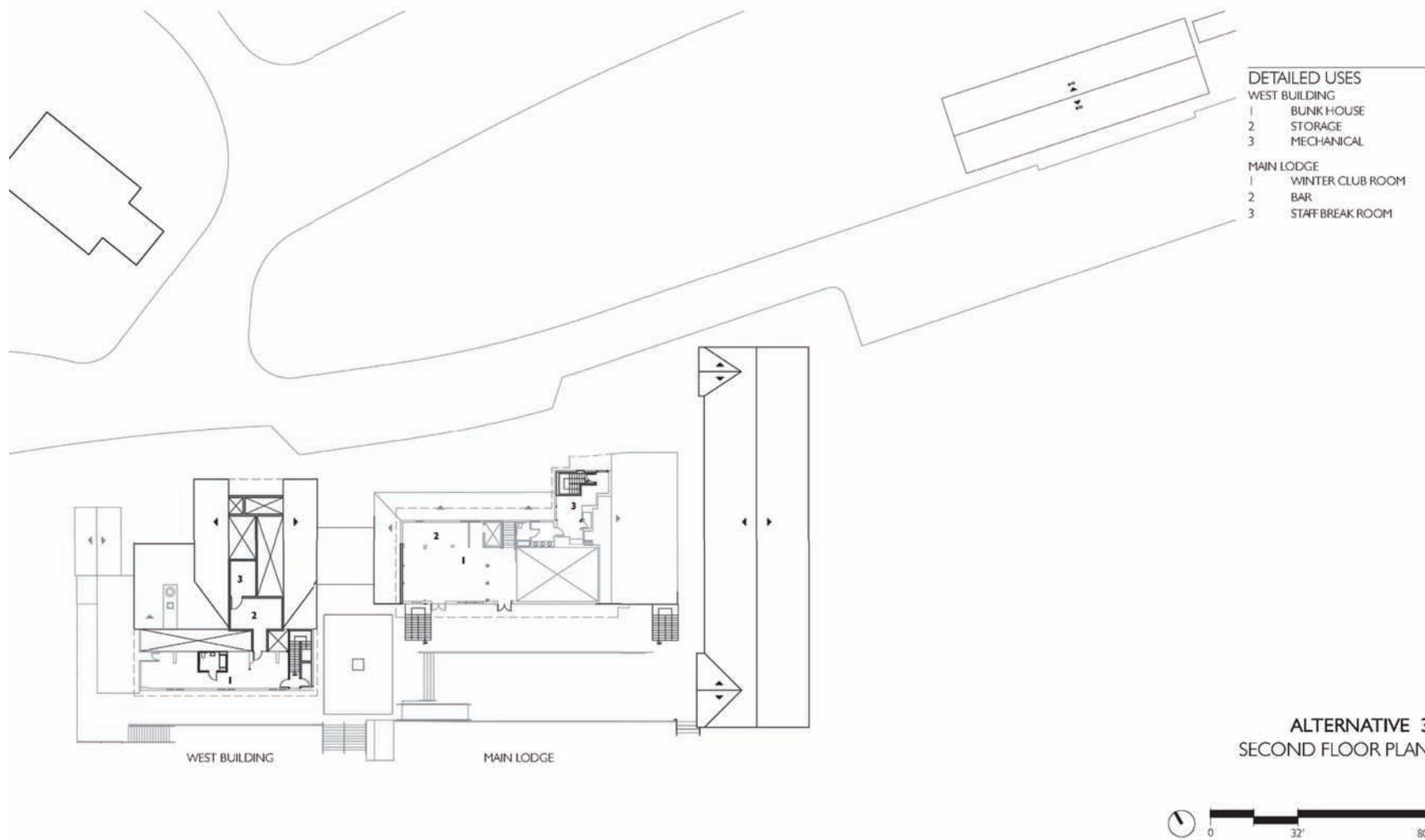


Figure 2-19 Badger Pass Ski Lodge – Alternative 3 First Floor Plan.



**Figure 2-20** Badger Pass Ski Lodge – Alternative 3 Ground Floor Plan.



**Figure 2-21** Badger Pass Ski Lodge – Alternative 3 Second Floor Plan.

## **Alternative 4: Emphasize Historic Character**

### **Overview**

Alternative 4 illustrates a rehabilitation approach in which the original 1935 ski lodge building would be restored to prominence and the non-historic buildings would be replaced with new, more efficient facilities with maximum benefit to operational and visitor service.

### **Objective**

The aim in Alternative 4 is to solve project requirements, restore primary features of the main lodge that contribute to the historic character of the site, and provide the optimal level of visitor service within the overall confines of the project site. Physical alterations would be made to all portions of the facility. Construction dating from after the historic period of significance of the site would be removed, including the second floor deck and south dining room extension (window wall) at the main lodge. The south façade of the main lodge would be restored, as would be the interior lounge and its direct relationship to the deck. New construction would be added both east and west of the main lodge, incorporating ski operations and visitor services in an efficient manner responsive to the site parameters. Figures 2-24 and 2-25, which follow the description of this alternative, show projected views of the facility after the implementation of Alternative 4. Figures 2-26, 2-27, and 2-28 display program functions by location under Alternative 4.

### **Historic Rehabilitation**

Alternative 4 illustrates an optimal approach to historic rehabilitation of the ski lodge and would best address the integrity of the historic site. Existing features that contribute to the historic character of the site would be preserved and given prominence. The main lodge would be freed from adjoining construction and all façades would be restored to close to their original appearance during the period of significance of the historic site. The fireplace and lounge character would be restored at the main lodge, reintroducing a unique historic feel and charm to the ski lodge. Important spatial relationships and site view corridors would be enhanced by removing all building construction obstructing views to and from the main lodge. The new construction would be designed in a compatible yet distinct architectural style that would be secondary to the main lodge.

### **Primary Rehabilitation Objectives:**

- Measures outlined in Actions Common to All Action Alternatives; repair, structural strengthening, and improvements to protection of materials from water-intrusion and material deterioration (including features identified as needing immediate attention such as decks and roof)
- Removal of adjoining non-contributing construction west and south of the main lodge and reestablishment of the main lodge roof line and all façades
- Removal of non-contributing maintenance elements and the service drop off function at front entry to the main lodge
- Reconstruction of lounge fireplace and reestablishment of lounge historic character and use
- Restored facades at main lodge
- Restored connection between lounge and deck and views to ski slopes
- Improvements to environmental control within the building

- New construction of design character compatible with and subservient to the original ski lodge
- Clarified spatial relationships and enhanced site view corridors
- Building footprint kept to existing footprint with the exception of the new Alpine rental building

### **Visitor Arrival and Circulation**

Alternative 4 would configure program and visitor services at their most optimal location, given the overall site constraints of the project. At the point of arrival, visitors would be brought to an entry plaza with entrances to the main lodge, ticket/information window and the main plaza, or the Alpine rental and Nordic rental buildings. The main plaza would connect to other visitor services and south facing dining decks, and serve to orient visitors and organize public circulation at the ski lodge. Orientation and wayfinding mechanisms would be incorporated into the final design solution. A new west building would house related visitor services including interior dining, kitchen, retail, and access to restrooms and locker rooms.

### **Visitor Service and Programmatic Requirements**

Visitor program areas would be grouped into zones that enable clear wayfinding through the site, as well as entrances and exits that would define a controlled and logical circulation path. The programs themselves would be reconfigured to provide the most efficient and effective arrangement for their specific role at the Badger Pass Ski Lodge. In addition, it would be possible for the rehabilitated and newly constructed areas to present a revitalized interior design appropriate to the historic setting. The main lodge, in particular, may regain an attractive design quality containing supplemental lounge, bar, and dining spaces that are able to assume a different character and style from the cafeteria-style dining in the new building. Specific program locations are described in more detail in Figures 2-26, 2-27, and 2-28.

### **Sense of Place**

The sense of place would be a defining strength of Alternative 4. The facility would be clearly organized around the free-standing restored main lodge building, which would preside over the assembly of buildings and decks. The main lodge architectural character and scale, in particular roof lines, brackets, and overhangs, would be increasingly important in establishing an architectural typology for the surrounding buildings. Furthermore, there would be an organizational relationship between the individual building elements and between the structures and their larger environmental setting.

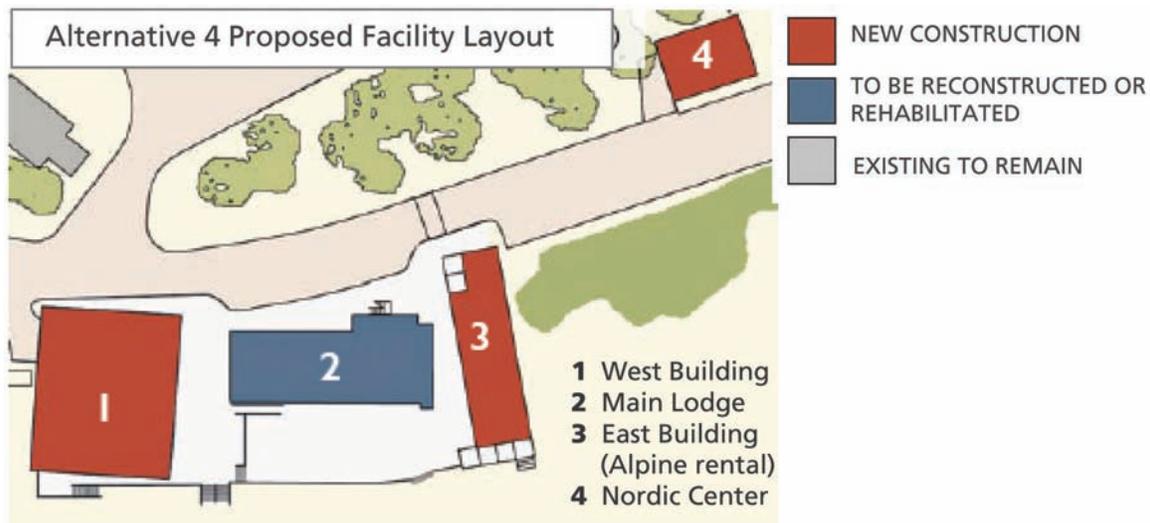
### **Sustainability**

Similar to Alternative 2, energy efficiency would be improved where new systems and equipment are installed. Added insulation, new mechanical ventilation systems, new low-flow fixtures, and other measures implemented with the work would reduce demand for energy and water. In Alternative 4 there would be a greater extent of new construction and opportunity to utilize materials with recycled content. New window systems can be designed to reduce energy demands and to promote natural ventilation. In addition, the feasibility of reusing materials would be investigated, such as wood decking and concrete waste material, in the new construction. As in Alternative 2 and 3, there would be an effort in Alternative 4 to incorporate as many materials as possible that minimize the waste stream and improve the indoor air quality.

### Facility Layout

Under Alternative 4, the breezeway and current Winter Club Room above it would be removed. The addition on the west side of the lodge would be replaced with a new detached building in approximately the same location, which would house ticketing, visitor information, retail, kitchen and dining facilities, the Pups and daycare programs, and offices. The open area between the west building and the original lodge building would become an entry plaza shaped to direct traffic and views to the ski slopes. The south lodge extension (window wall) would be replaced by expanded exterior deck space. The new west building and new Alpine rental building would also be angled to improve views both to and from the ski slopes by helping to visually distinguish the new construction from the original lodge building.

The temporary building currently housing Alpine ski rental would be replaced by a permanent building in approximately the same location. Nordic rental and repair facilities would be located in a single-story, detached building in the same location as the current temporary building housing this function. The ski lodge facility, including the Alpine and Nordic buildings, would encompass approximately 24,600 square feet of interior space, plus another 9,900 feet of exterior deck space. The proposed facility layout is shown in Figure 2-22.



**Figure 2-22** Alternative 4 Facility Layout.

*Source: Page & Turnbull (2009a)*

### Specific Actions Proposed

In addition to the first phase of work described in the Actions Common to All Action Alternatives section above, Alternative 4 would consist of the actions outlined below in Table 2-4. All work would be new construction unless noted as existing. Work following the first phase would include removal of the west building, the Winter Club Room, and breezeway connection, modifications to the main lodge, and replacement of the temporary Alpine and Nordic rental buildings with permanent construction. Exterior plazas and decks would be modified, as well as road side plazas and paving. Engineering and related site improvements would also be implemented.

**Table 2-4**  
**Work Proposed under Alternative 4 – Later Phases**

### Architectural

#### Main Lodge

- Install fireplace and hearth; restore fireplace surround panels
- Remove south lounge extension (window wall), interior space and second floor deck
- Restore south façade with second floor balcony
- Remove kitchen and service area and reconfigure for office area
- Provide new first floor bar service
- Provide new information counter
- Remove exterior stair and provide new interior stair to second floor office
- Remove and replace second floor bar and food service
- Relocate Winter Club Room
- Relocate Pups program/daycare

#### West Building

- New building construction housing ticketing, Pups program/daycare, kitchen, serving, dining, restrooms, and lobby area
- Reconfigure ground floor restrooms and locker area
- Reconfigure ground floor connections to ski slopes and locker rooms under main lodge
- Provide elevator
- Provide upper level office suite

#### Alpine Rental Building

- Provide new building addition and covered entry
- Construct a new Alpine rental facility –approximately 224 square feet larger than the existing temporary structure
- Provide expanded office space

#### Site and Exterior Decks

- Reconfigure drop off zones and plaza at entry
- Replace and re-grade plaza connecting to ski slopes
- Modify stair and ramp connections at south deck
- Add new dining terrace/deck to south of west building
- Relocate service loading area, provide service drive, and provide landscape screening

### Fire Protection

#### West Building

- Provide fire pump and new automatic sprinkler system in new west building
- Extend fire detection system and alarm system (Notifier system) to new west building

### Structural

#### West Building

- Provide concrete foundation system, plywood shear walls, and plywood sheathed diaphragm at roof and ceiling at west building
- Provide steel moment frames to roof at dining room/terrace edge of west building; steel beams at gable end walls

### Civil

#### Site

- Reconfigure drive lane, drop-off area, and parking spaces in front of the ski lodge and east of the Alpine rental building
- Reconfigure sidewalk connection between main lodge and Alpine rental building/west building and provide ADA complaint slopes and ramps
- Provide area drains at plaza areas

### Mechanical/Plumbing

- Provide mechanical heating and ventilation system to serve west building
- Provide new kitchen infrastructure for relocated kitchen and serving area

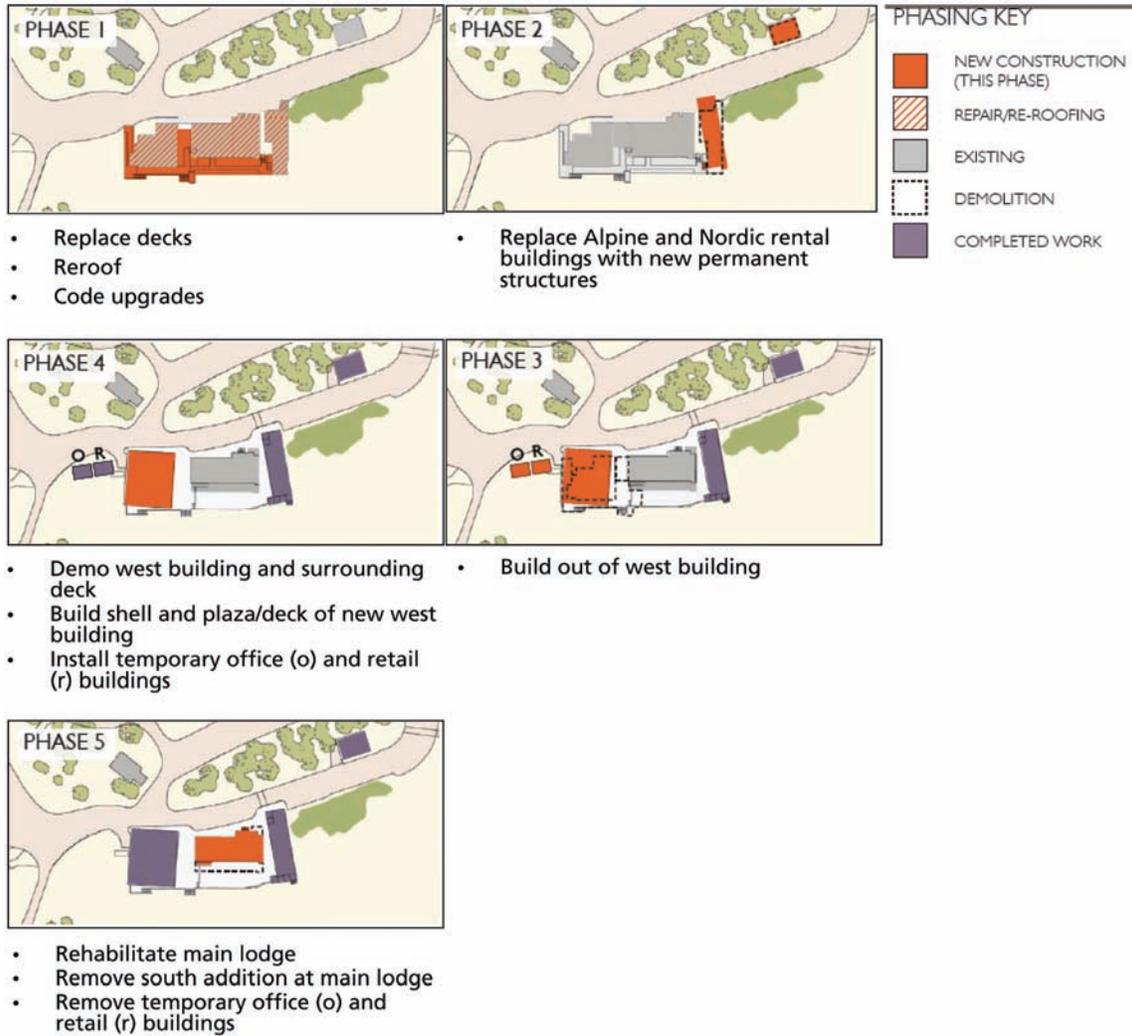
### Electrical

- Provide electrical systems to serve west building

## Estimated Cost and Schedule

The overall cost of implementing Alternative 4 would be approximately \$41,332,500.

Construction would primarily take place during the summer season, so as not to disrupt ski facility operations. Construction would be implemented in phases, with each phase being one season's worth of work. Full service operation of the ski facility will be possible at the completion of each phase. This alternative could be implemented in five phases, so would be expected to be complete in five years, assuming funding is available. A diagram illustrating the organization of phasing is in Figure 2-23.



Source: Page & Turnbull (2009a)

**Figure 2-23** Alternative 4 Phasing.

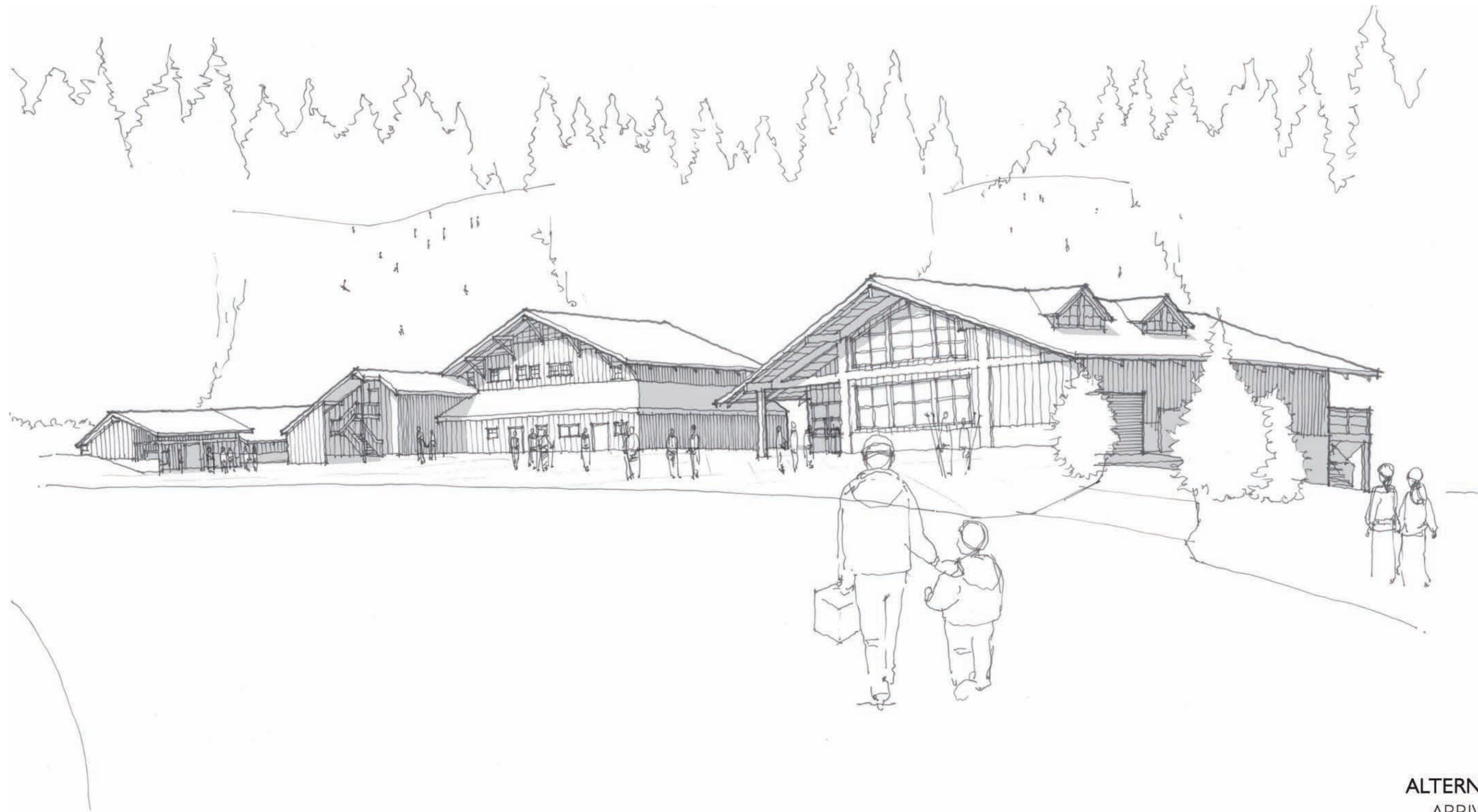


**ALTERNATIVE 4**  
SLOPE VIEW

**BADGER PASS LODGE REHABILITATION** | YOSEMITE NATIONAL PARK, CA

Source: Page & Turnbull (2009a)

Figure 2-24 Vantage from Slope, Alternative 4.



**ALTERNATIVE 4**  
ARRIVAL VIEW

**BADGER PASS LODGE REHABILITATION** | YOSEMITE NATIONAL PARK, CA

Source: Page & Turnbull (2009a)

Figure 2-25 Arrival Vantage, Alternative 4.

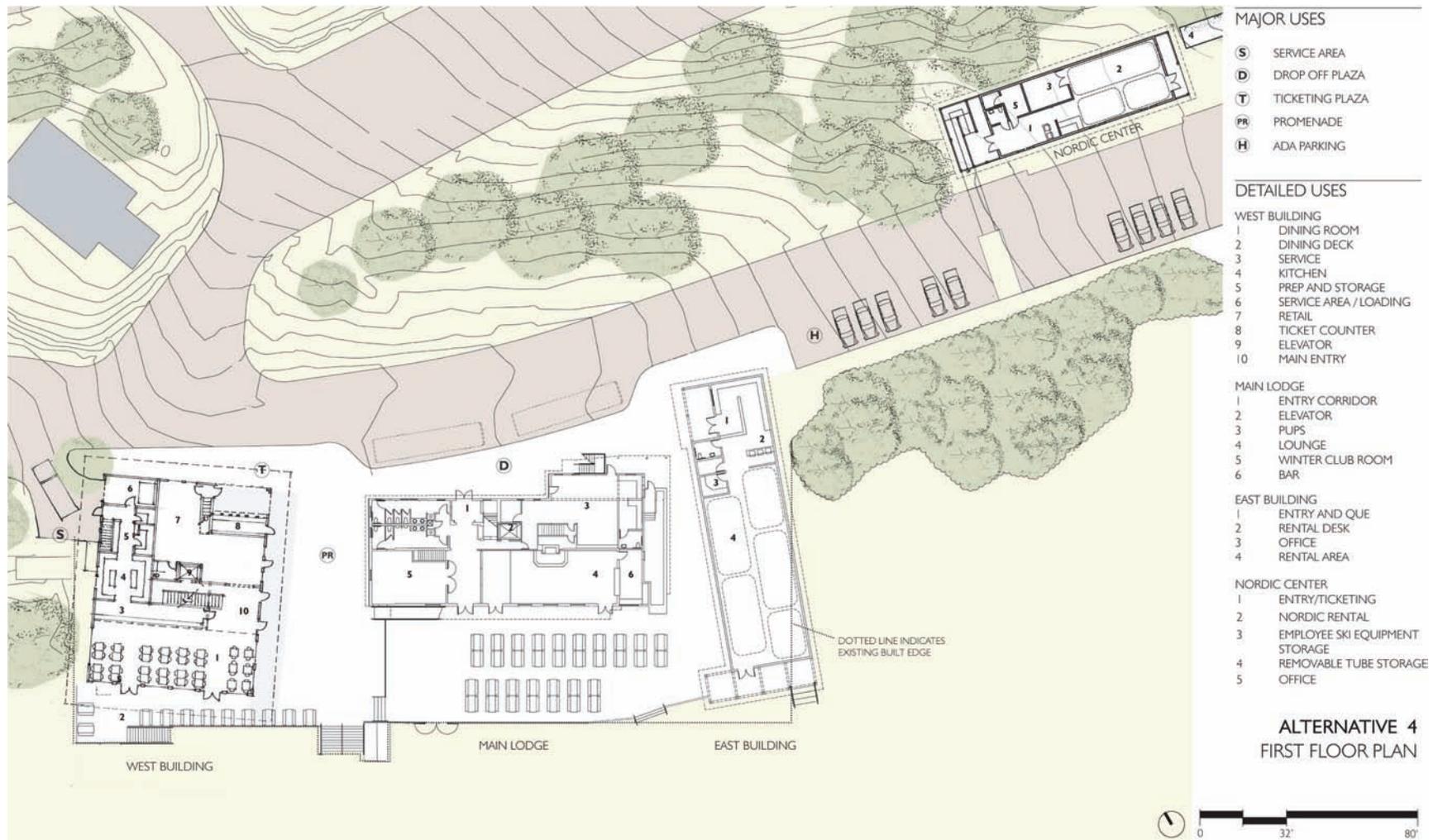
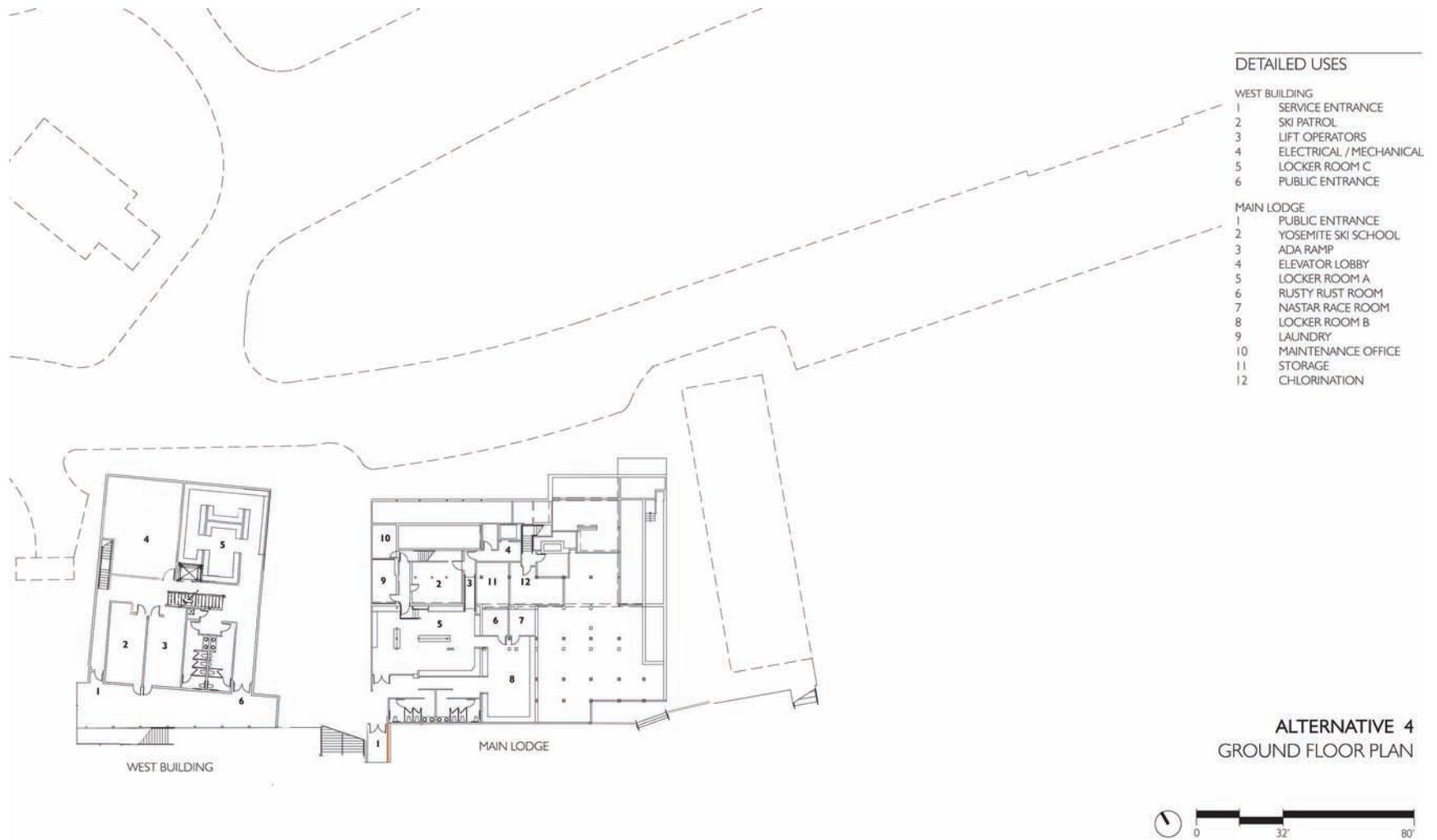
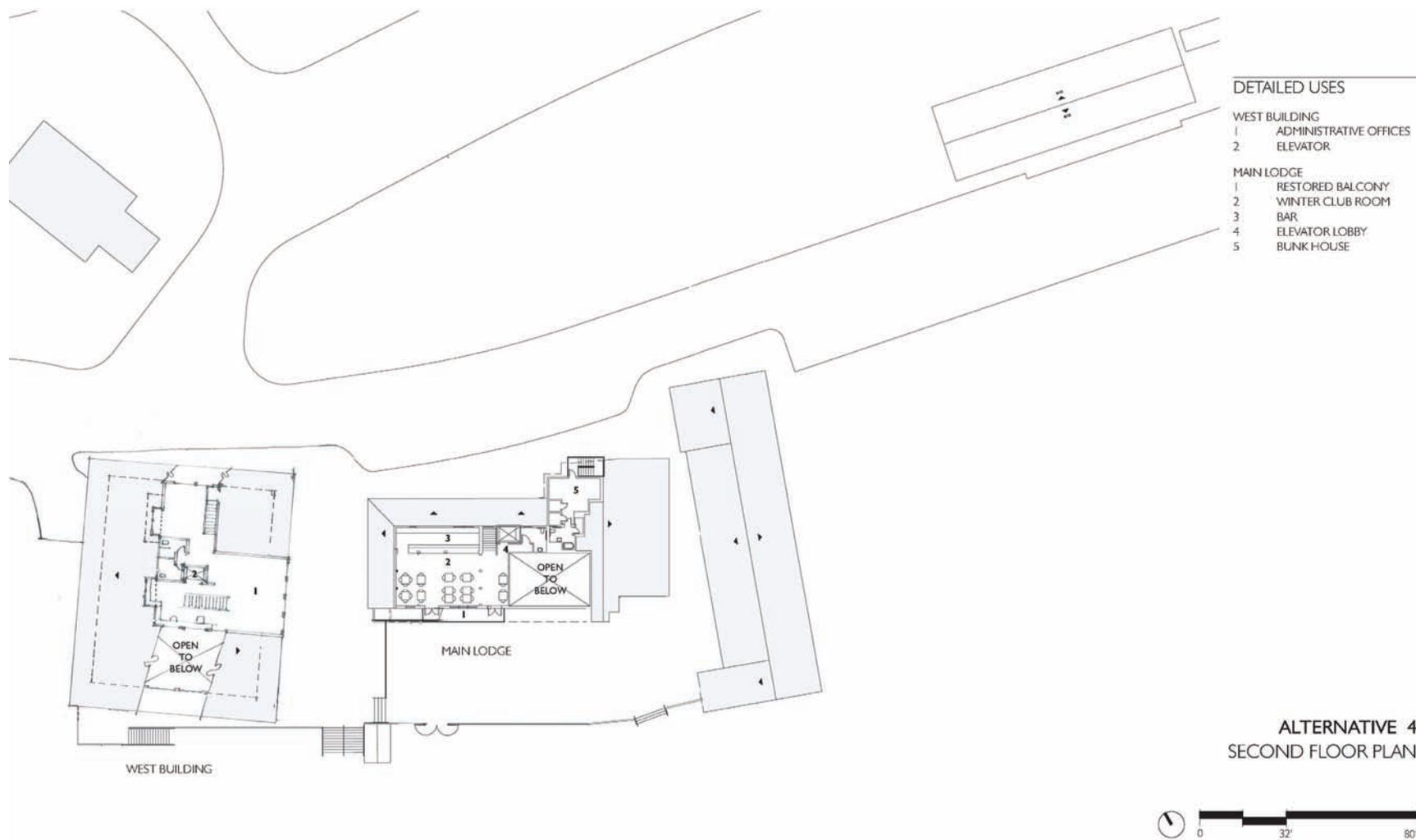


Figure 2-26 Badger Pass Ski Lodge – Alternative 4 First Floor Plan.



**Figure 2-27** Badger Pass Ski Lodge – Alternative 4 Ground Floor Plan.



**Figure 2-28** Badger Pass Ski Lodge – Alternative 4 Second Floor Plan.

## **Actions Considered but Dismissed**

The National Park Service considered a range of actions when developing possible alternatives for the Badger Pass Ski Lodge Rehabilitation Project. The following actions were analyzed, considered and dismissed because they did not fully satisfy the objectives of this planning effort. These actions were dismissed for one of the following reasons:

- The action would not satisfy the project's purpose and need.
- Less environmentally damaging options were available.
- The action would cause unacceptable environmental, cultural, or social impacts.
- The action would present unacceptable engineering risks or constraints with an associated increase in costs.
- The action would conflict with the guidance and direction provided in the *General Management Plan*.

### **"Pedestrian Square" and "Town Square" Design**

This action included removing part of the parking loop at the north side of the lodge, utilizing that space for new construction, creating an internal plaza area.

This would make circulation flow more difficult and put more stress on other parking and circulation features in the area. An internal plaza surrounded by buildings would be problematic for several reasons. A reduction in parking spaces below 600 would not be compliant with the 1980 *General Management Plan*. Snow removal would be extremely difficult in this central area. Access to the original lodge building for fire suppression purposes would be compromised under this layout. This type of plaza would not be consistent with the historic character of Badger Pass, and would remove the sense of arrival at the lodge by not having the lodge the first view. It would also eliminate a contributing transportation feature of the Badger Pass Ski Area historic site within the Glacier Point Road Historic District.

### **Narrowing the road in front of the lodge to create a plaza area**

Making the road in front of the lodge so narrow that it would not accommodate two buses, car drop-off, and handicapped parking spaces, would not be acceptable. Fire access would be insufficient with bus drop-off ongoing, circulation would be worse, and vehicle-pedestrian conflicts would not be resolved.

### **Combining the ski rental functions**

This action would combine the ski rental shops into one rental building on the first floor of a west wing/structure.

Nordic ski rental and downhill ski rental better serve the visitors in separate locations. The Nordic rental shop is better sited on the northeast part of the complex since this is the closest access to cross-country ski trails. Downhill ski rental, on the other hand, is better sited between the roadway and the downhill slopes, so there can be traffic flow in one door and out the other. Keeping them separate would also make the Nordic rental area quieter and reduce crowding in the Alpine rental area, providing better service to visitors in both cases.

### **Adding bunk rooms to the second floor of Nordic building**

Adding a second floor of the Nordic building to accommodate employee bunk rooms would enlarge the building footprint, altering the character of this portion of the project site. The resulting increase in the structure's vertical profile and massing would detract from the lodge-centered theme of the rehabilitation plan. The second story would also push the building footprint to the south and/or to the east, which would alter the view of the ski lodge from the slopes and potentially encroach into an adjoining wetland.

## **Comparison of the Alternatives**

The four alternatives presented in this document represent a reasonable range of options for the rehabilitation of Badger Pass Ski Lodge. Table 2-5 provides a summary comparison of the potential impacts associated with each of the alternatives, based on the environmental analysis provided in Chapter 3.

**Table 2-5  
Summary Comparison of Impacts for the No Action and Action Alternatives**

<b>Alternative 1: No Action Alternative</b>	<b>Alternative 2: Essential Repairs and Upgrades</b>	<b>Alternative 3: Rehabilitation and Improvements</b>	<b>Alternative 4: Emphasize Historic Character</b>
<b>SOILS</b>			
<p>Under Alternative 1, there would be no ground disturbing activities and as a result, no impacts to soil resources.</p>	<p>Approximately 0.6 acres of surface and near-surface soils would potentially be disturbed as part of construction activities under all action alternatives. This would result in localized short-term, minor, adverse impacts to surface and sub-surface soils over two, four, and five summers respectively, as subsequent phases associated with these alternatives are implemented.</p> <p>In conjunction with construction activities, soil contamination from localized, low-mobility diesel-range petroleum hydrocarbons found in soils near the site of a former fuel storage tank may be remediated. All remediation activities occurring in conjunction with this rehabilitation project would be undertaken with oversight from the RWQCB. This would result in a long-term, minor to moderate, beneficial impact on soil resources.</p> <p>Structural upgrades under all action alternatives would include measures to mitigate the presence of soils subject to liquefaction found under the lodge complex. These structural treatments would be expected to have a long-term, minor, adverse impact on soils.</p> <p>Under Alternatives 2 and 3, no additional long-term impacts to soils are anticipated once construction and subsequent restoration activities have been completed. Under Alternative 4 there would be a localized, long-term, minor adverse impact on soils due to the approximately 224 square foot expansion of the new Alpine rental building to the southeast of the existing building footprint.</p>		
<b>HYDROLOGY AND WATER QUALITY</b>			
<p>Under Alternative 1, there would be no long-term solution implemented to mitigate the adverse effects to the ski lodge from local hydrologic conditions, or the adverse effects of the ski lodge on local hydrologic processes. Alternative 1 would continue to impact local hydrology through the apparent diversion of Grouse Creek, alterations of natural surface runoff to the meadow, and potential localized deflections of the water table, resulting in a localized, long-term, minor to moderate, adverse effect on hydrologic processes.</p> <p>Local hydrologic conditions that create repeated maintenance and repair requirements in portions of the ski lodge directly affected by high ground water levels and ponding surface waters directly adjacent to the facility would continue to occur. In addition, the potential for groundwater to infiltrate old sewer lines beneath the lodge would not be remedied. These represent localized long-term, moderate, adverse effects to the facility caused by local hydrologic conditions.</p>	<p>Under all action alternatives, the ski lodge would continue to adversely impact local hydrology through the diversion of Grouse Creek, potential deflection of the water table, and some restriction of surface flow. However, proposed site drainage improvements would be expected to have a localized, minor to moderate, beneficial effect on local hydrology by redirecting surface flow away from structures and toward adjacent wetlands and Grouse Creek. Final design of site drainage improvements should be conducted in coordination with the park's Resources Management and Science Division.</p> <p>The site drainage improvements would also substantially reduce or eliminate potential water damage to structures by redirecting water away from foundations, resulting a in a long-term, moderate, beneficial effect on the ski lodge facility. Replacement of the well pump timer would ensure that overtopping on the existing storage tank is eliminated or reduced from current levels, resulting in a long-term, negligible to minor, beneficial impact on local groundwater resources.</p> <p>During construction activities, mitigation measures (see Appendix B) should be implemented to ensure that dewatering activities do not increase sediment loading in Grouse Creek, or otherwise adversely impact adjacent meadow wetlands. If properly implemented, construction-related impacts would be localized short-term, adverse, and negligible to minor on local hydrology and water quality.</p>		

**Table 2-5  
Summary Comparison of Impacts for the No Action and Action Alternatives (continued)**

Alternative 1: No Action Alternative	Alternative 2: Essential Repairs and Upgrades	Alternative 3: Rehabilitation and Improvements	Alternative 4: Emphasize Historic Character
<b>WETLANDS</b>			
<p>Alternative 1 would not further degrade the size, integrity, or connectivity of wetlands. There would be no new impacts to wetlands under Alternative 1.</p>	<p>Construction activities under all action alternatives would have the potential to affect approximately 0.38 acre of palustrine emergent wetlands to the east, south, and west of the ski lodge and approximately 0.07 acre of palustrine scrub shrub wetland to the east of the ski lodge. Construction activities at the Nordic Center would also have the potential to affect a small palustrine emergent wetland on the vegetation island north of the lodge. Adherence to proposed mitigation measures and avoidance of wetlands where possible would reduce potential construction related effects of Alternatives 2 and 3 on wetlands to localized, short-term, minor, adverse impacts. There would be greater potential for construction-related effects under Alternative 3 due to the longer construction timeframe.</p> <p>Implementation of Alternatives 2 and 3 would not further disrupt the long-term continuity or integrity of the native plant communities. Under all action alternatives, proposed site drainage improvements would have the long-term, minor, beneficial effect of redirecting water away from buildings and toward wetland areas and Grouse Creek.</p>		<p>The potential short-term, adverse effects of construction activities in Alternative 4 would be the same as under Alternatives 2 and 3, although there would be greater potential for construction-related effects under Alternative 4, due to the longer construction timeframe. As under all action alternatives, proposed site drainage improvements would have the long-term, minor, beneficial effect of redirecting water away from buildings and toward wetland areas and Grouse Creek.</p> <p>Under Alternative 4, the permanent Alpine rental building would be slightly larger than under Alternatives 2 and 3, and would extend approximately 224 square feet beyond the existing facility footprint into palustrine emergent wetlands on the southeast side of the lodge, resulting in a long-term, minor to moderate, adverse impact on wetlands in the project area.</p>
<b>VEGETATION</b>			
<p>Alternative 1 would not reduce the size or disrupt the continuity, and/or integrity of native plant communities. There would be no new impacts to vegetation under Alternative 1.</p>	<p>The short-term impacts to wetland vegetation are noted in the 'Wetlands' section, above. The adherence to mitigation measures and avoidance of vegetation where possible would reduce potential construction related effects on upland vegetation to localized, short-term, negligible to minor, adverse impacts. There would be greater potential for construction-related effects under Alternative 3 due to the longer construction timeframe. In the long-term, with adherence to standard mitigation measures, implementation of Alternatives 2 and 3 would not further disrupt the continuity or integrity of native plant communities.</p>		<p>The short-term impact of Alternative 4 would be the same as under Alternatives 2 and 3, although there would be greater potential for construction-related effects due to the longer construction timeframe. In the long-term, the permanent expansion of the Alpine rental building into wetlands southeast of the lodge would have a local, minor, adverse effect on vegetation resources in the project area.</p>
<b>WILDLIFE</b>			
<p>There would be no new impacts wildlife species under Alternative 1. Thus, Alternative 1 would result in no effect on wildlife or habitat utilized by these species.</p>	<p>Construction under Alternatives 3 and 4 would have the potential to disrupt seasonal wildlife use of the area to a greater degree than under Alternative 2 due to the longer construction timeframe. However, with the implementation of mitigation measures (especially during breeding seasons), noise and visual disturbances to wildlife would be minimized or avoided. Therefore, Alternatives 2, 3, and 4 would result in localized, short-term, negligible to minor, adverse impacts to wildlife.</p>		
<b>SPECIAL STATUS SPECIES</b>			
<p>There would be no new impacts to special status species under Alternative 1. Thus, Alternative 1 will result in no effect to special status species or habitat utilized by these species.</p>	<p>Under all action alternatives, project construction would occur in suitable habitat for a number of special status species, but implementation of mitigation measures with a focus upon avoidance, limiting construction activities during breeding seasons, and limiting areas of impacts would reduce potential adverse effects. Construction activities under Alternatives 3 and 4 would have the potential to disrupt special status species to a greater degree than under Alternative 2 due to the longer construction timeframe. Overall, Alternatives 2, 3, and 4 would result in localized, short-term, negligible to minor, adverse impacts to special status species. Therefore, Alternatives 2, 3, and 4 may affect, but are not likely to adversely affect special status species.</p>		

**Table 2-5  
Summary Comparison of Impacts for the No Action and Action Alternatives (continued)**

<b>Alternative 1: No Action Alternative</b>	<b>Alternative 2: Essential Repairs and Upgrades</b>	<b>Alternative 3: Rehabilitation and Improvements</b>	<b>Alternative 4: Emphasize Historic Character</b>
<b>AIR QUALITY</b>			
<p>Under Alternative 1, emissions from existing diesel- and propane-fired systems at the ski lodge would continue to have a long-term, negligible, adverse impact on local and regional air quality.</p>	<p>Implementation of Alternative 2 would result in a short-term, negligible, adverse impact on local air quality during two summer seasons, due to construction-related dust and equipment and vehicle emissions. Under all action alternatives, diesel-fired boilers and an emergency generator would be replaced with more efficient models, mechanical ventilation would be provided throughout the complex, and low-emission finish materials would be used where possible. This would result in a long-term, negligible to minor, beneficial impact on indoor, local, and regional air quality.</p>	<p>Implementation of Alternative 3 or 4 would result in a short-term, negligible, adverse impact on local air quality during four or five summer seasons, respectively, due to construction-related dust and equipment and vehicle emissions.</p> <p>Under all action alternatives, diesel-fired boilers and an emergency generator would be replaced with more efficient models, mechanical ventilation would be provided throughout the complex, and low-emission finish materials would be used where possible. Under Alternatives 3 and 4, a wood-burning or propane fireplace would be added in the ski lodge; emissions would be dependent upon the type of fuel used, the size of the hearth, weather, and operational policy. Overall, these actions would result in a long-term, negligible to minor, beneficial impact on indoor, local and regional air quality.</p>	
<b>SOUNDSCAPES</b>			
<p>Under Alternative 1, noise associated with continued ski area operations in the winter, and limited use of the ski area during the summer, would have a local, long-term, negligible to minor, adverse impact on soundscapes.</p>	<p>Implementation of Alternatives 2, 3, or 4 would result in elevated levels of noise in the vicinity of Badger Pass Ski Area due to construction-related activities during the summer season. All of the action alternatives would potentially affect wildlife, onsite staff, and nearby recreational users, although the number of recreational users is generally low in the summer season. Overall, these alternatives would cause a local, short-term, minor, adverse impact on soundscapes. Alternatives 3 and 4 would have the potential to disrupt natural soundscapes to a greater degree than Alternative 2 due to their longer construction timeframes.</p>		

**Table 2-5  
Summary Comparison of Impacts for the No Action and Action Alternatives (continued)**

<b>Alternative 1: No Action Alternative</b>	<b>Alternative 2: Essential Repairs and Upgrades</b>	<b>Alternative 3: Rehabilitation and Improvements</b>	<b>Alternative 4: Emphasize Historic Character</b>
<b>VISITOR EXPERIENCE AND RECREATION</b>			
<p>Under Alternative 1, continued poor circulation and wayfinding, crowding at several locations, insufficient facilities, inadequate accessibility for disabled persons, and lack of rental inventory/space would have a local, long-term, minor to moderate, adverse impact on the visitor winter experience within the project area.</p>	<p>All of the action alternatives would result in improved accessibility and visitor safety at the ski lodge, the uninterrupted of use the facility by ski area visitors (as construction would occur during the summer season), and the replacement of temporary Alpine and Nordic rental facilities with new and more efficient buildings.</p> <p>Under Alternative 2, there would also be minor improvements to crowding and circulation issues, resulting in a local, long-term, minor, beneficial impact on the visitor experience at Badger Pass Ski Area.</p>	<p>All of the action alternatives would result in improved accessibility and visitor safety at the ski lodge, the uninterrupted of use the facility by ski area visitors (as construction would occur during the summer season), and the replacement of temporary Alpine and Nordic rental facilities with new and more efficient buildings.</p> <p>Under Alternative 3, there would be substantial improvements to circulation, a reduction in crowding at key locations, restoration of the historic lounge character, and improvements to food and dining services, resulting in a local, long-term, minor to moderate, beneficial impact on the visitor experience at Badger Pass Ski Area.</p>	<p>All of the action alternatives would result in improved accessibility and visitor safety at the ski lodge, the uninterrupted of use the facility by ski area visitors (as construction would occur during the summer season), and the replacement of temporary Alpine and Nordic rental facilities with new and more efficient buildings.</p> <p>Under Alternative 4, the configuration of program and visitor services would be at their most optimal location, given overall site constraints of the project. There would be substantial improvements to circulation, and to food and dining services, and restoration of the historic lounge character, resulting in a local, long-term, moderate, beneficial impact on the visitor experience at Badger Pass Ski Area.</p>
<b>VISITOR SERVICES</b>			
<p>Under Alternative 1, the lack of a clear path of travel between various visitor services in the lodge, the inefficient layout of rental areas, inadequate storage space, and limited kitchen work areas and associated facilities would continue to have a local, long-term, minor, adverse impact on visitor services.</p>	<p>Implementation of Alternative 2 would result in essential repairs and code upgrades, minor improvements to circulation between visitor services, more adequate storage space, more efficiently designed equipment rental facilities, new restrooms, and upgrades to the kitchen work area. Elements to improve overall visitor safety would also be implemented. However, some facilities such as the kitchen would continue to be inadequate, resulting in a local, long-term, negligible, beneficial impact on visitor services, when compared with Alternative 1.</p>	<p>In addition to the improvements implemented under Alternative 2, Alternative 3 would result in key improvements to the location and efficiency of visitor services at the ski lodge, improved storage space areas, new employee break areas and expanded facilities for overnight staff, and upgrades to kitchen work areas and related facilities. This alternative would result in a local, long-term, minor, beneficial impact on visitor services.</p>	<p>Implementation of Alternative 4 would result in the most improvements to the location and efficiency of visitor services, storage space, employee facilities, and upgrades to all kitchen work areas. Elements to improve overall visitor safety would also be implemented. Implementation of this alternative would result in a local, long-term, minor to moderate, beneficial impact on visitor services.</p>

**Table 2-5  
Summary Comparison of Impacts for the No Action and Action Alternatives (continued)**

Alternative 1: No Action Alternative	Alternative 2: Essential Repairs and Upgrades	Alternative 3: Rehabilitation and Improvements	Alternative 4: Emphasize Historic Character
<b>FACILITIES OPERATIONS AND MANAGEMENT</b>			
<p>Under Alternative 1, ongoing maintenance performed by the concessioner, including snow management requirements, would continue and be extensive. The layout of staff accommodations and work areas would continue to be inefficient and insufficient to support visitor services. The overall condition of the building would continue to slowly deteriorate, resulting in further maintenance and component repairs requirements. Alternative 1 would result in a local, long-term, moderate, adverse impact on operations.</p>	<p>Implementation of Alternative 2 would result in long-term, minor to moderate beneficial effects to concessioner operations from a reduction in annual maintenance due to extensive repairs/rehabilitation to critical elements of the lodge. There would be long-term, minor, beneficial effect on NPS operations from the relocation of interpretive functions to the west building; however, there would also be short-term and long-term negligible to minor adverse effects to NPS operations due to increased cost associated with construction oversight and maintenance of new utility and site drainage infrastructure.</p>	<p>Similar to Alternative 2, implementation of Alternatives 3 or 4 would result in long-term, minor to moderate, beneficial effects to concessioner operations from a reduction in annual maintenance required by the concessioner due to extensive repairs/rehabilitation to critical elements of the lodge. There would be long-term, minor beneficial effects to NPS operations from the proposed relocation of interpretive functions to the west building; however, there would also be short-term and long-term negligible to minor adverse effects to NPS operations due to increased cost associated with construction oversight and maintenance of new utility and site drainage infrastructure.</p> <p>Under Alternatives 3 and 4, further modifications to the facility to enhance functionality of visitor services and administrative areas would result in a local, long-term, moderate, beneficial impact on concessioner operations.</p>	
<b>TRANSPORTATION</b>			
<p>Under Alternative 1, pedestrian safety and handicap-accessible parking and drop-off areas in front of the ski lodge would continue to be inadequate, resulting in a continued local, long-term, minor, adverse impact on transportation.</p>	<p>Implementation of Alternative 2 would result in construction-related traffic congestion and use of parking lots as staging areas during two summer seasons. Pedestrian safety and handicap-accessible parking and drop-off areas in front of the ski lodge would continue to be inadequate. This alternative would result in local, short-term, minor, adverse, impacts on transportation.</p>	<p>Implementation of Alternative 3 would result in local, short-term, minor, adverse impacts to transportation, due to construction-related traffic congestion and use of parking lots as staging areas during four summer seasons. However, once construction was complete, traffic flow in front of the ski lodge, pedestrian safety and handicap-accessible parking would be improved, resulting in local, long-term, minor, beneficial impacts to transportation.</p>	<p>Implementation of Alternative 4 would result in local, short-term, minor, adverse impacts to transportation, due to construction-related traffic congestion and use of parking lots as staging areas during five summer seasons. However, once construction was complete, traffic flow in front of the ski lodge, pedestrian safety, and handicap-accessible parking would be improved, resulting in local, long-term, moderate, beneficial impacts to transportation.</p>

**Table 2-5  
Summary Comparison of Impacts for the No Action and Action Alternatives (continued)**

<b>Alternative 1: No Action Alternative</b>	<b>Alternative 2: Essential Repairs and Upgrades</b>	<b>Alternative 3: Rehabilitation and Improvements</b>	<b>Alternative 4: Emphasize Historic Character</b>
<b>ENERGY CONSUMPTION AND GLOBAL CLIMATE CHANGE</b>			
<p>Under Alternative 1, energy consumption would continue to be inefficient, resulting in a local, long-term, minor adverse impact on energy consumption.</p>	<p>Implementation of Alternative 2 would cause a short-term increase in gasoline and diesel fuel consumption during two seasons of construction.</p> <p>Upgrades to mechanical and ventilation systems would reduce energy requirements and the installation of a new boiler system would improve efficiency. There would be a small increase in power demand due to the installation of a hydronic snow melt system. Overall this alternative would be expected to reduce energy consumption, compared to Alternative 1, and would be expected to reduce energy consumption, better help the National Park Service reach its overall energy conservation objectives, and reduce overall contribution to global greenhouse gas emissions. Alternative 2 would result in local, long-term, negligible, beneficial impacts on energy consumption.</p>	<p>Implementation of Alternative 3 would cause a short-term increase in gasoline and diesel fuel consumption during four seasons of construction. As under Alternative 2, upgrades to mechanical and ventilation systems and installation of a new boiler system would reduce future diesel requirements. There would be a small increase in power demand due to the installation of a hydronic snow melt system.</p> <p>Under Alternative 3, the installation of a fireplace is expected to increase propane or wood energy use. Overall, this alternative would be expected to reduce energy consumption, better help the National Park Service reach its overall energy conservation objectives, and reduce overall contribution to global greenhouse gas emissions, when compared with Alternative 1. Alternative 3 would result in a local, long-term, negligible, beneficial impact on energy consumption.</p>	<p>Implementation of Alternative 4 would result in a short-term increase in gasoline and diesel fuel consumption during five seasons of construction. As under Alternatives 2 and 3, upgrades to mechanical and ventilation systems and installation of a new boiler system would reduce future diesel requirements. There would be a small increase in power demand due to the installation of a hydronic snow melt system. The installation of a fireplace is expected to increase propane or wood energy use.</p> <p>Overall, Alternative 4 would best help achieve the National Park Service objectives of energy conservation and efficiency when compared to Alternatives 2 and 3 due to the extent of new construction for this alternative. However overall, this alternative would result in a local, long-term, negligible to minor, beneficial impact on energy consumption compared to Alternative 1.</p>
<b>AMERICAN INDIAN TRADITIONAL CULTURAL PRACTICES</b>			
<p>Under Alternative 1, there could be small adverse impacts to plants traditionally used in the area, due to normal ski area operations. This alternative would result in a long-term, local, negligible adverse impact on traditional cultural practices.</p>	<p>Under Alternatives 2 and 3, ground disturbance and limited access associated with construction activities could impact some traditional cultural resources, with an increased potential for effects under Alternative 3 due to the longer construction timeframe. This would result in a short-term, local, minor, adverse impact on traditional cultural practices.</p>		<p>Under Alternative 4, ground disturbance and limited access associated with construction activities could impact some traditional cultural resources due to the longer construction timeframe, and permanent extension of the Alpine rental building further into the meadow area. This alternative would result in a short-term, local, minor, adverse impact on traditional cultural practices.</p>

**Table 2-5  
Summary Comparison of Impacts for the No Action and Action Alternatives (continued)**

<b>Alternative 1: No Action Alternative</b>	<b>Alternative 2: Essential Repairs and Upgrades</b>	<b>Alternative 3: Rehabilitation and Improvements</b>	<b>Alternative 4: Emphasize Historic Character</b>
<b>HISTORIC SITES, BUILDINGS, AND CULTURAL LANDSCAPES</b>			
<p>Under Alternative 1, regular maintenance and upkeep of the historic site would continue to occur. As the No Action Alternative would not alter, directly or indirectly, any of the characteristics of the historic site that qualify the property for inclusion in the National Register of Historic Places in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association, Alternative 1 would have no adverse effect.</p>	<p>Alternative 2 proposes a <i>Standards</i>-compliant rehabilitation program for the ski lodge that includes new construction, abatement of structural, weather envelope, life-safety, and mechanical systems upgrades, as well as improved ADA accessibility and use of the ski lodge and its spaces. The proposed activities would not alter, directly or indirectly, any of the characteristics of the historic site that qualify the property for inclusion in the National Register of Historic Places in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Therefore, Alternative 2 would have no adverse effect.</p>	<p>Alternative 3 presents a higher attainment of the overall rehabilitation of the ski lodge than what is proposed in Alternative 2, allowing for <i>Standards</i>-compliant rehabilitation and protection of contributing features within the historic site. Beyond the proposed abatement of structural, weather envelope, life-safety, and mechanical systems issues, as well as improved ADA accessibility, this alternative further considers the need to distinguish the ski lodge as a significant and primary contributing feature of the NRHP-eligible historic site. The proposed activities would not alter, directly or indirectly, any of the characteristics of the historic site that qualify the property for inclusion in the National Register of Historic Places in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Therefore, Alternative 3 would have no adverse effect.</p>	<p>Alternative 4 achieves the highest level of the overall rehabilitation goals for the ski lodge, allowing for <i>Standards</i>-compliant rehabilitation and protection of contributing features within the historic site. Beyond the proposed abatement of structural, weather envelope, life-safety, and mechanical systems, as well as improved ADA accessibility, this alternative goes further than Alternatives 2 and 3 to distinguish the ski lodge as a significant and primary contributing feature of the NRHP-eligible historic site. The proposed activities would not alter, directly or indirectly, any of the characteristics of the historic site that qualify the property for inclusion in the National Register of Historic Places in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Therefore, Alternative 4 would have no adverse effect.</p>

## Environmentally Preferable Alternative

The Council on Environmental Quality (CEQ) regulations implementing NEPA and the National Park Service NEPA guidelines require that “the alternative or alternatives which were considered to be environmentally preferable” be identified (CEQ Regulations, Section 1505.2).

Environmentally preferable is defined as “the alternative that will promote the national environmental policy as expressed in NEPA’s Section 101. Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative that best protects, preserves, and enhances historic, cultural, and natural resources” (CEQ 1981).

Section 101 of NEPA states that:

*It is the continuing responsibility of the Federal Government to . . . (1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations; (2) assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings; (3) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences; (4) preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity, and variety of individual choice; (5) achieve a balance between population and resource use which will permit high standards of living and a wide sharing of life’s amenities; and (6) enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.*

**Conformance:** Alternative 3 would best fulfill the responsibilities of the National Park Service to select the alternative that has the least amount of impacts to the biological and physical environment and that best protects, preserves, and enhances historic, cultural, and natural resources.

Under Alternatives 2, 3, and 4, critical code upgrades and repairs for life-safety, fire protection, accessibility and building infrastructure including civil, structural, mechanical, plumbing, and electrical systems would be completed. Temporary structures would be replaced with permanent buildings with an architectural character that is compatible with the historic site. Alternative 1 (No Action) would not provide for these critical project requirements, nor would it protect or enhance the character of the historic site, improve operations, or improve visitor experience. Implementation of Alternative 2 would include all critical repairs and upgrades, but offers the least amount of improvements for historic character, universal design, the flow and functionality of interior spaces, vehicle and pedestrian circulation, and concessioner and NPS operations.

Alternatives 3 and 4 would both include substantial improvements for all key elements listed above. However, while Alternative 4 would restore many features of the main lodge that contribute to the historic character of the site, it is focused on optimizing visitor experience and slightly enlarges the facility footprint, potentially affecting cultural and natural resources. Alternative 3 addresses all of the critical code and structural upgrades, provides some improvements to the historic character of the site, and provides many improvements to visitor experience and operations while remaining within the existing footprint. Therefore, Alternative 3 best balances the protection of environmental resources with essential project requirements.

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# Chapter 3: Affected Environment and Environmental Consequences

## Introduction

This chapter describes the environment that could be affected by the alternatives of the Badger Pass Ski Lodge Rehabilitation Project, and analyzes the potential environmental impacts of the proposed actions in each alternative.

### **Organization of this Chapter**

This chapter includes an introduction that provides a brief overview of the resource topics analyzed and the methods used for analysis. A rationale for excluding certain resource topics is also included. Following the introduction, this chapter is organized by resource topics relevant to the project. Descriptions of the current conditions of each resource topic, based on the most recent studies and analyses, are described in the Affected Environment sections. The Affected Environment sections are followed by an analysis of the Environmental Consequences associated with each proposed alternative, including the No Action Alternative. These analyses provide the basis for comparing the effects of the alternatives.

### **Resource Topics Considered in this Environmental Assessment**

Resource topics considered were selected based on federal law, regulations, executive orders, NPS management policies, NPS subject matter expertise, and concerns expressed by other agencies or members of the public during scoping and comment periods.

#### **Natural Resources**

The federal and state Endangered Species Acts (and associated legislation), Clean Water Act, Clean Air Act, and National Environmental Policy Act (NEPA) require that the effects of any federal undertaking on natural resources be examined. In addition, NPS management policies and natural resource management guidelines call for the consideration of natural resources in planning proposals. As a result, analysis was performed for the following natural and physical resource topics:

- Soils
- Hydrology and water quality
- Wetlands
- Vegetation
- Wildlife
- Special status species
- Air quality
- Soundscapes

## **Sociocultural Resources**

Sociocultural resources are cultural resources associated with the relationship of people with the human environment (both biophysical and built). These cultural resources may have historic merit, but do not qualify as historic properties (see below). They include resources protected under the American Indian Religious Freedom Act and Executive Order 13007, which protect American Indian traditional religious practices and sacred sites. Based on the 1916 Organic Act, stewardship of Yosemite National Park requires consideration of two integrated purposes: (1) to preserve Yosemite's unique natural and cultural resources and scenic beauty; and (2) to make these resources available to visitors for study, enjoyment, and recreation. Conserving the park's scenery is a crucial component of the 1916 Organic Act and the park's enabling legislation. To meet NPS obligations under the National Environmental Policy Act, it is necessary to characterize the sociocultural environment, and to analyze the potential effects of the Badger Pass Ski Lodge Rehabilitation Project on these resources. As a result, analysis was performed for the following sociocultural resource topics:

- Visitor experience and recreation
- Visitor services
- Facilities operations and management
- Transportation
- Energy consumption and global climate change
- American Indian traditional cultural practices

## **Historic Properties**

Cultural resources that are eligible for listing in the National Register of Historic Places are considered Historic Properties and are protected under the National Historic Preservation Act (NHPA). Section 106 of the National Historic Preservation Act requires federal agencies to take into account the effects of their undertakings on historic properties. The 1999 Programmatic Agreement (NPS 1999) governs the park's effort to take into account the effects of park planning and operations on historic properties. In addition, NPS management policies and cultural resource management guidelines call for the consideration of historic properties in planning proposals. For this project, analysis was performed for the following historic properties resource topics:

- Historic sites, buildings, and cultural landscapes

## **Resource Topics Dismissed From Detailed Analysis**

**Geology and Geologic Hazards:** There are no geologic resources that would be affected by any of the proposed actions. The project site and its vicinity are located in an area of relatively low historic seismic activity. There are no known faults that cut through the local soils in or near the site, and the site is not located in an Alquist-Priolo Earthquake Fault Zone as defined by Special Publication 42 (revised 1994) published by the California Geologic Survey (Kleinfelder 2010). The results of geotechnical investigations at the site and the impact of seismic retrofitting to code are addressed under the Soils section. Therefore, these resource topics have dismissed from further analysis in this document.

**Floodplains:** The project area does not overlap with any floodplains, and the proposed actions would not have any indirect effects to other known floodplains. Therefore, this resource topic has been dismissed from further analysis in this document.

**Lightscares:** Night skies in the project area are subject to stray artificial light from the nearby Central Valley of California. Sky quality measurements taken in 2005 from Sentinel Dome, located west of Glacier Point on the rim of Yosemite Valley, indicate that the night skies in the western portion of the park, including the project area, are affected by ‘sky glow’ from several Central Valley cities, including Fresno, and the Modesto/Stockton/Sacramento area.

Safety and security around the developed area at Badger Pass are accommodated through limited lighting. The Badger Pass Ski Lodge and associated buildings are lit at the building entrances and loading areas. Several overhead lights establish routes between buildings to assure a safe environment for employees and visitors. There would be only minimal changes to exterior lighting at the ski lodge under this project, and any changes to would be in accordance with park lighting guidelines. Any impacts from lighting modifications on wildlife are noted in the Wildlife section of this analysis. There would be no impacts on the visitor experience due to changes in lighting, since visitor use of the area is limited to day use. Therefore, this topic has been dismissed from further analysis in this document.

**Prime and Unique Agricultural Lands:** There are no agricultural lands in the project area, and the proposed action would not have any indirect effects to downstream agricultural lands. Therefore, this resource topic has been dismissed from further analysis in this document.

**Scenic Resources:** There would be no changes to scenic views from the ski lodge, and the changes to scenic views towards the ski lodge are analyzed under Historic Properties. Impacts on scenic resources are addressed under the Historic Districts, Buildings, and Cultural Landscapes section and the Visitor Experience section. Although the Winter Club Room is removed in Alternatives 3 and 4, reducing access to views from this vantage point, this reduction of access is countered with more open deck space to view the slopes. Therefore, this topic has been dismissed from further analysis as a separate resource topic in this document.

**Wilderness Experience:** The project area does not overlap with designated wilderness. Visitors would still be able to access surrounding designated wilderness from the Badger Pass Ski Area parking lot and the ski area itself, and would continue to rent equipment at the ski lodge to use in adjacent wilderness (e.g., Nordic skis or snowshoes). Because the Badger Pass Ski Lodge Rehabilitation Project does not propose to change the amounts or types of visitor use at the ski area, implementation of this project would not have any effect on the wilderness experience or wilderness access. Therefore, this resource topic has been dismissed from further analysis in this document.

**Orientation and Interpretation:** Implementation of the Badger Pass Ski Lodge Rehabilitation Project could have minor effects on park orientation and interpretation, due to the potential installation of new signs and/or interpretive displays in or around the ski lodge. Any additions or changes would be minor and would not affect overall park orientation and interpretation. Proposed actions of this type are addressed under the Visitor Services and Facilities Operations and Management sections. Therefore, this topic has been dismissed from further analysis as a separate resource topic in this document.

**Public Health and Safety:** Public Health and Safety is not presented as a separate topic in this plan because several resource topic sections (including Visitor Services and Facilities Management and Operations) evaluate park-related public health and safety issues such as fire safety and structural safety improvements to the ski lodge. Implementation of this project would cause no change in levels or types of public safety services offered at the ski area. Therefore, this topic has been dismissed from further analysis as a separate resource topic in this document.

**Environmental Justice:** No aspect of the alternatives of the Badger Pass Ski Lodge Rehabilitation Project would result in disproportionately high and adverse human health or environmental effects on minority or low-income populations; destruction or disruption of community cohesion and economic vitality; displacement of public and private facilities and services; increased traffic congestion; and/or exclusion or separation of minority or low-income populations from the broader community. Therefore, this resource topic has been dismissed from further analysis in this document.

**Land Use:** Land uses within Yosemite National Park are classified as “parklands,” regardless of the individual types of land uses within the park. Implementation of the Badger Pass Ski Lodge Rehabilitation Project would not affect parkland land uses within the park. Therefore, this resource topic has been dismissed from further analysis in this document.

**Socioeconomics:** There would be no measurable effects to the regional or gateway community economies, or changes in visitor attendance or visitor spending patterns as a result of implementation of the Badger Pass Ski Lodge Rehabilitation Project. Therefore, this resource topic has been dismissed from further analysis in this document.

**Archeological Resources:** Previous archeological surveys conducted have indicated that there are no known archeological resources within the project area. Therefore no impacts on archeological resources are expected to result from the proposed action. In the unexpected event that previously unidentified archeological deposits are exposed during ground disturbance, the 1999 Programmatic Agreement would be implemented.

**American Indian Traditional Cultural Properties:** Although the Badger Pass/Monroe Meadow area is regarded by the associated American Indian tribes as a location with traditional associations, there is no adequate information to indicate that the project area is eligible as a Traditional Cultural Property. This resource topic has been dismissed from further analysis in this document. Potential impacts on traditional cultural resources are addressed under the American Indian Traditional Cultural Practices section.

**Museum Collections and Objects:** Implementation of the Badger Pass Ski Lodge Rehabilitation Project could indirectly affect the museum collections by generating minimal additions to the collections due to the unlikely need for archeological data recovery performed as mitigation for direct site impacts at select locations. Such additions would require museum storage space and ongoing collection maintenance and management. Any efforts associated with this are expected to be minimal and undertaken as part of routine collection duties associated with the maintenance of the museum collection. Therefore, this resource topic has been dismissed from further analysis in this document.

## **Methods for Analyzing Environmental Consequences**

The National Environmental Policy Act requires that environmental documents disclose the environmental impacts of a proposed federal action, reasonable alternatives to that action, and any adverse environmental effects that cannot be avoided should the proposed action be implemented. The National Environmental Policy Act and NPS *Director's Order 12: Conservation Planning, Environmental Impact Analysis, and Decision-making* (DO-12) (NPS 2001) require consideration of the context, duration, intensity, and type of impacts. Effects to historic properties are analyzed using ACHP regulations.

Both direct and indirect impacts of the action must be included in the analysis. Direct impacts are caused by, and occur at the same time and place as the action, including such impacts as animal and plant mortality and damage to cultural resources. Indirect impacts are caused by the action, but occur later in time at another place or to another resource, including changes in species composition, vegetation structure, range of wildlife, offsite erosion or changes in general economic conditions tied to park activities. In addition, potential cumulative impacts caused by the project in combination with other actions, and potential impairment of park resources and values are considered.

### **Impact Analysis - General**

The environmental consequences for each impact topic were defined based on the following information regarding context, type of impact, duration of impact, intensity of impact and the cumulative context. Unless otherwise stated, impact analysis is based on a qualitative assessment of impacts. Context, duration, type and intensity of impact are characterized in more detail specific to each resource topic, when applicable, preceding the environmental consequences discussion in each resource section below.

#### **Context of Impact**

Setting or area within which impacts are analyzed – such as the local project area, the region, or national area of influence.

- *Local:* Detectable only in the vicinity of the proposed action.
- *Regional:* Detectable on a landscape scale (beyond the affected site).
- *National:* Detectable on a national scale.

#### **Duration of Impact**

Duration is a measure of the time period over which the effects of an impact persist. The duration of impacts evaluated in this environmental assessment may be one of the following:

- *Short-term:* Generally, short-term impacts are temporary, transitional and associated with construction and removal activities.
- *Long-term:* Long-term impacts are typically those effects that continue to occur after construction and last 10 years or more and could be considered permanent.

#### **Intensity of Impact**

The intensity of an impact considers whether the impact is judged negligible, minor, moderate, or major relative to existing conditions. Intensity of impact for special status species and historic properties are measured differently, and are described below.

- *Negligible*: The measurable or anticipated degree of change would not be detectable or would be only slightly detectable, localized or at the lowest level of detection.
- *Minor*: The measurable or anticipated degree of change would have a slight effect, causing a slightly noticeable change of approximately less than 20 percent compared to existing conditions, often localized.
- *Moderate*: The measurable or anticipated degree of change is readily apparent and appreciable and would be noticed by most people, with a change likely to be between 21 and 50 percent compared to existing conditions; can be localized or widespread.
- *Major*: The measurable or anticipated degree of change would be substantial, causing a highly noticeable change of approximately greater than 50 percent compared to existing conditions; often widespread.

### **Type of Impact**

A measure of whether the impact would improve or harm the resource and whether that harm occurs immediately or at some later point in time.

- *Beneficial*: Reduces or improves impact being discussed.
- *Adverse*: Increases or results in negative impact being discussed.

### **Impact Analysis for Special Status Species**

Federal agencies must consult with the U.S. Fish and Wildlife Service to ensure their actions would not jeopardize the continued existence of any federally listed or proposed threatened or endangered species, or adversely modify designated or proposed critical habitat (Endangered Species Act Section 7 (a) (2)). If listed species or their critical habitat are present, the federal agency must determine if the action would have “no effect,” “may effect, not likely to adversely affect,” or “may effect, likely to adversely affect” those species or their habitat. The National Park Service makes the determination of effect for the alternatives following guidance outlined in the 1998 U.S. Fish and Wildlife Service and National Marine Fisheries Service *Endangered Species Act Consultation Handbook: Procedures for Conducting Section 7 Consultations and Conference Activities*. Although special status species include state listed and sensitive species, park sensitive species, and species with other federal (i.e., Bureau of Land Management or Forest Service sensitive), state or local special status, in addition to species protected under the Endangered Species Act, impacts are determined following the same guidance.

- *No Effect*: The project (or action) is located outside suitable habitat and there would be no disturbance or other direct, indirect, or cumulative impacts on the species. The action would not affect the listed species or its designated critical habitat (USFWS 1998).
- *May Affect, Not Likely to Adversely Affect*: The project (or action) occurs in suitable habitat or results in indirect impacts on the species, but the effect on the species is likely to be entirely beneficial, discountable, or insignificant. The action may pose effects on listed species or designated critical habitat but given circumstances or mitigation conditions, the effects may be discounted, insignificant, or completely beneficial. Insignificant effects would not result in take. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not (1) be able to meaningfully measure, detect, or evaluate insignificant effects or (2) expect discountable effects to occur (USFWS 1998).
- *May Affect*: The project (or action) would have an adverse effect on a listed species as a direct, indirect, or cumulative result of the proposed action or its interrelated or interdependent actions and the effect is not: discountable, insignificant, or beneficial (USFWS 1998).

## Impact Analysis for Historic Properties

“Historic properties,” as defined by the implementing regulations of the National Historic Preservation Act, are any districts, buildings, structures, sites, or objects, including resources that are considered by American Indians to have cultural and religious significance, that are eligible for inclusion in the National Register of Historic Places (NRHP) because they are significant at the national, state, or local level in American history, architecture, archeology, engineering, or culture. The term “eligible for inclusion” includes both properties formally determined eligible and all other properties that meet NRHP listing criteria. The Badger Pass Ski Area is a NRHP-eligible historic site that derives its significance at the local level under National Register Criterion A - (Event) in the areas of Entertainment/Recreation and the context of Tourism, Recreation and Preservation Ethic, as one of California’s earliest developed downhill ski areas. The Badger Pass Ski Lodge is considered a significant contributing feature to the historic site (Page & Turnbull 2009e).

NPS management policies and cultural resource management guidelines call for the consideration of historic properties in planning proposals. To meet NPS obligations under the National Historic Preservation Act and the National Environmental Policy Act, among other regulations, methods for identifying historic properties and assessing impacts must meet the standards in NHPA section 106 implementing regulations (36 CFR 800).

### NHPA Determinations of Effect

Conventional terms used by the National Park Service to measure the context, duration, intensity, and type of impact as part of NEPA analysis are not valid for assessing effects on historic properties under NHPA standards. Because the effect on a historic property is measured by the status of the historic property’s eligibility for listing in the National Register of Historic Places, the negligible, minor, moderate and major degrees do not apply: either a historic property maintains the characteristics making it eligible for listing in the National Register of Historic Places, or it does not. It cannot, for example, be moderately eligible for listing on the National Register.

The ACHP has issued regulations for the implementation of section 106, entitled *Protection of Historic Properties* (36 CFR 800). ACHP regulations discuss the following types of effect:

- *No Historic Properties Affected:* When there are no historic properties present, or the action will have no effect on historic properties, the action is said to have *no effect* on historic properties.
- *No Adverse Effect:* Occurs when there will be an effect on a historic property, but the action will not alter characteristics that make the property eligible for inclusion in the National Register of Historic Places in a way that would diminish the integrity of the property.
- *Adverse Effect:* Occurs when an action will alter, directly or indirectly, any of the characteristics of a historic property that qualify it for inclusion in the National Register of Historic Places, in a way that would diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association. Adverse effects may include reasonably foreseeable effects caused by the action that may occur later in time, be farther removed in distance, or be cumulative.

### Resolving Adverse Effects to Historic Properties

An adverse effect under Section 106 of NHPA can be resolved with a good faith effort to consider whether and how to avoid, reduce, or mitigate the effect, which could be done by modifying the undertaking, imposing certain mitigation conditions, such as photo documentation, treatment of

historic buildings, structures, and landscapes in accordance with the Secretary of the Interior's *Standards for the Treatment of Historic Properties (Standards)* or other measures negotiated in consultation with the California State Historic Preservation Officer, American Indian tribal governments, and the public. These measures would be documented in a memorandum of agreement or a NEPA decision document. Yosemite's 1999 Programmatic Agreement also stipulates standard mitigation measures that can be implemented to resolve an adverse effect. These measures are: recordation, salvage, interpretation, and National Register reevaluation.

### **Significant Impact**

For the purposes of the National Environmental Policy Act and DO-12, an impact on a National Register property would be considered significant when an adverse effect cannot be resolved by agreement among the California State Historic Preservation Officer, the ACHP, American Indian tribal governments, other consulting and interested parties and the public. The resolution must be documented in a memorandum or programmatic agreement or the NEPA decision document.

### **Methodology**

In accordance with ACHP regulations implementing Section 106, impacts on historic properties were identified and evaluated by:

- Determining the *area of potential effect*
- Identifying cultural resources present in the *area of potential effect* that were either listed in or eligible for listing in the National Register of Historic Places
- Applying the criteria of adverse effect to affected cultural resources listed in or eligible for listing in the National Register of Historic Places
- Considering ways to avoid, minimize, or mitigate adverse effects

### **Area of Potential Effect for this Project**

As defined under Section 106 of the National Historic Preservation Act, the *area of potential effect* for this project is the entire Badger Pass Ski Area historic site (see Figure 3-2).

### **Properties Analyzed for this Project**

Historic properties that could potentially be affected by this project are the Badger Pass Ski Area historic site, which includes the ski lodge and the associated cultural landscape.

### **Cumulative Impacts**

Cumulative impacts are the effects on the environment that would result from the incremental impacts of the action when added to other past, present and reasonably foreseeable future actions. Impacts would be considered cumulative regardless of what agency or group (federal or nonfederal) undertakes the action. The CEQ describes a cumulative impact as follows (Regulation 1508.7):

*...a "Cumulative impact" is 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 non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.*

The cumulative impacts addressed in this analysis include past actions, present actions, as well as any planning or development activity currently being implemented or planned for implementation in the reasonably foreseeable future. Cumulative actions are evaluated in conjunction with the impacts of an alternative to determine if they have any additive effects on a particular resource. Because some of the cumulative projects are in the early planning stages, the evaluation of cumulative impacts was based on a general description of the project. Appendix A contains a list of projects included in the cumulative impacts analysis. Cumulative impacts are addressed for each alternative in the Environmental Consequences section of each resource topic.

## Impairment

In addition to determining the environmental consequences of the alternatives, NPS *Management Policies 2006* (NPS 2006) and DO-12, require analysis of potential effects to determine if actions would impair park resources.

Impairment is an impact that, in the professional judgment of the responsible NPS 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. The need to analyze and disclose impairment impacts originates from the National Park Service Organic Act (NPS 1916). The Organic Act established the National Park Service with a mandate “to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.”

An impact would be less likely to constitute impairment if it is an unavoidable result, which cannot reasonably be further mitigated, of an action necessary to preserve or restore the integrity of park resources or values. 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 *Yosemite General Management Plan* or other relevant NPS planning documents.

The evaluation of impairment of park resources was based on the type and intensity of impacts and the types of resources affected. Overall, beneficial impacts would not constitute impairment. With respect to the intensity of impacts, negligible and minor adverse impacts are not of sufficient magnitude to constitute impairment. Moderate and major adverse impacts may constitute impairment but do not automatically do so. Rather, these impacts must be analyzed with respect to the three bulleted criteria above. Impairment is generally considered for geologic, hydrologic, biological, cultural, scenic, and recreation resources. Impairment is not analyzed for non-resource topics such as visitor experience and recreation, visitor services, facilities operations and management, transportation, and energy consumption. Impairment is addressed for each alternative in the Environmental Consequences section of each applicable resource topic.

## **Impact Mitigation Measures**

The National Park Service places a strong emphasis on avoidance, minimization, and mitigation of impacts, to help ensure that the activities associated with the Badger Pass Ski Lodge Rehabilitation Project would protect park resources and the quality of the visitor experience. Mitigation measures include the following types of actions:

- *Avoid* conducting management activities that would adversely affect the resource.
- *Minimize* the type, duration, or intensity of the impact on an affected resource.
- *Repair* localized damage to the affected resource immediately after an adverse impact.
- *Rehabilitate* an affected resource with a combination of additional management activities.
- *Compensate* a major long-term adverse direct impact through additional strategies designed to improve an affected resource to the degree practicable.

Specific mitigation measures that would occur prior to, during, and after construction under all action alternatives are described in Appendix B, Mitigation Measures Common to All Alternatives.

## **Natural Resources**

### **Soils**

#### **Affected Environment**

The Badger Pass Ski Lodge lies along the northern fringe of Monroe Meadow, near the terminus of the Badger Pass Ski Area ski runs, at an elevation of approximately 7,200 feet. Natural Resources Conservation Service (NRCS) soils data indicate that the Badger Pass Ski Lodge and the immediately adjacent parking loop were constructed on soils characteristic of mountain valleys and moraines with slopes generally between 5% and 30%. The soils in the remaining portion of the parking lot further north of the ski lodge area are more upland in nature and characteristic of soils found along mountain slopes or summits, with slopes between 0% and 25% (NRCS 2006).

In the immediate vicinity of the ski lodge, the land surface slopes gently in a general westerly direction. Surface (less than 12 inches in depth) and sub-surface (greater than 12 inches in depth) soils have been previously disturbed in the area surrounding the ski lodge as a result of construction and expansion of the ski lodge itself, construction and maintenance of the parking lot loops directly adjacent to the north side of the ski lodge, the construction and maintenance of storm and sanitary sewers, water, and electrical lines currently serving the ski lodge.

Based on drill log data for two groundwater wells serving the ski area, surface and sub-surface soils adjacent to ski lodge consist of 2 to 5 feet of peat in the meadow area overlying approximately 100 feet of sand, gravel, and boulders before encountering bedrock. A series of shallow soil borings (maximum depth of 30 feet below ground surface) taken in close proximity to the ski lodge encountered peat, silty sands, sands, gravelly sands, and areas of decomposed granite (ERM 2008).

Another second series of shallow soil samples (maximum depth of 18 inches) were taken in conjunction with a wetlands survey in the immediate area surrounding the ski lodge. Samples taken in the meadow area south and west of the ski lodge were dominated by sandy peats, whereas

soils north of the site in the vicinity of the parking area and the treed island were dominated by fill and/or more sandy material (NewFields 2009).

In addition to the above, in the summer and fall of 2009, seven soil borings between 5 and 51.5 feet in depth and seven dynamic cone penetrometer tests between 5 and 8 feet in depth were taken in the vicinity of the lodge and Nordic rental building to provide soil engineering data to assist with foundation design recommendations for rehabilitation of the lodge. Each of these soil borings was located on portions of the asphalt/concrete surfacing associated with the existing parking lot and drop off area in front (north) of the ski lodge. Data from these borings indicate that soils beneath the pavement and associated aggregate sub-base consisted primarily of poorly graded sandy silts and silty sands, with occasional gravels, cobbles, and organic materials (Kleinfelder 2010).

The 2009 soils investigation results also indicate that the upper 8 feet of soils in the project vicinity could be prone to liquefaction in the event of ground shaking of sufficient intensity. The related geotechnical report (Kleinfelder 2010) estimates that total settlements caused by the seismically induced cyclic stress at the site could cause settlements of about 1.7 inches in the upper 8 feet of soils.

In October 2005, during the excavation of two footings associated with the walkway between the ski lodge and the former ski rental shop located to the west and slightly south (which has since been dismantled and removed), discolored soil and a sheen were observed on the soil and in groundwater within the footing excavation. Proper regulatory notifications were made and additional site investigations were conducted in 2006 and 2007 (ERM 2008). The results of these investigations identified a small shallow contaminant plume consisting of fuel-oil constituents beneath the boiler room area and adjacent to the west end of the ski lodge, with the likely source being an older underground diesel storage tank (since replaced and upgraded) that provided fuel for the boilers at the ski lodge. With the concurrence of the California Regional Water Quality Control Board, methods for remediation of this contaminant plume would be evaluated once the preferred alternative for the rehabilitation of the Badger Pass Ski Lodge has been determined (ERM 2008). Remediation of contaminated soils may occur in conjunction with this rehabilitation project.

## **Environmental Consequences - Methodology**

Soils analysis was based on a qualitative assessment of generalized soil types and typical effects of the type of impact described.

**Type:** Beneficial impacts would protect soils from erosion or restore natural soil conditions; adverse impacts would degrade chemical or physical properties of soils or result in the loss or temporary removal of soils.

## **Environmental Consequences of Alternative 1 (No Action)**

### **Analysis**

Under Alternative 1 there would be no new impacts on soils. Continued use of the Badger Pass Ski Area during the winter would not impact soils in the immediate vicinity of the ski lodge because of frozen ground and high snow levels, essentially protecting the ground surface. Curbing, improved drainage, and resurfacing of the parking lot and roadway area along the north side of the ski lodge as part of the Glacier Point Road rehabilitation project during the summer of 2009 would be

expected to minimize or eliminate the potential for soil erosion to occur directly adjacent to the ski lodge as a result of runoff during snow melt and episodic rainfall events.

**Conclusion:** Under Alternative 1, there would be no ground disturbing activities and as a result, no impacts on soil resources.

### **Cumulative Impacts**

Localized short-term, adverse impacts on surface and sub-surface soils could result from construction activities associated with some of the past, current, and reasonably foreseeable actions planned or approved within the park. Past projects which contributed to adverse impacts on soils within the project area included the construction, modification, and expansion of the ski lodge and parking areas, construction of the access road, ski runs, lifts and associated infrastructure; routine maintenance activities, demolition of the Alpine rental shop, installation of temporary rental facilities, emergency stabilization measures, and the replacement of the Badger, Bruin, and Eagle ski lifts.

As part of the Glacier Point Road rehabilitation project, improvements to the Badger Pass Ski Area parking lot in 2009 included curbing and the re-crowning of the adjacent roadway and parking lot to help direct runoff away from the north side of the lodge. This action would result in overall long-term beneficial impacts on soils by improved drainage in the project area. Other current or reasonably foreseeable projects that could contribute to impacts on soils include construction of the Yosemite Environmental Education Center at Henness Ridge, and rehabilitation work on Glacier Point and Wawona Roads. The effects to soils associated with road rehabilitation projects would be localized and short-term in nature, resulting in overall long-term beneficial impacts on soils by improved drainage, remediation of small amounts of soil contamination, and minimizing the potential for soil erosion.

Overall, the cumulative actions in combination with Alternative 1 would result in a net local and regional long-term, negligible, beneficial impact on soils.

### **Impairment**

Alternative 1 would result in no changes to soils in the project area from current conditions. Because no resources specific to the park's purpose would be affected, and there would be no change to the natural and cultural integrity of the park, and no effect on resource values highlighted in the 1980 *Yosemite General Management Plan*, Alternative 1 would not impair soil resources for future generations.

## **Environmental Consequences of Alternatives 2, 3, and 4**

### **Analysis**

**Construction-related impacts:** Construction-related impacts associated with Alternatives 2, 3, and 4 are generally similar and are therefore discussed collectively.

All of the action alternatives would result in the disturbance of minor amounts of surface and near surface soil in the immediate area around the ski lodge and along utility corridors as a result of footing repair/replacement, access on the west, south, and east sides of the building for construction equipment, trenching for new water and sewer lines to the Alpine rental building and Nordic Center, a new water line following the existing utility corridor to the existing water tank for fire protection, and site drainage improvements at the main lodge, Alpine rental building, and

Nordic Center. In addition, replacement of the Nordic rental building in all action alternatives would also disturb small amounts of soil to the west and south of that building. The majority of ground disturbance would take place in previously disturbed areas. The existing building footprint consists of fill materials; the majority construction activities in this area would disturb non-native soils.

Under Alternatives 2, 3, and 4, the short-term disturbance from construction activities would include approximately 0.6 acres of surface and near-surface soils, resulting in local, short-term, minor adverse impacts on soils which could re-occur over two, four, and five summers respectively, as subsequent phases associated with these alternatives are implemented.

**Long-term impacts:** Under Alternative 4, there would be a permanent impact on wetland soils on the southeastern side of the ski lodge from the expansion of the new Alpine rental building outside of the existing building footprint by approximately 224 square feet, resulting in a long-term, minor, adverse effect on soil resources in the project area.

All action alternatives would incorporate the use of drilled piers and grade beams under most new structural elements and the use of compaction grouting under existing foundations to remain. These methods were selected to mitigate the potential hazard posed by liquefaction and minimize construction disturbance to adjacent meadow areas. Information on the size and depth of drilled piers is not currently available, pending additional geotechnical investigation at the site. Based on currently available information, these structural treatments would be expected to have a long-term, minor, adverse impact on soils.

In all action alternatives, soil contamination adjacent to the western site of the ski lodge may be remediated in conjunction with construction activities. The soil contamination consists of localized, low-mobility diesel-range petroleum hydrocarbons near the site of a former fuel-oil storage tank previously located in the area. Regardless of the alternative selected under this rehabilitation plan, this contamination would be remediated under a state-approved corrective action plan with the Regional Water Quality Control Board (RWQCB). Construction activities in this rehabilitation plan would provide an opportunity to directly access residual contamination that may have migrated beneath utility lines or the west building, potentially allowing more complete removal of contaminated soil. This would result in a long-term, minor to moderate, beneficial impact on soil resources.

Operation-related impacts on surface and near-surface soils are not expected to occur once soils are fully restored and stabilized, a condition that may take a few years to reestablish.

**Conclusion:** Approximately 0.6 acres of surface and near-surface soils would potentially be disturbed as part of construction activities under all action alternatives. This would result in localized short-term, minor, adverse impacts on surface and sub-surface soils over two, four, and five summers respectively, as subsequent phases associated with these alternatives are implemented.

In conjunction with construction activities, soil contamination from localized, low-mobility diesel-range petroleum hydrocarbons found in soils near the site of a former fuel storage tank may be remediated. All remediation activities occurring in conjunction with this rehabilitation project would be undertaken with oversight from the RWQCB. This would result in a long-term, minor to moderate, beneficial impact on soil resources.

Structural upgrades under all action alternatives would include measures to mitigate the presence of soils subject to liquefaction found under the lodge complex. These structural treatments would be expected to have a long-term, minor, adverse impact on soils.

Under Alternatives 2 and 3, no additional long-term impacts on soils are anticipated once construction and subsequent restoration activities have been completed. Under Alternative 4, there would be a localized, long-term, minor adverse impact on soils due to the approximately 224 square foot expansion of the new Alpine rental building to the southeast of the existing building footprint.

### **Cumulative Impacts**

Localized short-term, adverse impacts on surface and sub-surface soils could result from construction activities associated with some of the past, current, and reasonably foreseeable actions planned or approved within the park. Past projects which contributed to adverse impacts on soils within the project area included the construction, modification, and expansion of the ski lodge and parking areas, construction of the access road, ski runs, lifts and associated infrastructure; routine maintenance activities, demolition of the Alpine rental shop, installation of temporary rental facilities, emergency stabilization measures, and the replacement of the Badger, Bruin, and Eagle ski lifts.

As part of the Glacier Point Road rehabilitation project, improvements to the Badger Pass Ski Area parking lot in 2009 included curbing and the re-crowning of the adjacent roadway and parking lot to help direct runoff away from the north side of the lodge. This action would result in overall long-term beneficial impacts on soils by improved drainage in the project area. Other current or reasonably foreseeable projects that could contribute to impacts on soils include construction of the Yosemite Environmental Education Center at Henness Ridge, and rehabilitation work on Glacier Point and Wawona Roads. The effects to soils associated with road rehabilitation would be localized and short-term in nature, resulting in overall long-term beneficial impacts on soils by improved drainage and minimizing the potential for soil erosion.

Although the majority of surface soils disturbed by construction activities would ultimately be restored, some soil structure and integrity would be lost, but more so with Alternative 4 than with Alternatives 2 and 3. The cumulative projects in combination with Alternatives 2, 3, and 4 would result in a regional long-term negligible adverse effect on overall soil resources in Yosemite National Park.

### **Impairment**

Alternatives 2, 3, and 4 would result in localized minor, adverse impacts on soils. However because no resources specific to the park's purpose would be adversely affected, and there would be no change to the natural and cultural integrity of the park, nor an effect on resource values highlighted in the 1980 *Yosemite General Management Plan*, Alternatives 2, 3, and 4 would not impair park soils for future generations.

## **Hydrology and Water Quality**

### **Affected Environment**

The Badger Pass Ski Lodge is located along the northern fringe of Monroe Meadow, a bowl shaped depression at an elevation of approximately 7200 feet, at the base of Badger Pass Ski Area.

There are wetlands along the west, south, and east sides of the ski lodge, and to the east of the temporary Nordic rental building.

**Surface Waters:** Snow melt and rainfall runoff from the ski area drain into Grouse Creek, a small perennial stream. The headwaters for Grouse Creek are located well east of the ski lodge. As it approaches the ski lodge, Grouse Creek appears to be diverted below grade via a culvert system of unknown age, construction, condition, and configuration, and is discharged to the downgradient surface expression of Grouse Creek at a culvert outfall located southwest of the west building. A segment of the culvert suspected to convey this diverted surface is partially exposed along the south side of the ski lodge deck, where it is a crushed corrugated metal pipe. During the early spring and summer, water from snowmelt and runoff ponds to a depth of several inches in portions of Monroe Meadow. In June 2009, ponded water was observed over a large portion of the meadow directly adjacent to the east, south, and west sides of the ski lodge. Saturated soils and surface water ponding also occur in a small, bowl-shaped wetland in the lower parking lot tree island, near the eastern end of the Nordic rental building (NewFields 2009).

**Ground Water:** Ground water levels along the north, south, and west portions of the ski lodge area range from completely saturated in the early spring and summer to approximately 6 feet below the ground surface during the late summer and winter months. On the south side of the building, ground water levels are likely at or near the surface year round. Ground water elevation contours in the vicinity of the ski lodge generally correspond with existing site topography (ERM 1996; ERM 2008). Ground water levels ranged from between 5 and 15 feet below the ground surface in a series of borings taken along the northern side of the ski lodge (which is slightly higher elevation than that of the adjacent meadow) in the summer of 2009 (Kleinfelder 2010).

High ground water levels directly adjacent to and beneath the ski lodge have caused seepage through portions of foundation walls and the basement floor.

As discussed in the soils analysis (above), there is a small shallow area of contaminated soil consisting of localized, low-mobility diesel-range petroleum hydrocarbons near the site of a former fuel-oil storage tank near the west building. Remediation of this contamination may be conducted in conjunction with the implementation of this project, as there would potentially be greater access during construction activities to soil contaminants that may be beneath utilities or the west building. All remediation activities would be undertaken in a manner consistent with RWQCB requirements and guidelines, regardless of the alternative selected for this project. Depending on the time of year and the ground water levels at the time of remediation, there is the potential that small localized amounts of ground water may come in contact with contaminated soil during the remediation process.

**Water Supply/Quality:** Domestic water for the Badger Pass Ski Lodge is provided by two groundwater supply wells, one located on the eastern side of the existing Alpine rental building, and the other located along the south side of the ski lodge. The well on the southern side of the ski lodge is used as a backup well and has not been in use for several years. The water supply system also includes a chlorination system located in the basement of the ski lodge, with an approximate 96,000 gallon storage tank and connecting cast iron piping (Page & Turnbull 2009a). The water storage tank is located approximately 700 feet east of the ski lodge at an elevation of approximately 7300 feet, or about 100 feet higher than the ski lodge.

Production Well #1, located east of the existing Alpine rental building, is screened from 17 to 98 feet below ground surface and sealed to a depth of approximately 11 feet. Production Well #2, located along the south side of the ski lodge, is an open bottom well that pulls water from the interval between 120 to 200 feet below ground surface and is sealed to a depth of 120 feet. Four-inch polyvinyl chloride (PVC) pipe has been installed to the bottom of both wells, and the bottom 20 feet of each pipe is perforated (ERM 2006; ERM 2008). Based on laboratory testing data conducted in 1992, the domestic water supply meets or exceeds drinking water standards.

Water production from Production Well #1 varies over the course of the year as a result of varying seasonal demands, but the well averaged about 155,000 gallons/month in 2008. The highest monthly production occurred in January, February, and March, coinciding with the peak months of the ski season. Overall water consumption (versus production) averaged approximately 54,000 gallons/month. Based on these numbers, approximately 100,000 more gallons of water are produced each month than are consumed. The apparent reason for this discrepancy is that the well pump in Production Well #1 is on a timer and is scheduled to pump water during the evening hours through the chlorination system (located in the basement of the ski lodge) and then to the storage tank. Because the well pump is on a timer, the storage tank becomes full prior to the pump shutting off, overflows, and then releases treated (chlorinated) water to the ground at the base of the tank.

**Wastewater Management:** Wastewater from the ski lodge drains via a sanitary sewer main to two septic tanks located near the maintenance shop. Kitchen wastewater is diverted through grease traps installed adjacent to the north side of the ski lodge main building before being routed to the sewer main. From the septic tanks, wastewater is pumped to a leachfield located west of the maintenance area. The current wastewater treatment system is permitted to discharge 4,500 gallons per day of wastewater. The system was most recently upgraded in 2006, at which time the sewer lines west of the ski lodge and west building were replaced. Sewer lines beneath the ski lodge main and west buildings are thought to be the original lines.

Discrepancies between recorded water consumption and wastewater disposal volumes suggest that groundwater could be infiltrating the sewer lines located beneath the ski lodge indicating that the integrity of the sewer lines beneath the lodge may be compromised, and thus may threaten local groundwater quality.

## **Environmental Consequences – Methodology**

Methodologies used to evaluate hydrology and water quality are defined earlier in this chapter, beginning on page 3-5, under Methods for Analyzing Environmental Consequences, Impacts Analysis – General.

## **Environmental Consequences of Alternative 1 (No Action)**

### **Analysis**

Under Alternative 1, there would be no new impacts on hydrology or water quality. The ongoing effects of the facility and parking lot development on the local natural hydrologic processes, including the apparent diversion of Grouse Creek, alterations of natural surface runoff to the meadow from the north, and potential localized deflections of the water table, would continue, resulting in a localized, long-term, minor to moderate adverse effect on the hydrology of the meadow system.

The ski lodge, which is a contributing feature of the Badger Pass Ski Area historic site, would continue to be adversely affected by the local hydrology. During spring and summer months, surface waters would continue to pond directly adjacent to the ski lodge. High ground water levels would continue to seep through existing foundation walls and basement floor of the ski lodge, possibly continuing to infiltrate the sewer lines beneath the structure, resulting in a long-term, moderate, adverse effect to the structure. In addition, approximately 100,000 gallons per month of excess chlorinated groundwater production would continue to overflow the storage tank serving the ski area. It is unclear what effect the long-term discharge of this water has on local vegetation, if any, or if this volume of water is contributing to ponding surface water directly adjacent to the ski lodge.

**Conclusion:** Under Alternative 1, there would be no long-term solution implemented to mitigate the adverse effects to the ski lodge from local hydrologic conditions, or the adverse effects of the ski lodge facilities on local hydrologic processes. Alternative 1 would continue to impact local hydrology through the apparent diversion of Grouse Creek, alterations of natural surface runoff to the meadow, and potential localized deflections of the water table, resulting in a localized, long-term, minor to moderate, adverse effect on hydrologic processes.

Local hydrologic conditions that create repeated maintenance and repair requirements in portions of the ski lodge directly affected by high ground water levels and ponding surface waters directly adjacent to the facility would continue to occur. In addition, the potential for groundwater to infiltrate old sewer lines beneath the lodge would not be remedied. These represent localized long-term, moderate, adverse effects to the facility caused by local hydrologic conditions.

### **Cumulative Impacts**

The surface water and groundwater hydrologic systems were compromised when the ski lodge and parking lots were constructed, modified, and expanded. Diversion of Grouse Creek underground, which presumably occurred when the lodge was constructed, continues to adversely affect the local hydrologic regime.

As part of the Glacier Point Road rehabilitation project, improvements to the Badger Pass Ski Area parking lot in 2009 included curbing and the re-crowning of the adjacent roadway and parking lot to help direct runoff away from the north side of the lodge, these actions would be expected to provide a negligible to minor long-term beneficial impact on local hydrologic conditions by redirecting runoff from the ski lodge area and toward Grouse Creek. There would also be a long-term, minor, beneficial impact on water quality in Grouse Creek related to the installation of filters in the new drain inlets in the parking lot, which are intended to control sediment and parking lot contaminant loading to the creek and surrounding areas.

Groundwater quality would benefit from remediation of the residual fuel-oil contamination at the west end of the lodge as part of a state-approved corrective action plan. However, the continued interception and redirection of runoff from hard surfaces at the Badger Pass ski area would continue to have a long-term adverse effect on wetland hydrology in the meadow.

Overall, the cumulative actions in combination with Alternative 1 would result in a net localized long-term, negligible to minor, adverse impact on hydrology.

### **Impairment**

Alternative 1 (No Action) would result in no changes to hydrology and water quality in the project area from current conditions. Because no resources specific to the park's purpose would be affected, and there would neither be change to the natural and cultural integrity of the park, nor effects to resource values highlighted in the 1980 *Yosemite General Management Plan*, Alternative 1 would not impair these resources for future generations.

## **Environmental Consequences of Alternatives 2, 3, and 4**

### **Analysis**

**Construction-related impacts:** As it relates to hydrology and water quality, construction-related impacts associated with Alternatives 2, 3, and 4 are generally similar, and therefore are discussed collectively. The primary difference between Alternatives 2, 3, and 4, is that construction vehicle access along the east, south and west sides of the ski lodge and at the Nordic Center could re-occur over two, four, and five summer seasons respectively, as subsequent phases associated with each of these alternatives are implemented.

Implementation of Alternatives 2, 3, and 4 would be expected to encounter high ground water levels, and possibly ponding water, along the east, south and west sides of the ski lodge and to the east of the Nordic Center. Therefore, excavations necessary for footing and foundation repairs would be expected to require dewatering activities. Dewatering discharges could present localized short-term, moderate, adverse impacts on adjacent wetlands and/or the waters of Grouse Creek as a result of increased sediment loading. In addition, shallow groundwater could contain minor amounts of contamination in the area of a prior diesel fuel release. To reduce these potential impacts to negligible to minor levels, the following should occur:

- To the extent practical, remediate the remaining area of potential shallow groundwater contamination along the west end of the ski lodge in conjunction with the rehabilitation project, compliant with RWQCB requirements;
- Implement Best Management Practices (see Appendix B, Mitigation Measures) to ensure discharges associated with dewatering activities are accomplished in a manner acceptable to the park's Resources Management and Science Division and that no increased sediment loading occurs in Grouse Creek, or otherwise adversely impacts adjacent wetlands.

In addition to the above, and to the extent practical, construction vehicle activity along the east, south and west sides of the ski lodge and to the east of the Nordic Center should be restricted when ponding water is present directly adjacent to the facilities or within their construction buffers.

**Long-term impacts:** Proposed site drainage improvements along the east, south, and west side of the ski lodge and along the east and north side of the new Nordic Center would be designed to redirect surface drainage away from the building towards the meadow and Grouse Creek (see Figure 2-7 for site drainage improvements common to all action alternatives). This would have the dual benefit of reducing or eliminating potential water damage to structures and sustaining groundwater levels in adjacent wetlands. In order to maximize these benefits, the following measures should be considered in the final design of site drainage improvements:

- Proposed new outfalls to Monroe Meadow and Grouse Creek should be completed at the elevation of the meadow surface to avoid downcutting. A rocked-in swale that would allow wetland plants and moss to grow in and around the structure is recommended.

- Regrading of slopes away from the ski lodge and associated buildings should be as close to the foundation as possible, and any associated drainage channel constructed should likewise be as shallow as possible, while achieving the goal of diverting/draining water away from the building foundation. The goal of these measures would be to have a broad drainage swale that is heavily vegetated with wetland plants that would mimic sheetflow rather than channelized flow.
- Final design and installation of the site drainage improvements would be closely coordinated with the park's Resources Management and Science Division.

It is unclear what effects, if any, current water production volumes at the ski lodge (including overtopping the water storage tank by approximately 100,000 gallons of chlorinated groundwater per month) has had on local groundwater resources, or its potential effect on the adjacent wetland meadow area. Measures to eliminate tank overtopping by replacing the timer on the well pump with a float shut-off system on the storage tank would ensure that overtopping is eliminated or reduced from current levels, and would be expected to represent a long-term, negligible to minor, beneficial impact on local groundwater resources.

**Conclusion:** Under Alternatives 2, 3 and 4, the ski lodge would continue to adversely impact local hydrology through the diversion of Grouse Creek, potential deflection of the water table, and some restriction of surface flow. However, proposed site drainage improvements would be expected to have a localized, minor to moderate, beneficial effect on local hydrology by redirecting surface flow away from structures and toward adjacent wetlands and Grouse Creek. Final design of site drainage improvements should be conducted in coordination with the park's Resources Management and Science Division.

The site drainage improvements would also substantially reduce or eliminate potential water damage to structures by redirecting water away from foundations, resulting in a long-term, moderate, beneficial effect on the ski lodge facility. Replacement of the well pump timer would ensure that overtopping on the existing storage tank is eliminated or reduced from current levels, resulting in a long-term, negligible to minor, beneficial impact on local groundwater resources.

During construction activities, mitigation measures (see Appendix B) should be implemented to ensure that dewatering activities do not increase sediment loading in Grouse Creek, or otherwise adversely impact adjacent meadow wetlands. If properly implemented, construction-related impacts would be localized short-term, adverse, and negligible to minor on local hydrology and water quality.

### **Cumulative Impacts**

The surface water and groundwater hydrologic systems were compromised when the ski lodge and parking lots were constructed, modified, and expanded. Diversion of Grouse Creek underground, which presumably occurred when the lodge was constructed, continues to adversely affect the local hydrologic regime.

As part of the Glacier Point Road rehabilitation project, improvements to the Badger Pass Ski Area parking lot in 2009 included curbing and the re-crowning of the adjacent roadway and parking lot to help direct runoff away from the north side of the lodge, these actions would be expected to provide a negligible to minor long-term beneficial impact on local hydrologic conditions by redirecting runoff from the ski lodge area and toward Grouse Creek. There would also be a long-term, minor, beneficial impact on water quality in Grouse Creek related to the installation of filters

in the new drain inlets in the parking lot, which are intended to control sediment and parking lot contaminant loading to the creek and surrounding areas.

Groundwater quality would benefit from remediation of the residual fuel-oil contamination at the west end of the lodge as part of a state-approved corrective action plan. However, the continued interception and redirection of runoff from hard surfaces at the Badger Pass ski area would continue to have a long-term adverse effect on wetland hydrology in the meadow.

Although hydrology and water quality could experience short-term localized negligible to minor adverse construction related impacts, the cumulative projects in combination with Alternatives 2, 3, and 4 would result in a regional long-term negligible adverse effect on overall hydrology and water quality.

### **Impairment**

Alternatives 2, 3, and 4 would result in localized short-term, negligible to minor, adverse impacts to hydrology and water quality during construction. However, because no resources specific to the park's purpose would be adversely affected, and there would be neither change to the natural and cultural integrity of the park, nor effects to resource values highlighted in the 1980 *Yosemite General Management Plan*, Alternatives 2, 3, and 4 would not impair park hydrology or water quality for future generations.

## **Wetlands**

### **Affected Environment**

Wetlands data presented in this section are descriptive, including actual extent (location on the ground and acreage) for the area surrounding the Badger Pass Ski Lodge. Field work emphasized the areas surrounding the existing lodge at Badger Pass Ski Area and was specifically concentrated in the vegetated island in the paved area immediately north of the ski lodge, in Monroe Meadow south of the ski lodge, and in the Grouse Creek outfall west of the ski lodge and parking area (Figure 3-1). The intent is to provide general descriptions, functions, and values of wetland and water-dependent communities surrounding the ski lodge at Badger Pass Ski Area.

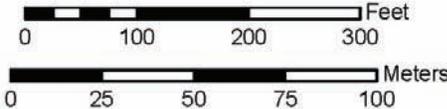
### **Wetland Classification and Definition**

Wetlands are ecologically productive habitats that support a rich array of both plant and animal life. They sustain a great variety of hydrologic and ecological functions vital to ecosystem integrity. These functions include flood abatement, sediment retention, groundwater recharge, nutrient capture, and a supporting environment for high levels of plant and animal diversity. Wetlands and riparian areas are relatively rare compared to the entire landscape and are highly sensitive to human impacts. When wetlands are converted to systems that are intolerant of flooding (e.g., drained agricultural lands, filled developed lands), their storage capacity decreases and downstream flooding increases (National Academy of Sciences 1995). Modification of even small wetlands areas induces effects that are proportionally greater than elsewhere in an ecosystem (Grabner 1996).



**Badger Pass Ski Area Rehabilitation Project  
Wetland and Riverine Habitat Delineation  
Total Survey Area: 7.43 acres**

-  Delineation Area
-  Riverine (0.01 Acres)
-  Palustrine Emergent Wetland (4.36 Acres)
-  Palustrine Scrub - Shrub Wetland (0.40 Acres)



-  Riverine Waypoints
-  Positive Wetland Waypoints
-  Negative Wetland Waypoints

Imagery: National Agricultural Imagery Program, 2005

Figure 3-1 Potential Jurisdictional Waters and Wetlands in the Project Area.

Although there are several definitions for the term ‘wetland’, the two used herein follow NPS and U.S. Army Corps of Engineers (USACE) conventions. The National Park Service classifies and maps wetlands using a system created by the U.S. Fish and Wildlife Service (USFWS), which is often referred to as the Cowardin classification system (Cowardin et al. 1979). *The Classification of Wetlands and Deepwater Habitats of the United States* was formally adopted by the U.S. Department of the Interior and the Federal Geographic Data Committee in 1996 as the standard for classifying and inventorying wetlands and deepwater habitat (NPS 2002). This system classifies wetlands based on vegetative life form, flooding regime, and substrate material. Wetlands, as defined by the U.S. Fish and Wildlife Service, are transitional lands between terrestrial and aquatic systems, where the water table is usually at or near the surface or the land is covered by shallow water (Cowardin et al. 1979). For purposes of this classification, wetlands must have one or more of the following attributes:

- The land supports predominantly hydrophytes, at least periodically. Hydrophytes are plants that grow in water or on a substrate that is at least periodically deficient in oxygen as a result of excessive water content.
- The substrate is predominantly undrained hydric soils. Hydric soils are wet long enough to periodically produce anaerobic conditions.
- The substrate is saturated with water or covered by shallow water at some time during the growing season of each year (Cowardin et al. 1979).

Section 404 of the Clean Water Act assigns jurisdiction over “waters of the United States” to the Environmental Protection Agency (EPA), which bestowed regulatory management to the USACE. The USACE created the *USACE Wetlands Delineation Manual* (Environmental Laboratory 1987) as guidance to delineate and determine federal jurisdiction of waters of the United States, including wetlands. Waters of the United States include features such as streams, rivers, bays, inlets, mudflats, washes, sloughs, sand flats, territorial seas, tributaries, and impoundments. Wetlands are a subset of these waters and therefore receive jurisdictional protection under Section 404 of the Clean Water Act. Wetlands are defined under the Clean Water Act as “those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (33 CFR 328.3[b]).”

The Cowardin system and the USACE both use the three wetlands parameters listed above to define wetlands. However, the Cowardin system defines more habitat types as wetlands than does the USACE definition.

The USACE 404 permit program regulates only the dredging or placement of fill material in jurisdictional waters of the United States. Executive Orders governing the National Park Service cover a much broader range of actions that can have adverse impacts on wetlands such as water diversions or ground water withdrawals. NPS *Director’s Order 77-1: Wetland Protection* states that NPS units are required to: (1) minimize the destruction, loss, or degradation of wetlands; (2) preserve and enhance the natural and beneficial values of wetlands; and (3) avoid direct or indirect support of new construction in wetlands unless there are no practicable alternatives to such construction and the proposed action includes all practicable measures to minimize harm to wetlands.

### Wetlands within the Project Area

The information presented in this section is a compilation of data generated through: (1) a wetland delineation completed for the area surrounding the Badger Pass Ski Lodge by NewFields Environmental Planning and Compliance, LLC in 2009 (NewFields 2009); (2) a wetland assessment completed for the area surrounding the Badger Pass Ski Lodge by LSA Associates in 2008 (LSA Associates 2008); (3) the National Wetlands Inventory (NWI) (USFWS 1996); and (4) Yosemite National Park vegetation mapping efforts (NPS 1997b).

Wetlands and deepwater habitats are broadly classified according to their system, subsystem, class and subclass. All wetlands within the area surveyed for this project fall into two system types: *palustrine* (shallow ponds, marshes, swamps, and sloughs) and *riverine* (wetlands and deepwater habitats contained within a channel).

The Cowardin system defines riverine systems as all wetlands and deepwater habitats contained within the channel, with two exceptions: (1) wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens, and (2) habitats with water containing ocean-derived salts in excess of 0.5% (Cowardin et al. 1979).

The Cowardin system defines the palustrine system to include all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5% (Cowardin et al. 1979).

Subsystems describe characteristics of seasonal water flow. Using the Cowardin classification system, specific wetlands and deepwater classes within the area surveyed for this project consist of the following subclasses:

- *Palustrine emergent* – emergent wetland (marsh, meadow) habitat
- *Palustrine scrub-shrub* – riparian scrub (e.g., willow) habitat
- *Riverine system* – lower perennial (e.g., perennially low flowing streams) habitat

The wetland areas in the vicinity of the Badger Pass Ski Lodge are discussed in more detail below and are organized by wetland types. The wetland delineation and the sample point locations taken during a 2009 survey are shown in Figure 3-1. More detailed information regarding the delineation of wetlands for this project can be found in the *Badger Pass Ski Lodge Rehabilitation Project Delineation of Jurisdictional Waters, Including Wetlands* report (NewFields 2009).

**Palustrine Emergent Wetlands:** As defined by the Cowardin system, the emergent wetland class is characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years. These wetlands are usually dominated by perennial plants. All water regimes are included except subtidal and irregularly exposed (Cowardin et al. 1979).

Within the survey area for this project, the palustrine emergent wetland is approximately 4.36 acres in size (Figure 3-1). The palustrine emergent wetlands within Monroe Meadow (4.30 acres) are bound to the north by palustrine scrub-shrub wetlands and the ski lodge and pavement. To the south, east, and west, the palustrine emergent wetland extends beyond the survey area.

As noted in the Soils section above, drill log data for two groundwater wells serving the ski area indicate that surface and sub-surface soils adjacent to ski lodge consist of 2 to 5 feet of peat in the meadow area (ERM 2008). This data, plus surface observations during wetlands delineation indicate that the palustrine emergent wetlands within the project area possess many characteristics of a fen (Corps 2009). Further investigation into the classification of this area as a fen is warranted.

A small portion of palustrine emergent wetlands (0.02 acre) are found in the parking island area. This pocket of wetlands is concave and possesses enough water to support wetland vegetation and soils. This wetland is bound by pavement to the south and by mixed conifer forest in all other directions.

The Grouse Creek outfall wetlands contain a mixture of palustrine emergent wetlands (0.04 acre) and palustrine scrub-shrub wetlands (0.03 acre). These wetlands are bounded to the south, east, and west by conifer forest where the elevation of the steep banks deepens the water table. The wetlands extend to the north and continue beyond the survey area.

**Palustrine Scrub-Shrub Wetlands:** As defined by the Cowardin system, the class palustrine scrub-shrub wetland includes areas dominated by woody vegetation less than 6 meters (20 feet) tall. The species include true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions. All water regimes except subtidal are included (Cowardin et al. 1979).

Within the survey area, the palustrine scrub-shrub wetlands are approximately 0.40 acre in size. These wetlands are found in Monroe Meadow (0.37 acre) and in the Grouse Creek outfall area (0.03 acre).

**Riverine System:** The Cowardin system defines riverine systems as all wetlands and deepwater habitats contained within a channel, with two exceptions: (1) wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens, and (2) habitats with water containing ocean-derived salts in excess of 0.5% (Cowardin et al. 1979).

Within the survey area, Grouse Creek was delineated as a riverine system using Cowardin classifications. Grouse Creek was also delineated as a jurisdictional water. The headwaters for Grouse Creek are located well east of the ski lodge. As it approaches the ski lodge, Grouse Creek appears to be diverted below grade (Figure 3-1, point 19) via a culvert system of unknown age, construction, condition, and configuration, and is discharged to the downgradient surface expression of Grouse Creek at a culvert outfall located southwest of the west building (Figure 3-1, point 21). Within the survey area, Grouse Creek was found to be 212.9 feet long with an average width of 2.26 feet, and possesses 0.01 acre.

### **Wetland Vegetation**

Nomenclature for plants used in this report follows *The Jepson Manual: Higher Plants of California* (Hickman 1993). Vegetation types are classified according to Sawyer and Keeler-Wolf (1995). Wetland vegetation within the project area consists of willow thicket dominated by willow trees, forb wetland dominated by herbaceous species, and graminoid wetland dominated by grasses, sedges, and rushes.

**Willow Thicket:** This vegetation type corresponds to the Montane Wetland Shrub Habitat in Sawyer and Keeler-Wolf (1995). Willow thicket occurs in the lower part of Monroe Meadow. A stand of Lemmon's willow (*Salix lemmonii*), approximately 9 feet tall, grows adjacent to the lodge

complex and parking lot. Other stands of Lemmon's willow grow around the periphery of Monroe Meadow. Small stands of Sierra willow (*Salix orestera*), approximately 10 to 20 feet on a side, grow in the middle of Monroe Meadow. These stands of Lemmon's and Sierra willow grow very densely and form impenetrable thickets.

**Graminoid Wetland:** A graminoid is a grass, rush, or sedge. This vegetation type corresponds to the Montane Meadow Habitat in Sawyer and Keeler-Wolf (1995). The graminoid wetland portion of Monroe Meadow is dominated by a variety of sedges and grasses. These species occur mostly in the bottom of the meadow. Species of grass that grow with the sedges (*Carex sp.*) include blue-joint reed grass (*Calamagrostis canadensis*), Kentucky blue-grass (*Poa pratensis*), and ticklegrass (*Agrostis scabra*). Cow-bane (*Oxypolis occidentalis*), an herbaceous species, was observed occasionally among the grasses and sedges in this wetland. This vegetation type averages 3 feet tall and is very dense, with an average cover of 100 percent. Blue-joint reed grass is the most abundant grass and is found in large stands 10 to 20 feet in diameter among the sedges, while other grasses are found in small stands of a few individuals.

**Forb Wetland:** A forb is an herbaceous flowering plant that is not a graminoid. This vegetation type corresponds to the Montane Meadow Habitat in Sawyer and Keeler-Wolf (1995). In the delineation area, the graminoid wetland species dominates the bottom of Monroe Meadow while the forb species are found at the edge of the graminoid wetland and continue up the surrounding slopes.

A variety of forb wetland species grow together at Monroe Meadow. These species include bog lupine (*Lupinus polyphyllus*), scarlet Indian paintbrush (*Castilleja miniata*), arrow-leaved groundsel (*Senecio triangularis*), Bigelow's sneezeweed (*Helenium bigelovii*), California corn lily (*Veratrum californicum*), angelica (*Angelica breweri*), Sierra lily (*Lilium parvum*), hedge nettle (*Stachys ajugoides var. rigida*) and Meadow goldenrod (*Solidago canadensis ssp. elongata*). Forb wetland areas that are relatively wet support primrose monkeyflower (*Mimulus primuloides*), little elephant's heads (*Pedicularis attollens*), rein orchid (*Platanthera dilatata var. leucostachys*), and lady's tresses (*Spiranthes sp.*) Often a sphagnum type of moss grows in these areas as well. These are mainly areas on north-facing slopes where snow probably persists late into the season.

## Environmental Consequences – Methodology

Wetland resources were analyzed using qualitative and, where possible, quantitative assessment of impacts on wetland resources likely caused by the maintenance, construction or rehabilitation of each proposed alternative. The results of the June 2009 wetlands delineation (NewFields 2009) conducted at the Badger Pass Ski Lodge area were used to inform the following analysis.

**Duration:** Duration is a measure of the time period over which the effects of an impact persist. The duration of impacts evaluated below may be classified as short-term or long-term. Short-term impacts are those that are reversible within one to five years and are associated with a specific event. Long-term impacts are reversible over a longer period of greater than five years and impacts may take place continuously based on reoccurring activity.

**Intensity:** Impact intensity definitions are the same as those defined earlier in this chapter, beginning on page 3-5, under Methods for Analyzing Environmental Consequences, Impacts Analysis - General.

**Type:** Beneficial impacts would enlarge the size or enhance the integrity and connectivity of wetlands. Adverse impacts would degrade the size, integrity, or connectivity of wetlands. Direct impacts would be caused by, and occurring at the same time and place as the action. Indirect impacts would be caused by the action, but occurring later in time at some distance or to another resource.

## **Environmental Consequences of Alternative 1 (No Action)**

### **Analysis**

Under the No Action Alternative, rehabilitation activities would not occur, thus there would be no further degradation to the size, integrity, or connectivity of wetlands adjacent to the facility due to construction-related activities. There would be no new impacts on wetlands under Alternative 1.

**Conclusion:** Alternative 1 would not further degrade the size, integrity, or connectivity of wetlands. There would be no new impacts on wetlands under Alternative 1.

### **Cumulative Impacts**

Past projects which contributed to adverse impacts on wetlands within the project area include the construction, modification, and expansion of the ski lodge and parking areas, construction of the access road, ski runs, lifts and associated infrastructure; the diversion of Grouse Creek in the vicinity of the ski lodge, past and present routine maintenance activities, demolition of the Alpine rental shop, installation of temporary rental facilities, emergency stabilization measures, and the replacement of the Badger, Bruin, and Eagle ski lifts. The interception and redirection of surface runoff from the ski lodge and parking areas would continue to have a long-term adverse effect on wetlands, although this situation has been recently improved by the Glacier Point Road Rehabilitation Project drainage improvements at the Badger Pass Ski Area parking lot.

Wetlands on the west side of the ski lodge would benefit from remediation of the residual fuel-oil contamination as part of a state-approved corrective action plan. In addition, actions potentially undertaken under the *High-Elevation Aquatic Ecosystem Recovery and Stewardship Plan* would result in the protection and enhancement of wetlands within the project area. In combination with Alternative 1, there would be an overall localized, long-term, minor, adverse impact on wetlands.

### **Impairment**

Alternative 1 (No Action) would result in no change from current conditions. Because no resources specific to the park's purpose would be affected, and there would be no change to the natural and cultural integrity of the park, nor effects to resource values identified in the 1980 *Yosemite General Management Plan*, Alternative 1 would not impair wetlands.

## **Environmental Consequences of Alternatives 2 and 3**

### **Analysis**

The variation between Alternatives 2 and 3 would be relatively minor with regard to potential impacts on wetlands within the project area and thus they are analyzed jointly. Where design differences are relevant to potential impacts on wetlands, they are discussed in further detail.

Under all action alternatives, potential impacts on wetlands would occur from construction activities during rehabilitation of the ski lodge and the west building, drainage and foundation improvements, infrastructure upgrades, and demolition and replacement of the Nordic and Alpine rental buildings. It is anticipated that each construction phase described under Alternatives 2 and 3

would be executed over the course of one summer season. At the most expeditious pace, Alternative 2 would be completed in two years and Alternative 3 would be completed in four years.

Short-term impacts on wetlands may occur from construction related activities in the construction zone surrounding the buildings, utility corridors, and site drainage improvements (see Figure 2-7). The construction zone is consistent in size and location under all action alternatives. The construction zone extends into approximately 0.38 acre of palustrine emergent wetlands to the east, south, and west of the ski lodge to accommodate building reconstruction/rehabilitation, utility upgrades, and site drainage improvements. The construction buffer for utility upgrades and site drainage improvements on the east side of the Alpine rental building includes approximately 0.07 acre of palustrine scrub shrub wetland (willow thicket). Adherence to mitigation measures in Appendix B and avoidance of wetlands where possible would minimize these impacts to localized, short-term, minor, and adverse.

The replacement of the temporary Nordic rental building with a permanent structure would require a construction zone that may enter a small isolated palustrine emergent wetland approximately 950 square feet (0.02 acre) in size located to the east of the existing building. Construction activity in this area may result in localized, short-term, minor, adverse impacts. Adherence to mitigation measures in Appendix B and avoidance of wetlands where possible would minimize these impacts.

Dewatering activities and water runoff from impermeable surfaces could cause sediment-laden and/or contaminated water to enter Grouse Creek along the west end of the ski lodge complex during construction and would potentially result in adverse impacts on wetlands. The impacts of dewatering are discussed under the Hydrology section of this chapter, above. The potential effects of dewatering and surface water runoff would be greater in Alternative 3 than under Alternative 2, due to the greater number of construction seasons required to complete the project. Implementation of standard mitigation measures in Appendix B and those recommended in the Hydrology section of this chapter, as well as following avoidance procedures, would reduce impacts to localized, short-term, negligible to minor, and adverse.

Alternative 2 would replace the Alpine rental building in the same footprint as the current building, while the permanent Alpine rental building under Alternatives 3 would be the same overall size as the existing structure, but would extend to the north into the existing parking lot. It is not anticipated that either alternative would have long-term adverse impacts on wetlands in the project area.

In the long-term, site drainage improvements proposed for all action alternatives would have the minor to moderate, beneficial effect of redirecting water away from buildings and toward meadows and Grouse Creek. Adherence to the measures proposed in the Hydrology section of this chapter, including revegetation with native wetland plants, constructing outfall structures at the level of the meadow, and design of drainage features to mimic sheetflow would maximize these potential benefits.

**Conclusion:** Construction activities would have the potential to affect approximately 0.38 acre of palustrine emergent wetlands to the east, south, and west of the ski lodge and approximately 0.07 acre of palustrine scrub shrub wetland to the east of the ski lodge. Construction activities at the Nordic Center would also have the potential to affect a small palustrine emergent wetland on the vegetation island north of the lodge. Adherence to proposed mitigation measures and avoidance of

wetlands where possible would reduce potential construction related effects of Alternatives 2 and 3 on wetlands to localized, short-term, minor, adverse impacts. There would be greater potential for construction-related effects under Alternative 3 due to the longer construction timeframe.

Implementation of Alternatives 2 and 3 would not further disrupt the long-term continuity or integrity of native plant communities. Under all action alternatives, proposed site drainage improvements would have the long-term, minor, beneficial effect of redirecting water away from buildings and toward wetland areas and Grouse Creek.

### **Cumulative Impacts**

Past projects which contributed to adverse impacts on wetlands within the project area include the construction, modification, and expansion of the ski lodge and parking areas, construction of the access road, ski runs, lifts and associated infrastructure; the diversion of Grouse Creek in the vicinity of the ski lodge, past and present routine maintenance activities, demolition of the Alpine rental shop and subsequent natural resource restoration, installation of temporary rental facilities, emergency stabilization measures, and the replacement of the Badger, Bruin, and Eagle ski lifts. The interception and redirection of runoff from the ski lodge and parking areas would continue to have a long-term adverse effect on wetlands, although this situation has been recently improved by the Glacier Point Road rehabilitation project improvements to the Badger Pass Ski Area parking lot.

Wetlands on the west side of the ski lodge would benefit from remediation of the residual fuel-oil contamination as part of a state-approved corrective action plan. In addition, actions potentially undertaken under the *High-Elevation Aquatic Ecosystem Recovery and Stewardship Plan* would result in the protection and enhancement of wetlands within the project area. In combination with construction-related activities and long-term site drainage improvements under Alternatives 2 and 3, there would be an overall localized, long-term, negligible, adverse cumulative impact on wetlands.

### **Impairment**

Alternatives 2 and 3 would result in minor, localized changes from current conditions. There would be no change to the natural and cultural integrity of the park, or discernable effects to resource values identified in the 1980 *Yosemite General Management Plan*. Thus, Alternatives 2 and 3 would not impair park wetlands.

## **Environmental Consequences of Alternative 4**

### **Analysis**

The impact of Alternative 4 would be the same as under Alternatives 2 and 3, with the following exceptions: At the most expeditious pace, implementation of Alternative 4 would be expected to occur over five summer seasons. In addition, the permanent footprint of the proposed new Alpine rental building would extend beyond the existing building footprint into palustrine emergent wetlands southeast of the existing facility. The additional area of wetland vegetation taken by the expanded footprint is estimated at 224 square feet. The result would be a localized, long-term, minor to moderate, adverse effect on wetlands in the project area.

**Conclusion:** The potential short-term, adverse effects of construction activities in Alternative 4 would be the same as under Alternatives 2 and 3, although there would be greater potential for construction-related effects under Alternative 4, due to the longer construction timeframe. As

under all action alternatives, proposed site drainage improvements would have the long-term, minor, beneficial effect of redirecting water away from buildings and toward wetland areas and Grouse Creek.

Under Alternative 4, the permanent Alpine rental building would be slightly larger than under Alternatives 2 and 3, and would extend approximately 224 square feet beyond the existing facility footprint into palustrine emergent wetlands on the southeast side of the lodge, resulting in a long-term, minor to moderate, adverse impact on wetlands in the project area.

### **Cumulative Impacts**

Past projects which contributed to adverse impacts on wetlands within the project area include the construction, modification, and expansion of the ski lodge and parking areas, construction of the access road, ski runs, lifts and associated infrastructure; the diversion of Grouse Creek in the vicinity of the ski lodge, past and present routine maintenance activities, demolition of the Alpine rental shop and subsequent natural resource restoration, installation of temporary rental facilities, emergency stabilization measures, and the replacement of the Badger, Bruin, and Eagle ski lifts. The interception and redirection of runoff from the ski lodge and parking areas would continue to have a long-term adverse effect on wetlands, although this situation has been recently improved by the Glacier Point Road rehabilitation project improvements to the Badger Pass Ski Area parking lot.

Wetlands on the west side of the ski lodge would benefit from remediation of the residual fuel-oil contamination as part of a state-approved corrective action plan. In addition, actions potentially undertaken under the *High-Elevation Aquatic Ecosystem Recovery and Stewardship Plan* would result in the protection and enhancement of wetlands within the project area. In combination with construction-related activities, long-term site drainage improvements, and expanded facility footprint under Alternative 4, there would be an overall localized, long-term, minor adverse cumulative impact on wetlands.

### **Impairment**

Alternative 4 would result in minor, localized changes from current conditions. There would be no change to the natural and cultural integrity of the park, or discernable effects to resource values identified in the 1980 *Yosemite General Management Plan*. Thus, Alternative 4 would not impair park wetlands.

## **Vegetation**

### **Affected Environment**

The description of the vegetation types in the vicinity of the Badger Pass Ski Lodge are organized by wetland and upland types, in accordance with Sawyer and Keeler-Wolf (1995). Wetland vegetation types are discussed above, in the Wetlands section of this chapter. Upland vegetation types are discussed below.

### **Upland Vegetation**

The upland vegetation types found in the vicinity of the Badger Pass Ski Lodge consist of red fir forest, an upland herbaceous plant community dominated by a variety of plant species, and an association dominated by grasses.

**Red Fir Forest:** This vegetation type corresponds to the Red Fir Series in Sawyer and Keeler-Wolf (1995). The red fir forest is dominated by red fir (*Abies magnifica*) and an occasional lodgepole pine (*Pinus contorta*). Red fir forest is found in the vegetation islands in the ski area parking lot, along the parking and maintenance roadways, and on the periphery of ski slopes. The majority of the trees in the project area average one foot in diameter or smaller, however, a number of trees approach two feet in diameter and a few trees are three feet in diameter.

The understory of the red fir forest consists of Sierra gooseberry (*Ribes roezlii*), wax currant (*Ribes cereum*), Sierra Nevada currant (*Ribes nevadense*), twinberry (*Lonicera involucrata*), bracken fern (*Pteridium aquilinum*), and bush chinquapin (*Chrysolepis sempervirens*). Bitter cherry (*Prunus emarginata*) grows at the edge of the red fir stands on open areas. Herbaceous species, such as large-flowered collomia (*Collomia grandiflora*) and meadow goldenrod are also found in openings of the red fir forest.

**Upland Forb Field:** This vegetation type corresponds to the Montane Meadow Habitat described by Sawyer and Keeler-Wolf (1995) found in the Badger Pass Ski Area. Both the forb wetland and the upland forb field have similar plant species compositions, with the main difference being the conditions of wetland hydrology and hydric soils for the former vegetation type. The herbaceous vegetation association intergrades with the forb wetland and contains many of the same species, some of which are facultative wetland plants. Upland forb fields are found on the higher slopes above the ski lodge. This vegetation type is dominated by meadow goldenrod, which are found in large patches. Growing with or beside the patches of meadow goldenrod are yarrow (*Achillea millefolium*), sheep sorrel (*Rumex acetosella*), cow parsnip (*Heracleum lanatum*), Brewer's aster (*Aster brewerii*), blue wildrye (*Elymus glaucus*), squirrel-tail grass (*Elymus elymoides*), and monument plant (*Swertia radiata*). The cover of the meadow goldenrod approaches 100 percent while the other species compose less cover (LSA Associates 2008).

**Upland Grassland:** This vegetation type corresponds to the Montane Meadow Habitat described by Sawyer and Keeler-Wolf (1995) found in the Badger Pass Ski Area. This vegetation type is dominated by grasses such as blue wildrye and squirrel-tail grass and is found on the slopes above the ski lodge in shallower, upland soils. This vegetation type intergrades with the upland forb field, but is distinguished by the dominance of grass species as opposed to forbs.

## Environmental Consequences – Methodology

Vegetation analysis was based on a qualitative assessment of project area vegetation and the effects anticipated as a result of ongoing maintenance, construction, or rehabilitation.

Natural processes such as flooding sustain many plant communities. This impact analysis considered whether changes would occur that affect opportunities for natural processes to take place. For example, in areas where proposed work may affect the hydrology of a system, impacts were analyzed to assess changes to the distribution, composition, and diversity of associated plant communities.

Non-native species can alter soil chemical and physical properties, hamper native species establishment, and ultimately alter native plant community structure and function. This impact analysis considered whether proposed actions would favor the establishment of non-native species, as well as the ability to contain and reverse non-native plant infestation.

**Context:** The area of potential effect would be detectable only within the vicinity of the proposed action. Thus, the setting or area within which impacts are analyzed would be local.

**Duration:** Duration is a measure of the time period over which the effects of an impact persist. The duration of impacts evaluated below may be classified as short-term or long-term. Short-term impacts are those that are reversible within one to five years and are associated with a specific event. Long-term impacts are reversible over a longer period of greater than five years and impacts may take place continuously based on reoccurring activity.

**Intensity:** Impact intensity definitions are the same as those defined earlier in this chapter, beginning on page 3-5, under Methods for Analyzing Environmental Consequences, Impacts Analysis - General.

**Type:** Actions that reduce the size or disrupt the continuity, and/or integrity of native plant communities are considered adverse impacts. Ground disturbance and importation of contaminated materials can adversely impact native plant communities because they provide means for non-native species to gain a foothold in the park. Standard mitigation measures, such as inspecting construction vehicles for invasive species, minimize such adverse impacts. Restoration of disturbed areas using native seeds, plants, mulch, or other stabilizing materials accelerates site recovery and reduces opportunities for exotic plants to become established. Actions that preserve and/or restore any or all of these essential qualities of native plant communities constitute beneficial impacts.

## Environmental Consequences of Alternative 1 (No Action)

### Analysis

There would be no new disturbance to vegetation under Alternative 1. Disturbance to vegetation within the proposed project area would be limited to previously disturbed locations. Previous disturbance includes the incremental and minor loss to vegetation in the Badger Pass Ski Area from construction activities.

**Conclusion:** Alternative 1 would not further reduce the size or disrupt the continuity, and/or integrity of native plant communities. There would be no new impacts on vegetation under Alternative 1.

### Cumulative Impacts

Past projects which contributed to adverse impacts on vegetation within the project area include the construction, modification, and expansion of the ski lodge and parking areas; past and present routine maintenance activities, demolition of the Alpine rental shop and subsequent natural resource restoration, installation of temporary rental buildings, emergency stabilization measures, and the replacement of the Badger, Bruin, and Eagle ski lifts. These actions would result in disturbance to vegetation within the project area and thus would have a localized, short-term, direct, adverse impact. Relative to the total size of Badger Pass Ski Area, these impacts would be considered minor.

Potential actions under the park's *Invasive Plant Management Plan*, *Aquatic Ecosystem Recovery and Stewardship Plan*, and *Fire Management Plan* would result in the protection or enhancement of vegetation within the project area and thus would have localized, beneficial, direct and indirect,

long-term, minor impacts on vegetation. Overall, Alternative 1 would have a localized, long-term, minor, adverse impact on vegetation.

### **Impairment**

Alternative 1 (No Action) would result in no change from current conditions. Because no resources specific to the park's purpose would be affected, and there would neither a change to the natural and cultural integrity of the park, nor a change to resource values identified in the 1980 *Yosemite General Management Plan*, Alternative 1 would not impair park vegetation resources within the project vicinity.

## **Environmental Consequences of Alternatives 2 and 3**

### **Analysis**

The variation between Alternatives 2 and 3 is relatively minor with regard to potential impacts on vegetation within the project vicinity and thus they are analyzed jointly. Where design differences are relevant to the potential impacts of vegetation, they are discussed in further detail.

Under all action alternatives, potential impacts on vegetation may occur from construction activities during rehabilitation of the ski lodge and the west building, site drainage and foundation improvements, infrastructure upgrades, and demolition and replacement of the Nordic and Alpine rental buildings. It is anticipated that each construction phase described under Alternatives 2 and 3 would be executed over the course of one summer season. At the most expeditious pace, Alternative 2 would be completed in two years and Alternative 3 would be completed in four years.

Short-term impacts on vegetation during construction activity would include crushing of vegetation and soil compaction on the east, south, and west sides of the ski lodge and in the vicinity of the existing temporary Nordic rental building. The short-term, construction related impact on wetland vegetation in these areas is discussed under 'Wetlands' above. A red fir stand may be impacted by the construction of a new Nordic Center on the vegetation island north of the ski lodge. Adherence to mitigation measures in Appendix B, including consultation with the park vegetation ecologist and forester, would minimize potential impacts on trees and understory vegetation, as well as potential root damage at this location.

The potential effects of construction activities would be greater in Alternative 3 than under Alternative 2, due to the greater number of construction seasons require to complete the project. Implementation of standard mitigation measures in Appendix B as well as following avoidance procedures, would reduce construction-related impacts to localized, short-term, negligible to minor, and adverse.

**Conclusion:** The short-term impacts on wetland vegetation are noted in the 'Wetlands' section, above.

The adherence to mitigation measures and avoidance of vegetation where possible would reduce potential construction related effects on upland vegetation to localized, short-term, negligible to minor, adverse impacts. There would be greater potential for construction-related effects under Alternative 3 due to the longer construction timeframe. In the long-term, with adherence to standard mitigation measures, implementation of Alternatives 2 and 3 would not further disrupt the continuity or integrity of native plant communities.

### Cumulative Impacts

Past projects which contributed to adverse impacts on vegetation within the project area include the construction, modification, and expansion of the ski lodge and parking areas; past and present routine maintenance activities, demolition of the Alpine rental shop and subsequent natural resource restoration, installation of temporary rental buildings, emergency stabilization measures, and the replacement of the Badger, Bruin, and Eagle ski lifts. These actions would result in disturbance to vegetation within the project area and thus would have a localized, short-term, direct, adverse impact. Relative to the total size of Badger Pass Ski Area, these impacts would be considered minor.

Potential actions under the park's *Invasive Plant Management Plan*, *Aquatic Ecosystem Recovery and Stewardship Plan*, and *Fire Management Plan* would result in the protection or enhancement of vegetation within the project area and thus would have localized, long-term, minor, direct and indirect beneficial impacts on vegetation.

Overall, past, present and reasonably foreseeable future actions within the project area in combination with the potential effects of Alternatives 2 and 3 would likely result in localized, short-term, minor, direct, adverse impacts on vegetation within the project vicinity.

### Impairment

Alternatives 2 and 3 would result in minor, localized changes from current conditions. There would be no change to the natural and cultural integrity of the park, or discernable effects to resource values identified in the 1980 *Yosemite General Management Plan*. Thus, Alternatives 2 and 3 would not impair park vegetation.

## Environmental Consequences of Alternative 4

### Analysis

The impact of Alternative 4 would be similar to Alternatives 2 and 3, with the following exceptions: at the most expeditious pace, Alternative 4 would be completed in five years, which would prolong the potential for short-term adverse effects from construction. In addition, Alternative 4 would slightly expand the footprint of the Alpine rental building by approximately 224 square feet at its southeast corner. This expansion would result in a local, long-term, minor, adverse impact on the palustrine emergent wetlands in the project area, as noted under the 'Wetlands' section, above.

**Conclusion:** The short-term impact of Alternative 4 would be the same as under Alternatives 2 and 3, although there would be greater potential for construction-related effects due to the longer construction timeframe. In the long-term, the permanent expansion of the Alpine rental building into wetlands southeast of the lodge would have a local, minor, adverse effect on vegetation resources in the project area.

### Cumulative Impacts

Past projects which contributed to adverse impacts on vegetation within the project area include the construction, modification, and expansion of the ski lodge and parking areas; past and present routine maintenance activities, demolition of the Alpine rental shop and subsequent natural resource restoration, installation of temporary rental buildings, emergency stabilization measures, and the replacement of the Badger, Bruin, and Eagle ski lifts. These actions would result in disturbance to vegetation within the project area and thus would have a localized, short-term,

direct, adverse impact. Relative to the total size of Badger Pass Ski Area, these impacts would be considered minor.

Potential actions under the park's *Invasive Plant Management Plan*, *Aquatic Ecosystem Recovery and Stewardship Plan*, and *Fire Management Plan* would result in the protection or enhancement of vegetation within the project area and thus would have localized, long-term, minor, direct and indirect, beneficial impacts on vegetation.

Overall, past, present and reasonably foreseeable future actions within the project area in combination with the potential effects of Alternative 4 would likely result in localized, short-term, minor, direct, adverse impacts on vegetation within the project area.

### **Impairment**

Alternative 4 would result in minor, localized changes from current conditions. There would be no change to the natural and cultural integrity of the park, or discernable effects to resource values identified in the 1980 *Yosemite General Management Plan*. Thus, Alternative 4 would not impair park vegetation.

## **Wildlife**

### **Affected Environment**

Yosemite National Park, one of the largest and least-fragmented habitat blocks in the Sierra Nevada, supports a diverse and abundant assemblage of wildlife. Its importance in protecting the long-term survival of certain species and the overall biodiversity of wildlife in the Sierra Nevada has been recognized in reports prepared for the Sierra Nevada Ecosystem Project (UC Davis 1996). The Sierra Nevada Ecosystem Project included assessments of the Sierra Nevada headwaters of 23 major river basins, including the Merced River. Other important studies into the diversity of wildlife in Yosemite include the Re-Survey of the Historic Grinnell-Storer Vertebrate Transect in Yosemite National Park (Moritz 2007), and the Avian Inventory of Yosemite National Park (Siegel and DeSante 2002).

### **Overview of Wildlife**

In the broadest sense, the presence and abundance of wildlife species at any site or area depends on the structure of the habitat available in that area. Habitat areas broadly correlate with vegetation types (or plant associations/communities) or general stream classifications. For many wildlife species, there is an additional requirement for special habitat attributes, such as cliffs, caves, rocks, lakes or rivers, or other abiotic elements. In addition, many species have explicit habitat requirements for one of more elements of the biotic environment, such as large trees, large snags, large downed logs, high degrees of canopy closure, or pools, riffles, and undercut banks.

Eighty-five species of mammals are known to occur in Yosemite. Others, like the California grizzly are extinct, or have disappeared from the park. Mammals include mountain lions, black bears, mule deer, bighorn sheep, coyotes, ringtail, raccoons and a variety of small mammals, such as mice, wood rats, squirrels and chipmunks. Black bears are abundant in the park, and are often involved in conflicts with humans that result in property damage and, occasionally, injuries to humans. Visitor education and bear management efforts have reduced the bear-human incidents and property damage by 90%. Ungulates include large numbers of mule deer. Bighorn sheep formerly were common along the Sierra crest, but have been reduced to several remnant populations.

Five species of shrew and one mole are found in the park. Eighteen species of bats inhabit the park (of these, nine are considered state or federal species of concern). There are six species of squirrels, eight species of chipmunks, and eight species of mice and other rodents, including wood rats, voles, and gophers. Rarely seen, but still present, are fisher, wolverine, and Sierra Nevada red fox (NPS 2004a).

Over 224 species of birds have been recorded in the park. These include resident and migratory species of passerines, raptors, galliforms, and water fowl. Approximately 80% may nest within the park. Many migrate to lower elevations or latitudes in the late summer and fall. Noticeable population declines have been detected in numerous bird species in the Sierra Nevada, including in Yosemite (NPS 2004a).

The park contains a wide variety of reptiles and amphibians – approximately 33 species. Most of these are snakes (14), with seven different lizards, one turtle species, two toads, four frogs, and five kinds of salamanders (VOLPE 1997). At higher elevations, mountain yellow-legged frogs and Yosemite toads are still present; however, they are severely reduced in population size and range. Possible causes of amphibian declines in the Sierra Nevada continue to be studied, but likely include habitat destruction, introduction of non-native fish and frogs, pollution, and diseases.

Most fish in the park were introduced through the stocking of aquatic habitats by the California Department of Fish and Game for recreational fishing. Seven fish are known from the Merced River, including the Sacramento squawfish, Sacramento sucker, golden trout, cutthroat trout, rainbow trout, brown trout, and the Arctic grayling. Naturally occurring rainbow trout in the Merced and Tuolumne Rivers have disappeared due to competition with introduced fish. Historically there were no native fish known to occur above approximately 4,000 feet, due to impassable barriers such as waterfalls and hanging valleys. Of 319 lakes surveyed, slightly more than half contained fish (VOLPE 1997).

Other non-native species found in Yosemite include white-tailed ptarmigans, wild turkeys, brown-headed cowbirds, European starlings, house sparrows, crayfish and bullfrogs. The presence of wild turkeys, white-tailed ptarmigan, bullfrogs, introduced fish and other non-native animal species in Yosemite threatens the park's native species. Bullfrogs, which occupy standing and slow moving water throughout Yosemite Valley, have been implicated in the disappearance of other amphibians. Brown-headed cowbirds have been cited as a cause of the disappearance of willow flycatchers from Yosemite Valley. Wild turkeys likely contribute to reduced seedling survival for oaks, and white-tailed ptarmigan may affect native plants with reduced growth and productivity (NPS 2004a).

### **Wildlife in the Vicinity of Badger Pass**

As described in the Vegetation and Wetlands sections of this chapter, above, the vegetation in the vicinity of Badger Pass Ski Lodge is primarily meadow wetland and red fir forest. Meadows provide important, productive habitat for wildlife. Animals come to feed on the green grasses and use the flowing and standing water found in many meadows. Predators, in turn, are attracted to these areas. The interface between meadow and forest is also favored by many animal species because of the proximity of open areas for foraging, and cover for protection. Species that are highly dependent upon meadow habitat include great gray owls, willow flycatchers, Yosemite toads, and mountain beaver. Species likely to be found in red fir forest communities include golden-mantled ground squirrel, chickaree, marten, Steller's jay, hermit thrush, and northern

goshawk. Reptiles are not common, but include rubber boa, western fence lizard, and alligator lizard (NPS 2007a).

Wildlife commonly found in the general vicinity of Glacier Point Road include the: rubber boa, mountain kingsnake, northern alligator lizard, western fence lizard, goshawk, flammulated owl, black-backed woodpecker, northern flicker, Steller's jay, Clark's nutcracker, great horned owl, American kestrel, common raven, green-tailed towhee, fox sparrow, Lincoln's sparrow, white-crowned sparrow, dark-eyed junco, cotton-tail rabbit, wood rat, white-footed mouse, deer mouse, brush mouse, chipmunk, chickaree, golden-mantled ground squirrel, California ground squirrel, coyote, black bear, and mule deer (NPS 1991). Occasionally, mountain beaver may be found: they have been recorded from the edges of the Badger Pass parking area, Chinquapin, and the surrounding drainages (NPS 1991).

### **Environmental Consequences – Methodology**

Wildlife analysis was based on a qualitative assessment of wildlife that could occur in the project area and the effects anticipated as a result of ongoing maintenance, rehabilitation, and/or construction.

**Context:** The area of potential effect would be detectable only within the vicinity of the proposed action. Thus, the setting or area within which impacts are analyzed would be local.

**Duration:** Duration is a measure of the time period over which the effects of an impact persist. The duration of impacts evaluated below maybe classified as short-term or long-term. Short-term impacts are those that are reversible within one to five years and are associated with a specific event. Long-term impacts are reversible over a longer period of greater than five years and impacts may take place continuously based on reoccurring activity.

**Intensity:** Impact intensity definitions are the same as those defined earlier in this chapter, beginning on page 3-5, under Methods for Analyzing Environmental Consequences, Impacts Analysis - General.

**Type:** Adverse impacts include those that directly remove, relocate, or affect wildlife or wildlife habitat or that affect wildlife or wildlife habitat through increased disturbance. Beneficial impacts result from restoration of wildlife habitat (size, continuity, or integrity).

### **Environmental Consequences of Alternative 1 (No Action)**

#### **Analysis**

There would be no new impacts wildlife species under Alternative 1. Thus, Alternative 1 would result in no effect on wildlife or habitat utilized by these species.

#### **Cumulative Impacts**

Past projects which contributed to adverse impacts on wildlife and wildlife habitat within the project area include the construction, modification, and expansion of the ski lodge and parking areas; past and present routine maintenance activities, demolition of the Alpine rental shop and subsequent natural resource restoration, installation of temporary rental buildings, and the replacement of the Badger, Bruin, and Eagle ski lifts. These actions would result in visual and noise disturbance of wildlife within the project area and thus would have a localized, short-term, direct,

adverse impact on wildlife. Relative to the total wildlife habitat within the Badger Pass Ski Area, these impacts would be considered minor.

Potential actions under the park's *Invasive Plant Management Plan*, *Aquatic Ecosystem Recovery and Stewardship Plan*, and *Fire Management Plan* would result in the protection of wildlife habitat within the project area and thus would have localized, long-term, minor, direct and indirect, beneficial impacts on wildlife.

### **Impairment**

Alternative 1 would result in no change from current conditions. Because no resources specific to the park's purpose would be affected, and there would be no change to either the natural and cultural integrity of the park, or effects to resource values identified in the 1980 *Yosemite General Management Plan*, Alternative 1 would not impair wildlife.

## **Environmental Consequences of Alternatives 2, 3, and 4**

### **Analysis**

Alternatives 2, 3, and 4 would have similar effects on wildlife and thus they are analyzed jointly. Design differences of the various alternatives are discussed where they are relevant to wildlife impacts.

Potential impacts may result from noise and visual disturbance associated with increased human presence, construction equipment use, and vehicle traffic. Construction activities that occurred past daylight hours may disturb crepuscular and nocturnal wildlife with the use of construction lighting. The duration of this potential impact varies with each action alternative. It is anticipated that each phase of each alternative be executed over the course of one summer season. At the most expeditious pace, Alternative 2 would be constructed in two years, Alternative 3 in four years, and Alternative 4 in five years; therefore, construction under Alternatives 3 and 4 would have the potential to disrupt seasonal wildlife use of the area to a greater degree than under Alternative 2. With the implementation of mitigation measures (especially during important breeding seasons), noise and visual disturbances to wildlife would be minimized or avoided.

**Conclusion:** Construction under Alternatives 3 and 4 would have the potential to disrupt seasonal wildlife use of the area to a greater degree than under Alternative 2 due to the longer construction timeframe. However, with the implementation of mitigation measures (especially during breeding seasons), noise and visual disturbances to wildlife would be minimized or avoided. Therefore, Alternatives 2, 3, and 4 would result in localized, short-term, negligible to minor, adverse impacts on wildlife.

### **Cumulative Impacts**

Past projects which contributed to adverse impacts on wildlife and wildlife habitat within the project area include the construction, modification, and expansion of the ski lodge and parking areas; past and present routine maintenance activities, demolition of the Alpine rental shop and subsequent natural resource restoration, installation of temporary rental buildings, and the replacement of the Badger, Bruin, and Eagle ski lifts. These actions would result in visual and noise disturbance of wildlife within the project area and thus would have a localized, short-term, direct, adverse impacts on wildlife. Relative to the total wildlife habitat within the Badger Pass Ski Area, these impacts would be considered minor.

Potential actions under the park's *Invasive Plant Management Plan*, *Aquatic Ecosystem Recovery and Stewardship Plan*, and *Fire Management Plan* would result in the protection of wildlife habitat within the project area and thus would have localized, long-term, minor, direct and indirect, beneficial impacts on wildlife.

Overall, past, present and reasonably foreseeable future actions within the project area in combination with the potential effects of Alternative 2, 3, and 4 would likely result in localized, short-term, negligible to minor, adverse impacts on wildlife.

### **Impairment**

Alternatives 2, 3, and 4 would result in minor, localized changes from current conditions. There would be no change to the natural and cultural integrity of the park, or discernable effects to resource values identified in the 1980 *Yosemite General Management Plan*. Thus, Alternatives 2, 3, and 4 would not impair park wildlife.

### **Special Status Species**

The USFWS and the State of California Department of Fish and Game classify threatened, endangered, or rare species of plants and animals as those that have undergone serious national, state or local declines and which may be threatened with extinction if not otherwise protected. Species that are being monitored because they are undergoing noticeable declines or are threatened by significant loss of habitat, but are not protected by law, may be categorized as rare or sensitive.

Federal and state regulations, including Section 7 of the 1973 Endangered Species Act (USFWS 1998), CEQ regulations, as well as NPS *Management Policies* (NPS 2006), require analysis of whether the proposed actions would cause impacts on any plant or animal species listed or under consideration for listing as threatened or endangered. In addition, Yosemite National Park recognizes state and local rare and sensitive species, and maintains its own list of "park sensitive species." These species may have extremely limited distributions, represent relict populations from past climatic or topographic conditions, or have unique adaptations to local conditions (endemics). Many of these are listed in the California Natural Diversity Database.

### **Affected Environment**

Consultation with the U.S. Fish and Wildlife Service, the California Department of Fish and Game and the National Park Service was used to identify special status species that have the potential to occur within the project vicinity. These species and their protection status are listed below in Table 3-1. A NPS internal scoping process identified 32 special status species that were recognized as species of concern specifically related to this project. These species and the environmental consequences of this project on these species are discussed in further detail below. The environmental consequences of the remaining special status wildlife species, identified in Table 3-1, are addressed in the preceding general wildlife discussion.

**Table 3-1  
Special Status Animal Species with Potential to Occur in the Vicinity of Badger Pass Ski Area**

Species	Federal	State	Other	Park
<b>AMPHIBIANS</b>				
Yosemite toad ( <i>Bufo canorus</i> )	FC	CSC	IUCN:EN USFS:S	PKR
Sierra Nevada yellow-legged frog ( <i>Rana sierrae</i> )	FC	CSC	IUCN:VU USFS:S	PKR
<b>BIRDS</b>				
Sharp-shinned hawk ( <i>Accipiter striatus</i> )		CWL		PKO
Cooper's hawk ( <i>Accipiter cooperii</i> )		CWL		PKO
Northern goshawk ( <i>Accipiter gentilis</i> )		CSC	BLM:S BSSC CDF:S USFS:S	PKO
Golden eagle ( <i>Aquila chrysaetos</i> )		CFP CWL	BLM:S BSSC CDF:S USFWS:BCC	PKO
Long-eared owl ( <i>Asio otus</i> )		CSC	BSSC	PKR
Flammulated owl ( <i>Otus flammeolus</i> )			ABC:GL AUD:WL USBC:WL USFWS:BCC	PKR
Great gray owl ( <i>Strix nebulosa</i> )		CE	CDF:S USFS:S	PKO
California spotted owl ( <i>Strix occidentalis occidentalis</i> )		CSC	ABC:GL AUD:WL BLM:S BSSC IUCN:NT USBC:WL USFS:S USFWS:BCC	PKO
Vaux's swift ( <i>Chaetura vauxi</i> )		CSC	BSSC	PKO
Rufous hummingbird ( <i>Selasphorus rufus</i> )			ABC:GL AUD:WL USBC:WL USFWS:BCC	PKC
White-headed woodpecker ( <i>Picoides albolarvatus</i> )			ABC:GL AUD:WL USBC:WL USFWS:BCC	PKC
Olive-sided flycatcher ( <i>Contopus cooperi</i> )		CSC	ABC:GL AUD:WL BSSC USBC:WL USFWS:BCC	PKC
Hermit warbler ( <i>Dendroica occidentalis</i> )			ABC:GL AUD:WL	PKC
Yellow warbler ( <i>Dendroica petechia</i> )		CSC	BSSC	PKO
<b>PLANTS</b>				
Yosemite bog-orchid ( <i>Platanthera yosemitensis</i> )				PKR
<b>MAMMALS</b>				
Pallid bat ( <i>Antrozous pallidus</i> )		CSC	BLM:S USFS:S WBWG:H	PKU
Townsend's big-eared bat ( <i>Corynorhinus townsendii</i> )		CSC	BLM:S IUCN:VU USFS:S WBWG:H	PKU
Spotted bat ( <i>Euderma maculatum</i> )		CSC	BLM:S WBWG:H	PKU
Silver-haired bat ( <i>Lasionycteris noctivagans</i> )			WBWG:M	PKU
Western red bat ( <i>Lasiurus blossevillii</i> )		CSC	USFS:S WBWG:H	PKU
Hoary bat ( <i>Lasiurus cinereus</i> )			WBWG:M	PKU
Western small-footed myotis ( <i>Myotis ciliolabrum</i> )			BLM:S WBWG:M	PKU
Long-eared myotis ( <i>Myotis evotis</i> )			BLM:S WBWG:M	PKU
Fringed myotis ( <i>Myotis thysanodes</i> )			BLM:S WBWG:H	PKU
Long-legged myotis ( <i>Myotis volans</i> )			WBWG:H	PKU
Yuma myotis ( <i>Myotis yumanensis</i> )			BLM:S WBWG:LM	PKU
Western mastiff bat ( <i>Eumops perotis</i> )		CSC	BLM:S	PKU
Sierra Nevada snowshoe hare ( <i>Lepus americanus tahoensis</i> )		CSC		PKR
Sierra Nevada mountain beaver ( <i>Aplodontia rufa californica</i> )		CSC	IUCN:NT	PKR
Pacific fisher ( <i>Martes pennanti</i> )	FC	CSC	BLM:S USFS:S	PKU

Source: Yosemite Special Status Animal Species list, Wildlife Branch, Resources Management & Science, Yosemite National Park, January 2009.

**Key to Table 3-1 Abbreviations****Federal**

FE – Federal Endangered  
 FT – Federal Threatened  
 FC – Federal Candidate  
 FPE – Federal Proposed Endangered  
 FPT – Federal Proposed Threatened

**State**

CE – California Endangered  
 CT – California Threatened  
 CFP – California Fully Protected  
 CP – California Protected  
 CSC – California Species of Concern  
 CWL – California Watch List

**Other**

ABC:GL – American Bird Conservancy Green List  
 AUD:WL – Audubon Watch List  
 BLM:S – Bureau of Land Management Sensitive  
 CDF:S – California Dept of Forestry and Fire Protection Sensitive  
 BSSC – Western Field Ornithologists and California Dept of Fish & Game - California Bird Species of Special Concern  
 IUCN:NT – IUCN - Near Threatened  
 IUCN:VU – IUCN - Vulnerable  
 IUCN:EN – IUCN - Endangered  
 USBC:WL – United States Bird Conservation Watch List  
 USFS:S – U.S. Forest Service Sensitive  
 USFWS:BCC – U. S. Fish & Wildlife Service Birds of Conservation Concern  
 WBWG:H – Western Bat Working Group - High Priority  
 WBWG:LM – Western Bat Working Group - Low-Medium Priority  
 WBWG:M – Western Bat Working Group - Medium Priority  
 WBWG:MH – Western Bat Working Group - Medium-High Priority

**Park**Park Status

PK – Presently known to occur in park  
 PH – Historically found in park; present status unknown  
 PB – Found near and outside park boundaries  
 PE – Expected in park, but no current or historic records  
 PX – Previously found in park, now extirpated  
 PN – Non-native, introduced species to Yosemite

Park Abundance

A – Abundant, can be seen daily in preferred habitat  
 C – Common, can be seen often in preferred habitat  
 O – Occasional, seen infrequently in preferred habitat  
 R – Rare, seen only on rare occasions in preferred habitat  
 U – Unknown status

**Federally Threatened or Endangered Species**

The U.S. Fish and Wildlife Service provided a species list that included federally listed threatened and endangered species as well as proposed and candidate species for this project. Aided by this list, park data, and professional judgment, it was determined that no federally listed threatened, endangered or proposed species are known to occur within the Badger Pass Ski Lodge project vicinity. The Yosemite toad (*Bufo canorus*), Sierra Nevada yellow-legged frog (*Rana sierra*) and Pacific fisher (*Martes pennanti*) are candidate species that have may occur within the Badger Pass Ski Lodge project vicinity.

**Critical Habitat**

No critical habitat has been designated for any federally listed species within the project area.

**Special Status Plants**

According to the park *Vegetation Management Plan* (NPS 1997b), the relative isolation of ecosystems in the Sierra Nevada has resulted in a high degree of endemism, particularly for plants. Many of these endemic plants are considered rare within the park and are given special protection. Four plants known to occur in Yosemite National Park or the El Portal Administrative Site are listed as “rare” by the state of California. All are known to occur in Lower Montane and Foothills Woodland zones. They occur near the western park boundary below 6,000 feet and below the elevation of Badger Pass Ski Area.

The special status plant species listed below have the highest potential likelihood for presence in the Badger Pass Ski Lodge project vicinity. Other special status plant species would not be expected to be affected by the proposed project because suitable potential habitat is not present in

the project area or surveys of the project area have demonstrated their absence. No critical habitat has been designated for any plant species within the proposed project area.

**Yosemite bog-orchid** (*Platanthera yosemitensis*): This extremely rare orchid was first described in 2007. The plant has an extremely localized distribution. *Platanthera yosemitensis* has been recorded in Monroe Meadow, south of the ski lodge (Colwell et al 2007). Impacts on this plant should be avoided. Potential impacts that should be avoided include direct physical destruction of the plant and its immediate surroundings or changes in the natural processes that sustain the orchid, such as surface water and groundwater flows. Preconstruction surveys should be made in other potential habitat in the appropriate season for detection. Survey protocols should follow the *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants* (USFWS 1998). If the plant is found, the plant should either be avoided or consultation should be initiated with the National Park Service to determine if there are other mitigation alternatives.

### Special Status Wildlife

According to the park's website, despite the richness of high-quality habitats in Yosemite, three species have become extinct in the park within historical time, and another 37 species currently have special status under either California or federal endangered species legislation. The most serious current threats to Yosemite's wildlife and the ecosystems they occupy include habitat fragmentation, introduction of exotic species, deviation from the natural fire regime, air pollution, and climate change. Locally, factors such as road kills and the availability of human food have also affected some wildlife species. A scoping process with the National Park Service has identified the following special status wildlife species below as having the highest potential of being affected by the Badger Pass Ski Lodge Rehabilitation project. No critical habitat has been designated for any wildlife species within the proposed project area.

**Bat species:** Several species of bats that could be in the area have special status: pallid bat (*Antrozous pallidus*), Townsend's big-eared bat (*Corynorhinus townsendii*), spotted bat (*Euderma maculatum*), silver-haired bat (*Lasionycteris noctivagans*), western red bat (*Lasiurus blossevillei*), hoary bat (*Lasiurus cinereus*), and western small-footed myotis (*Myotis ciliolabrum*). No evidence exists of a substantial bat colony using the ski lodge or other adjacent structures. The Badger Pass Ski Lodge, with its open beam design, fails to provide suitable roosting habitat for colonies (NPS 2009b).

**Great gray owl** (*Strix nebulosa*): This raptor species has been observed foraging in the meadows formed by the ski runs. Nest sites have been documented along Glacier Point Road but no nest sites have been observed within the Badger Pass Ski Area (NPS 2009b).

**California spotted owl** (*Gambelia silus*): This raptor species is known to occur in the vicinity of the Badger Pass Ski Area. Spotted owls were identified within 5 miles of the ski area within the last 15 years. No nest sites have been observed within the Badger Pass Ski Area (NPS 2009b).

**Sierra Nevada mountain beaver** (*Aplodontia rufa californica*): This rodent is known to live along drainages within the immediate vicinity of the Badger Pass area. Its preferred habitat includes perennial streams that traverse meadows and willow thickets. Perennial water is required due to inefficient kidneys that require the mountain beaver to drink large amounts of water each day. Thus, effects on water quality in the area are of concern (NPS 2009b). This species is listed as 'rare' within Yosemite National Park and is on the state of California's species of concern list.

**Pacific fisher** (*Martes pennanti*): Based upon collected road kill data, evidence suggests that the Chinquapin area may support a high population of Pacific fisher (NPS 2009b). Fishers are highly elusive, fast, nocturnal animals, making it difficult to determine their status in Yosemite. There have been several fisher sightings and road kills in Yosemite; however, none of the known natal and maternal dens in the Sierra Nevada are located in Yosemite (NPS 2010). Due to the close proximity of the Badger Pass Ski Area and the Chinquapin area, the Pacific fisher may be present within the project area.

**Sierra Nevada yellow-legged frog** (*Rana sierrae*), **Yosemite toad** (*Bufo canorus*): Although documentation of the presence of these species is lacking, the wet meadow and elevation of the Badger Pass Ski Lodge matches the habitat requirements for these Federal Candidate Species.

## Environmental Consequences – Methodology

Please see the discussion of Special Status Species impact methodologies at the introduction of this chapter, beginning on page 3-6.

The analysis below was based on the known or likely occurrence of the species in the vicinity of the project area, the potential loss of habitat for the species, and the alteration of habitat.

**Type:** Adverse impacts are those that alter the range, location, number or population of a species or its habitat. Beneficial impacts would improve one or more of these characteristics.

**Wildlife:** The impact evaluation for special status wildlife species was based on the following: (1) the known or likely occurrence of a species or its preferred habitat in the vicinity of the project area; (2) the direct physical loss or adverse modification of habitat; (3) the effective loss of habitat (through avoidance or abandonment) due to construction activity or noise, or the species' sensitivity to human disturbance.

**Plants:** The impact evaluation for special status plant species was based on the following: (1) the known or likely occurrence of a species or its preferred habitat in the vicinity of the project area; (2) the direct physical loss of habitat; (3) the effective loss of habitat through loss of habitat features such as surface water flows.

Surveys specific to this planning effort to identify individuals or populations of special status species within the project area have not been performed. Data presented herein are based on field reconnaissance, the professional knowledge and judgment of park staff, records of observations, published references, and studies of selected species.

## Environmental Consequences of Alternative 1 (No Action)

### Analysis

There would be no new impacts on special status species under Alternative 1. Thus, Alternative 1 would result in no effect on special status species or habitat utilized by these species.

### Cumulative Impacts

Past projects which may have contributed to adverse impacts on special status species within the project area include the construction, modification, and expansion of the ski lodge and parking areas; past and present routine maintenance activities, demolition of the Alpine rental shop and subsequent natural resource restoration, emergency stabilization measures, installation of

temporary rental buildings, and the replacement of the Badger, Bruin, and Eagle ski lifts. These actions would result in a minor disturbance of special status species habitat within the project area and would have a localized, short-term, direct, adverse impact.

Potential actions under the park's *Invasive Plant Management Plan* and *Fire Management Plan* would result in the protection of special status species populations and habitat within the project area and thus would likely have localized, long-term, minor, direct and indirect, beneficial, direct and indirect, long-term, minor impacts on special status species in the project area.

### **Impairment**

Alternative 1 (No Action) would result in no change from current conditions. Because no resources specific to the park's purpose would be affected, and there would be no change to the natural and cultural integrity of the park, nor effects to resource value identified in the 1980 *Yosemite General Management Plan*, Alternative 1 would not impair park special status species.

## **Environmental Consequences of Alternatives 2, 3, and 4**

### **Analysis**

Alternatives 2, 3, and 4 would have similar effects on special status species and thus they are analyzed jointly. Design differences of the various alternatives are discussed where they are relevant to special status species impacts.

The vicinity of the Badger Pass Ski Lodge is known habitat for the great gray owl, the California spotted owl, and is considered suitable habitat for the Pacific fisher. Construction activities that affect the meadows could affect all three species. Noise and visual disturbance associated with increased human presence, construction equipment use, and vehicle traffic would affect owls in particular, which detect their prey primarily by sound, and would thus affect foraging and breeding success of these species. Disturbance during the breeding and nesting periods for owls (great gray owls breed from March through August, and California spotted owls breed from approximately February to September) could result in impacts on reproductive success, which could affect local populations.

The construction areas are the same for all action alternatives, however, the duration of this potential impact varies with each action alternative. It is anticipated that each phase of each alternative be executed over the course of one summer season. At the most expeditious pace, Alternative 2 would be constructed in two years, Alternative 3 in four years, and Alternative 4 in five years; therefore, construction under Alternatives 3 and 4 would have the potential to disrupt special status species to a greater degree than under Alternative 2. With implementation of mitigation measures including presence/absence surveys before and during the breeding season and proper mitigation measures prior to each construction season, potential impacts on this species would be minimized or avoided and would potentially result in localized, short to long-term, minor, adverse impacts.

The Yosemite Bog Orchid has been observed within Monroe Meadow and would be adversely affected in the construction zone if it is present there. The Yosemite bog-orchid is extremely rare; avoidance is assumed for this project. With implementation of mitigation measures (see Appendix B) that include presence/absence surveys prior to each construction season and a focus on avoidance, potential impacts on this species would be avoided.

Dewatering activities and water runoff from impermeable surfaces could potentially cause sediment-laden and/or contaminated water to enter Grouse Creek during construction and resulting in an adverse impact on the Sierra Nevada Mountain Beaver, which is known to inhabit portions of Monroe Meadow and portions of Grouse Creek, and the Sierra Nevada yellow-legged frog and the Yosemite toad, which have the potential to reside within the Badger Pass Ski Area. The potential impacts of dewatering are discussed in detail in the Hydrology section of this chapter. Implementation of standard mitigation measures and those recommended in the Hydrology section of this chapter, as well as following avoidance procedures would reduce impacts on this species localized, short-term, negligible to minor, and adverse.

**Conclusion:** Under all action alternatives, project construction would occur in suitable habitat for a number of special status species, but implementation of mitigation measures with a focus upon avoidance, limiting construction activities during breeding seasons, and limiting areas of impacts would reduce potential adverse effects. Construction activities under Alternatives 3 and 4 would have the potential to disrupt special status species to a greater degree than under Alternative 2 due to the longer construction timeframe. Overall, Alternatives 2, 3, and 4 would result in localized, short-term, negligible to minor, adverse impacts on special status species. Therefore, Alternatives 2, 3, and 4 may affect, but are not likely to adversely affect special status species.

### **Cumulative Impacts**

Past projects which contributed to adverse impacts on wetlands within the project area include the construction, modification, and expansion of the ski lodge and parking areas; past and present routine maintenance activities, demolition of the Alpine rental shop and subsequent natural resource restoration, emergency stabilization measures, installation of temporary rental buildings, and the replacement of the Badger, Bruin, and Eagle ski lifts. These actions would result in a minor disturbance of special status species within the project area and would have localized, short-term, direct, adverse impact.

Potential actions under the park's *Invasive Plant Management Plan* and *Fire Management Plan* would result in the protection of special status species populations within the project area and thus would have localized, long-term, minor beneficial, impacts on special status species in the project area. The construction of the Yosemite Environmental Education Center would potentially have a long-term, moderate adverse impact on great gray owls, California spotted owls, and Pacific fishers in the Henness Ridge area (NPS 2010). If construction activities on the campus coincided with ski lodge rehabilitation construction, there would be a potential for adverse effects on these species in the region.

Overall, past, present and reasonably foreseeable future actions within the project area in combination with the potential effects of Alternatives 2, 3, and 4 would likely result in localized, short-term and long-term, minor to moderate, adverse impacts on special status species wildlife within the project vicinity and long-term, negligible, adverse impacts on special status plant species.

### **Impairment**

Alternatives 2, 3, and 4 would result in minor, localized changes from current conditions. There would be no change to the natural and cultural integrity of the park, or discernable effects to resource values identified in the 1980 *Yosemite General Management Plan*. Thus, Alternatives 2, 3, and 4 would not impair park special status species.

## **Air Quality**

### **Affected Environment**

#### **Regulatory Setting**

Yosemite National Park is classified as a mandatory Class I area under the 1970 Clean Air Act, as amended (42 USC 7401 et seq.). This air quality classification was enacted to protect national parks and wilderness areas from air quality degradation. Class I designation gives federal land managers the responsibility for protecting air quality related values in Class I areas from the adverse effects of new or modified sources of emissions. Vegetation, visibility, water quality, wildlife, historic and prehistoric structures and objects, cultural landscapes, and most other elements of a park environment are sensitive to air pollution and are considered by the National Park Service to be air quality-related values.

In addition, the 1970 Clean Air Act requires the EPA to establish National Ambient Air Quality Standards and periodically reassess whether these standards are adequate to protect public health and the national welfare, including those resources and values associated with national parks and wilderness areas. The EPA has set national standards for six pollutants: ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, lead, and particulate matter less than 2.5 and 10 microns (PM-2.5 and PM-10). Under the 1988 California Clean Air Act the California Air Resources Board (CARB) has adopted standards for these criteria pollutants and applied additional standards for pollutants that are not currently included in the national standards. The federal and state ambient standards differ in some cases; in general, the California standards are more stringent, particularly for ozone and PM-10.

The state of California is divided into air basins that are routinely monitored using both federal and state air quality standards. Badger Pass is located in Mariposa County, near the southern end of the Mountain Counties Air Basin. Currently, all of Mariposa County is a *nonattainment* area for the national and state 8-hour ozone standards and is *unclassified* (meaning there is insufficient data to make determination) for fine particulate material (EPA 2009; CARB 2009). Activities that affect air quality in Mariposa County are regulated by the Mariposa County Air Pollution Control District, which is responsible for developing a state implementation plan for federal and state nonattainment pollutants. Current county regulations for maximum discharges of fossil fuel steam generator facilities (new or expanded) are: 200 lbs/hour of sulfur dioxide (SO<sub>2</sub>), 140 lbs/hour of nitrogen dioxide (NO<sub>2</sub>), and 10 lbs/hour of combustion contaminants (i.e., particulate matter) (Page & Turnbull 2009a).

#### **National Park Service Air Quality Plans and Policies**

Under the Organic Act and Clean Air Act, the National Park Service has a responsibility to protect air quality in parks to (1) preserve natural resources and systems; (2) preserve cultural resources; and (3) sustain visitor enjoyment, human health, and scenic vistas. According to the NPS *Management Policies 2006*, the National Park Service is obligated to “promote and pursue measures to protect [air quality related] values from the adverse impacts of air pollution” (NPS 2006).

It is also NPS policy that internal activities at parks must comply with all applicable federal state, and local air pollution laws and regulations (NPS 2004b). In order to meet these goals, parks may be required to obtain air quality permits before conducting activities, such as prescribed burning, that emit pollutants. Likewise, operating permits may be required for some emission sources, such

as generators and boilers. In cases of doubt as to the impacts of existing or potential air pollution on park resources, the National Park Service would err on the side of protecting air quality and related values for future generations (NPS 2006).

The 1980 *Yosemite General Management Plan* does not specifically address air quality at Badger Pass, although it does call for the National Park Service to limit unnatural sources of air pollution to the greatest extent possible.

### **Climate and Meteorology**

Air quality in Yosemite National Park is tied to atmospheric conditions that funnel air pollutants from the Central Valley of California up west-facing canyons to higher elevations. This mechanism for pollutant transport is strongest in summer, nearly nonexistent in winter, and more pronounced in the southern portion of the Sierra Nevada range. In winter, the air quality in Sierra Nevada, particularly in remote areas, is considered some of the cleanest in the nation. This is largely because these areas are above wintertime inversion heights, leaving pollutants from source areas to the west trapped in California's Central Valley. This allows the higher elevations of the Sierra to receive the relatively pristine air that flows eastward from over the Pacific Ocean (Tarnay 2009; UC Davis 1996).

### **Existing Conditions**

In general, air quality in the region where Badger Pass is located follows that of the rest of western slope of the Sierra Nevada, regularly exceeding California state ozone standards during the hot, dry summer months, and occasionally exceeding California fine particle standards when smoke plumes from large regional fires or small local fires blow over the area. Ongoing NPS air quality monitoring at Turtleback Dome and, in 2008, at Glacier Point confirms that this summer pattern likely extends to the elevation at which Badger Pass rests. As in other parts of the Sierra Nevada, air quality in wintertime at this elevation is excellent (Tarnay 2009).

Existing sources of emissions in the vicinity of the project area include both stationary and mobile sources, including campfires and wildland fires (primarily in summer), vehicle exhaust along Glacier Point Road and the Badger Pass Ski Area access road, and equipment used to maintain Badger Pass Ski Area and the Badger Pass Ski Lodge during winter (e.g., heating systems, grooming equipment).

The ski lodge is heated by two diesel-fuel-fired water-tube steam boilers manufactured in 1982. The boilers are oversized for the current heating load of the building. Because the boilers are almost 30 years old, they are due for replacement. The building domestic hot water is generated by two steam-fired domestic hot water generators. Domestic hot water heat exchangers are reportedly double-wall as required by current code (Page & Turnbull 2009a).

The temporary Alpine rental building and the main lodge building kitchen are served by propane. The propane system is in fair condition. The emergency electrical power system consists of a 60 kW generator (Page & Turnbull 2009a).

There are no mechanical ventilation systems within the ski lodge. The lack of mechanical ventilation results in spaces that are not provided with ventilation in amounts consistent with current codes and standards.

### **Sensitive Receptors**

Relevant population groups with an increased susceptibility to respiratory distress associated with poor air quality include children, the elderly, and persons engaged in strenuous work or exercise. Recreational areas are considered sensitive compared to commercial and industrial areas due to the greater exposure to ambient air associated with outdoor activities. Onsite staff and recreational users at Badger Pass would be the closest sensitive receptors to activities associated with this project.

### **Environmental Consequences – Methodology**

The air quality analysis was based on a qualitative analysis of air emissions from construction and removal activities as well as long-term operations of facilities. The creation of pollutants resulting from the implementation of an alternative can contribute to an impact on air quality; however, air quality is a regional issue that is influenced by factors outside the immediate area. In addition, many air quality issues are related to non-construction vehicles and air quality analysis often focuses on vehicle emissions related to increases or decreases in traffic volumes. Since this project is not expected to affect non-construction vehicle trips or traffic volumes, non-construction vehicular emissions are not addressed.

Air quality impacts were evaluated in terms of intensity and duration and whether the impacts were considered beneficial or adverse. Cumulative effects on air quality were also considered based on past, present, and reasonably foreseeable future actions occurring in Yosemite National Park, in combination with the potential air quality effects of each alternative.

**Intensity:** The intensity of an impact considers whether the impact is judged negligible, minor, moderate, or major relative to existing air quality conditions.

**Type:** Impacts were considered beneficial or adverse to air quality. Beneficial air quality impacts would reduce emissions or lower pollutant concentrations, while adverse impacts would increase emissions or raise pollutant concentrations.

### **Environmental Consequences of Alternative 1 (No Action)**

#### **Analysis**

**Construction-related impacts:** There would be no construction-related impacts on air quality under this alternative.

**Long-term impacts:** Under the No Action Alternative, the two existing diesel-fired boilers would remain in place to heat the ski lodge, and the two existing steam-fired hot water generators would continue to be used for domestic hot water. In spite of their age, the boilers are of extremely high quality and could be operated for an additional 10 to 12 years with proper maintenance (with increasing maintenance costs to be anticipated) (Page & Turnbull 2009a). Based on the age of the boilers, it is expected that they exceed current county code for emissions, although precise measurements would have to be made to determine to what extent.

The temporary Alpine rental building and the main lodge kitchen would continue to be served by propane, which has a low level of emissions in comparison with diesel fuel. The emergency generator would remain in place as well.

Current levels of use of these systems, and therefore, current levels of emissions, are expected to continue under the No Action Alternative. These systems would contribute to air pollution; however, impacts on air quality would be low. Pollution from these sources would be generated primarily during winter months when air quality in the area is generally excellent. Any contribution to air pollution from these sources when regional air quality exceeds state standards would be very minimal.

**Conclusion:** Under Alternative 1, emissions from existing diesel- and propane-fired systems at the ski lodge would continue to have a long-term, negligible, adverse impact on local and regional air quality.

### **Cumulative Impacts**

Short-term adverse impacts on air quality could result from construction activities associated with some of the current and reasonably foreseeable actions planned or approved within the park. Work at Badger Pass would include remediation of soil contamination in conjunction with this rehabilitation project. Nearby work that could contribute to impacts on local air quality include construction of the Yosemite Environmental Education Center at Henness Ridge, and rehabilitation work on Glacier Point and Wawona Roads. In addition, wildland fires in the park, managed in accordance with the 2004 *Fire Management Plan*, could adversely impact local and regional air quality. The adverse effects of these construction activities would be localized and short-term in nature.

Past actions at Badger Pass that may have negligible long-term impacts on air quality include work in the Badger Pass parking lot associated with the Glacier Point Road rehabilitation project, which may have included emissions from construction activities and asphalt paving, changes to food service in the ski lodge, which may have affected fuel consumption, and the replacement of an old ski lift drive engine, which likely lessened emissions.

Cumulative impacts on air quality due to these actions would result in short-term and long-term, negligible to minor, adverse impacts to local and regional air quality.

### **Impairment**

Implementation of the No Action Alternative is expected to result in long-term, negligible, adverse impacts on local and regional air quality. There would be no change to the natural and cultural integrity of the park, or discernable effects to resource values identified in the 1980 *Yosemite General Management Plan*. Thus, Alternative 1 would not be expected to impair park air quality.

## **Environmental Consequences of Alternative 2**

### **Analysis**

**Construction-related impacts:** Air quality effects associated with demolition, rehabilitation, and construction include temporary engine and dust emissions from a variety of sources. These activities could generate substantial amounts of dust, including PM-10 (primarily fugitive dust from demolition activities and tailpipe emissions from the operation of heavy-duty equipment). Dust emissions would vary from day to day, depending on the level and type of activity, silt content of the soil, and weather conditions. Emissions generated from construction and demolition activities would also include tailpipe emissions from heavy-duty equipment, worker commute trips, and truck trips to haul debris materials from Badger Pass Ski Area to appropriate recycling facilities or reuse sites and to supply the site with new construction materials. Both mobile and

stationary equipment would generate emissions of ozone precursors, carbon monoxide, and PM-2.5 (criteria air pollutants) as well as toxic air contaminants from use of diesel-powered equipment. Toxic air contaminants are less pervasive in the atmosphere than criteria air pollutants, but they are linked to short-term (acute) and long-term (chronic or carcinogenic) adverse human health effects. Toxic air contaminants do not have corresponding ambient air quality standards.

Implementation of Alternative 2 would be expected to require two seasons of construction. The temporary duration of the construction period would limit the potential for tailpipe emissions and diesel particulates to adversely affect local air quality. Construction is not expected to impact air quality during the winter season, when the majority of recreational users would be present in the area. Because construction would take place during the summer when the area is little-used, little to no sensitive receptors would be exposed to high concentrations of demolition or construction emissions.

**Long-term impacts:** Under all action alternatives, the boilers and hot water generators would be replaced with more energy efficient models. The new energy efficient boilers would be sized to provide for proposed improvements to the ventilation system throughout the lodge and installation of a snow melt system for the deck, and to provide 100% capacity redundancy. The new boilers would require county permits, so would not exceed the current regulations for emissions. If the diesel-fired boilers were replaced with propane-fired boilers, emissions would be lower than if they were replaced with newer diesel-fired models, but overall emissions are expected to be lower than they are currently under either scenario.

Current propane systems would remain in place under all action alternatives and would be expected to continue at the current levels of use and emissions, with the exception of the potential changes addressed above.

In addition, a new, 200kW emergency generator would be provided. The larger generator is needed to support backup for the entire building. This is expected to cause a negligible increase in emissions, since the generator would be used only rarely, and it is assumed that it would be a more efficient model than the current unit.

Code-compliant mechanical ventilation would be provided to the ski lodge and new Alpine and Nordic rental buildings under all action alternatives.

Lastly, new finish materials would possibly contain recycled content, low VOC-content materials, and reuse of existing materials, which would improve the indoor air quality of the facility.

**Conclusion:** Implementation of Alternative 2 would result in a short-term, negligible, adverse impact on local air quality during two summer seasons, due to construction-related dust and equipment and vehicle emissions. Under all action alternatives, diesel-fired boilers and an emergency generator would be replaced with more efficient models, mechanical ventilation would be provided throughout the complex, and low-emission finish materials would be used where possible. This would result in a long-term, negligible to minor, beneficial impact on indoor, local, and regional air quality.

### **Cumulative Impacts**

Short-term adverse impacts on air quality could result from construction activities associated with some of the current and reasonably foreseeable actions planned or approved within the park.

Work at Badger Pass would include remediation of soil contamination in conjunction with this rehabilitation project. Nearby work that could contribute to impacts on local air quality include construction of the Yosemite Environmental Education Center at Henness Ridge, and rehabilitation work on Glacier Point and Wawona Roads. In addition, wildland fires in the park, managed in accordance with the 2004 *Fire Management Plan*, could adversely impact local and regional air quality. The adverse effects these construction activities would be localized and short-term in nature.

Past actions at Badger Pass that may have negligible long-term impacts on air quality include work in the Badger Pass parking lot associated with the Glacier Point Road rehabilitation project, which may have included emissions from construction activities and asphalt paving, changes to food service in the ski lodge, which may have affected fuel consumption, and the replacement of an old ski lift drive engine, which likely lessened emissions.

Cumulative impacts on air quality due to these actions would result in short-term, negligible to minor, adverse and long-term, negligible, beneficial impacts on local and regional air quality.

### **Impairment**

Implementation of Alternative 2 is expected to result in short-term, negligible, adverse and long-term, negligible to minor impacts on local and regional air quality. There would be no change to the natural and cultural integrity of the park, or discernable effects to resource values identified in the 1980 *Yosemite General Management Plan*. Thus, Alternative 2 would not be expected to impair park air quality.

## **Environmental Consequences of Alternatives 3 and 4**

### **Analysis**

Alternatives 3 and 4 would have similar effects on air quality and thus they are analyzed jointly.

**Construction-related impacts:** Implementation of Alternatives 3 or 4 is expected to require four or five seasons of construction, respectively. Types and levels of air quality effects associated with demolition, rehabilitation, and construction activities would be the same as those described for Alternative 2, but would extend over a longer period of time.

**Long-term impacts:** Long-term impacts under Alternatives 3 or 4 would be the same as long-term impacts under Alternative 2, with the following difference. The addition of a fireplace to the ski lodge under either of these alternatives would add some emissions to the atmosphere; the amount would depend on whether the fireplace was wood-burning or propane, the size of the hearth, weather, and operational policy. Use of the fireplace would reduce some demand on the main heating system of the lodge.

**Conclusion:** Implementation of Alternative 3 or 4 would result in a short-term, negligible, adverse impact on local air quality during four or five summer seasons, respectively, due to construction-related dust and equipment and vehicle emissions. Under all action alternatives, diesel-fired boilers and an emergency generator would be replaced with more efficient models, mechanical ventilation would be provided throughout the complex, and low-emission finish materials would be used where possible. Under Alternatives 3 and 4, a wood-burning or propane fireplace would be added in the ski lodge; emissions would be dependent upon the type of fuel used, the size of the

hearth, weather, and operational policy. Overall, these actions would result in a long-term, negligible to minor, beneficial impact on indoor, local and regional air quality.

### **Cumulative Impacts**

Short-term adverse impacts on air quality could result from construction activities associated with some of the current and reasonably foreseeable actions planned or approved within the park. Work at Badger Pass would include remediation of soil contamination in conjunction with this rehabilitation project. Nearby work that could contribute to impacts on local air quality include construction of the Yosemite Environmental Education Center at Henness Ridge, and rehabilitation work on Glacier Point and Wawona Roads. In addition, wildland fires in the park, managed in accordance with the 2004 *Fire Management Plan*, could adversely impact local and regional air quality. The adverse effects these construction activities would be localized and short-term in nature.

Past actions at Badger Pass that may have negligible long-term impacts on air quality include work in the Badger Pass parking lot associated with the Glacier Point Road rehabilitation project, which may have included emissions from construction activities and asphalt paving, changes to food service in the ski lodge, which may have affected fuel consumption, and the replacement of an old ski lift drive engine, which likely lessened emissions.

Cumulative impacts on air quality due to these actions would result in short-term, negligible to minor, adverse and long-term, negligible, beneficial impacts on local and regional air quality.

### **Impairment**

Implementation of Alternatives 3 or 4 is expected to result in short-term, negligible, adverse and long-term, negligible to minor impacts on local and regional air quality. There would be no change to the natural and cultural integrity of the park, or discernable effects to resource values identified in the 1980 *Yosemite General Management Plan*. Thus, Alternatives 3 or 4 would not be expected to impair park air quality.

## **Soundscapes**

### **Affected Environment**

A soundscape refers to the total acoustic environment of an area. Both natural and human sounds may be desirable and appropriate in a soundscape. By definition, “noise” is human-caused sound that is considered unpleasant and unwanted. Whether a sound is considered unpleasant depends on the individual listening to the sound and what the individual is doing when the sound is heard (e.g., working, playing, resting, or sleeping).

Protecting natural sounds is important both to the visitor experience and the ecological integrity of natural resources in Yosemite National Park. National parks provide visitors refuge from noise, where they can instead become attuned to the historic and natural character of the area. Natural soundscapes are also important to wildlife: birds use sound to define territories, attract mates, and even navigate dense forest canopies, while other animal species use sound to keep track of predators and prey.

### **National Park Service Standards and Regulations**

NPS management policies direct parks to “preserve, to the greatest extent possible, the natural soundscapes of parks.” This includes restoring soundscapes to natural conditions if they have

become degraded by unnatural sound (noise) and protecting natural soundscapes from ‘unacceptable impacts’. It is up to park managers to decide what constitutes acceptable impacts on natural soundscapes, recognizing that “frequencies, magnitudes, and durations of acceptable levels of unnatural sound will vary throughout a park, being generally greater in developed areas” (NPS 2006).

The current interpretation of these soundscape policies is that the National Park Service must protect natural sound environments, but also address what might be appropriate levels of human-generated sound in light of why a park was established. For instance, some human sounds may be entirely appropriate for the purposes of interpretation and increased understanding of park resources. Examples include interpretive talks or American Indian traditional cultural use (NPS 2007b).

At Yosemite National Park, the *Yosemite General Management Plan* does not specifically address soundscapes at Badger Pass Ski Area, although it does call for the National Park Service to limit unnatural sources of sound to the greatest extent possible.

### **Existing Sources of Sound**

Natural sounds at Badger Pass result from sources such as birds, animals, and wind in the trees. The existing human sounds at Badger Pass change character through the seasons. During the winter, ski lift operations and the general clatter resulting from the movement of ski gear and boots are present. The winter season also normally has the sound of human voices, such as talking and yelling. Human sounds at Badger Pass are lower and less frequent during the summer season, since there are fewer people present.

Ambient background noises include mechanical sources such as motor vehicles, transit buses, maintenance equipment, mechanical devices associated with building operations, and aircraft flying overhead, and are present year-round. Noise from motor vehicle traffic including buses at Badger Pass would be higher during the winter, but background noise from vehicles on Glacier Point Road would be higher during the summer.

### **Environmental Consequences – Methodology**

Sound and noise levels are measured in units known as decibels (dB). For the purpose of this analysis, sound and noise levels are expressed in decibels on the “A” weighted scale (dBA). This scale most closely approximates the response characteristics of the human ear to low-level sound. Human hearing ranges from the threshold of hearing (0 dBA) to the threshold of pain (140 dBA). As a point of reference, a conversation between two people would typically measure about 60 dBA. A noise level above 80 dBA can cause hearing loss if prolonged. Impacts related to noise were assessed in terms of duration, type, and intensity of impact, as discussed below.

**Intensity:** The level of impact (negligible, minor, moderate, or major) of each alternative to soundscapes was evaluated using the following definitions. A negligible impact indicates the change in sound levels would not be perceptible. A minor impact indicates the change in sound levels would be perceptible, but not likely to have a substantial annoyance effect on visitors or residents in the area. A moderate impact indicates the change in sound levels would be easily perceptible and likely to result in annoyance to some park visitors and residents. A major impact indicates the change in sound levels would be very perceptible and likely to annoy most park visitors and residents who experience it.

**Type:** Beneficial impacts are those impacts that result in less noise, and adverse impacts are those impacts that result in more noise.

## **Environmental Consequences of Alternative 1 (No Action)**

### **Analysis**

Noise generated by activities associated with regular ski area operations would continue to affect ambient noise levels in the vicinity of Badger Pass Ski Lodge. Sounds generated by ski area operations would continue to include human voices, noise associated with ski activities, and vehicle noise. In summer, human sounds would normally be limited to those associated with YCC employees, and occasional hikers. Additionally, there would be recurrent periods of mechanical, vehicular, and human noise associated with routine maintenance and emergency repairs at the ski lodge, and fixed-wing and rotor aircraft noise from emergency medical services, search and rescue, and wildland fire activities.

These sounds contribute to the existing noise levels in the vicinity of the ski area although they are higher than ambient noise levels. Park visitors using the ski area and cross-country ski trails in the immediate vicinity would notice noise generated by ski area operations when other sounds (e.g., wind or vehicle noise) do not intervene. These noises are unlikely to be heard beyond the immediate vicinity of the ski area.

**Conclusion:** Under Alternative 1, noise associated with continued ski area operations in the winter, and limited use of the ski area during the summer, would have a local, long-term, negligible to minor, adverse impact on soundscapes.

### **Cumulative Impacts**

Short-term adverse impacts on ambient noise levels could result from construction activities associated with some of the current and reasonably foreseeable actions planned or approved within the park. Work at Badger Pass Ski Area would include remediation of soil contamination in conjunction with this rehabilitation project. Nearby work that could contribute to background noise include construction of the Yosemite Environmental Education Center at Henness Ridge, and rehabilitation work on Glacier Point and Wawona Roads. The adverse effects from these construction activities would be localized and short-term in nature, and primarily related to construction-generated traffic on roadways serving the area around Badger Pass and nearby on Wawona Road. Cumulative noise generated by these construction actions would result in a local, short-term, negligible to minor, adverse impact on the ambient noise environment along park roads.

Past construction projects at and in the vicinity of Badger Pass would not have a cumulative impact with the No Action Alternative, because their impacts on soundscapes were temporary in nature and have ended.

### **Impairment**

Though operation-related impacts would include some adverse effects to soundscapes, the park's soundscape would not be impaired under this alternative.

## Environmental Consequences of Alternatives 2, 3 and 4

Alternatives 2, 3, and 4 would have similar effects on soundscapes and thus they are analyzed jointly. Design differences of the various alternatives are discussed where they are relevant to soundscapes.

### Analysis

Impacts on soundscapes under these alternatives would be limited to short-term impacts due to construction-related noises. Implementation of Alternatives 2, 3, and 4 would be expected to require two, four, and five seasons of construction, respectively. Therefore, construction under Alternatives 3 and 4 would have the potential to disrupt natural soundscapes to a greater degree than under Alternative 2, with the greatest potential for impact under Alternative 4. There would be no long-term impact on soundscapes, as compared to the No Action Alternative.

The type of noise generated during the construction period would include the operation of heavy equipment, voices of construction workers, handheld manual and power tools (e.g., hammers, drills, and saws) and noise associated with material haul vehicles. Table 3-2 provides typical noise levels generated by various types of heavy equipment that could be used during construction activities. These noise levels are expected to be substantially higher than the existing ambient noise at the ski area, with some equipment potentially doubling the noise levels.

**Table 3-2  
Typical Construction Equipment Noise Levels**

Equipment	Typical Noise Level (dBA) 50 Feet from the Source
Air Compressor	81
Backhoe	80
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Crane, Derrick	88
Crane, Mobile	83
Dozer	85
Generator	81
Grader	85
Impact Wrench	85
Jack Hammer	88
Loader	85
Paver	89
Pneumatic Tool	85
Pump	76
Rock Drill	98
Roller	74
Saw	76
Scraper	89
Truck	88

dBA = A-weighted decibels  
Source: Federal Transit Administration 2006

Operation of heavy equipment could generate substantial amounts of noise in the vicinity of Badger Pass Ski Area. Such noise could affect wildlife, onsite staff, and nearby recreational users,

but recreational users are expected to be few, since construction would take place during the summer when the area is little-used, with the exception of YCC groups and associated staff. Construction is not expected to impact the soundscape during the winter season, when the majority of recreational users would be present in the area. Noise effects in the construction area would vary depending upon a number of factors, such as the number and types of equipment in operation on a given day, usage rates, the level of background noise in the area, and the distance between sensitive uses and demolition and construction activities.

**Conclusion:** Implementation of Alternatives 2, 3, or 4 would result in elevated levels of noise in the vicinity of Badger Pass Ski Area due to construction-related activities during the summer season. All of the action alternatives would potentially affect wildlife, onsite staff, and nearby recreational users, although the number of recreational users is generally low in the summer season. Alternatives 3 and 4 would have the potential to disrupt natural soundscapes to a greater degree than Alternative 2 due to their longer construction timeframes. Overall, these alternatives would cause a local, short-term, minor, adverse impact on soundscapes.

### **Cumulative Impacts**

Short-term adverse impacts on ambient noise levels could result from construction activities associated with some of the current and reasonably foreseeable actions planned or approved within the park. Work at Badger Pass Ski Area that could occur concurrently with the proposed actions would include remediation of soil contamination in conjunction with this rehabilitation project. Nearby work that could contribute to background noise include construction of the Yosemite Environmental Education Center at Henness Ridge, and rehabilitation work on Glacier Point and Wawona Roads. The adverse effects from these construction activities would be localized and short-term in nature, and primarily related to construction-generated traffic on roadways serving the area around Badger Pass and nearby on Wawona Road. Cumulative noise generated by these construction actions would result in a local, short-term, negligible to minor, adverse impact on the ambient noise environment along park roads.

Past construction projects at and in the vicinity of Badger Pass would not have a cumulative impact with the proposed project, because their impacts on soundscapes were temporary in nature and would not continue during the proposed project.

### **Impairment**

Implementation of Alternatives 2, 3, or 4 is expected to result in short-term, minor, adverse impacts on the local soundscape. There would be no change to the natural and cultural integrity of the park, or discernable effects to resource values identified in the 1980 *Yosemite General Management Plan*. Thus, Alternatives 2, 3 and 4 would not be expected to impair park soundscapes.

## **Sociocultural Resources**

### **Visitor Experience and Recreation**

#### **Affected Environment**

Stewardship of Yosemite National Park requires the consideration of two integrated purposes: (1) to preserve Yosemite's unique natural and cultural resources and scenic beauty, and (2) to make these resources available to visitors for study, enjoyment, and recreation. The Badger Pass Ski Area is a special place for many visitors to Yosemite National Park. Multiple generations of skiers have learned or brought others to learn to ski at Badger Pass.

The Yosemite Winter Club, the first California winter sports organization, was formed in 1928 by the Yosemite Park & Curry Company to foster the development of winter sports, promote amateur competition, and continue to improve Yosemite's winter facilities. The Winter Club members were key proponents in the development of the Badger Pass Ski Area and the ski lodge; today the organization includes hundreds of members who actively support amateur and recreational winter sports in the park.

The Badger Pass Ski Area also hosts many local and regional school groups and other organizations throughout the winter season. Often, the groups are given lessons by volunteer instructors provided by the individual schools, or by the Yosemite Ski and Snowboard School. Equipment and lift tickets are supplied at a reduced rate to these groups.

The Badger Pass Ski Area and the surrounding backcountry provide a wide range of recreational opportunities to park visitors that may enhance their experience. The winter season at the ski area is generally mid-December to late March, conditions permitting. Recreational activities that may take place at or in the vicinity of the project area include cross-country skiing, snowshoeing, downhill skiing, snowboarding, tubing, and guided interpretive tours. According to recent data, some 75-80% of Badger Pass visitors downhill ski, while 10% snow shoe and the remaining 10-15% either cross country ski or utilize tubing runs (Page & Turnbull 2009f). These recreational opportunities are supported by the operation of the ski lodge and are described below.

From the Badger Pass Ski Lodge there are over 90 miles of marked trails and 25 miles of machine-groomed track accessing the surrounding wilderness. Groomed tracks run 10.5 miles to Glacier Point and 1.5 miles to Old Badger Summit. From Glacier Point Road, twelve trails are easily accessed, including destinations to Dewey Point and Ostrander Lake. Backcountry trails and areas are used by both cross-country day travelers and overnight campers. Ski huts at Glacier Point and Ostrander Lake are available for overnight use with reservations.

#### **Downhill Skiing/Snowboarding**

Badger Pass was the first resort in California devoted entirely to skiing. The mountain has ten runs that are mainly beginner and intermediate difficulty, a terrain park, and five lifts. The ski area is geared towards providing a family friendly environment for people to learn to ski or snowboard.

#### **Guided Interpretive Tours**

Daily snowshoe walks led by NPS interpretive rangers are available from the Badger Pass Ski Area. Two-hour and six-hour interpretive tours explore the surrounding area and the route to Dewey Point. Full moon snowshoe walks are among the concessioner interpretive services offered at the ski area.

### **Badger Pass Ski Area**

The Badger Pass Ski Area consists of the Badger Pass Ski Lodge and several associated buildings in the immediate vicinity. Buildings offering related services include an Alpine rental building and a Nordic rental building.

**Badger Pass Ski Lodge:** The Badger Pass Ski Lodge visitor experience includes the following services within the main lodge and the attached west building:

- *Ticketing:* Points of sale for Alpine skiing are located at four locations throughout the area. The current locations are congested, with queue space often conflicting with circulation space.
- *Food and Beverage Service:* There are currently two locations at the ski lodge serving food with approximately 3,000 square feet of seating available. The primary food service area is located on the first floor with counter food service and cafeteria seating. The Snowflake Room is located on the second floor with fast food service, a lounge, and several seating areas. Food and beverage service in the Snowflake Room is used on weekends and peak days only. An additional barbeque area is set up on the 7,076 square foot exterior deck during peak days. At times when the weather is unfavorable there is not enough interior dining/lounge space to accommodate and shelter all skiers on site.
- *Activities Desk:* Operated by the concessioner, the Activities desk provides information regarding current road, snow, weather conditions, messages, and ski area information.
- *Sport Shop:* Accessed by customers and employees from the main-level deck, the 1,460 square feet shop offers ski apparel, accessories, retail food, and gift items. The sport shop also has one dressing room where customers can try on snow apparel.
- *Pups Program and Daycare Center:* The Pups/daycare program provides hourly babysitting and a children's ski program for ages three years and older. Due to lack of storage, ski equipment for the program is exhausted on peak days.
- *Lockers:* A total of 309 full-height lockers and 223 small lockers are provided at five locations throughout the ski lodge. Units are for use by visitors and local skiers with season passes. There are also open storage cubicles provided in the main lounge area.

**Alpine Rental Building and Nordic Rental Building:** Recreational opportunities located in the separate Alpine rental building and Nordic rental building include the following:

- *Ski and Snowboard School:* The Yosemite Ski and Snowboard School was first established in 1928. The school offers learn to ski or snowboard packages and ski lessons. The associated rental shop has equipment for downhill skiing and snowboarding available. As many as 90% of skiers at Badger Pass Ski Area are at the beginner level (Page & Turnbull 2009f). Approximately 65% of skiers buying tickets at the area also rent Alpine equipment (Page & Turnbull 2009d).

The temporary Alpine rental building currently housing the ski and snowboard rentals is approximately 2,865 square feet. On peak use days, long lines at the entry can extend out the door and onto the vehicular drive, flow is congested throughout the building, and rental equipment is exhausted before midday. A short-term solution for peak days has been to move the snowboard equipment outside to a tent to relieve congestion in the building. There is currently no means of egress to the slopes from the Alpine rental building.

- *Cross-country Center and Ski School:* Established in 1970, the Yosemite Cross Country Ski School provides lessons for all ski levels and also leads ski tours and overnight excursions to Glacier Point and the Yosemite backcountry. The 1,200 square foot temporary Nordic rental building provides rentals for cross-country touring, skate, backcountry and telemark skis, snowshoes, snow tubes, and some overnight snowcamping equipment. The current location

lacks signage making finding the building difficult and requires visitors to navigate the vehicular traffic area. During peak days rental equipment is exhausted. The increased popularity of snowshoe hiking has filled the current storage area. The building does not have restrooms available.

## **Environmental Consequences – Methodology**

This analysis evaluates the quality of visitor experiences in terms of how they might be altered as a result of the action alternatives. Professional judgment was applied to reach reasonable conclusions as to the context, intensity, and duration of potential impacts.

Analysis was based on whether there was a complete loss of a recreation opportunity, a change in access to or availability of a recreation opportunity, a change in the quality of visitor experience, or recreational opportunities or a change in safety.

**Duration:** In terms of duration, short-term construction-related impacts on the visitor experience are not applicable to this topic. All construction would be phased for the summer season and would not affect the ski facility or adjacent activities during the winter season. Long-term impacts would have a permanent effect on the visitor experience.

**Intensity:** In terms of intensity, impacts are defined as negligible, minor, moderate, and major. Negligible impacts are effects considered not detectable and would result in little noticeable change in visitor experience. Minor impacts would result in changes in desired experiences, but without appreciably limiting or enhancing the overall effect. Moderate impacts would be clearly detectable and could change the desired experience appreciably. Major impacts would eliminate or greatly enhance characteristics creating a substantial, highly noticeable influence.

**Type of Impact:** In terms of type, impacts were evaluated in terms of whether they would be beneficial or adverse to visitor participation, quality of visitor experience, and service level.

## **Environmental Consequences of Alternative 1 (No Action)**

### **Analysis**

Under the No Action Alternative, the Badger Pass Ski Area and associated activities would remain in their existing condition. Recreational activities, including cross-country skiing, snowshoeing, downhill skiing, snowboarding, and guided interpretive tours would continue. Winter Club members, local and regional schools, other organizations, and the general public would continue to have access to the Badger Pass Ski Area. The Badger Pass Ski Area would continue to include the Badger Pass Ski Lodge, the temporary Alpine rental building and the temporary Nordic rental building at the same capacity and function.

Impacts on visitor experience at the ski lodge would continue to include insufficient dining, seating, and restroom facilities during peak use times and interior seating that is insufficient during unfavorable weather. Crowding and inconvenient pedestrian circulation at several areas including the entryway, the Activities desk, at ticketing in the breezeway, and at the ground floor exit to the slopes would continue. Access to the second floor and ground floor within the main lodge would remain restricted for disabled visitors.

Nordic and Alpine rentals would remain available in temporary buildings. On peak use days these facilities would remain inadequate in size for visitor demand, with equipment inventories exhausted by midday. There would continue to be no restroom facilities in the Nordic rental

building and no means of egress to the slopes from the Alpine rental building. The continued lack of way finding would make locating the Nordic rental building difficult.

**Conclusion:** Under Alternative 1, continued poor circulation and wayfinding, crowding at several locations, insufficient facilities, inadequate accessibility for disabled persons, and lack of rental inventory/space would have a local, long-term, minor to moderate, adverse impact on the visitor winter experience within the project area.

### **Cumulative Impacts**

Past actions in the project area that cumulatively impact visitor experience include replacement of the Eagle, Bruin, and Badger ski lifts, ski lodge stabilization measures and deck repairs, and relocation of the Alpine rental shop. Nearby past actions with the potential to affect visitor experience include restoration of rest stop structures at Chinquapin, Bridalveil Creek Campground road resurfacing and the Tunnel View Overlook rehabilitation. Recently completed improvements in the ski area parking lot as part of the Glacier Point Road Rehabilitation Project included key drainage improvements to reduce ice accumulation in the parking lots and adjacent pedestrian areas used by visitors to access the lodge.

Present actions that cumulatively impact visitor experience include the Glacier Point Road rehabilitation, Wawona Road rehabilitation, and the interpretive displays project. The road rehabilitation actions would occur during the summer with short-term adverse impacts due to traffic delays and rerouting during the construction; no short-term effects are expected from other listed projects. In the long-term, these projects would benefit visitor experience by improving park infrastructure, improving safety, reducing traffic pressures on Wawona Road, continuing access for Alpine skiers to Badger Pass ski slopes and improved interpretive displays.

Reasonably foreseeable future actions that would cumulatively impact visitor experience within the project area include the Scenic Vista Management Plan, which would have a beneficial effect on visitor experience by maintaining and restoring the historic views and vistas of Yosemite. The cumulative actions in combination with Alternative 1 would result in local, long-term, minor, beneficial impact on visitor experience.

## **Environmental Consequences of Alternative 2**

### **Analysis**

Visitor experience at the Badger Pass Ski Area would be improved by addressing user safety, comfort and accessibility. Where new construction occurs, the work would be designed to provide optimal functionality and service.

There are a number of actions common to all action alternatives that would impact visitor experience at the Badger Pass Ski Lodge and associated buildings. These actions are included as Phase 1 in each of the alternatives. The impacts of Phase 1 are discussed in the following analysis. Impacts specific to an individual alternative are addressed in the subsequent analyses for each action alternative.

With implementation of Alternative 2, the existing activities available at the ski area would remain. The ski lodge facilities would continue to consist of the Badger Pass Ski Lodge, an Alpine rental building, and a Nordic rental building. Alternative 2 would retain the current visitor arrival and

circulation organization through the ski lodge, however, improvements would be made to provide accessible paths of travel to program areas.

There are a number of actions common to all action alternatives that would impact visitor experience at the Badger Pass Ski Lodge and associated buildings. All required code upgrades, including accessibility, would be completed as part of Phase 1 in each action alternative. Major repairs and replacement of systems at the main lodge and west building that would directly affect visitor experience include improvements to the exterior decking and architectural window walls; the construction of an accessible ticket kiosk and platform at the breezeway; removal and replacement of the heated entry concrete walkway; providing construction of a new, accessible curb cut; installation of a three stop elevator in the main lodge with connection lobby and corridors; addition of accessible restrooms at ground, first, and second floors of the main lodge; and, replacement of floors at the ground level to provide a continuously accessible level. Phase 1 would not include changes to the Nordic rental building, however, there would be fire protection upgrades for the temporary Alpine rental building.

Phase 1 construction would occur during an off season (summer) construction schedule. It is a goal of this project to phase the project in such a way as to maintain a fully functional and accessible facility during the winter season.

Subsequent work under all action alternatives would be focused on replacement of the temporary Alpine and Nordic rental buildings with permanent buildings that include restrooms. Improvements to the crowding and pedestrian circulation would occur at the ski lodge entryway, the Activities desk, as feasible and appropriate. Under Alternative 2 an accessible ramp would be provided in the breezeway.

Under Alternative 2, adverse impacts on visitor experience at the ski lodge would continue to include insufficient dining, seating and restroom facilities during peak times and interior seating that is insufficient during unfavorable weather.

**Conclusion:** All of the action alternatives would result in improved accessibility and visitor safety at the ski lodge, the uninterrupted of use the facility by ski area visitors (as construction would occur during the summer season), and the replacement of temporary Alpine and Nordic rental facilities with new and more efficient buildings. Under Alternative 2, there would also be minor improvements to crowding and circulation issues, resulting in a local, long-term, minor, beneficial impact on the visitor experience at Badger Pass Ski Area.

### **Cumulative Impacts**

Past actions in the project area that cumulatively impact visitor experience include replacement of the Eagle, Bruin, and Badger ski lifts, ski lodge stabilization measures and deck repairs, and relocation of the Alpine rental shop. Nearby past actions with the potential to affect visitor experience include restoration of rest stop structures at Chinquapin, Bridalveil Creek Campground road resurfacing and the Tunnel View Overlook rehabilitation. Recently completed improvements in the ski area parking lot as part of the Glacier Point Road Rehabilitation Project included key drainage improvements to reduce ice accumulation in the parking lots and adjacent pedestrian areas used by visitors to access the lodge.

Present actions that cumulatively impact visitor experience include the Glacier Point Road rehabilitation, Wawona Road rehabilitation, and the interpretive displays project. The road

rehabilitation actions would occur during the summer with short-term adverse impacts due to traffic delays and rerouting during the construction; no short-term effects are expected from other listed projects. In the long-term, these projects would benefit visitor experience by improving park infrastructure, improving safety, reducing traffic pressures on Wawona Road, continuing access for Alpine skiers to Badger Pass ski slopes and improved interpretive displays.

Reasonably foreseeable future actions that would cumulatively impact visitor experience within the project area include the Scenic Vista Management Plan, which would have a beneficial effect on visitor experience by maintaining and restoring the historic views and vistas of Yosemite.

The cumulative actions in combination with Alternative 2 would result in local, long-term, minor, beneficial impact on visitor experience.

### **Environmental Consequences of Alternative 3**

#### **Analysis**

In addition to the improvements made under all action alternatives as described under Alternative 2, above, full implementation of Alternative 3 would make improvements to visitor circulation, functional needs, and the sense of arrival at the Badger Pass Ski Lodge. This alternative includes improved spatial relationships, redirected circulation in gathering and dining areas, enhancement of site view corridors, and reorganization of program uses to better accommodate functional needs.

Work in Alternative 3 provides key improvements to visitor circulation with the reconfiguration and relocation of some program elements within the ski lodge. Improvements to food and beverage points of service would be made, and an extended indoor dining area and second floor dining would be made open to the lounge area. In addition, the fireplace and historic lounge character would be restored at the main lodge.

**Conclusion:** All of the action alternatives would result in improved accessibility and visitor safety at the ski lodge, the uninterrupted use of the facility by ski area visitors (as construction would occur during the summer season), and the replacement of temporary Alpine and Nordic rental facilities with new and more efficient buildings. Implementation of Alternative 3 would result in substantial improvements to circulation, a reduction in crowding at key locations, restoration of the historic lounge character, and improvements to food and dining services, resulting in a local, long-term, minor to moderate, beneficial impact on the visitor experience at Badger Pass Ski Area.

#### **Cumulative Impacts**

Past actions in the project area that cumulatively impact visitor experience include replacement of the Eagle, Bruin, and Badger ski lifts, ski lodge stabilization measures and deck repairs, and relocation of the Alpine rental shop. Nearby past actions with the potential to affect visitor experience include restoration of rest stop structures at Chinquapin, Bridalveil Creek Campground road resurfacing and the Tunnel View Overlook rehabilitation. Recently completed improvements in the ski area parking lot as part of the Glacier Point Road Rehabilitation Project included key drainage improvements to reduce ice accumulation in the parking lots and adjacent pedestrian areas used by visitors to access the lodge.

Present actions that cumulatively impact visitor experience include the Glacier Point Road rehabilitation, Wawona Road rehabilitation, and the interpretive displays project. The road

rehabilitation actions would occur during the summer with short-term adverse impacts due to traffic delays and rerouting during the construction; no short-term effects are expected from other listed projects. In the long-term, these projects would benefit visitor experience by improving park infrastructure, improving safety, reducing traffic pressures on Wawona Road, continuing access for Alpine skiers to Badger Pass ski slopes and improved interpretive displays.

Reasonably foreseeable future actions that would cumulatively impact visitor experience within the project area include the Scenic Vista Management Plan, which would have a beneficial effect on visitor experience by maintaining and restoring the historic views and vistas of Yosemite.

The cumulative actions in combination with Alternative 3 would result in local, long-term, minor to moderate, beneficial impact on visitor experience.

## **Environmental Consequences of Alternative 4**

### **Analysis**

In addition to the improvements made under all action alternatives, as described under Alternative 2, above, Alternative 4 would group visitor program areas into zones that would enable clear wayfinding through the site, provide well-defined entry and exit points, and create a logical circulation path. The programs themselves would be reconfigured to provide the most efficient and effective arrangements for their specific role at the lodge.

Implementation of Alternative 4 would provide substantial improvements to food and dining services, provide an additional elevator in the west building, and would result in the addition of restrooms throughout the facility. The design of this alternative, with open areas between buildings, would greatly improve public circulation at the ski lodge. The fireplace and historic lounge character would be restored at the main lodge, and important spatial relationships and site view corridors would be enhanced throughout the site.

**Conclusion:** All of the action alternatives would result in improved accessibility and visitor safety at the ski lodge, the uninterrupted use of the facility by ski area visitors (as construction would occur during the summer season), and the replacement of temporary Alpine and Nordic rental facilities with new and more efficient buildings. Under Alternative 4, the configuration of program and visitor services would be at their most optimal location, given overall site constraints of the project. There would be substantial improvements to circulation, and to food and dining services, and restoration of the historic lounge character, resulting in a local, long-term, moderate, beneficial impact on the visitor experience at Badger Pass Ski Area.

### **Cumulative Impacts**

Past actions in the project area that cumulatively impact visitor experience include replacement of the Eagle, Bruin, and Badger ski lifts, ski lodge stabilization measures and deck repairs, and relocation of the Alpine rental shop. Nearby past actions with the potential to affect visitor experience include restoration of rest stop structures at Chinquapin, Bridalveil Creek Campground road resurfacing and the Tunnel View Overlook rehabilitation. Recently completed improvements in the ski area parking lot as part of the Glacier Point Road Rehabilitation Project included key drainage improvements to reduce ice accumulation in the parking lots and adjacent pedestrian areas used by visitors to access the lodge.

Present actions that cumulatively impact visitor experience include the Glacier Point Road rehabilitation, Wawona Road rehabilitation, and the interpretive displays project. The road rehabilitation actions would occur during the summer with short-term adverse impacts due to traffic delays and rerouting during the construction; no short-term effects are expected from other listed projects. In the long-term, these projects would benefit visitor experience by improving park infrastructure, improving safety, reducing traffic pressures on Wawona Road, continuing access for Alpine skiers to Badger Pass ski slopes and improved interpretive displays.

Reasonably foreseeable future actions that would cumulatively impact visitor experience within the project area include the Scenic Vista Management Plan, which would have a beneficial effect on visitor experience by maintaining and restoring the historic views and vistas of Yosemite. The cumulative actions in combination with Alternative 4 would result in local, long-term, moderate, beneficial impact on visitor experience.

## **Visitor Services**

### **Affected Environment**

#### **Badger Pass Ski Area**

The Badger Pass Ski Area consists of the Badger Pass Ski Lodge and several associated buildings in the immediate vicinity. Buildings offering services addressed in this rehabilitation plan include the Badger Pass Ski Lodge, the Alpine rental building, and the Nordic rental building.

**Badger Pass Ski Lodge:** The Badger Pass Ski Lodge offers the following services located within the main lodge, breezeway, and attached west building:

- *Ticketing:* Points of sale for lift tickets, ski rental, ski school, and tubing are located at four locations. Stations are often not adequate for handling volume of visitors and long lines often form at peak times, slowing service.
- *Ski School:* Different functions including equipment storage, meeting areas etc., are located in several locations throughout the main lodge.
- *Food and Beverage Service:* There are currently two locations at the main lodge serving food. The primary food service area is located on the first floor of the Badger Pass Ski Lodge with counter food service and cafeteria seating. The Snowflake Room is located on the second floor with fast food service, a lounge, and several seating areas. The Snowflake Room is used on weekends and peak days only. An additional barbeque area is set up exterior deck during peak days. Kitchen facilities lack adequate space for dry and cold food storage on peak days. As a result, food is brought up from Yosemite Valley daily. One walk-in freezer is located outside, on cold wet days the door freezes closed and operation becomes difficult. The service entrance is co-located near the bus drop off and accessible parking area on the north side of the lodge, causing congestion. The dishwashing area is not on the same level as the kitchen causing safety issues with employees. The current recycling program does not have adequate storage. Waste and trash storage is inadequate.
- *Activities Desk:* The Activities desk provides information regarding current road, snow, weather conditions, messages, and ski area information. The Activities desk is located near the Pups program, allowing staff to move back and forth between areas as needed. There are two points of sale locations at the Activities desk.
- *Sport Shop:* The retail space is of adequate space, and offers ski apparel, accessories, snacks and gift items. Storage space is limited.

- *Pups Program and Daycare Center:* The Pups program/daycare provides hourly babysitting and a kids ski program for children three years and older. Due to lack of storage, ski equipment for the program is exhausted on peak days. There are two points of sale at the Pups program desk.
- *Lockers:* A total of 309 full-height lockers and 223 half-size lockers are provided at five locations throughout the main building. There are open storage cubicles in the main lounge area.

***Alpine Rental Building and Nordic Rental Building:*** Additional visitor services are provided in the separate Alpine rental building and Nordic rental building:

- *Alpine Rental Building:* The building housing the ski and snowboard rentals is approximately 2,865 square feet. The current layout restricts flow, and congestion throughout the building restricts the ability of technicians to assist visitors. A short term solution for peak days has been to move the snowboard equipment outside to a tent to relieve congestion in the building. Due to lack of storage, on peak days rental equipment is exhausted before midday.
- *Nordic Rental Building:* The 1,200 square foot building provides rentals for cross-country touring, skate, backcountry and telemark skis, tubing, snowshoes and some overnight snowcamping equipment. Due to lack of storage, during peak days rental equipment is exhausted.

## **Environmental Consequences – Methodology**

This analysis evaluates visitor services in terms of how they might be altered as a result of the Action Alternatives. Analysis was based on whether there was a loss, gain or change in the efficiency of a visitor service or a change in safety. Professional judgment was applied to reach reasonable conclusions as to the context, intensity, and duration of potential impacts.

**Duration:** In terms of duration, short-term construction-related impacts on visitor services are not applicable to this topic. All construction would be phased for the summer season and would not affect the ski facility during the winter season. Long-term impacts would have a permanent effect on visitor services.

**Intensity:** In terms of intensity, impacts are defined as negligible, minor, moderate, and major. Negligible impacts are effects considered not detectable and would result in little noticeable change to visitor services. Minor impacts would result in changes to services, but are not expected to have an overall effect on those conditions. Moderate impacts would be clearly detectable and could have an appreciable effect on services. Major impacts would eliminate or greatly enhance characteristics creating a substantial, highly noticeable influence.

**Type of Impact:** In terms of type, impacts were evaluated in terms of whether they would be beneficial or adverse to visitor service functions.

## **Environmental Consequences of Alternative 1 (No Action)**

### **Analysis**

There would be no long-term changes to visitor services under Alternative 1.

There is no clear path of travel between the various visitor services at the ski lodge complex, and circulation areas would remain crowded and inconvenient at peak times. The dispersed location of the ticketing stations would continue to cause bottlenecks at the main lodge entryway, at the Activities desk, at ticketing in the breezeway, and at the ground floor exit to the slopes.

Kitchen facilities would continue to lack adequate space for dry and cold food storage; food would continue to be trucked from Yosemite Valley daily. A walk-in freezer would remain located outside with limited functionality. The kitchen service entrance would continue to cause congestion with deliveries. The dishwashing area would remain on a different level than the kitchen, resulting in employee safety issues. The recycling program as well as the waste and trash storage would continue to have inadequate storage.

Due to lack of storage, on peak days rental equipment for the Alpine and Nordic rental buildings and the Pups program would continue to be exhausted.

The layout of the Alpine rental building would continue to restrict flow, with the congestion throughout the building restricting the ability of technicians to assist visitors. Moving the snowboard equipment outside would continue on peak days. Storage space at the retail shop would remain limited.

**Conclusion:** Under Alternative 1, the lack of a clear path of travel between various visitor services in the lodge, the inefficient layout of rental areas, inadequate storage space, and limited kitchen work areas and associated facilities would continue to have a local, long-term, minor, adverse impact on visitor services.

### **Cumulative Impacts**

Past actions that cumulatively impact visitor services in the project area include the development, modification, and expansion of the ski area, replacement of the Eagle, Bruin, and Badger ski lifts, ski lodge stabilization measures and deck repairs, relocation of the Alpine rental shop, ground floor food service remodel, ski area terrain park relocation, Snowflake Room food service reactivation, and temporary modular rental shop installation. Nearby past actions with the potential to affect visitor services include restoration of rest stop structures at Chinquapin, Bridalveil Creek Campground road resurfacing, and restoration of rest stop structures at Chinquapin.

Present actions that cumulatively impact visitor services include the Glacier Point Road rehabilitation, Wawona Road rehabilitation, and the interpretive displays project. The road rehabilitation actions would have short-term adverse impacts due to traffic delays and rerouting during construction; no short-term effects are expected from other listed projects. In the long-term, these projects would benefit visitor services by improving park infrastructure, improving safety, and continuing access to Badger Pass Ski Area.

The cumulative actions in combination with Alternative 1 would result in local, long-term, minor, beneficial impact on visitor services.

## **Environmental Consequences of Alternative 2**

### **Analysis**

Implementation of Alternative 2 would result in reconstruction or rehabilitation of the existing building envelope. As under all action alternatives, critical repairs and code upgrades would occur but under Alternative 2 there would be minimal changes to visitor services within the ski lodge structure. The two temporary Alpine and Nordic rental buildings would be replaced with buildings of approximately the same size but with improved layout, storage, and restrooms. The layout of the

Alpine and Nordic rental buildings would be improved, allowing technicians a more efficient environment to assist visitors in fitting equipment.

Under Alternative 2, there would be improvements to provide accessible paths of travel to visitor services at the west building and main lodge. As under all action alternatives, an accessible path of travel would be provided between the new Nordic Center and the ski lodge.

Deliveries would continue to be unloaded adjacent to the bus loading and handicap parking areas. Kitchen facilities would continue to lack adequate space for dry and cold food storage, and food would continue to be delivered from Yosemite Valley. The dishwashing area would remain on a different level than the kitchen. The current recycling program as well as the waste and trash storage would continue to have inadequate storage.

Storage space at the retail shop would remain limited. Lack of storage for ski equipment for the Pups program would continue to cause equipment to be exhausted on peak days.

**Conclusion:** Implementation of Alternative 2 would result in essential repairs and code upgrades, minor improvements to circulation between visitor services, more adequate storage space, more efficiently designed equipment rental facilities, new restrooms, and upgrades to the kitchen work area. Elements to improve overall visitor safety would also be implemented. However, some facilities such as the kitchen would continue to be inadequate, resulting in a local, long-term, negligible, beneficial impact on visitor services, when compared with Alternative 1.

### **Cumulative Impacts**

Past actions that cumulatively impact visitor services in the project area include the development, modification, and expansion of the ski area, replacement of the Eagle, Bruin, and Badger ski lifts, ski lodge stabilization measures and deck repairs, relocation of the Alpine rental shop, ground floor food service remodel, ski area terrain park relocation, Snowflake Room food service reactivation, and temporary modular rental shop installation. Nearby past actions with the potential to affect visitor services include restoration of rest stop structures at Chinquapin, Bridalveil Creek Campground road resurfacing, and restoration of rest stop structures at Chinquapin.

Present actions that cumulatively impact visitor services include the Glacier Point Road rehabilitation, Wawona Road rehabilitation, and the interpretive displays project. The road rehabilitation actions would have short-term adverse impacts due to traffic delays and rerouting during construction; no short term effects are expected from other listed projects. In the long-term, these projects would benefit visitor services by improving park infrastructure, improving safety, and continuing access to Badger Pass Ski Area.

The cumulative actions in combination with Alternative 2 would result in local, long-term, minor, beneficial impact on visitor services.

## **Environmental Consequences of Alternative 3**

### **Analysis**

In addition to the improvements implemented in Alternative 2, Alternative 3 would include several key improvements to the location and efficiency of visitor services. Points of sale would be relocated and consolidated at the entrance of the main lodge. The Pups program/daycare and

office areas would be relocated to the west building with a separate entry from the public plaza. There would be improvements to food and beverage points of service, extended indoor dining, a café food service at the west building adjacent to the retail operation, and new restrooms in the main lodge, Alpine rental building, and Nordic Center.

Kitchen facilities would be improved but would continue to lack adequate space for sufficient dry and cold food storage; some pre-prepared food would continue to be delivered from Yosemite Valley. The dishwashing area would be moved to the same level as the kitchen, alleviating safety issues. The recycling, waste and trash program would have an improved storage system. The delivery area would remain adjacent to the kitchen; deliveries would continue to be unloaded adjacent to the bus loading and accessible parking areas.

The layout of the Alpine and Nordic rental facilities would be improved, allowing technicians a more efficient environment to assist visitors in fitting equipment.

Facilities for overnight staff would be improved with adequate space and rest rooms. Employee break areas, office space, a meeting room and storage space would be provided.

**Conclusion:** In addition to the improvements implemented under Alternative 2, Alternative 3 would result in key improvements to the location and efficiency of visitor services at the ski lodge, improved storage space areas, new employee break areas and expanded facilities for overnight staff, and upgrades to kitchen work areas and related facilities. This alternative would result in a local, long-term, minor, beneficial impact on visitor services.

### **Cumulative Impacts**

Past actions that cumulatively impact visitor services in the project area include the development, modification, and expansion of the ski area, replacement of the Eagle, Bruin, and Badger ski lifts, ski lodge stabilization measures and deck repairs, relocation of the Alpine rental shop, ground floor food service remodel, ski area terrain park relocation, Snowflake Room food service reactivation, and temporary modular rental shop installation. Nearby past actions with the potential to affect visitor services include restoration of rest stop structures at Chinquapin, Bridalveil Creek Campground road resurfacing, and restoration of rest stop structures at Chinquapin.

Present actions that cumulatively impact visitor services include the Glacier Point Road rehabilitation, Wawona Road rehabilitation, and the interpretive displays project. The road rehabilitation actions would have short-term adverse impacts due to traffic delays and rerouting during construction; no short term effects are expected from other listed projects. In the long-term, these projects would benefit visitor services by improving park infrastructure, improving safety, and continuing access to Badger Pass Ski Area.

The cumulative actions in combination with Alternative 3 would result in local, long-term, minor, beneficial impact on visitor services.

## **Environmental Consequences of Alternative 4**

### **Analysis**

In addition to the improvements implemented in Alternative 2, Alternative 4 would involve physical alterations to all portions of the facility. Temporary buildings and large non-contributing

additions to the ski lodge would be removed and replaced with free-standing additions. Reprogramming of available space would be designed to provide optimal efficiency.

Several benefits to the level of visitor service would be provided in Alternative 4. Visitor programs would be relocated and related uses grouped together. The program spaces would be reconfigured to maximize the efficient use of their space. Entry and exit locations would be well-defined, and circulation within the lodge and between lodge facilities would be greatly improved.

The new west building would house kitchen facilities, with expanded dry and cold food storage facilities opportunities. A walk-in freezer would be re-located, improving functionality. Dishwashing facilities would be relocated, improving safety concerns with employees. The recycling, waste and trash program would have an improved storage system. A delivery area for the kitchen would be provided along the north side of the lodge.

As under Alternatives 2 and 3, the layout of the new Alpine rental building and Nordic Center would be improved, allowing technicians a more efficient environment to assist visitors in fitting equipment. Overnight staff facilities would be improved with adequate space and restrooms. Employee break areas, office space, a meeting room, and storage space would be provided.

**Conclusion:** Implementation of Alternative 4 would result in the most improvements to the location and efficiency of visitor services, storage space, employee facilities, and upgrades to all kitchen work areas. Elements to improve overall visitor safety would also be implemented. Implementation of this alternative would result in a local, long-term, minor to moderate, beneficial impact on visitor services.

### **Cumulative Impacts**

Past actions that cumulatively impact visitor services in the project area include the development, modification, and expansion of the ski area, replacement of the Eagle, Bruin, and Badger ski lifts, ski lodge stabilization measures and deck repairs, relocation of the Alpine rental shop, ground floor food service remodel, ski area terrain park relocation, Snowflake Room food service reactivation, and temporary modular rental shop installation. Nearby past actions with the potential to affect visitor services include restoration of rest stop structures at Chinquapin, Bridalveil Creek Campground road resurfacing, and restoration of rest stop structures at Chinquapin.

Present actions that cumulatively impact visitor services include the Glacier Point Road rehabilitation, Wawona Road rehabilitation, and the interpretive displays project. The road rehabilitation actions would have short-term adverse impacts due to traffic delays and rerouting during construction; no short term effects are expected from other listed projects. In the long-term, these projects would benefit visitor services by improving park infrastructure, improving safety, and continuing access to Badger Pass Ski Area.

The cumulative actions in combination with Alternative 4 would result in local, long-term, minor to moderate, beneficial impact on visitor services.

## **Facility Operations and Infrastructure**

### **Affected Environment**

The Badger Pass Ski Lodge is the center of ski operations in Yosemite during the winter season from December through March. For the summer months of June to August, the building is used as a base camp for Yosemite National Park's Youth Conservation Corps (YCC).

### **Operations**

Throughout the winter season the Badger Pass Ski Area is a concessioner-operated, full service ski facility with approximately 145 employees providing visitors with services necessary for downhill and cross-country activities. Operations at the Badger Pass Ski Area can be categorized as either National Park Service or concessioner functions. In general, the National Park Service is responsible for maintaining the infrastructure outside the building (i.e., water lines, water storage, wastewater disposal, electrical service, roads, and parking lots), and providing visitor protection and interpretive services. The concessioner is responsible for maintaining the exterior and interior of the building, interior mechanical, electrical and plumbing systems, removing solid waste, providing first aid services, and operating the facility for use by the public as a ski resort.

The NPS Divisions of Visitor Protection, Interpretation and Education, and Facility Management maintain a physical or operational presence at the Badger Pass Ski Area during the ski season. The Division of Visitor Protection and the Division of Interpretation and Education are based out of the Badger Pass Ranger Station, a small A-frame building in close proximity to the lodge. The ranger station has a public area used by interpretive rangers to disseminate park information, answer visitor questions, and issue wilderness permits. NPS law enforcement rangers perform essential functions and responsibilities including law enforcement and resource protection, search and rescue, emergency medical response, wilderness management, and oversight of winter operation activities at the Badger Pass Ski Area and along the Glacier Point Road corridor.

The NPS Division of Facilities Management performs preventive and corrective maintenance on utility infrastructure throughout the Badger Pass Ski Area, which includes the water supply system, and the wastewater disposal infrastructure. The National Park Service also maintains the roads and parking lot and several of the buildings located throughout the site.

Pacific Gas & Electric (PG&E) is responsible for the electrical system between El Portal and Chinquapin, and from Chinquapin to the transformer and meter at Badger Pass Ski Area. The NPS Division of Facilities Maintenance is responsible for maintenance of the electrical system from the meter to the ski lodge. The concessioner is responsible for the electrical system within the building.

The concessioner is generally responsible for maintaining the Badger Pass Ski Lodge and associated equipment rental buildings. Building maintenance includes seasonal repairs due to water damage, painting, roofing, deck repairs, temporary drainage remedies, flooring replacement, and the mechanical, electrical, and plumbing systems inside the ski lodge. Mechanical and electrical systems throughout the building are obsolete and need to be repaired, upgraded, or replaced. Most plumbing and heating systems are outdated and have exceeded their expected service lifetimes. In addition, the utility infrastructure for water production, storage, and treatment, and wastewater conveyance to the onsite wastewater treatment system is in need of repair or replacement to improve efficiency and restore integrity.

The concessioner also provides for snow removal around the ski lodge, snow grooming, skiing lessons, lift ticket sales, a retail sports shop, food service areas, an activities desk, a Pups (children's) program and daycare center, several washroom facilities, two rental sports shops: one for downhill skiing and snowboarding and one to service cross-country skiing, tubing, and snowshoeing; guided tours, lift operation, and grooming of the slopes.

Snow removal and grooming activities are supported by overnight staff at the ski area. Due to safety concerns with inclement weather and frequent weather-related closures on the Glacier Point Road, nighttime staff are given the option remain at the lodge overnight in a bunkroom located above the kitchen. The bunkroom includes a sleeping area for four staff, two storage closets, and a full bathroom. Currently, there is inadequate bunkhouse accommodation for all overnight staff and the bunkhouse is not ADA-accessible. There are no designated employee break rooms at the ski lodge.

Offices are located on the second floor of the west building, including an auditor's workspace, bank drop/safe, two workstations, a restroom, and storage. Attached to these administrative spaces is a large office that is shared by the ski area manager and assistant manager. An office located on the first floor of the west building is used for ski school administrative services and lesson scheduling. Ski patrol facilities consist of a staff locker room on the ground floor of the west building near the west exit of locker room C. Lift operations are housed in a room below the breezeway on the ground floor. Additionally, two administrative offices and a work room are located at the southwest corner of the original lodge building, adjacent to the Activities desk.

The ski area operator's offices and front desk administrative space are located in an addition to the lodge on the ground floor. A room on the ground floor of the west building, north of locker room A, is used as a locker room for ski school instructors. The Rusty Rust Room, adjacent to locker room B, is used for ski race storage and equipment.

Kitchen facilities on the first floor of the main lodge include: kitchen space, a hot prep area, a finishing area, two walk-in freezers (one accessed from outside the building, which is problematic when the door freezes over), storage space, and a dishwashing area. Additionally, a barbeque is set up on the exterior deck on peak days only. Food, waste, and recycling storage facilities are insufficient, and the kitchen layout is inefficient. Increased frequency of deliveries from Yosemite Valley is sometimes required due to a lack of cold storage. Deliveries are unloaded on the north side of the lodge adjacent to the bus loading, pedestrian entry, and ADA-accessible parking areas.

During the summer season the lodge is used as a base camp for approximately 40 YCC members and 25 NPS staff supporting the YCC program. The area is not open to the general public during this time.

### **Life Safety Issues**

Life safety systems at the ski lodge are not fully compliant with current codes. In particular, emergency egress, separations, signage, and fire detection systems are insufficient, and the automatic fire suppression sprinkler system in the lodge is in need of upgrades or replacement (Page & Turnbull 2009f). No sprinkler system is in place in the Nordic building. There is no dedicated water supply for fire protection.

The concessioner is responsible for maintaining the sprinkler and alarm systems within the building. In the case of an alarm, both concessioner security and the National Park Service would respond.

### **Hazardous Materials**

Early coats of paint on the buildings at Badger Pass, including the Badger Pass Ski Lodge, likely contain lead. Asbestos remediation in the 1980s and 1990s resulted in the removal of the majority of asbestos at the ski lodge; however, some asbestos is likely still present encased around piping (DNC 2009).

## **Environmental Consequences – Methodology**

This analysis evaluates operation and infrastructure in terms of how they might be altered as a result of the no-action and action alternatives. Analysis was based on whether there was a loss, gain or change in the efficiency of operations or infrastructure or a change in safety. Professional judgment was applied to reach reasonable conclusions as to the context, intensity, and duration of potential impacts

**Duration:** In terms of duration, short-term construction-related impacts on operations are only applicable to the YCC program at Badger Pass. All construction would be phased for the summer season and would not affect the ski facility during the winter season. Long-term impacts would have a permanent impact on operations or infrastructure.

**Intensity:** The intensities of impacts consider whether the impact would be negligible, minor, moderate, or major. Negligible impacts are effects considered not detectable and would have no discernible effect operations or infrastructure. Minor impacts are effects on operations or infrastructure that would be slightly detectable, but not expected to have an overall effect on those conditions. Moderate impacts would be clearly detectable and could have an appreciable effect on operations or infrastructure. Major impacts would have a substantial, highly noticeable influence on operations or infrastructure and could permanently alter those conditions.

**Type of Impact:** Impacts would be considered either beneficial or adverse. Beneficial impacts would represent a change that would improve operations or infrastructure. Adverse impacts would negatively alter operations or infrastructure.

## **Environmental Consequences of Alternative 1 (No Action)**

### **Analysis**

**Construction-related impacts:** There would be no construction-related impacts on operations under the no-action alternative.

**Long-term impacts:** There would be no long-term changes to operations under the no-action alternative.

Badger Pass Ski Area would remain a concessioner-operated facility throughout the year, providing visitors with services necessary for downhill and cross-country ski activities in the winter season. Seasonal repairs to the ski lodge would continue, including ongoing temporary patching and repairs due to water damage throughout much of the structure, extensive painting, and ongoing roofing and deck repairs, temporary drainage remedies, piecemeal flooring replacement, and

continuous repairs to the outdated mechanical, electrical, and plumbing systems inside the ski lodge.

The NPS Division of Facilities Management would continue to perform preventive and corrective maintenance on infrastructure throughout the Badger Pass Ski Area. Likewise, the concessioner would continue to perform its maintenance requirements as specified under the concession contract, including extensive snow management operations.

There would be no change to the summer use of the ski lodge as a base camp for YCC members and associated NPS staff.

**Conclusion:** Under Alternative 1, ongoing maintenance performed by the concessioner, including snow management requirements, would continue and be extensive. The layout of staff accommodations and work areas would continue to be inefficient and insufficient to support visitor services. The overall condition of the building would continue to slowly deteriorate, resulting in further maintenance and component repairs requirements. Alternative 1 would result in a local, long-term, moderate, adverse impact on operations.

### **Cumulative Impacts**

Past actions that have impacted operations within the project area include replacement of the Badger, Bruin, and Eagle ski lifts, life/safety shoring of the main lodge decking, remodel of the ground floor food service, lower and upper deck repairs, Alpine rental shop demolition and temporary modular shop installation, ski lodge emergency stabilization measures, and recently completed improvements to the ski area parking lot associated with the Glacier Point Road Rehabilitation Project. Ski lift projects have reduced associated maintenance. Stabilization projects have prolonged the use of the facility with no reduction in operational requirements, and installation of the temporary Alpine rental building has resulted in greater snow removal requirements. Recently completed improvements in the ski area parking lot included key drainage improvements to reduce ice accumulation in the parking lots and adjacent pedestrian areas used by visitors to access the lodge.

Reasonable foreseeable actions include possible construction of the Yosemite Environmental Education Center at Henness Ridge, which could involve upgrades to existing power supply that services the Badger Pass Ski Area, and interim roof repairs.

The cumulative actions in combination with Alternative 1 are expected to result in a local, long-term, minor, adverse impact on operations.

## **Environmental Consequences of Alternative 2**

There are a number of actions common to all action alternatives that would impact operation and maintenance requirements at the Badger Pass Ski Area. As described in Chapter 2, the actions common to all action alternatives include all required code upgrades for life-safety, fire protection, accessibility and building infrastructure. Upgrades to civil, structural, mechanical, plumbing and electrical systems would be completed. Major repairs and replacement at the main lodge and west building, including exterior decking, roofing, steel framing and architectural window walls would be completed as part of Phase 1 in all action alternatives. Replacement of the temporary Alpine and Nordic rental buildings with permanent structures would also occur in all action alternatives.

## Analysis

**Construction-related impacts:** Due to the seasonal phasing of this project, NPS and concessioner ski area operations are not expected to be impacted by project implementation. Proposed utility and site drainage improvements would impose an additional short-term, minor, adverse impact on the National Park Service due to the increased cost associated with staff time on construction monitoring and oversight.

Site assessments have established that some buildings and soil under the buildings may contain asbestos and /or lead paint. Standard mitigation measures included as part of project construction (see Appendix B) would reduce the magnitude of the impact to short-term, negligible and adverse.

Short-term, minor adverse impacts are expected for the YCC program currently using the Badger Pass Ski Lodge as a base camp. The program would move to a suitable location for the two seasons during which reconstruction activities are expected. In the long-term there would be a moderate, beneficial impact for the YCC program due to structural, code, and life-safety improvements at the lodge.

**Long-term impacts:** Under Alternative 2, Badger Pass Ski Area would remain a concessioner-operated facility throughout the year, providing visitors with services necessary for downhill and cross-country ski activities in the winter season. Services provided by the National Park Service and the concessioner would not change.

Implementation of Alternative 2 would include a comprehensive rehabilitation within the existing envelope of the Badger Pass Ski Lodge, resulting in a reduction in the extensive seasonal repairs required of the concessioner. Annual repairs due to water damage, ongoing roofing and deck repairs, piecemeal flooring replacement, and continuous repairs to the outdated mechanical, electrical and plumbing systems inside the Badger Pass Ski Lodge would be greatly reduced. Snow removal around the ski lodge would be facilitated with the installation of automated snowmelt systems. Overall, this would result in a local, long-term, minor to moderate, beneficial impact on concessioner operations.

Under all action alternatives, the installation of a fire detection and alarm system throughout Badger Pass Ski Lodge, replacement of the existing automatic sprinkler system, and code conforming infrastructure, including a dedicated on-site fire protection water supply and fire pump, would have a long-term, moderate, beneficial impact on life safety systems and operations at the ski lodge.

The NPS Divisions of Visitor Protection and Interpretation and Education would maintain a physical or operational presence at the Badger Pass Ski Area. Under all action alternatives, NPS interpretive functions would be moved to the west building. The new interpretive desk would have a beneficial impact on operations as it would provide additional, adequate space for existing functions. The NPS Division of Facilities Management would continue to perform preventive and corrective maintenance on infrastructure throughout the Badger Pass Ski Area. Proposed utility and site drainage improvements would result an additional long-term, minor, adverse impacts on the National Park Service due to the increased cost associated with maintenance of additional infrastructure. Overall, there would be a long-term, negligible, adverse effect on NPS operations.

**Conclusion:** Implementation of Alternative 2 would result in long-term, minor to moderate beneficial impact on concessioner operations due to a substantial reduction in annual maintenance

requirements. There would be long-term, minor, beneficial impact on NPS operations from the relocation of interpretive functions to the west building; however, there would also be short-term and long-term negligible to minor adverse impacts on NPS operations due to increased cost associated with construction oversight and maintenance of new utility and site drainage infrastructure.

### **Cumulative Impacts**

Past actions that have impacted operations within the project area include replacement of the Badger, Bruin, and Eagle ski lifts, life/safety shoring of the main lodge decking, remodel of the ground floor food service, lower and upper deck repairs, Alpine rental shop demolition and temporary modular shop installation, ski lodge emergency stabilization measures, and recently completed improvements to the ski area parking lot associated with the Glacier Point Road Rehabilitation Project. Ski lift projects have reduced associated maintenance. Stabilization projects have prolonged the use of the facility with no reduction in operational requirements, and installation of the temporary Alpine rental building has resulted in greater snow removal requirements. Recently completed improvements in the ski area parking lot included key drainage improvements to reduce ice accumulation in the parking lots and adjacent pedestrian areas used by visitors to access the lodge.

Reasonable foreseeable actions include possible construction of the Yosemite Environmental Education Center at Henness Ridge which could involve upgrades to existing power supply that services the Badger Pass Ski Area, and interim roof repairs.

The cumulative actions in combination with Alternative 2 are expected to result in a local, long-term, negligible, beneficial impact on operations.

### **Environmental Consequences of Alternatives 3 and 4**

Alternatives 3 and 4 would have similar impacts on operations and thus they are analyzed jointly. Differences between alternatives are discussed where they are relevant to operations.

In addition to the actions common to all action alternatives described under Alternative 2, above, Alternatives 3 and 4 would include substantial reconfiguration of program areas and public circulation, upgrades to existing concessioner administrative facilities, and enhanced kitchen and dining operations. Construction phasing for Alternatives 3 and 4 would occur over four or five summer seasons, respectively.

### **Analysis**

**Construction-related impacts:** Due to the seasonal phasing of this project, NPS and concessioner ski area operations are not expected to be adversely impacted by construction activities during implementation. Proposed utility and site drainage improvement at the ski area would impose an additional short-term, minor, adverse impact on the National Park Service due to the increased cost associated with construction oversight during the summer season.

Site assessments have established that some buildings and soil under the buildings may contain asbestos and /or lead paint. Standard mitigation measures included as part of project construction (see Appendix B) would reduce the magnitude of the impact to negligible and adverse.

Short-term, minor to moderate adverse impacts are expected for the YCC program currently using the Badger Pass Ski Lodge as a base camp. The program would move to a suitable location for the four or five seasons during which reconstruction activities are expected. In the long-term there would be a moderate, beneficial impact for the YCC program due to structural, code, and life-safety improvements at the lodge.

**Long-term impacts:** The long-term impacts of Alternatives 3 and 4 would be the same as under Alternative 2, with the following exceptions:

Alternatives 3 and 4 would both increase storage capacity for equipment rentals, primarily due to increased efficiency of program layout at the Alpine and Nordic rental facilities, as well as the Pups program area. With the increase in storage, there would be an associated slight increase in financial cost to the concessioner for the purchase of rental equipment. This would be expected to have a short-term, negligible to minor adverse impact.

Under Alternative 3, expanded bunkhouse accommodations would be provided in the west building, sufficient to accommodate current overnight staffing levels. In addition, both Alternatives 3 and 4 include designated employee break rooms and more efficient layouts for administrative offices. Likewise, both Alternatives 3 and 4 greatly improve the efficiency of kitchen operations; Alternative 4 would provide the optimal kitchen layout in terms of size and configuration in relation to dining areas.

Overall, Alternatives 3 and 4 would result in a local, long-term, moderate, beneficial impact on concessioner operations.

**Conclusion:** Similar to Alternative 2, implementation of Alternatives 3 or 4 would result in long-term, minor to moderate, beneficial impacts on concessioner operations due to a substantial reduction in annual maintenance requirements. There would be long-term, minor beneficial impact on NPS operations from the proposed relocation of interpretive functions to the west building; however, there would also be short-term and long-term negligible to minor adverse impacts on NPS operations due to increased cost associated with construction oversight and maintenance of new utility and site drainage infrastructure.

Under Alternatives 3 and 4, further modifications to the facility to enhance functionality of visitor services and administrative areas would result in a local, long-term, moderate, beneficial impact on concessioner operations.

### **Cumulative Impacts**

Past actions that have impacted operations within the project area include replacement of the Badger, Bruin, and Eagle ski lifts, life/safety shoring of the main lodge decking, remodel of the ground floor food service, lower and upper deck repairs, Alpine rental shop demolition and temporary modular shop installation, ski lodge emergency stabilization measures, and recently completed improvements to the ski area parking lot associated with the Glacier Point Road Rehabilitation Project. Ski lift projects have reduced associated maintenance. Stabilization projects have prolonged the use of the facility with no reduction in operational requirements, and installation of the temporary Alpine rental building has resulted in greater snow removal requirements. Recently completed improvements in the ski area parking lot included key drainage improvements to reduce ice accumulation in the parking lots and adjacent pedestrian areas used by visitors to access the lodge.

Reasonable foreseeable actions include construction of the Yosemite Environmental Education Center at Henness Ridge which could involve upgrades to existing power supply that services the Badger Pass Ski Area, and interim roof repairs. The cumulative actions in combination with Alternatives 3 and 4 are expected to result in a local, long-term, negligible to minor, beneficial impact on operations.

## **Transportation**

### **Affected Environment**

Yosemite National Park is accessed by three state highways: Highway 41 enters the park from the southwest at the South Entrance; Highway 120 enters the park at two locations, from the northwest at Big Oak Flat Entrance and from the east at Tioga Pass; and Highway 140 enters from the west side at El Portal. Highways 41, 140 and the western portion of 120 are considered year-round routes into the park. Once the highways reach park entrances, they transition to the internal park road system. There are no state highways within the boundaries of the park, although California highway numbers are used on park signs to help orient visitors. Highway 41, which becomes Wawona Road inside the park, provides access to the communities of Wawona and Yosemite West, as well as developed areas such as Glacier Point, Yosemite Valley, and Badger Pass Ski Area.

The Badger Pass Ski Area is accessed via Glacier Point Road, which connects to the Wawona Road at Chinquapin intersection. The entire Glacier Point Road closes to all vehicular traffic, with the exception of administrative use, in mid-November. A portion of the road from Chinquapin to Badger Pass reopens to visitor traffic when the ski area opens and remains accessible to vehicles for the ski season. The entire Glacier Point Road generally reopens at the end of May.

Visitors and employees access Badger Pass Ski Area year round by private and government-owned vehicles. In winter, private tour buses and daily Yosemite Transit System (YTS) shuttles from Yosemite Valley and Wawona provide additional access. The ski area parking lot holds approximately 628 vehicles, although this number may vary in winter depending on the parking configuration, which can change when snow packed conditions obscure pavement striping.

Pedestrian and vehicle circulation adjacent to the ski lodge are considered inadequate for the current types and amount of winter use and are not fully compliant with the Uniform Federal Accessibility Standards (UFAS). Per UFAS, the parking lot has an inadequate number of designated accessible parking spaces and lacks a clear passageway to the ski lodge entrance. There is no formal drop-off area for vans, and bus/shuttle drop-off occurs along an uncovered, high foot traffic area at the entrance road, where ice buildup presents a safety hazard and access is likewise not fully compliant with UFAS (DNC, Baldock, pers. comm. 2009; Page & Turnbull 2009d).

### **Environmental Consequences – Methodology**

This impact assessment focuses primarily on the effect of temporary, construction-related changes to traffic flow, access and circulation, and safety conditions. There would be no long-term changes to the parking lot, access roads or other transportation facilities under any alternative, beyond reconfiguration of the roadway immediately in front of and east of the ski lodge.

**Intensity:** The intensities of impacts consider whether the impact would be negligible, minor, moderate, or major. Negligible impacts are effects considered not detectable and would have no

discernible effect on traffic flow and/or traffic safety conditions. Minor impacts are effects on traffic flow and/or traffic safety conditions that would be slightly detectable, but not expected to have an overall effect on those conditions. Moderate impacts would be clearly detectable and could have an appreciable effect on traffic flow and/or traffic safety conditions. Major impacts would have a substantial, highly noticeable influence on traffic flow and/or traffic safety conditions and could permanently alter those conditions.

**Type:** Impacts would be considered either beneficial or adverse on traffic flow and/or traffic safety conditions. Beneficial impacts would improve traffic flow and traffic safety by reducing levels of congestion and occurrences of vehicle/vehicle and vehicle/pedestrian conflicts. Adverse impacts would negatively alter traffic flow and traffic safety by increasing levels of congestion and occurrences of such conflicts.

## Environmental Consequences of Alternative 1 (No Action)

### Analysis

**Construction-related impacts:** There would be no construction-related impacts on transportation under this alternative.

**Long-term impacts:** There would be no long-term changes to transportation systems under the No Action Alternative. Pedestrian safety and handicap-accessible parking and drop-off areas in front of the ski lodge would be inadequate.

**Conclusion:** Under Alternative 1, pedestrian safety and handicap-accessible parking and drop-off areas in front of the ski lodge would continue to be inadequate, resulting in a continued local, long-term, minor, adverse impact on transportation.

### Cumulative Impacts

Short-term adverse impacts on transportation could result from construction activities associated with some of the past, current and reasonably foreseeable actions planned or approved within the park. Past projects that have affected transportation include the construction and expansion of the ski area parking lot and recently completed drainage improvements to the ski area parking lot under the Glacier Point Road Rehabilitation project.

Present and future work at and near Badger Pass that would affect transportation includes construction of the Yosemite Environmental Education Center at Henness Ridge, and rehabilitation work on Glacier Point and Wawona Roads. The adverse effects from these construction activities would be localized and short-term in nature, and primarily related to construction-related traffic congestion on Glacier Point and Wawona Roads. Cumulatively, these projects would cause a local, short-term, minor, adverse impact on transportation on park roads.

## Environmental Consequences of Alternative 2

### Analysis

**Construction-related impacts:** Implementation of Alternative 2 would cause short-term adverse impacts on transportation resulting from construction-related traffic congestion. Slow-moving or oversized construction equipment could cause traffic delays on Wawona and Glacier Point Roads. In addition, some of the parking area at Badger Pass would be used as a staging area, and the access road to the ski lodge could be closed at certain times due to construction-related traffic. Impacts at Badger Pass Ski Area could affect onsite staff and recreational users, but recreational users are

expected to be few, since construction would take place during the summer when the area is little-used. Implementation of Alternative 2 is expected to require two seasons of construction. Construction-related impacts on transportation are not expected to occur during the winter season, when the majority of recreational users would be present in the area.

**Long-term impacts:** There would be no long-term changes to transportation systems under Alternative 2. Pedestrian safety and handicap-accessible parking and drop-off areas in front of the ski lodge would be inadequate.

**Conclusion:** Implementation of Alternative 2 would result in construction-related traffic congestion and use of parking lots as staging areas during two summer seasons. Pedestrian safety and handicap-accessible parking and drop-off areas in front of the ski lodge would continue to be inadequate. This alternative would result in local, short-term, minor, adverse, impacts on transportation.

### **Cumulative Impacts**

Short-term adverse impacts on transportation could result from construction activities associated with some of the past, current, and reasonably foreseeable actions planned or approved within the park. Past projects that have affected transportation include the construction and expansion of the ski area parking lot and recently completed drainage improvements to the ski area parking lot under the Glacier Point Road Rehabilitation project.

Present and future work at and near Badger Pass that would affect transportation includes construction of the Yosemite Environmental Education Center at Henness Ridge, and rehabilitation work on Glacier Point and Wawona Roads. The adverse effects from these construction activities would be localized and short-term in nature, and primarily related to construction-related traffic congestion on Glacier Point and Wawona Roads. Cumulatively, these projects would cause a local, short-term, minor, adverse impact on transportation on park roads.

There are no long-term cumulative impacts on transportation anticipated.

## **Environmental Consequences of Alternative 3**

### **Analysis**

**Construction-related impacts:** Implementation of Alternative 3 is expected to require four seasons of construction. Types and levels of impacts on transportation would be the same as those described for Alternative 2, but would extend over a longer period of time.

**Long-term impacts:** Under this alternative, the roadway in front of (north of) the ski lodge would be reconfigured to have a pullout that would accommodate two buses, a narrower roadway in front of the Alpine rental building, and formalized parking spaces east of the Alpine building. ADA-compliant parking would be provided just east of the Alpine building, with an accessible path of travel to the ski lodge. This reconfiguration would not substantially change the amount of available parking. It would limit passenger drop-off in front of the lodge to those with disabled parking permits, and would require passengers to walk slightly further from the designated passenger drop-off area on the other side of the island to the lodge entrance. The narrowing of the roadway might also cause traffic passing by the front of the ski lodge to be somewhat slower, but overall, the change in configuration is expected to improve the traffic flow by regulating bus parking zones and eliminating haphazard parking in front of the ski lodge entrance.

Pedestrian safety would be improved by a formalized crosswalk across the roadway, linking a pathway through the island and the ski lodge, and a larger sidewalk zone along the north side of the entire ski lodge, including the Alpine rental building. However, under this alternative, pedestrian crossing, bus drop-off, and service deliveries would still all be located in the same area. While the situation is expected to be somewhat improved over that in Alternatives 1 and 2, there are still likely to be some pedestrian-vehicle conflicts and congestion in front of the ski lodge.

**Conclusion:** Implementation of Alternative 3 would result in local, short-term, minor, adverse impacts on transportation, due to construction-related traffic congestion and use of parking lots as staging areas during four summer seasons. However, once construction was complete, traffic flow in front of the ski lodge, pedestrian safety and ADA-compliant parking would be improved, resulting in local, long-term, minor, beneficial impacts on transportation.

### **Cumulative Impacts**

Short-term adverse impacts on transportation could result from construction activities associated with some of the past, current and reasonably foreseeable actions planned or approved within the park. Past projects that have affected transportation include the construction and expansion of the ski area parking lot and recently completed drainage improvements to the ski area parking lot under the Glacier Point Road Rehabilitation project.

Present and future work at and near Badger Pass that would affect transportation includes construction of the Yosemite Environmental Education Center at Henness Ridge, and rehabilitation work on Glacier Point and Wawona Roads. The adverse effects from these construction activities would be localized and short-term in nature, and primarily related to construction-related traffic congestion on Glacier Point and Wawona Roads. Cumulatively, these projects would cause a local, short-term, minor, adverse impact on transportation on park roads.

There are no long-term cumulative impacts on transportation anticipated.

## **Environmental Consequences of Alternative 4**

### **Analysis**

**Construction-related impacts:** Implementation of Alternative 4 is expected to require five seasons of construction. Types and levels of impacts on transportation would be the same as those described for Alternative 2, but would extend over a longer period of time. Construction-related impacts on transportation under this alternative would extend over a slightly longer period of time than that of Alternative 3.

**Long-term impacts:** Under this alternative, the roadway in front of (north of) the ski lodge would be reconfigured to have a pullout that would accommodate two buses, a narrower roadway in front of the Alpine rental building, and formalized parking spaces east of the Alpine building. ADA-compliant parking would be provided just east of the Alpine building, with an accessible path of travel to the ski lodge. This reconfiguration would not substantially change the amount of available parking. It would limit passenger drop-off in front of the lodge to those with disabled parking permits, and would require passengers to walk slightly further from the designated passenger drop-off area on the other side of the island to the lodge entrance. The narrowing of the roadway might also cause traffic passing by the front of the ski lodge to be somewhat slower, but overall, the change in configuration is expected to improve the traffic flow by regulating bus parking zones and eliminating haphazard parking in front of the ski lodge entrance.

Pedestrian safety would be improved by a formalized crosswalk across the roadway, linking a pathway through the island and the ski lodge. Under this alternative, the service entrance for deliveries would be at the far west end of the ski lodge. This is expected to improve operational transportation efficiency, and to reduce congestion and pedestrian-vehicle conflicts in front of the ski lodge.

**Conclusion:** Implementation of Alternative 4 would result in local, short-term, minor, adverse impacts on transportation, due to construction-related traffic congestion and use of parking lots as staging areas during five summer seasons. However, once construction was complete, traffic flow in front of the ski lodge, pedestrian safety, and ADA-compliant parking would be improved, resulting in local, long-term, moderate, beneficial impacts on transportation.

### **Cumulative Impacts**

Short-term adverse impacts on transportation could result from construction activities associated with some of the current and reasonably foreseeable actions planned or approved within the park. Past projects that have affected transportation include the construction and expansion of the ski area parking lot and recently completed drainage improvements to the ski area parking lot under the Glacier Point Road Rehabilitation project.

Present and future work at and near Badger Pass that would affect transportation includes construction of the Yosemite Environmental Education Center at Henness Ridge, and rehabilitation work on Glacier Point and Wawona Roads. The adverse effects from these construction activities would be localized and short-term in nature, and primarily related to construction-related traffic congestion on Glacier Point and Wawona Roads. Cumulatively, these projects would cause a local, short-term, minor, adverse impact on transportation on park roads.

There are no long-term cumulative impacts on transportation anticipated.

## **Energy Consumption and Global Climate Change**

### **Affected Environment**

#### **Planning Objectives, Regulations and Policies**

One of the management objectives for park operations, as outlined in previous planning efforts and Executive Order 13123, is to install facilities and utility systems that conserve energy. Design techniques and application of new technology to reduce energy and water consumption should be incorporated in the design of new facilities.

In April 1999, the U.S. Department of the Interior entered into a formal Memorandum of Understanding with the Department of Energy to promote the use of energy-efficient and renewable energy technologies and practices in national parks and to educate the visiting public about these efforts. This partnership officially inaugurated the program titled “Green Energy Parks: Making the National Parks a Showcase for a Sustainable Energy Future.” This initiative would help to fulfill provisions of the Energy Policy Act of 1992, which directs the use of energy-efficient building designs and equipment and the use of alternative motor fuels where practicable. The Energy Policy Act of 2005 incorporates previous Energy Policy Acts and directs the federal government to increase its renewable energy use, with a goal of using 3%, 5%, and 7.5% in incremental years through 2013.

NPS *Management Policies 2006* includes a section (Section 9.1.1.6) on sustainable energy design in the operation of park facilities. Section 9.1.1.6 states that any facility development must include improvements in energy efficiency and reduction in greenhouse gas emissions, and that such efficiency should be achieved using solar thermal and photovoltaic application, as well as appropriate insulations, energy-efficient lighting and appliances, and renewable energy technologies. Furthermore, this section states that energy-efficient construction projects should be used as an educational opportunity and that those built primarily for visitors must incorporate Leadership in Energy and Environmental Design (LEED) standards to achieve a silver rating.

NPS *Management Policies 2006* also includes a section (Section 9.1.7) on energy management in the operation of park facilities. Section 9.1.7 states that the National Park Service shall conduct its activities in ways that use energy wisely and economically, and that encourages the implementation of alternative transportation programs and the use of bio-based and alternative fuels. It also calls for the use of renewable sources of energy and new developments in energy efficiency technology, including products from the recycling of materials and waste, where appropriate and cost-effective over the life cycle of a facility. Lastly, the management policies call for the interpretation of resource protection benefits resulting from the efficient use of energy and education of park personnel and visitors to use sustainable practices in conserving energy. These policies are derived from the laws that have been enacted to establish and guide the administration of the national park system, including

- Executive Order 13423, Strengthening Federal Environmental, Energy and Transportation Management
- Executive Order 13123, Greening the Government through Efficient Energy Management, which calls on federal agencies to take the lead in implementing energy conservation, maximizing the use of renewable resources, and reducing greenhouse gas emissions; and Executive Order
- Executive Order 13514: Federal Leadership in Environmental, Energy, and Economic Performance, signed in October 2009, which requires federal agencies to set a 2020 greenhouse gas emissions reduction target; increase energy efficiency; reduce fleet petroleum consumption; conserve water; reduce waste; support sustainable communities; and leverage federal purchasing power to promote environmentally-responsible products and technologies.

#### **Yosemite National Park Climate Action Plan**

Yosemite National Park participates in the Climate Friendly Parks Program implemented by the U.S. Environmental Protection Agency and the National Park Service, and has been designated a “Climate Friendly Park.” To obtain this designation, Yosemite has conducted a baseline greenhouse gas emissions inventory, developed a Climate Action Plan, and committed to educating park staff, visitors, and community members about climate change. The objective of the Climate Action Plan is to identify actions that Yosemite can undertake to reduce greenhouse gas emissions and thus address climate change. The Plan recommends three strategies, reduction of fuel use and greenhouse gas emissions, increasing climate change outreach and education efforts, perform subsequent emission inventories to evaluate progress, and develop future emission mitigation actions.

#### **Badger Pass Ski Lodge Energy Consumption**

Energy consumption at the Badger Pass Ski Lodge occurs year round. The highest use occurs between December and March, corresponding with the ski season.

The average annual energy consumption by the concessioner at the Badger Pass Ski Lodge from 2004 to 2008 includes:

- 340,000 kwh electricity
- 377,000 gallons propane
- 16,000 gallons of gasoline/diesel
- 18,400 gallons heating fuel

The energy consumption numbers listed above include operations at the ski lodge and associated concessioner operated buildings only, they do not include the total energy required to operate the Badger Pass Ski Area (concessioner operation of the ski lifts and associated concessioner or NPS vehicle use).

The Badger Pass Ski Lodge and associated concessioner-operated buildings are served by propane and diesel. The Alpine rental building and main lodge kitchen are served by two above ground propane tanks. The existing propane system is in fair condition; however the propane tanks are located too close to the Alpine rental building to meet current code requirements. The Nordic rental building is served by a propane tank that is likewise located too close to the building to meet current code requirements.

The Alpine rental building is heated by two forced air furnaces. Two diesel-fuel-fired “Modine” steam boilers currently heat the main lodge. The boilers are oversized for current heating load. The equipment is older; an additional 10-12 years of service with increasing maintenance can be expected. The steam distribution system components and condensate pump at end of useful life. The generator and boilers are served via a 500 gallon fuel oil tank located below ground, northwest of the retail addition; the fuel tank is double walled with a leak protection system installed in 2004.

A primary 12 KV feeder is provided from a PG&E substation in El Portal. The power is transformed to 120/208V for distribution via a PG&E owned transformer located outside the building. The main feeder from PG&E is reportedly overloaded. The emergency power system consists of a 60kW generator and manual transfer switch. In the event of our power outage, an operator is required to switch power to the generator; the system is undersized for facility requirements.

## **Environmental Consequences – Methodology**

This impact assessment focuses primarily on the effect of changes in expected energy consumption and the corresponding green house gas emissions changes that would occur due to incorporation of energy efficient infrastructure and design. Green house gas emissions for the alternatives have not been quantified because they represent a small proportion of park wide emissions. Emissions from the alternatives would contribute to cumulative global climate change caused by global green house gas emissions. However, cumulative impacts of the alternatives on global climate change are not considered significant because it is not possible to discern the effects of these emissions on global climate change.

**Duration:** In terms of duration, short-term impacts last only as long as the construction period. Long-term impacts would last beyond the construction period, such as a permanent change to fuel type or consumption, due to the implementation of the proposed alternative.

**Intensity:** The analysis of energy consumption was based on a comparison of energy use by the Badger Pass Ski Lodge under each alternative. The intensities of impacts consider whether the impact would be negligible, minor, moderate, or major. Negligible impacts are effects considered not detectable and would have no discernible effect on energy use. Minor impacts are effects that would be slightly detectable, but not expected to have an overall effect on energy use. Moderate impacts would be clearly detectable and could have an appreciable effect on energy use. Major impacts would have a substantial, highly noticeable influence on energy use.

**Type of Impact:** For purposes of this analysis, implementation of an alternative is assumed to have an adverse impact if it results in an increase in overall annual energy consumption or reliance on natural gas and oil. A beneficial impact would result in a decreased overall annual energy consumption or reliance on natural gas and oil, an increased use of renewable energy (e.g., photovoltaic cells, wind, geothermal) or the incorporation of energy-efficient design.

## Environmental Consequences of Alternative 1 (No Action)

### Analysis

**Construction-related impacts:** There would be no short-term construction-related impacts on energy consumption under this alternative.

**Long-term impacts:** There would be no long-term changes to energy consumption under the no-action alternative. Implementation of the No Action Alternative would not help the National Park Service in achieving its goals of reduced energy and water consumption, or increased use of alternative fuels. Existing mechanical, electrical, ventilation, heating, and water systems would remain inefficient and nearing obsolescence.

**Conclusion:** Under Alternative 1, energy consumption would continue to be inefficient, resulting in a local, long-term, minor adverse impact on energy consumption.

### Cumulative Impacts

Cumulative effects to energy consumption are based on analysis of past, present and reasonably foreseeable future actions within the project area in combination with the potential effects of this alternative.

Past actions include the Chinquapin Restore Rest Stop Structures project which installed water saving devices. Reasonably foreseeable projects that would incorporate new sustainable technology and cumulatively affect energy consumption include the construction of a new Yosemite Environmental Education Center, and the new Merced Wild and Scenic River Comprehensive Management Plan, which is intended to guide administrative and visitor use in Yosemite Valley, Wawona, and El Portal.

The cumulative actions in combination with Alternative 1 are expected to result in a local, long-term, minor, beneficial impact on energy consumption.

## Environmental Consequences of Alternative 2

### Analysis

Under all action alternatives, mechanical, electrical, plumbing, and life-safety systems would be upgraded to meet basic code standards. Energy efficient and water conserving systems would be employed with replacement systems to the degree possible. A mechanical ventilation system would

be installed, improving the buildings energy efficiency. A hydronic snowmelt system would be installed at the decks and portions of the roof to increase the efficiency of snow management operations. Emergency generator and power systems would be upgraded. The Badger Pass Ski Lodge would continue to be served by propane and diesel. Existing boilers for heat and hot water and their distribution system components would remain.

In addition, all action alternatives would result in the replacement of the Alpine building and Nordic rental building with more energy efficient buildings with sustainable design. These new buildings would include restrooms. Construction phasing for Alternative 2 would occur over two summer seasons.

Implementation of this alternative would help meet the National Park Service goals and objectives of achieving a reduction in energy use through improved building design and efficiencies.

**Construction-related impacts:** Implementation of Alternative 2 would cause a short-term increase in gasoline and diesel fuel use due to on site construction and truck trips supplying materials and/or workers over a period of two seasons.

**Long-term impacts:** Implementation of improvements in Alternative 2 would result a more energy efficient facility due to mechanical and ventilation upgrades and is expected to result in an overall reduction in annual energy use. The implementation of this alternative would not cause measurable increases or decreases in the overall consumption of gas or diesel for mobile sources associated with the continued operation and maintenance of facilities at Badger Pass Ski Lodge. There would be a small increase in power demand due to the installation of a hydronic snow melt system. Overall, this alternative would help achieve the National Park Service objectives of energy conservation and efficiency through improved building design and efficiencies.

**Conclusion:** Implementation of Alternative 2 would cause a short-term increase in gasoline and diesel fuel consumption during two seasons of construction.

Upgrades to mechanical and ventilation systems would reduce energy requirements and the installation of a new boiler system would improve efficiency. There would be a small increase in power demand due to the installation of a hydronic snow melt system. Overall this alternative would be expected to reduce energy consumption, compared to Alternative 1, and would be expected to reduce energy consumption, better help the National Park Service reach its overall energy conservation objectives, and reduce overall contribution to global greenhouse gas emissions. Alternative 2 would result in local, long-term, negligible, beneficial impacts on energy consumption.

### **Cumulative Impacts**

Past actions include the Chinquapin Restore Rest Stop Structures project which installed water saving devices. Reasonably foreseeable projects that would incorporate new sustainable technology and cumulatively affect energy consumption include the construction of a new Yosemite Environmental Education Center, and the new Merced Wild and Scenic River Comprehensive Management Plan, which is intended to guide administrative and visitor use in Yosemite Valley, Wawona, and El Portal.

The cumulative actions in combination with Alternative 2 are expected to result in a local, long-term, minor, beneficial impact on energy consumption.

## Environmental Consequences of Alternative 3

### Analysis

As in Alternative 2, mechanical, electrical, plumbing, and life-safety systems would be upgraded to meet basic code standards. Energy efficient and water conserving systems would be employed with replacement systems to the degree possible. A mechanical ventilation system would be installed improving the buildings energy efficiency. A hydronic snowmelt system would be installed at the decks and portions of the roof to increase the efficiency of snow management operations. Emergency generator and power system would be upgraded. The Badger Pass Ski Lodge would continue to be served by propane and diesel.

The Alpine building and Nordic rental building would be replaced with more energy efficient buildings with sustainable design. These new buildings would include restrooms.

Alternative 3 would include removal of the Winter Club Room and breezeway connection, modifications and additions to the west building and the main lodge. The steam heating boilers and distribution system would be replaced, additional mechanical ventilation would be provided in the ski lodge, and a new heating system installed for the new Alpine rental building. The ski lodge would be rehabilitated with a fireplace fueled by propane or wood. Construction phasing for Alternative 3 would occur over four summer seasons.

Implementation of this alternative would help meet the National Park Service goals and objectives of achieving a reduction in energy use through improved building design and efficiencies.

**Construction-related impacts:** Implementation of Alternative 3 would cause a short-term increase in gasoline and diesel fuel use due to on site construction and truck trips supplying materials and/or workers over a period of four seasons.

**Long-term impacts:** Implementation of the improvements in Alternative 3 would result a more energy efficient facility due to upgrades in mechanical and ventilation systems as well as replacement of the existing boiler system. Overall a reduction in annual energy use is expected to result. The implementation of this alternative would not cause measurable increases or decreases in the overall consumption of gas or diesel for mobile sources associated with the continued operation and maintenance of facilities at Badger Pass Ski Lodge. There would be a small increase in power demand due to the installation of a hydronic snow melt system. Overall, this alternative would help achieve the National Park Service objectives of energy conservation and efficiency through improved building design and efficiencies.

**Conclusion:** Implementation of Alternative 3 would cause a short-term increase in gasoline and diesel fuel consumption during four seasons of construction. As under Alternative 2, upgrades to mechanical and ventilation systems and installation of a new boiler system would reduce future diesel requirements. There would be a small increase in power demand due to the installation of a hydronic snow melt system. The installation of a fireplace is expected to increase propane or wood energy use. Overall, this alternative would be expected to reduce energy consumption, better help the National Park Service reach its overall energy conservation objectives, and reduce overall contribution to global greenhouse gas emissions, when compared with Alternative 1. Alternative 3 would result in a local, long-term, negligible, beneficial impact on energy consumption.

### **Cumulative Impacts**

Past actions include the Chinquapin Restore Rest Stop Structures project which installed water saving devices. Reasonably foreseeable projects that would incorporate new sustainable technology and cumulatively affect energy consumption include the construction of a new Yosemite Environmental Education Center, and the new Merced Wild and Scenic River Comprehensive Management Plan, which is intended to guide administrative and visitor use in Yosemite Valley, Wawona, and El Portal.

The cumulative actions in combination with Alternative 3 are expected to result in a local, long-term, minor, beneficial impact on energy consumption.

## **Environmental Consequences of Alternative 4**

### **Analysis**

As in Alternative 2, mechanical, electrical, plumbing, and life-safety systems would be upgraded to meet basic code standards. Energy efficient and water conserving systems would be employed with replacement systems to the degree possible. A mechanical ventilation system would be installed improving the buildings energy efficiency. A hydronic snowmelt system would be installed at the decks and portions of the roof to increase the efficiency of snow management operations. Emergency generator and power system would be upgraded. The Badger Pass Ski Lodge would continue to be served by propane and diesel.

The Alpine building and Nordic rental building would be replaced with more energy efficient buildings with sustainable design. These new buildings would include restrooms.

Alternative 4 includes modifications to all portions of the facility. Removal of the west building, Winter Club Room and breezeway connection, and modifications to the main lodge are proposed. The ski lodge would be rehabilitated with a fireplace fueled by propane or wood. Construction phasing is expected to occur over five summer seasons.

Implementation of this alternative would help meet the National Park Service goals and objectives of achieving a reduction in energy use through improved building design and efficiencies.

**Construction-related impacts:** Implementation of Alternative 4 would cause a short-term increase in gasoline and diesel fuel use due to on site construction and truck trips supplying materials and/or workers over a period of five seasons.

**Long-term impacts:** Implementation of improvements in Alternative 4 would result a more energy efficient facility due to upgrades in mechanical and ventilation systems, replacement of boiler systems and new construction for much of the project (excluding rehabilitation of the original ski lodge). There would be a small increase in power demand due to the installation of a hydronic snow melt system, however, an overall reduction in annual energy use is expected. The implementation of this alternative is not expected to cause measurable increases or decreases in the overall consumption of gas or diesel for mobile sources associated with the continued operation and maintenance of facilities at Badger Pass Ski Lodge. This alternative would help achieve the National Park Service objectives of energy conservation and efficiency through improved building design and efficiencies.

**Conclusion:** Implementation of Alternative 4 would result in a short-term increase in gasoline and diesel fuel consumption during five seasons of construction. As under Alternatives 2 and 3,

upgrades to mechanical and ventilation systems and installation of a new boiler system would reduce future diesel requirements. There would be a small increase in power demand due to the installation of a hydronic snow melt system. The installation of a fireplace is expected to increase propane or wood energy use.

Overall, Alternative 4 would best help achieve the National Park Service objectives of energy conservation and efficiency when compared to Alternatives 2 and 3 due to the extent of new construction under this alternative. However overall, this alternative would result in a local, long-term, negligible to minor, beneficial impact on energy consumption compared to Alternative 1.

### **Cumulative Impacts**

Past actions include the Chinquapin Restore Rest Stop Structures project which installed water saving devices. Reasonably foreseeable projects that would incorporate new sustainable technology and cumulatively affect energy consumption include the construction of a new Yosemite Environmental Education Center, and the new Merced Wild and Scenic River Comprehensive Management Plan, which is intended to guide administrative and visitor use in Yosemite Valley, Wawona, and El Portal.

The cumulative actions in combination with Alternative 4 are expected to result in a local, long-term, minor, beneficial impact on energy consumption.

## **American Indian Traditional Cultural Practices**

### **Affected Environment**

Traditional cultural practices involve culturally valued real property; social use of the biophysical, geophysical, or built environment; and socio-cultural attributes, including social cohesion, lifeways, religious practices, and other social institutions such as education and recreation that play out in the biophysical and built environment. The cultural value of these resources may have acquired a historic merit by their repeated use over time, but they do not meet the standards for consideration as historic properties listed in the National Register of Historic Places.

Humans are an integral part of Sierra Nevada ecosystems, having lived and sustained themselves in the region for at least 10,000 years. Indigenous populations were widely distributed throughout the region at the time of European immigrations. The area now known as Yosemite was included in the territory of Miwok, Paiute, Mono, and Yokut Indians. Archeological and anthropological evidence indicates considerable interaction between these groups.

American Indian people have ongoing traditional cultural associations with Yosemite National Park and its resources. The National Park Service consults with American Indian people about management of park lands, especially regarding the nature of the undertakings and potential impacts on park resources. Some of the primary concerns are access to park areas for traditional cultural practices, management of resources, and protection of archeological sites and other sites to which American Indians attach religious and cultural significance.

There is little specific information on the project site, relative to other well-documented areas of the park. The area is most closely associated with the Sierra Miwok, specifically with the Pohonichi Miwok identified in the earliest records for the vicinity. Traditional places and resources have been recorded for the general vicinity, including named camps, trails, and resource procurement sites; however, none have been recorded for the project site specifically. Inspection of the high elevation

meadow (Monroe Meadow) at the ski area site indicated the presence of several plants used by Native Americans for food and medicine and in traditional arts. Initial consultation with the Miwok and North Fork Mono communities yielded general reference to use of the area.

Potential resources in the immediate project vicinity include several plant species which may have traditional medicinal, artistic, or nutritional value. Members of the Southern Sierra Miwok Nation have indicated that the meadow and the surrounding area were an important source of medicinal and food plants, as well as crafts, and remain so today (Albion 2009). A member of the North Fork Mono Rancheria told of oral family traditions relating to the ancestral use of trails in the Badger Pass area for foraging, hunting, trade, and social excursions (e.g., visiting family members)(Albion 2009).

### **Environmental Consequences - Methodology**

Methodologies used to evaluate traditional cultural practices are defined earlier in this chapter, beginning on page 3-5, under Methods for Analyzing Environmental Consequences, Impacts Analysis – General.

### **Environmental Consequences of Alternative 1 (No Action)**

#### **Analysis**

There would be no ground disturbance in meadow vegetation under the No Action Alternative, beyond that necessary for emergency repairs to the ski lodge and associated utilities. This potential ground disturbance would be limited to previously disturbed locations; therefore, this alternative is expected to have no impact on traditional cultural practices. There could be small adverse impacts on plants traditionally used in the area due to normal ski area operations, but these are not expected to affect plant populations or access to traditional resources.

**Conclusion:** Under Alternative 1, there could be small adverse impacts on plants traditionally used in the area, due to normal ski area operations. This alternative would result in a long-term, local, negligible adverse impact on traditional cultural practices.

#### **Cumulative Impacts**

Past, present and reasonably foreseeable future actions which could contribute to adverse cumulative impacts on plants traditionally used in the area would include the construction of the ski lodge itself; past and present routine maintenance activities, emergency stabilization measures, repairs to structures and utilities, terrain park relocation, demolition and restoration of the rental shop, installation of temporary rental facilities, and the past replacement of the Eagle, Badger, and Bruin ski lifts. These actions would result in disturbance to vegetation within the project area and thus would have a local, short-term, direct, adverse impact. Relative to the total size of Badger Pass Ski Area, these impacts would be considered minor.

Potential actions under the park's *Invasive Plant Management Plan*, *Aquatic Ecosystem Recovery and Stewardship Plan*, and *Fire Management Plan* would result in the protection or enhancement of vegetation within the project area and thus would have local, beneficial, direct and indirect, long-term, minor impacts on plants traditionally used in the project vicinity.

**Impairment**

Because there would be no change to the natural and cultural integrity of Yosemite National Park under Alternative 1, traditional cultural practices in Yosemite National Park would not be impaired.

**Environmental Consequences of Alternatives 2 and 3**

Alternatives 2 and 3 would have the same effect on traditional cultural practices, therefore they are addressed together.

**Analysis**

Alternatives 2 and 3 have the potential to affect some plant species with traditional value to American Indian people, due to ground disturbance in the meadow associated with implementation of the alternative actions. The extent of ground disturbance beyond the existing disturbed footprint would be the same for these alternatives, and would be minimal. In addition, access to areas of traditional resources could be limited during periods of construction, which are expected to last two summer seasons under Alternative 2, and four summer seasons under Alternative 3. These impacts would be temporary in nature and are not expected to cause any long-term impacts on plant populations or access to traditional resources.

**Conclusion:** Under Alternatives 2 and 3, ground disturbance and limited access associated with construction activities could impact some traditional cultural resources, with an increased potential for effects under Alternative 3 due to the longer construction timeframe. This would result in a short-term, local, minor, adverse impact on traditional cultural practices.

**Cumulative Impacts**

Past, present and reasonably foreseeable future actions which could contribute to adverse cumulative impacts on plants traditionally used in the area would include the construction of the ski lodge itself; past and present routine maintenance activities, emergency stabilization measures, repairs to structures and utilities, terrain park relocation, demolition and restoration of the rental shop, installation of temporary rental facilities, and the past replacement of the Eagle, Badger, and Bruin ski lifts. These actions would result in disturbance to vegetation within the project area and thus would have a local, short-term, direct, adverse impact. Relative to the total size of Badger Pass Ski Area, these impacts would be considered minor.

Potential actions under the park's *Invasive Plant Management Plan*, *Aquatic Ecosystem Recovery and Stewardship Plan*, and *Fire Management Plan* would result in the protection or enhancement of vegetation within the project area and thus would have local, long-term, minor, direct and indirect beneficial impacts on vegetation.

Overall, past, present and reasonably foreseeable future actions within the project area in combination with the potential effects of Alternatives 2 and 3 would likely result in local, short-term, minor, direct, adverse impacts on plants traditionally used within the project vicinity.

**Impairment**

Because there would be no change to the natural and cultural integrity of Yosemite National Park under Alternatives 2 and 3, traditional cultural practices in Yosemite National Park would not be impaired.

## Environmental Consequences of Alternative 4

### Analysis

This alternative has the potential to affect some plant species with traditional value to American Indian people, due to ground disturbance in the meadow associated with implementation of the alternative actions. The extent of ground disturbance beyond the existing disturbed footprint would be slightly more (approximately 224 square feet) than that of the other action alternatives, but would still be minimal. In addition, access to areas of traditional resources could be limited during periods of construction, which are expected to last five summer seasons under Alternative 4. These impacts would be temporary in nature and are not expected to cause any long-term impacts on plant populations or access to traditional resources.

**Conclusion:** Under Alternative 4, ground disturbance and limited access associated with construction activities could impact some traditional cultural resources due to the longer construction timeframe, and permanent extension of the Alpine rental building further into the meadow area. This alternative would result in a short-term, local, minor, adverse impact on traditional cultural practices.

### Cumulative Impacts

Past, present and reasonably foreseeable future actions which could contribute to cumulative impacts on plants traditionally used in the area would include the construction of the ski lodge itself; past and present routine maintenance activities, emergency stabilization measures, repairs to structures and utilities, terrain park relocation, demolition and restoration of the rental shop, installation of temporary rental facilities, and the past replacement of the Eagle, Badger, and Bruin ski lifts. These actions would result in disturbance to vegetation within the project area and thus would have a local, short-term, direct, adverse impact. Relative to the total size of Badger Pass Ski Area, these impacts would be considered minor.

Potential actions under the park's *Invasive Plant Management Plan*, *Aquatic Ecosystem Recovery and Stewardship Plan*, and *Fire Management Plan* would result in the protection or enhancement of vegetation within the project area and thus would have local, long-term, minor, direct and indirect, beneficial impacts on plants traditionally used in the area.

Overall, past, present and reasonably foreseeable future actions within the project area in combination with the potential effects of Alternative 4 would likely result in local, short-term, minor, direct, adverse impacts on plants traditionally used within the project vicinity.

### Impairment

Because there would be no change to the natural and cultural integrity of Yosemite National Park under Alternative 4, traditional cultural practices in Yosemite National Park would not be impaired.

# Historic Properties

## Historic Sites, Buildings, and Cultural Landscapes

### **Affected Environment**

The following is a detailed description of the area of potential effect for this project, which includes the entire Badger Pass Ski Area historic site. Any impacts to character-defining or contributing features of the historic site, including Badger Pass Ski Lodge, are described in the subsequent impacts analysis.

The Badger Pass Ski Area is a historic site which derives significance at the local level under National Register Criterion A (Event) in the areas of Entertainment/Recreation and the context of Tourism, Recreation and Preservation Ethic, as one of California's earliest developed downhill ski areas. During the period of significance, 1934 to 1953, Badger Pass was a leader in ski instruction and the setting for professional and amateur downhill competitions. The site is significant to the history of cross-country and downhill skiing in the United States and is associated with the development of recreation and winter sports in Yosemite National Park.

The boundary for the Badger Pass Ski Area encompasses the entire 282-acre developed ski area as well as the Badger Pass Access Road from Glacier Point Road to the site. The historic site boundary encompasses all of the historically significant features at Badger Pass and does not extend into any designated wilderness area (Figure 3-2).

The Badger Pass Ski Area was identified as a potential contributing component of the Glacier Point Road Historic District as documented in the Glacier Point Road Cultural Landscapes Inventory completed in 2007. In the 2007 Cultural Landscapes Inventory, which serves as the Determination of Eligibility for the Glacier Point Road Historic District, Badger Pass and two other sites were identified as "sites within the district whose contribution will be determined at a future point."

A 2009 Badger Pass Ski Area Determination of Eligibility by Page & Turnbull provided the first official documentation of the Badger Pass Ski Area's eligibility for inclusion in the National Register. The California State Historic Preservation Officer concurred with the Determination of Eligibility in December 2009. According to the 2009 Determination of Eligibility, the Badger Pass Ski Area is most appropriately documented as a historic site within the Glacier Point Road Historic District geographic and cultural area, and is eligible as a historic site for listing in the National Register of Historic Places at the local level of significance under Criterion A (Event) in the areas of Entertainment/Recreation and the context of Tourism, Recreation and Preservation Ethic as one of California's earliest developed downhill ski areas. The period of significance is 1934 to 1953, covering the period that Badger Pass was at the forefront of California's ski culture as a leader in ski instruction and the setting for downhill competition. A draft Multiple Property Document Form for the park prepared in 2004 by Andrew Kirk and Charles Palmer, with the University of Nevada at Las Vegas' Public History Program, similarly identifies the Badger Pass Ski Area as a winter sports area within the "Resources Associated with Tourism, Recreation and the Preservation Ethic in Yosemite (1864-1973)" property type.

The Badger Pass Ski Area includes character-defining features from its period of significance, 1934 to 1953, which contribute to the property's ability to convey its significant associations, as well as to all seven aspects of its integrity: location, design, setting, materials, workmanship, feeling, and association. These characteristics include natural systems and features, spatial organization, land use, circulation, topography, vegetation, buildings and structures, views and vistas, and small-scale features. The overall spatial organization and land use patterns are defined by a single access road, series of parking loops, central lodge building, and the bowl-shaped ski area, and remain unchanged since the period of significance. Native vegetation and topography define the boundary and organization of the ski area as it was originally developed, and together with views and natural systems, contribute to the site's historic setting.

The following descriptions of contributing features to the Badger Pass Ski Area historic site are directly extracted from the Determination of Eligibility prepared by Page & Turnbull, Inc. (Page & Turnbull 2009e).

### **Contributing Buildings and Structures**

Since the construction of the up-ski in 1934 and the ski lodge in the year following, buildings and structures have been an important component of the Badger Pass Ski Area. The establishment of buildings and structures on the site marked the official development of the ski area, while the subsequent changes in number and character of the buildings and structures were the physical manifestations of the rise of the ski area during the period of significance. Several alterations and additions were made to the buildings and structures over time to accommodate the need for increased visitor capacity and services. Almost immediately upon completion of the ski lodge, plans were made to expand its facilities and the building underwent a series of alterations as early as 1936, including minor alterations in 1938.

Alterations and additions that occurred to the ski area after 1953 marked a shift in the programmatic focus of the site from a competitive downhill ski area to a more family-centered ski facility. Major alterations between 1954 and 1956 included the construction of a shed-roof addition to the west of the original lodge and alteration between 1957 and 1968. Building modifications from 1954 through 2005 have obscured the original appearance and character-defining features of the building, and marked a clear departure from the sympathetic alterations and additions that were made during the period of significance. Extensive modifications have been made to its exterior and interior, while additional buildings constructed after the period of significance have been introduced to meet the evolving programmatic needs of the ski area. Many of these buildings do not relate appropriately to historic views, vistas, and spatial organization, and are incompatible with the character of the area's historic buildings and structures.

***Badger Pass Ski Lodge:*** The Badger Pass Ski Lodge was constructed in 1935 to provide permanent facilities for downhill skiing operations at Badger Pass. Located at the base of Monroe Meadow, the original building was designed in the NPS Rustic style with Swiss Chalet style influences by Eldridge T. Spencer. The two-story, wood frame building featured cubic massing, a dramatic gable roof, and rustic finishes. The main (north) façade faced the parking area while the rear (south) façade faced the meadow and the ski slopes above.

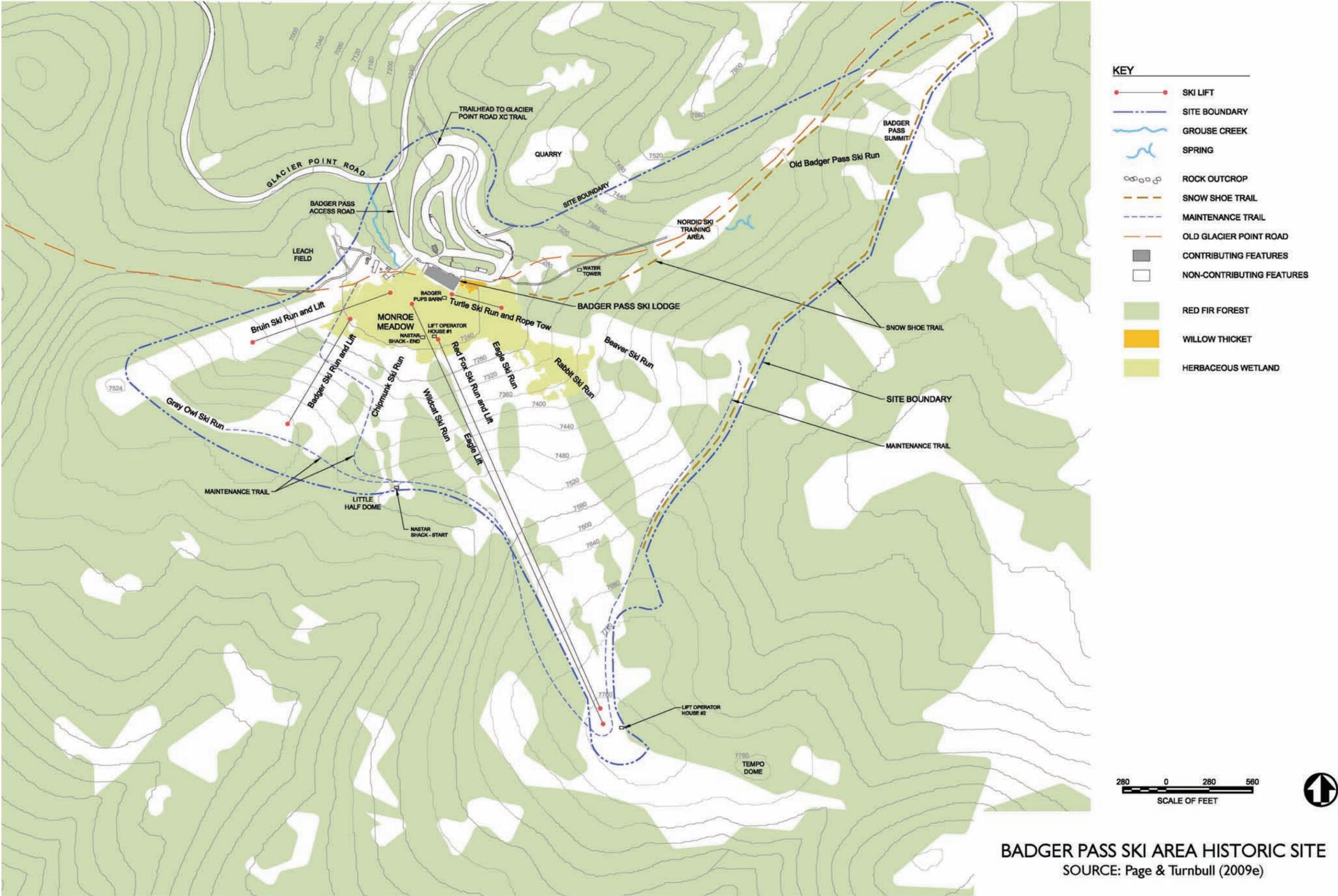


Figure 3-2 Badger Pass Ski Area Historic Site.

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According to the drawings, the proposed “Ski House at Monroe Meadows” would primarily function as a ski house and lounge to serve skiers and spectators, who could take advantage of the sweeping views of the slopes from the lounge and deck. The lounge would be the main destination for visitors; it was to be lined with partially-glazed wood doors on the south façade, to take advantage of the view to the ski slopes. The lounge opened onto a large wood deck and features stairs to the ski fields. This room, the most prominent space in the ski lodge, included exposed trusses, unpainted board-and-batten wood walls, concrete/stone floors, lantern-style light fixtures, and an oversize fireplace with a flagstone hearth with decorative cast iron metal panels by artist Robert Boardman Howard. The furniture, designed for the space, included chairs and an oversized sectional sofa, all with rustic wood bases. Wood dining tables and chairs with turned legs were used to serve visitors, skiing or not, who could bring their own lunch or enjoy short-order food service in the lounge or on the deck in good weather.

In addition to the lounge, the first floor was designed to include a lobby with a heater running the length of the room at the north façade. A ski room (for rental and service) was included at the southwest portion of the first floor. Service rooms, including a kitchen, restrooms, storage, and a garage were located at the northeast portion of the first floor. The basement included a boiler room and battery room at the north, an ash pit below the fireplace, and wood storage. The second floor was accessed by an octagonal shaped wood stair from the first floor. A mezzanine was located at the west and included a view to the lounge and fireplace below. The caretaker’s apartment was located in the northeast portion of the second floor and included a bedroom, restroom, and closets with access to the first floor service area through a narrow service stair. Balconies were located along the east, south, and north façades.

The north façade was similar in materials and detailing to the south façade. The north façade included a recessed central entry porch, and a projecting bay. The first floor of the north façade featured four-light wood-sash windows, and paired, partially glazed, multi-light wood doors. The second floor featured four-light wood-sash windows.

The east façade featured log slab siding, a wide overhanging eave supported by wood posts, and no fenestration. The west façade featured log slab siding and a shed-roofed porch supported by wood posts.

Almost immediately upon completion of the ski lodge, plans were made to expand its facilities and the building underwent a series of alterations over time. These alterations began as early as 1936 and included minor alterations in 1938, and major alterations completed between 1954 and 1956 when a shed-roof addition was constructed to the west of the original ski lodge. Additional alterations were made between 1957 and 1968, the building was stabilized in 1996, and emergency deck repairs were made in 2005 and 2007.

Currently, the building houses the ticketing, food services, restrooms, meeting space, and offices associated with the ski operations on site. Although the appearance of the building reflects the many additions and alterations made to it over time and differs from its appearance during the period of significance, the overall character, use, and understanding of the building and its function within the greater site are clearly evident. Further intensive investigation into the exterior and interior elements of the ski lodge would be required to assess whether any character-defining materials and features might be extant that have been otherwise obscured by these previous additions and alterations.

**Ranger Residence:** In 1930 to 1940, the CCC constructed the NPS Ranger Residence, the first permanent NPS building at Badger Pass. The building was completed in January 1940, and located across the Badger Pass Access Road, north of the ski lodge and directly west of the median of the original parking loop. The Ranger Residence is a one-story, wood frame building on a stone foundation, designed in a simplified NPS Rustic style. The main entrance is located at the southeast side of the building and is accessed by a flight of concrete stairs. The rectangular-plan building has a small entry porch, which appears to have been added at a later date, and a gable roof. There is also an addition at the rear of the building. Currently, the building is a residence for NPS rangers.

**Water Tower:** A historic site plan of Badger Pass indicates the presence of the water tower by 1942, located in the vegetated area to the east of the ski lodge. This feature provided much needed infrastructure to support visitor services on site and was important to the overall operation of the ski area during the period of significance. The water tower was replaced in circa 1988 with a new water tower structure in the same location as the historic feature.

### **Contributing Circulation Features**

**Badger Pass Access Road:** The Badger Pass Access Road contributes to the site as the major circulation route providing vehicular access to the Badger Pass Ski Area. Approximately 5 miles from the turnoff onto Glacier Point Road, Badger Pass Access Road provides entry to the ski area and parking lots. This approximately 0.2-mile road was constructed concurrently with the ski lodge to provide vehicular entry into the site. The character of the road is defined by its slightly curved shape, width, cross slope, and pitch at the curves, as well as its slightly upward slope towards the Badger Pass Ski lodge. The Badger Pass Access Road was designed to provide tree-framed vistas to the ski lodge and ski area beyond. This visual experience was an important part of the visitor experience at Badger Pass throughout history. The road was widened by the CCC in 1938; however, this change did not significantly alter the character of the road, its relationship to the ski area, or associated framed views. Today, the view of the ski lodge from the access road has been obscured by the 1954-1956 addition to the building and a support trailer parked to the west of the ski lodge in the summer months.

**Original Parking Loop (1936):** The Original Parking Loop contributes to the site as a feature that was designed to accommodate increased visitor capacity during the period of significance. The original Parking Loop is located just north of the ski lodge, accessed via the Badger Pass Access Road to the west. The loop was completed in 1936 and features a slight slope upwards to the northeast. When first constructed, the parking loop consisted of two strips and had the capacity for 200 vehicles. The loop is oriented east-to-west and features an island with a stand of conifer trees and two footpaths that lead from the parking loop to the north ski lodge entrance.

**Parking Loop (1941):** The 1941 Parking Loop contributes to the site as a feature that was added to accommodate increased visitor capacity during the period of significance. The parking area was expanded to the north in several campaigns, the first of which was completed in 1941 and provided capacity for an additional 200 vehicles. The 1941 Parking Loop is located in the middle of the three parking extension loops to the north of the original loop.

**Ski Area Boundary Trail:** The Ski Area Boundary Trail contributes to the site as a feature that provided cross-country and snowshoe access through the site during the period of significance, and was an important part of the early experience of Badger Pass. Today, the trail delineates the

boundary of the Badger Pass Ski Area. Portions of the Ski Area Boundary Trail were established with the development of the Badger Pass Ski Area in 1934. The earliest portion of the trail begins at the parking area where it follows Old Glacier Point Road and continues along the treeline of the Beaver Ski Run and along the ridgeline at the southeast edge of the site. The boundary trail continues south to the top of the Eagle and Red Fox lifts, before it turns and follows the treeline of Chipmunk Ski Run. The trail continues to the west along the ridgeline and is marked with signage that reads “Ski Area Boundary,” before it turns at the top of the Badger and Bruin lifts and connects to the maintenance area. The boundary trail is not clearly marked or evident between the maintenance area and the west side of the parking area. The trail consists of an unpaved dirt surface that is groomed in the winter and lined by stands of conifer trees.

### **Associated Views and Vistas**

Significant views and vistas are also associated with the historic setting of the Badger Pass Ski Area historic site and contribute to the relationship between the landscape and its buildings and structures. These include views to and from the lodge, ski runs, and the surrounding landscape, as the ski area was designed to provide both inward and outward views of the lodge and the surrounding scenic landscape. While additions and alterations to the ski lodge have altered views to the lodge from the runs, the most expansive views to the surrounding mountains and within the ski area remain and continue to contribute to the historic character of the site. Two significant views associated with the setting are described in the Determination of Eligibility (Page & Turnbull 2009e) as:

***Views from Badger Pass Ski Lodge to Slopes:*** There is an expansive view from the south deck of the lodge to the meadow to the south and the ski runs above. From this vantage point, from west to east, are the ski runs as well as the associated lifts and vegetation that frame these runs. Currently, the temporary Alpine rental building partially obstructs the view from the lodge to two of the runs (Rabbit and Beaver ski runs). This view dates to the construction of the lodge in 1935 as the overall configuration and character of the ski runs has not dramatically changed.

***Views from Slopes to Badger Pass Ski Lodge:*** Historic photographs show that framed views from the ski slopes to the lodge have always been a focal point of the downhill skiing experience at Badger Pass. These views were created when the lodge was constructed in 1935. Views from the ski slopes to the lodge also help orient visitors skiing on the runs. Due to the alterations to the ski lodge and its resulting change in appearance, the views to the lodge from the ski runs have dramatically changed over time. The once elegant views to the lodge have been compromised by later additions to the building, which have changed the exterior appearance of the lodge. Views to the lodge have also been partially obscured by the construction of non-contributing structures in the maintenance yard and temporary rental buildings. Despite changes to the appearance of the lodge over time, the location of the lodge has remained unchanged and the views from the slopes to the lodge are still present today.

### **Integrity**

The Badger Pass Ski Area historic site includes a substantial amount of intact and significant features and characteristics from its period of significance. Despite growth and site maintenance, the site continues its recreational use as a downhill and cross-country ski area within Yosemite National Park and its landscape features have undergone few physical changes. Although the Badger Pass Ski Lodge, a significant contributor to the historic site, has diminished architectural integrity due to incompatible post-1953 additions and alterations made to its exterior and interior,

the building does retain sufficient integrity to convey its significance as a contributing feature of the historic site. The expansion of circulation systems has similarly not compromised the overall design and materials of the site.

The site as a whole possesses integrity of location, design, setting, materials, workmanship, feeling, and association, and therefore retains sufficient integrity to convey its significance for the entire period of significance from 1934 to 1953.

**Location:** The Badger Pass Ski Area and all contributing features of the historic site have remained in the same location and configuration within Yosemite National Park since its period of significance (1934 to 1953). Therefore, the property retains integrity of location to convey its historic significance.

**Design:** Since 1953, several features have been added and alterations made to individual contributing features within the historic site. These additions include the installation of new ski lifts and associated equipment, construction of two additional parking loops to allow for increased parking capacity, installation of temporary trailers and buildings to house ski equipment rentals, installation of various non-contributing shelters used to facilitate ski operations and ski school service on the site, and incompatible alterations and additions to the Badger Pass Ski Lodge that have compromised the architectural and structural integrity of the building. Despite these changes, the overall character of the design and layout of the site have not been altered, and the historic site as a whole (fourteen buildings and structures, and circulation systems, as well as natural systems, spatial organization, land use, topography, vegetation, views and vistas, and small-scale features) continues to retain integrity of design to convey its historic significance.

**Setting:** The setting of Badger Pass, including its proximity to Glacier Point Road, its elevation, natural bowl shape, north-facing slopes, scenic vegetation, and protected meadow allowing for accumulation of snowfall, contributed to its selection as a downhill and cross-country skiing area. Although changes have been made to individual contributing features of the site, including buildings and structures, and circulation patterns, these changes do not affect the overall character of the setting of the Badger Pass Ski Area. Therefore, the property retains sufficient integrity of setting to convey its historic significance.

**Materials:** Despite alterations and additions to buildings, structures, and small-scale features, the historic materials of the ski area remain largely intact. Original materials, including wetland, meadow, and forest vegetation; circulation systems; natural systems and features; and associated elements have remained unchanged since the period of significance. The majority of the alterations to the ski lodge were additive in nature and much of the original building materials remain. Therefore, the property retains sufficient integrity of materials to convey its historic significance.

**Workmanship:** Badger Pass was transformed into an aesthetically pleasing and functional winter sports facility from a pristine natural environment. This transformation involved a high level of workmanship, and included the creation of ski runs through grading and manipulation of existing terrain and vegetation, as well as the introduction of buildings, structures, circulation systems, and other necessary facilities to the site. This workmanship remains evident at today, and therefore, the property retains sufficient integrity of workmanship to convey its historic significance.

**Feeling:** The feeling of the Badger Pass Ski Area is characterized by its remote location, its access via the historic Glacier Point Road, and its appearance as a rustic historic ski area. Upon the

establishment of the Badger Pass Ski Area in 1934, the site flourished through the mid-1950s and experienced continual growth into an influential ski area and teaching facility. The ski area today is one of the only downhill ski facilities in the United States located in a national park and continues to experience high levels of visitation in the winter months. Therefore, the property retains sufficient integrity of feeling to convey its historic significance.

**Association:** The Badger Pass Ski Area is associated with the early development of winter sports, recreation, and tourism in Yosemite National Park and the western United States, and its association with these historic contexts is still evident. Therefore, the property retains sufficient integrity of association to convey its historic significance.

## Environmental Consequences - Methodology

The methodology for evaluating effects to historic properties under NHPA is discussed at the beginning of this chapter, on page 3-7.

In accordance with 36 CFR 800 criteria of effect, the Badger Pass Ski Area historic site was analyzed qualitatively, based on modifications that would be made to character-defining features (features that qualify the property for inclusion in the National Register of Historic Places). Phased work outlined was assessed for the potential effect multi-phase construction might have on the historic site and ski lodge. The following actions common to all action alternatives would have an effect on the historic site. Actions specific to individual alternatives that would affect the historic site are described under each alternative, below.

### Elements Common to the Proposed Action Alternatives

The following proposed actions are common to all action alternatives and have the potential to impact the Badger Pass Ski Area historic site. All actions would comply with the Secretary of the Interior's *Standards for the Treatment of Historic Properties (Standards)*.

- Maintain and protect the integrity of the Badger Pass Ski Lodge, a contributing element of the Badger Pass Ski Area historic site, and character-defining features of the Badger Pass Ski Area historic site
- Repair and/or restore ski lodge elements to preserve and enhance the historic character of the ski area, with possible renovation or replacement of non-historic elements in a compatible manner
- Treat critical structural and design deficiencies to prevent further damage due to water infiltration and remove roof and decks
- Address deficiencies in seismic, accessibility, fire, and building codes; eliminate water intrusion; and reduce snow build-ups
- Relocate or replace kitchen and dining facilities to meet health code requirements and improve efficiency
- Replace temporary structures with permanent buildings of compatible construction to maintain continued ski area operations and house current programs
- Maintain ski area service and support functions while protecting the winter recreation visitor experience at Badger Pass Ski Area

## Environmental Consequences of Alternative 1 (No Action)

### Analysis

Under Alternative 1 extant features of the Badger Pass Ski Area historic site would remain and would continue to receive the current level of maintenance and upkeep. The potential for an adverse effect under Alternative 1 exists if the historic site and/or the ski lodge, a contributor, suffer from degraded conditions of site features, which would threaten and diminish the integrity of the NRHP-eligible site. Within the historic site of the Badger Pass Ski Area, only the buildings and structures are currently in a degraded or poor condition, thus the only potential for adverse effect on historic site features would be if further structural and other deterioration and/or removal and loss of character-defining features of the ski lodge occurs.

While the No Action Alternative has the potential to create an adverse effect if the integrity of the ski lodge, and its ability to represent its significant associations individually and within the historic site, is diminished and/or deteriorated, current maintenance and upkeep strategies are capable of maintaining the existing state of the building and its features, resulting in effects that are not adverse.

**Conclusion:** Under Alternative 1, regular maintenance and upkeep of the historic site would continue to occur. As the No Action Alternative would not alter, directly or indirectly, any of the characteristics of the historic site that qualify the property for inclusion in the National Register of Historic Places in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association, Alternative 1 would have no adverse effect.

### Cumulative Impacts

Past projects in the ski area that have been evaluated in conjunction with the impacts of proposed action alternatives include: Bruin, Badger, and Eagle ski lift replacement, life/safety shoring of ski lodge decking, remodel of ski lodge ground floor food service, ski lodge lower deck repair, rental shop demolition and site restoration, terrain park relocation, ski lodge emergency stabilization measures, Snowflake Room food service reactivation, temporary modular rental shop installation, and ski lodge upper deck repair. Present and foreseeable actions in the ski area reviewed include: interpretive display, rehabilitation of Glacier Point Road, remediation of soil contamination, and the Scenic Vista Management Plan. There is no potential for adverse effect to the historic site or the ski lodge, a contributor, under Alternative 1 and thus there is no contribution to any cumulative impact by Alternative 1. Upon review of these past, present, and reasonably foreseeable actions, these projects and Alternative 1 would not have a cumulative adverse effect on the historic site.

### Impairment

Characteristics that make the property eligible for inclusion in the National Register of Historic Places would not be altered in a way that would diminish the integrity of the property. Because no resources specific to the park's purpose would be affected, and there would be no change to the natural and cultural integrity of the park, Alternative 1 would not impair park historic properties.

## Environmental Consequences of Alternative 2

### Analysis

Alternative 2 would better halt the deterioration of features and materials significant to the historic site, when compared to Alternative 1. In addition to the general maintenance and upkeep currently performed in the ski area and proposed in Alternative 1, Alternative 2 would allow for greater protection from water-intrusion and material deterioration. Significant character-defining features

and existing spatial relationships would be maintained and protected, though no long-term comprehensive preservation strategy is proposed.

All work proposed in Alternative 2 would be *Standards*-compliant, including: the replacement of roofing materials and use of a new roof ice melt system at specific locations, replacement of the second floor deck, railings and exterior stair, and replacement of the south glazing wall. The removal, repair, and salvage of the ski lodge's exterior half-log cladding, to be re-applied over a new wall membrane and repaired sheathing, would also be *Standards*-compliant. Other work, such as the installation of three stop elevators and the connection of the lobby and corridors can be performed with little harm to character-defining spaces, features, or materials. Much of the work in Alternative 2 has the potential to maintain, protect, and preserve character-defining features and materials while also improving occupant and visitor circulation and experience, maintaining and potentially improving the vitality of the historic site and its significant associations.

Design and construction planning would provide that there would be no adverse effect on character-defining and/or contributing features of the historic site from ADA and civil/fire-protection improvements to platforms, walkways, ramps, and the entry drive, and replacement of stair access and ramp to ski slopes. Replacement of the concrete entry walkway and entry drive to improve surface drainage, as well as use of an exterior perimeter drainage system at the eastern and southern edge of the ski lodge, would allow water infiltration issues to be abated, an action that has the potential to better repair, protect, and preserve the historic site and the ski lodge.

New permanent structures constructed to replace the existing temporary Nordic and Alpine rental buildings would be *Standards*-compliant, designed and constructed in a compatible manner with the existing lodge, and would not block important historic vistas, obstruct historic circulation routes or interfere with character defining elements of the site's spatial organization. Therefore, these new structures would have no adverse effect on the historic site.

Design and construction would provide that the proposed work would not have an adverse effect on significant vistas and views, particularly to and from the ski lodge and the ski runs and surrounding landscape, as the condition of the site in terms of the building envelope/footprints as well as the features of the ski lodge would remain largely unaltered from their existing state.

All work proposed in Alternative 2 would have no adverse effect on the historic site or the ski lodge, as design and construction would be conducted in a manner that would avoid adverse effects to the historic site. During the course of rehabilitation and system upgrade work throughout the historic site and particularly during tasks related to rehabilitating the exterior and interior of the ski lodge, there is a potential that original features and materials obscured by previous alterations might be uncovered and exposed. All work to known or recovered character-defining features would be *Standards*-compliant to avoid the potential for an adverse effect on the historic site and ski lodge.

With the proposed rehabilitation and new construction under all action alternatives, there would be an opportunity to utilize materials with recycled content and to introduce elements of sustainability further in systems upgrades. The introduction and implementation of sustainable strategies in all action alternatives would not affect the ability for the rehabilitation proposed to be *Standards*-compliant. All materials to be introduced into the historic site and in particular on the exterior and interior of the ski lodge and new construction would be compatible with the character-defining features and materials of the NRHP-eligible site.

**Conclusion:** Alternative 2 proposes a *Standards*-compliant rehabilitation program for the ski lodge that includes new construction, abatement of structural, weather envelope, life-safety, and mechanical systems upgrades, as well as improved ADA accessibility and use of the ski lodge and its spaces. The proposed activities would not alter, directly or indirectly, any of the characteristics of the historic site that qualify the property for inclusion in the National Register of Historic Places in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Therefore, Alternative 2 would have no adverse effect.

### **Cumulative Impacts**

Past projects in the ski area that have been evaluated in conjunction with the impacts of proposed action alternatives include: Badger, Bruin and Eagle ski lift replacement, life/safety shoring of ski lodge decking, remodel of ski lodge ground floor food service, ski lodge lower deck repair, rental shop demolition and site restoration, terrain park relocation, ski lodge emergency stabilization measures, Snowflake Room food service reactivation, temporary modular rental shop installation, and ski lodge upper deck repair. Present and foreseeable actions in the ski area reviewed include: interpretive display, rehabilitation of Glacier Point Road, mitigation of soil contamination, and the Scenic Vista Management Plan. There is no potential for adverse effect to the historic site or the ski lodge, a contributor, under Alternative 2, and thus there is no contribution to any cumulative impact by Alternative 2. Upon review of these past, present, and reasonably foreseeable actions, these projects and Alternative 2 are not expected to have a cumulative adverse effect on the historic site.

### **Impairment**

Characteristics that make the property eligible for inclusion in the National Register of Historic Places would not be altered in a way that would diminish the integrity of the property. Because no resources specific to the park's purpose would be affected, and there would be no change to the natural and cultural integrity of the park, Alternative 2 would not impair park historic properties.

## **Environmental Consequences of Alternative 3**

### **Analysis**

Alternative 3 would more substantially rehabilitate features and materials significant to the historic site, when compared to Alternative 2. The character of the ski lodge would be better protected and improved, with existing character-defining features maintained, strengthened, and made a focus of the scheme in the freeing of the ski lodge from adjoining non-historic construction and reveal the pure lines of the roof and west façade. Substantial rehabilitation goals on the interior include installing a fireplace and hearth to restore the fireplace and its surround panels, remodeling the kitchen, loading and storage areas, relocating the food serving area, removing existing stair and providing new interior stair to second floor break room, removing and replacing second floor bar and food service, and relocating the Winter Club room.

Significant spatial relationship and site view corridors would be enhanced by clearing building construction that obstructed views to and from the ski lodge. A primary improvement of Alternative 3 would be establishing a sense of arrival to the ski lodge. The buildings would have frontage to the street, providing points of service and direct flow, and yet would be designed to provide a greater visual presence of the historic ski lodge upon entry. The ski lodge rooflines and overhangs would be distinctly visible and prominent from both the north and south perspectives. New construction would be of design character compatible with and subservient to the ski lodge.

The building footprint would be kept roughly to the existing footprint with minimal alteration to site features and no impact on significant character-defining features of the site.

All work proposed in Alternative 3 would be *Standards*-compliant, and would include: the replacement of roofing materials and use of a new roof ice melt system at specific locations, replacement of the second floor deck, railings and exterior stair, and of the south glazed wall. The removal to repair and salvage the ski lodge's exterior half-log cladding, to be set back into place over a new wall membrane and repaired sheathing, would also be *Standards*-compliant. Much of the work in Alternative 3 has the potential to maintain, protect, and preserve character-defining features and materials while also improving occupant and visitor circulation and experience, maintaining and potentially improving the vitality of the historic site and its significant associations.

All work proposed in Alternative 3 would have no adverse effect on the historic site or the ski lodge, as design and construction would be conducted in a manner that would avoid adverse effects to the historic site. Design and construction planning would provide that there would be no adverse effect on character-defining and/or contributing features of the historic site from ADA and civil/fire-protection improvements to platforms, walkways, ramps, and the entry drive, and replacement of stair access and ramp to ski slopes. Replacement of the concrete entry walkway and entry drive to improve surface drainage, as well as use of an exterior perimeter drainage system at the eastern and southern edge of the ski lodge, would allow water infiltration issues to be abated, an action that has the potential to better repair, protect, and preserve the historic site and the ski lodge.

New permanent structures constructed to replace the existing temporary Nordic and Alpine rental buildings would be *Standards*-compliant, designed and constructed in a compatible manner with the existing lodge, and would not block important historic vistas, obstruct historic circulation routes or interfere with character defining elements of the site's spatial organization. Therefore, these new structures would have no adverse effect on the historic site.

Design and construction would provide that the proposed work would not have an adverse effect on significant vistas and views, particularly to and from the ski lodge and the ski runs and surrounding landscape, as the condition of the site in terms of the building envelope/footprints would improve, allowing for a partial restoration of the original view of the lodge through the separation of the historic building from non-contributing additions made post-1953.

With the proposed rehabilitation and new construction under all action alternatives, there would be an opportunity to utilize materials with recycled content and to introduce elements of sustainability further in systems upgrades. The introduction and implementation of sustainable strategies in all action alternatives would not affect the ability for the rehabilitation proposed to be *Standards*-compliant. All materials to be introduced into the historic site and in particular on the exterior and interior of the ski lodge and new construction would be compatible with the character-defining features and materials of the NRHP-eligible site.

During the course of rehabilitation and system upgrade work throughout the historic site and particularly during tasks related to rehabilitating the exterior and interior of the ski lodge, there is a potential that original features and materials obscured by previous alterations might be uncovered and exposed. All work to known or recovered character-defining features would be *Standards*-compliant to avoid the potential for an adverse effect on the historic site and ski lodge.

**Conclusion:** Alternative 3 presents a higher attainment of the overall rehabilitation of the ski lodge than what is proposed in Alternative 2, allowing for *Standards*-compliant rehabilitation and protection of contributing features within the historic site. Beyond the proposed abatement of structural, weather envelope, life-safety, and mechanical systems issues, as well as improved ADA accessibility, this alternative further considers the need to distinguish the ski lodge as a significant and primary contributing feature of the NRHP-eligible historic site. The proposed activities would not alter, directly or indirectly, any of the characteristics of the historic site that qualify the property for inclusion in the National Register of Historic Places in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Therefore, Alternative 3 would have no adverse effect.

### **Cumulative Impacts**

Past projects in the ski area that have been evaluated in conjunction with the impacts of proposed action alternatives include: Badger, Bruin and Eagle lift replacement, life/safety shoring of ski lodge decking, remodel of ski lodge ground floor food service, ski lodge lower deck repair, rental shop demolition and site restoration, terrain park relocation, ski lodge emergency stabilization measures, Snowflake Room food service reactivation, temporary modular rental shop installation, and ski lodge upper deck repair. Present and foreseeable actions in the ski area reviewed include: interpretive display, rehabilitation of Glacier Point Road, remediation of soil contamination, and the Scenic Vista Management Plan. There is no potential for adverse effect to the historic site or the ski lodge, a contributor, under Alternative 3, thus there is no contribution to any cumulative impact by Alternative 3. Upon review of these past, present, and reasonably foreseeable actions, these projects and Alternative 3 are not expected to have a cumulative adverse effect on the historic site.

### **Impairment**

Characteristics that make the property eligible for inclusion in the National Register of Historic Places would not be altered in a way that would diminish the integrity of the property. Because no resources specific to the park's purpose would be affected, and there would be no change to the natural and cultural integrity of the park, Alternative 3 would not impair park historic properties.

## **Environmental Consequences of Alternative 4**

### **Analysis**

In this optimal approach to historic rehabilitation, the highest integrity of the ski lodge would be restored to prominence. All primary character-defining features would be restored, while the ski lodge would be freed visually and physically from adjoining non-historic construction. Construction dating from after the historic period of significance would be removed, including the second floor deck and south glazed dining room at the ski lodge. The south façade would be restored to its original appearance, as are all elevations, to better reflect their condition during the period of significance.

Alternative 4 would remove adjoining non-contributing construction west and south of the ski lodge and reestablish the original ski lodge roofline and all elevations. New construction both east and west of the ski lodge would incorporate ski operations and visitor services in an efficient manner responsive to site parameters, while also being compatible with yet distinguishable from the ski lodge. The building footprint would be kept roughly at the existing footprint, with the exception of a small portion of the Alpine rental building, with minimal alteration to site features and no impact on significant character-defining features of the site. Important spatial relationships

and site view corridors would be enhanced with these improvements, with the clearing of all building construction obstructing views to and from the ski lodge.

All work proposed in Alternative 4 would be *Standards*-compliant, and would include: code upgrades and repairs and replacement of systems, modification to exterior plazas and decks and roadside plazas and paving, the installation of a new fireplace and hearth to reintroduce a unique historic feel and charm to the lodge, removal of the south glazed wall, restoration of the interior lounge and its direct relationship to the deck and views to ski slopes, restoration of the south façade with a second floor balcony, and removal of an exterior stair and new interior stair to second floor office, removal of second floor bar and food service and relocation of Winter Club room, removal of the West Building and replacement of the temporary Alpine and Nordic Rental buildings with permanent construction (East Building and Nordic Center). Through these changes, the building would be extensively rehabilitated and partially restored, and its original function as a meeting/gathering space would be restored, allowing the building to function while being more compatible with its original use.

Design and construction of work under Alternative 4 would be conducted in a manner that would have no adverse effect to the historic site. Design and construction planning would provide that there would be no adverse effect on character-defining and/or contributing features of the historic site from ADA and civil/fire-protection improvements to platforms, walkways, ramps, and the entry drive, and replacement of stair access and ramp to ski slopes. Replacement of the concrete entry walkway and entry drive to improve surface drainage, as well as use of an exterior perimeter drainage system at the eastern and southern edge of the ski lodge, would allow water infiltration issues to be abated, an action that has the potential to better repair, protect, and preserve the historic site and the ski lodge.

New permanent structures constructed to replace the existing temporary Nordic and Alpine rental buildings would be *Standards*-compliant, designed and constructed in a compatible manner with the existing lodge, and would not block important historic vistas, obstruct historic circulation routes or interfere with character defining elements of the site's spatial organization. Therefore, these new structures would have no adverse effect on the historic site.

Proposed work would not have an adverse effect on significant vistas and views, particularly to and from the ski lodge and the ski runs and surrounding landscape, as the condition of the site in terms of the building envelope/footprints would improve, allowing for a partial restoration of the original view of the lodge through the separation of the historic building from non-contributing additions made post-1953.

With the proposed rehabilitation and new construction under all action alternatives, there would be an opportunity to utilize materials with recycled content and to introduce elements of sustainability further in systems upgrades. The introduction and implementation of sustainable strategies in all action alternatives would not affect the ability for the rehabilitation proposed to be *Standards*-compliant. All materials to be introduced into the historic site and in particular on the exterior and interior of the ski lodge and new construction would be considered for compatibility with the character-defining features and materials of the NRHP-eligible site.

During the course of rehabilitation and system upgrade work throughout the historic site and particularly during tasks related to rehabilitating the exterior and interior of the ski lodge, there is a potential that original features and materials obscured by previous alterations might be uncovered

and exposed. All work to known or recovered character-defining features would be *Standards*-compliant to avoid the potential for an adverse effect on the historic site and ski lodge.

**Conclusion:** Alternative 4 achieves the highest level of the overall rehabilitation goals for the ski lodge, allowing for *Standards*-compliant rehabilitation and protection of contributing features within the historic site. Beyond the proposed abatement of structural, weather envelope, life-safety, and mechanical systems, as well as improved ADA accessibility, this alternative goes further than Alternatives 2 and 3 to distinguish the ski lodge as a significant and primary contributing feature of the NRHP-eligible historic site. The proposed activities would not alter, directly or indirectly, any of the characteristics of the historic site that qualify the property for inclusion in the National Register of Historic Places in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Therefore, Alternative 4 would have no adverse effect.

### **Cumulative Impacts**

Past projects in the ski area that have been evaluated in conjunction with the impacts of proposed action alternatives include: Badger, Bruin, and Eagle ski lift replacement, life/safety shoring of ski lodge decking, remodel of ski lodge ground floor food service, ski lodge lower deck repair, rental shop demolition and site restoration, terrain park relocation, ski lodge emergency stabilization measures, Snowflake Room food service reactivation, temporary modular rental shop installation, and ski lodge upper deck repair. Present and foreseeable actions in the ski area reviewed include: interpretive display, rehabilitation of Glacier Point Road, remediation of soil contamination, and the Scenic Vista Management Plan. There is no potential for adverse effect to the historic site or the ski lodge, a contributor, under Alternative 4, thus there is no contribution to any cumulative impact by Alternative 4. Upon review of these past, present, and reasonably foreseeable actions, these projects and Alternative 4 are not expected to have a cumulative adverse effect on the historic site.

### **Impairment**

Characteristics that make the property eligible for inclusion in the National Register of Historic Places would not be altered in a way that would diminish the integrity of the property. Because no resources specific to the park's purpose would be affected, and there would be no change to the natural and cultural integrity of the park, Alternative 4 would not impair park historic properties.

# Chapter 4: Consultation and Coordination

This chapter presents a review of all consultation and coordination efforts undertaken for the Badger Pass Ski Lodge Rehabilitation Environmental Assessment.

## Project Scoping History

Public scoping was initiated for the Badger Pass Ski Lodge Rehabilitation Environmental Assessment on January 14, 2009, and the National Park Service accepted scoping comments through February 13, 2009. Two public meetings were held: a public open house on January 28, 2009 in the Valley Visitor Center Auditorium in Yosemite Valley and a public scoping meeting on Friday, February 6, 2009 in the Snow Flake Room at Badger Pass Ski Lodge. Written public scoping comments were received at the public scoping meetings, and by fax, email, U.S. mail, online through the Planning, Environment, and Public Comment (PEPC) website, and on comment forms that were available at Badger Pass Ski Lodge and Yosemite Lodge for the duration of the scoping period. Comment boxes were placed at the central area of the main ski lodge and at the tour activity desk of Yosemite Lodge. As a result of the public scoping period, the park received comments from 40 individuals and 4 organizations. The analysis of these letters identified almost 200 discrete comments, from which 78 general concern statements were generated.

Based on internal and public scoping comments and applicable federal law, regulations, and executive orders, the National Park Service determined that an environmental assessment would be the appropriate level of compliance for the Badger Pass Ski Lodge Rehabilitation Project. Public scoping comments and issues raised by National Park Service staff were used in the alternatives development process and the analysis presented in this environmental assessment.

## Agency Consultation

### U.S. Army Corps of Engineers

The National Park Service is coordinating with the U.S. Army Corps of Engineers regarding wetland permitting for the Badger Pass Ski Lodge Rehabilitation Project. The National Park Service will submit a Section 404 wetland fill permit application to the U.S. Army Corps of Engineers for the Badger Pass Ski Lodge Rehabilitation Project, and this permit would be in place prior to project implementation.

### Central Valley Regional Water Quality Control Board

The National Park Service is currently coordinating with the Central Valley Regional Water Quality Control Board to obtain a water quality certification for the Badger Pass Ski Lodge Rehabilitation Project.

### U.S. Fish and Wildlife Service

The Endangered Species Act of 1973, as amended (16 USC 1531 et seq.) requires all federal agencies to consult with the U.S. Fish and Wildlife Service to ensure that any action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitat. The National Park Service obtained a list of federally listed endangered and

threatened species that may be present in the Badger Pass area in August 2008 from the U.S. Fish and Wildlife Service, and an updated list was obtained in August 2009. These lists were used as the basis for the special status species analysis in this environmental assessment. Consultation with the U.S. Fish and Wildlife Service will continue, as defined by Section 7 of the Endangered Species Act, as environmental compliance for the Badger Pass Ski Lodge Rehabilitation Project is finalized.

### **California State Historic Preservation Officer/Advisory Council on Historic Preservation**

A Programmatic Agreement among the National Park Service at Yosemite, the California State Historic Preservation Officer (SHPO), and the Advisory Council on Historic Preservation regarding Planning, Design, Construction, Operations and Maintenance was developed in consultation with Native American tribes having cultural association with Yosemite National Park and was executed in October 1999 (NPS 1999). Pursuant to Article VI of the 1999 Programmatic Agreement (1999 PA), the review process for Section 106 of the National Historic Preservation Act of 1966, as amended, a historic structure report and a cultural landscape report for the Badger Pass Ski Lodge and Badger Pass Ski Area were prepared in early 2009. Subsequently, a determination of eligibility was prepared for the Badger Pass Ski Area Historic Site in August 2009. A letter dated October 13, 2009 requesting comment and concurrence for the determination of eligibility was provided to the California State Historic Preservation Officer. A letter of SHPO concurrence with the determination of eligibility for the Badger Pass Ski Area Historic Site dated December 29, 2009 was received by the National Park Service in January 2010.

Additionally, although further review is not required for this document per Article VII(C) of the 1999 PA (given that the proposed actions will have no adverse effect and do not meet the provisions of Stipulation VIII(B) for required consultation), the National Park Service has provided a copy of this environmental assessment to the California State Historic Preservation Officer. The Yosemite Section 106 Coordinator has reviewed the undertaking per the 1999 PA and the National Park Service ensures that decisions regarding this undertaking have been made and will be carried out in conformance with the standards and guidelines in the PA stipulations. The National Park Service will continue to communicate with the California State Historic Preservation Officer through design and construction of the project as necessary.

### **American Indian Consultation**

Yosemite National Park is consulting with American Indian tribes having cultural association with the Badger Pass area, including the North Fork Mono Rancheria, the Picayune Rancheria of Chukchansi Indians (Yokuts), and the American Indian Council of Mariposa County, Inc. (Southern Sierra Miwuk Nation), on proposed actions under the Badger Pass Ski Lodge Rehabilitation Project.

Consultation with the North Fork Mono Rancheria included meetings held on May 19, 2009 and January 6, 2010. Consultation with the Picayune Rancheria of Chukchansi Indians (Yokuts) included a meeting held on September 28, 2009. Consultation with the American Indian Council of Mariposa County, Inc. (Southern Sierra Miwuk Nation) included meetings held on August 11, 2009 and November 3, 2009. A 95% draft of an ethnographic report developed for this rehabilitation project was provided to the American Indian tribes for review and comment on November 13, 2009. In addition, a copy of the administrative review draft of this environmental

assessment was provided to the American Indian tribes on November 19, 2009 for review and comment.

The American Indian tribes will also receive copies of this environmental assessment for review and comment. Consultation and partnering will continue with the American Indian tribes throughout the planning and implementation of the Badger Pass Ski Lodge Rehabilitation Project.

## Future Information

Updated information about various aspects of the Badger Pass Ski Lodge Rehabilitation Project will be periodically distributed via newsletters, mailings, the Yosemite National Park website (<http://www.nps.gov/yose/parkmgmt/badgerlodge.htm>), and regional and local news media.

There will be a 30-day public comment period on this environmental assessment.

Readers are encouraged to submit comments electronically through the NPS Planning, Environment and Public Comment (PEPC) system. A link to PEPC can be found on the project website, above, or directly at <http://www.parkplanning.gov/yose> (click on the 'Open for Comment' link and select 'Badger Pass Ski Lodge Rehabilitation Environmental Assessment').

Written comments regarding this document should be directed to:

Superintendent, Yosemite National Park  
ATTN: Badger Pass Ski Lodge Rehabilitation Project  
P.O. Box 577  
Yosemite, California 95389  
Fax: 209-379-1294

To request a printed copy or CD of this environmental assessment (available in limited quantity), please email: [Yose\\_Planning@nps.gov](mailto:Yose_Planning@nps.gov).

## **List of Agencies, Organizations, and Businesses that Received the Badger Pass Ski Lodge Rehabilitation Environmental Assessment**

American Indian Council of Mariposa  
Blue Heron Sports  
California State Historic Preservation Office  
Central Sierra Environmental Resource  
Central Valley Regional Water Quality Board  
Delaware North Companies Parks and Resorts at Yosemite  
El Portal Public Library  
Mariposa County Board of Supervisors  
Mariposa County Public Library  
Mariposa County Visitors Bureau  
Mariposa Gazette  
North Fork Mono Rancheria  
National Park Service – Pacific West Region  
National Park Service – Yosemite National Park Archives  
National Park Service – Yosemite National Park Research Library  
Oakhurst Public Library  
Picayune Rancheria of Chukchansi Indians  
Sierra Club Tehipite Chapter, Yosemite Committee  
Sierra Club San Diego Chapter  
U.S. Army Corps of Engineers  
U.S. Fish and Wildlife Service  
Yosemite Winter Club

# Chapter 5: List of Preparers

The following persons were primarily responsible for preparing and reviewing this environmental assessment.

Name	Responsibility	Education	Years Experience
<b>NATIONAL PARK SERVICE, YOSEMITE NATIONAL PARK</b>			
David Uberuaga	Acting Superintendent	M. A. Business Administration B.A. Biology	25 NPS
Mark Butler	Chief, Division of Project Management	M.P.A Public Administration B.S. Soils and Water Science	28 NPS 2 other
Jim Vandenberg	Capital Improvement Fund Project Manager, Project Management Division	M.A. Architecture B.E.D. Environmental Design	16 Public 8 Private
Elexis Mayer	Branch Chief, Environmental Planning and Compliance; Project Management Division	B.S. Natural Resources Planning	6 public 2 other
<b>YOSEMITE NATIONAL PARK TECHNICAL EXPERTS AND CONTRIBUTORS</b>			
Tony Brochini	Division Liaison, Facilities Management Division	2 yrs. Undergraduate studies	33 NPS
Sueann Brown	Historical Architect, History, Architecture and Landscapes; Resources Management and Science Division	M.S. Historic Preservation B.A. Architecture	24 NPS
Larry Carter	Capital Improvement Fund Project Coordinator, Business and Revenue Management Division	B.A. Administration	1 NPS 25 other
Mark Dowdle	Wawona District Ranger, Division of Visitor Protection	B.S. Business Management	12 NPS 8 other
Randy Fong	Branch Chief, Design; Project Management Division	M.A. Architecture B.A. Architecture	32 NPS 1 other
Jana Friesen-McCabe	Visual Information Specialist, Office of Public Outreach and Engagement, Division of Interpretation	M.A. Luso-Brazilian Literature B.A. Latin American Studies	10 NPS
Dave Humphrey	Branch Chief, History, Architecture, and Landscapes; Resources Management and Science Division	B.S. Landscape Architecture	23 NPS, 14 other
Carol Knipper	Division Liaison, Resources Management and Science Division	B.S. Natural Resource Management	23 NPS
Jim Roche	Senior Hydrologist, Resources Management and Science Division	M.S. Geology B.S. Chemistry	8 NPS 3 other
Bill Rust	Civil Engineer, Business and Revenue Management Division	M.S. Civil Engineering B.S. Civil Engineering	27 NPS 10 Private
Daniel Schiable	Historic Landscape Architect, History Architecture and Landscapes, Resources Management and Science Division	B.A. Landscape Architecture	5 NPS
Jeannette Simons	Park Historic Preservation Officer and American Indian Liaison, Environmental Planning and Compliance Branch	M.A. Anthropology B.A. Anthropology	14 Public 14 Private
Kim Tucker	Concessions Management Specialist	2 yrs. Undergraduate studies	35 NPS

**List of Preparers (continued)**

<b>Name</b>	<b>Responsibility</b>	<b>Education</b>	<b>Years Experience</b>
<b>DELAWARE NORTH COMPANIES PARKS AND RESORTS AT YOSEMITE</b>			
Daniel R. Jensen	Chief Operating Officer	Masters of Business Administration	41 Private
Colin Baldock	General Manager of Guest Recreation	Elementary Teaching Diploma	31 Private
Deb Evans	Badger Pass Area Operator		25 Private
Brian Fulce	Capital Improvement Fund Project Manager	B.S. Civil Engineering	15 Private
Vicki McMichael	Manager of Compliance and Client Relations	B.A. Recreation Administration	15 Private
Devon Rothell	Environmental Compliance Manager	B.A. Cultural Anthropology	7 Private
Steve Ullman	Director of Facility Services		39 Private
<b>URS CORPORATION</b>			
Kinzie Gordon	Former Capital Improvement Fund Project Compliance Manager, Environmental Planning and Compliance	B.A. Anthropology	36 Private 1.5 ( as NPS contractor)
<b>NEWFIELDS ENVIRONMENTAL PLANNING AND COMPLIANCE</b>			
Gary Hayward	Project Director; Soils and Hydrology	M.S. Marine Science B.A. Geology	28 Private
Ali Baird	Project Manager	M.A. Geography B.S. Conservation Biology	6 Public 9 Private
Adam Hamburg	Vegetation and Wildlife Resources	B.S. Environmental Sciences	5 Private
Schuyler Greenleaf	Compliance Specialist, Natural Resources	M.S. Wildlife Biology B.S. Biology	5 Public 8 Private
Clare Sandy	Compliance Specialist, Cultural Resources	B.A. Comparative Literature Archaeological Field School	5 Public 4 Private
Wendy Vittands	Senior Compliance Specialist; Visitor Experience, Visitor Services, Park Operations	B.S. Environmental Science	10 Public 1 Private
<b>HRA AND ASSOCIATES</b>			
Brent Hicks	Historic Properties	M.A., Anthropology B.A. Recreation & Parks Administration B.A. Anthropology	4 Public 20 Private
Erica Kachmarksky	Historic Properties	M.A. Preservation Studies B.A. Anthropology/Archeology	10 Private
<b>PAGE &amp; TURNBULL, INC.</b>			
Tom Dufurrena	Principal-in-Charge	AIA, LEED AP Bachelor of Architecture	25 Private
Melisa Gaudreau	Project Manager/Senior Associate	Master of Architecture B.S. Architectural Engineering	18 Private
Jeremy Kahm	Architectural Designer	Master of Architecture Bachelor of Architecture	5 Private
Erin McCloskey	Architectural Designer	M.S. Historic Preservation B.S. Environmental Design Bachelor of Architecture	5 Private
<b>OTHER PRIVATE CONSULTANTS</b>			
Robert Wurgler	Document Quality Control, Publishing Consultant	B.A. Information and Communication Studies	18 Private

# Chapter 6: Glossary and Acronyms

## Glossary of Terms

**Affected environment:** Existing natural, cultural, and social conditions of an area that are subject to change, both directly and indirectly, as a result of a proposed human action.

**Alpine (skiing):** Downhill skiing.

**Alternatives:** Sets of management elements that represent a range of options for how, or whether to proceed with a proposed project. An environmental assessment analyzes the potential environmental and social impacts of the range of alternatives presented, as required under the National Environmental Policy Act (NEPA).

**Archeological resources:** Historic and prehistoric deposits, sites, features, structure ruins, and anything of a cultural nature found within, or removed from, an archeological site.

**Area of potential effect:** The geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historic properties, if such properties exist. The area of potential effect is influenced by the scale and nature of the undertaking and may be different for different kinds of effects caused by the undertaking.

**Best management practices:** Effective, feasible (including technological, economic, and institutional considerations) conservation practices and land- and water-management measures that avoid or minimize adverse impacts to natural and cultural resources. Best management practices may include schedules for activities, prohibitions, maintenance guidelines, and other management practices.

**CEQ Regulations:** The Council on Environmental Quality (CEQ) was established by the National Environmental Policy Act (NEPA) and given the responsibility for developing federal environmental policy and overseeing the implementation of NEPA by federal agencies.

**Clerestory:** An upper portion of a wall containing windows for supplying natural light to a building.

**Cultural landscape:** “A geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values.” There are four general types of cultural landscapes, not mutually exclusive: *historic sites*, *historic designed landscapes*, *historic vernacular landscapes*, and *ethnographic landscapes*. (Preservation Brief 36)

**Cultural Landscapes Inventory:** The Cultural Landscapes Inventory (CLI) is a database containing information on the historically significant landscapes within the National Park System. This evaluated inventory identifies and documents each landscape’s location, size, physical development, condition, landscape characteristics, character-defining features, as well as other valuable information useful to park management.

**Cultural Landscape Report:** A Cultural Landscape Report (CLR) is the primary report that documents the history, significance and treatment of a cultural landscape. A Cultural Landscape

Report evaluates the history and integrity of the landscape including any changes to its geographical context, features, materials, and use. Cultural Landscape Reports are often prepared with a change to a landscape is proposed. In such instances, a Cultural Landscape Report can be a useful tool to protect the landscape's character-defining features from undue wear, alteration or loss, and can provide managers, curators, and others with information needed to make management decisions. (Preservation Brief 36)

**Decibel:** A unit of measure of sound intensity.

**Ecosystem:** An ecosystem can be defined as a geographically identifiable area that encompasses unique physical and biological characteristics. It is the sum of the plant community, animal community, and environment in a particular region or habitat.

**Palustrine emergent wetland:** A wetland characterized by frequent or continual inundation dominated by herbaceous species of plants typically rooted underwater and emerging into air (e.g., cattails, rushes), excluding mosses and lichens. This vegetation is present for most of the growing season in most years. Perennial plants usually dominate these wetlands. All water regimes are included, except sub-tidal and irregularly exposed.

**Palustrine scrub-shrub wetland:** A wetland area dominated by woody vegetation less than 6 meters (20 feet) tall. The species include true shrubs, young trees, and trees or shrubs that are small or stunted because of environmental conditions. All water regimes except subtidal are included.

**Environmental assessment:** A public document required under the National Environmental Policy Act (NEPA) that identifies and analyzes activities that might affect the human and natural environment. An environmental assessment is a concise public document which provides sufficient evidence and analysis for determining whether to prepare an Environmental Impact Statement (EIS), aids an agency's compliance with NEPA when no EIS is necessary, and it facilitates preparation of an EIS when one is necessary.

**Environmental consequences:** This section of an environmental assessment describes the impacts a proposed action will have on resources. Direct, indirect, and cumulative impacts, both beneficial and adverse, are analyzed. The context, duration, and intensity of impacts are defined and quantified as much as possible.

**Environmentally preferable alternative:** The environmentally preferable alternative is the alternative within the range of alternatives presented in an environmental assessment that best promotes the goals of the National Environmental Policy Act (NEPA). In general, this is the alternative causes the least damage to the environment and best protects natural and cultural resources. In practice, one alternative may be more preferable for some environmental resources while another alternative may be preferable for other resources.

**Facilities:** Buildings and the associated supporting infrastructure such as roads, trails, and utilities.

**Finding of No Significant Impact (FONSI):** The public document describing the decision made on selecting the "preferred alternative" in an environmental assessment. See "environmental assessment."

**Floodplain:** A nearly level alluvial plain that borders a river or stream and is subject to flooding unless protected artificially.

**Historic building:** For the purposes of the National Register of Historic Places, a building can be a house, barn, church, hotel, or similar construction, created principally to shelter human activity. “Building” may also refer to a historically and functionally related unit, such as a courthouse and jail or a house and barn.

**Historic district:** A historic district is an area which possesses a significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development. To be eligible for the National Register of Historic Places, a district must be significant, as well as being an identifiable entity. It must be important for historical, architectural, archeological, engineering, or cultural values.

**Historic property:** A historic property is any prehistoric or historic building, site, district, structure, or object that is included in, or eligible for inclusion in, the National Register of Historic Places. Types of historic properties can include archeological sites, historic cultural landscapes, and traditional cultural properties (listed as sites, buildings, or districts).

**Historic site:** A historic site is the location of significant event which can be prehistoric or historic in nature. It can represent activities or buildings (standing, ruined, or vanished). It is the location itself which is of historical interest in a historic site, and it possesses cultural or archeological value regardless of the value of any structures that currently exist on the location. Examples of sites include shipwrecks, battlefields, campsites, natural features, and rock shelters.

**Historic structure:** For the purposes of the National Register of Historic Places, the term “structure” is used to distinguish from buildings those functional constructions made usually for purposes other than creating human shelter. Examples of structures include bridges, gazebos, and highways.

**Historic Structure Report:** “A Historic Structure Report (HSR) is prepared whenever there is to be a major intervention into historic structures or where activities are programmed that affect the qualities and characteristics that make the properties eligible for the National Register of Historic Places. The report consists of the collection, presentation, and evaluation of anthropological/archeological, historical, and architectural/engineering research findings on a historic or prehistoric structure, and their setting, and makes recommendations for treatment consistent with their significance, integrity, condition, and programmed use. It analyzes and records all periods of construction (not just “significant” periods), modifications, source materials, building techniques, other evidence of use, and setting. (DO-28)”

**Implementation plan:** Implementation plans, which tier off of programmatic plans (like the *General Management Plan*) and focus on how to implement an activity or project needed to achieve a long-term goal. Implementation plans may direct specific projects as well as ongoing management activities or programs. They provide a more extensive level of detail and analysis than do general management plans. Implementation plans are required to undergo NEPA review.

**Mitigation:** Activity that will avoid, reduce the severity of, or eliminate an adverse environmental impact.

**National Environmental Policy Act (NEPA):** The federal act that requires the development of an Environmental Impact Statement for federal actions that might have substantial environmental, social, or other impacts.

**National Park Service Management Policies:** A policy is a guiding principle or procedure that sets the framework and provides direction for management decisions. NPS policies are guided by and consistent with the Constitution, public laws, Executive proclamations and orders, and regulations and directives from higher authorities. Policies translate these sources of guidance into cohesive directions. Policy direction may be general or specific. It may prescribe the process by which decisions are made, how an action is to be accomplished, or the results are to be achieved. The primary source of NPS policy is the publication *Management Policies 2006*. The policies contained therein are applicable Service-wide. They reflect National Park Service management philosophy. Director's Orders supplement and may amend *Management Policies*. Unwritten or informal “policy” and people’s various understandings of National Park Service traditional practices are never relied on as official policy.

**Natural processes:** All processes such as hydrologic, geologic and ecosystemic, that are not the result of human manipulation.

**No Action Alternative:** The alternative in a plan that proposes to continue current management direction. “No action” means the proposed activity would not take place, and the environmental effects resulting from taking no action would be compared with the effects of permitting the proposed activity or an alternative activity to go forward.

**Nonattainment Area:** A geographical area identified by the U.S. Environmental Protection Agency and/or the California Air Resources Board as not meeting national and/or California ambient air quality standards (NAAQS / CAAQS) for a given pollutant.

**Non-native species:** Species of plants or wildlife that are not native to a particular area and often interfere with natural biological systems.

**Nordic (skiing):** Cross-country skiing.

**Organic Act:** In 1916, the National Park Service Organic Act established the National Park Service in order to “promote and regulate use of parks . . .” and defined the purpose of the national parks as “to conserve the scenery and natural and historic objects and wild life therein and to provide for the enjoyment of the same in a manner and by such means as will leave them unimpaired for the enjoyment of future generations.” This law provides overall guidance for the management of Yosemite National Park.

**Planning:** An interdisciplinary process for developing short-term and long-term goals for visitor experience, resource conditions, and facility placement.

**Preferred alternative:** The preferred alternative is the alternative within the range of alternatives presented in an environmental assessment that the agency believes would best fulfill the purpose and need of the proposed action. While the preferred alternative is a different concept from the environmentally preferable alternative, they may also be one and the same for some environmental assessments.

**Programmatic plan:** Programmatic plans establish broad management direction for Yosemite National Park. The 1980 *General Management Plan* is a programmatic plan with a purpose to set a “clearly defined direction for resource preservation and visitor use” and provide general directions and policies to guide planning and management in the park. Programmatic plans are required to undergo NEPA review.

**Public comment process:** The public comment process is a formalized process required by the National Environmental Policy Act (NEPA) in which the National Park Service must publish a Notice Of Availability in the *Federal Register* which provides public notice that a draft environmental assessment and associated information, including scoping comments and supporting documentation, is available for public review and input pursuant to the Freedom Of Information Act.

**Rehabilitation:** The act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features which convey its historical or cultural values.

**Riparian area:** The land area and associated vegetation bordering a stream or river.

**Riverine:** Of or relating to a river. A riverine system includes all wetlands and deepwater habitats contained within a channel, with two exceptions: (1) wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens, and (2) habitats with water containing ocean-derived salts in excess of 0.5%. A channel is an open conduit either naturally or artificially created which periodically or continuously contains moving water, or which forms a connecting link between two bodies of standing water.

**Special status species:** Species of plants or wildlife that receive special protection under state and/or federal laws (also referred to as “listed species” or “endangered species”), and state, local, and park sensitive species that may not be protected by law.

**Traditional cultural resource:** 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.

**Traditional cultural property:** Traditional cultural resource that is eligible for or listed on the National Register of Historic Places as a historic property

**Treatment:** Work carried out to achieve a historic preservation goal. The four primary treatments are *preservation*, *rehabilitation*, *restoration*, and *reconstruction* (as stated in the Secretary of the Interior’s *Standards for the Treatment of Historic Properties*).

**Visitor experience:** The perceptions, feelings, and reactions a park visitor has in relationship with the surrounding environment.

**Visitor use:** Refers to the types of recreation activities visitors participate in, numbers of people in an area, their behavior, the timing of use, and distribution of use within a given area.

**Wetland:** Wetlands are defined by the U.S. Army Corps of Engineers (CFR, Section 328.3[b], 1986) as those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands are defined by the USFWS as transitional lands between terrestrial and aquatic systems, where the water table is usually at or near the surface or the land is covered by shallow water.

## Acronyms

<b>ACHP</b>	Advisory Council on Historic Preservation
<b>ADA</b>	The Americans with Disabilities Act
<b>AIRFA</b>	American Indian Religious Freedom Act
<b>ARPA</b>	Archaeological Resources Protection Act
<b>CARB</b>	California Environmental Protection Agency, Air Resources Board
<b>CCC</b>	Civilian Conservation Corps
<b>CDFG</b>	California Department of Fish and Game
<b>CDN</b>	Communications Data Network
<b>CEQ</b>	Council on Environmental Quality
<b>CFR</b>	Code of Federal Regulations
<b>CIF</b>	Capital Improvement Fund
<b>CIP</b>	Comprehensive Interpretive Planning
<b>DCS</b>	Distributed control subsystem
<b>dB</b>	Decibel
<b>dBA</b>	Decibel (on the “A-weighted” scale)
<b>DNC</b>	Delaware North Companies Parks and Resorts at Yosemite, Inc.
<b>DO</b>	Director’s Order
<b>EA</b>	Environmental assessment
<b>EIS</b>	Environmental impact statement
<b>EPA</b>	U.S. Environmental Protection Agency
<b>FEIS</b>	Final environmental impact statement
<b>FONSI</b>	Finding of No Significant Impact
<b>GIS</b>	Geographic information system(s)
<b>LAN</b>	Local area network
<b>LEED</b>	Leadership in Energy and Environmental Design
<b>LRIP</b>	Long-Range Interpretive Plan
<b>NAGPRA</b>	Native American Graves Protection and Repatriation Act
<b>NEPA</b>	National Environmental Policy Act
<b>NHPA</b>	National Historic Preservation Act
<b>NPS</b>	National Park Service
<b>NRCS</b>	National Resources Conservation Service
<b>NRHP</b>	National Register of Historic Places
<b>NPS</b>	National Park Service
<b>NWI</b>	National Wetlands Inventory
<b>PCB</b>	Polychlorinated biphenyl
<b>PEPC</b>	Planning, Environment, and Public Comment
<b>PG&amp;E</b>	Pacific Gas and Electric
<b>PM</b>	Particulate matter
<b>RWQCB</b>	Regional Water Quality Control Board
<b>SEIS</b>	Supplemental Environmental Impact Statement
<b>SHPO</b>	State Historic Preservation Officer
<b>SNEP</b>	Sierra Nevada Ecosystem Project
<b>UFAS</b>	Uniform Federal Accessibility Standards
<b>USACE</b>	U.S. Army Corps of Engineers
<b>USFWS</b>	United States Fish and Wildlife Service
<b>VOC</b>	Volatile organic compound
<b>YTS</b>	Yosemite Transit System
<b>YCC</b>	Youth Conservation Corps

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# Appendix A: Cumulative Projects List

This appendix presents a summarized list and subsequent detailed descriptions of past, present, and reasonably foreseeable projects that have been evaluated in conjunction with the impacts of an alternative to determine if they have any additive effects on a particular resource. These projects were included in the cumulative effects analysis presented in Chapter 3 of this document.

## Summary

### **Reasonably Foreseeable Actions**

- Badger Pass Mitigate Soil Contamination
- Replace Badger Pass Ski Lodge Roof
- High-Elevation Aquatic Ecosystem Recovery and Stewardship Plan
- Parkwide Communications Data Network
- Scenic Vista Management Plan
- Yosemite Environmental Education Center

### **Current Actions**

- Fire Management Plan
- Glacier Point Road Rehabilitation
- Parkwide Invasive Plant Management Plan
- Rehabilitate Wawona Road
- New Merced Wild and Scenic River Comprehensive Management Plan

### **Past Actions**

- Badger Pass Interpretive Display
- Upgrade Kitchen Hood Fire Suppression System
- Replace Badger Ski Lift
- Bruin and Eagle Ski Lift DCS Drive Replacement
- Eagle Ski Lift Replacement
- Emergency Phone Line Relocation and Repair
- Life/Safety Shoring of Main Lodge Decking
- Badger Pass Ski Lodge, Remodel Ground Floor Food Service
- Badger Pass Ski Lodge Lower Deck Repair
- Badger Pass Rental Shop Demolition and Site Restoration
- Badger Pass Ski Area Terrain Park Relocation
- Badger Pass Ski Lodge Emergency Stabilization Measures
- Snowflake Room Food Service Reactivation

- Temporary Modular Rental Shop Installation
- Badger Pass Ski Lodge Upper Deck Repair
- Bridalveil Creek Campground Road Resurfacing
- Chinquapin Restore Rest Stop Structures
- Comprehensive Interpretive Plan
- Glacier Point Geology Hut Exhibit Replacement
- Tunnel View Overlook Rehabilitation

## Reasonably Foreseeable Actions

Agency Name: Delaware North Companies Parks and Resorts at Yosemite, Inc.

Project Name: **Badger Pass Mitigate Soil Contamination**

Description: In October 2005, during the excavation of two footings associated with the walkway between the Ski Lodge and the Ski Rental Shop, discolored soil and a petroleum sheen were visible on the soil and groundwater within the footings excavation. DNC notified the National Park Service, Mariposa County, and the Regional Water Quality Control Board (RWQCB), and completed three soil borings to collect soil samples identifying the extent of soil and/or groundwater contamination at the Badger Pass Ski Area. A leak report was submitted on December 14, 2005, following confirmation of soil impacts. Results of the water and soil samples were communicated to the RWQCB. Mitigation measures will be developed and implemented after a Finding of No Significant Impact for the Badger Pass Ski Lodge Rehabilitation Project is approved. This course of action has been approved by the RWQCB. At that time, a remedial action plan will be submitted by the concessioner's contractor. Most of the contamination is under the ski lodge structure and there may be an opportunity to excavate the soil during ski lodge construction activities. The RWQCB will continue to receive updates on all progress made on these remediation efforts.

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Agency Name: Delaware North Companies Parks and Resorts at Yosemite, Inc.

Project Name: **Replace Badger Pass Ski Lodge Roof**

Description: This project will replace the roof in-kind at the Badger Pass Ski Lodge in order to eliminate water infiltration and ponding until a permanent roof, that is consistent with the design for the comprehensive rehabilitation for the lodge, can be implemented. The proposed new roof will be a replacement in-kind roof system consisting of both composite shingles on pitched roofs and bituthene rolled roofing on flat roofs. The new roof will have a 30 year life expectancy. Rain gutters will be repaired or replaced in-kind as part of this project and the internal gutter system will be removed once the roof is replaced. Select replacement of wood work will be performed where wood sheathing or supports are discovered to be in rotted or poor condition. The work will not affect the exterior elevation of the ski lodge.

The Badger Pass Ski Lodge is currently managed as a contributing feature to the Badger Pass historic site within the Glacier Point Road Historic District. The National Park Service currently

has plans for a comprehensive rehabilitation of the historic ski lodge which calls for a new roof on the structure that will replicate the look of the historic half-log roof system. Until full funding of the rehabilitation plan is issued, the existing roof continues to leak and deteriorate. There is an immediate need to replace the roof system to stop water infiltration and degradation to the lodge itself. This project proposes to replace the existing roof in-kind with a 30-year warranty roof to protect the building until the full rehabilitation can be implemented.

Construction on this project is expected to occur in summer 2010.

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Agency Name: National Park Service

Project Name: **High-Elevation Aquatic Ecosystem Recovery and Stewardship Plan**

Description: Yosemite National Park is preparing a High Elevation Aquatic Ecosystem Recovery and Stewardship Plan and environmental assessment to guide management actions by the National Park Service to protect Yosemite's diverse high-elevation aquatic ecosystems and to restore natural composition, structure and function to systems that have been disturbed by past or ongoing human activities.

It will consider the development of Best Management Practices for recreational and administrative activities in lakes, ponds, wet meadows, and streams located above 6,000 feet in elevation to ensure that park resources and values remain unimpaired. These would include preventative measures to avoid the introduction or spread of non-native species or pathogens that may threaten native species or habitats, and evaluation of human use within these environments to ensure that use does not result in the loss of ecological function.

A draft environmental assessment is expected to be available for public review in winter 2010.

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Agency Name: National Park Service

Project Name: **Parkwide Communications Data Network**

Description: Yosemite National Park plans to begin a Communications Data Network (CDN) infrastructure upgrade utilizing available, commercial off-the-shelf technology supporting a single "hybrid communication backbone" employed throughout the park -- to maximize existing equipment use, minimize current and planned costs, to fulfill the park's future operational and security needs. This "backbone" will be a microwave and fiber optic pipeline used to transfer computer LAN data, radio communications, security and safety video systems, telephony, burglar/intrusion, fire alarm systems, traffic collection data, and telemetry throughout Yosemite. Upgrading the network also serves to enhance compliance and utilization of the narrowband and digital P25 compliant radio infrastructure as well as providing enhanced LAN connectivity for remote areas such as Wawona, Crane Flat, Hodgdon Meadows, and Tuolumne Meadows.

The CDN is designed to serve six geographic areas of the park as well as the five park entrance stations. The geographic areas include El Portal, Yosemite Valley, Wawona, Crane Flat Hodgdon, Tuolumne Meadows, and Hetch Hetchy. The final installation will be a hybrid infrastructure, based around proven microwave technology that linking the geographic areas with multiple T-3 level

bandwidth managed as necessary by park staff. There will be no need to rely on an independent service provider for maintenance of the system, as the backbone will be maintained by park staff.

During the first phase of project design, a needs assessment, schematic design and installation strategy, and frequency study will be commissioned to identify what system components are needed for enhanced connectivity to the different geographic regions throughout the park. Possible backbone technologies include fiber optics, VHF radio, UHF radio, microwave radio, cellular, and satellite.

Fiber optic is envisioned as the solution to connect government facilities in the Wawona Maintenance area and also Big Oak Flat Entrance Station to the Hodgdon Maintenance area. Fiber optic will also be utilized to enhance infrastructure in Yosemite Valley resulting in all NPS administration facilities being located on one fiber network. Wireless bridges and pair gain technology will also be utilized to connect remote facilities as required.

A Finding of No Significant Impact was signed for the Parkwide Communications Data Network and Environmental Assessment in April 2010.

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Agency Name: National Park Service

Project Name: Scenic Vista Management Plan

Description: The Scenic Vista Management Plan will create a program that will replace the park's current ad hoc approach to scenic vista management with a comprehensive strategy, prioritize viewpoints for management, identify which methods of vegetation clearing area appropriate at what times and in which places, and describe what trees and brush may need to be removed to restore the view at high priority vistas. Proposed vista management methods could include fire, mechanical thinning, and trimming.

Public scoping for this plan ended in March 2009, and preparation of a draft environmental assessment is currently underway.

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Agency Name: Yosemite Institute

Project Name: Yosemite Environmental Education Center

Description: The Yosemite Institute operates an environmental education campus at Crane Flat under a cooperative agreement with the park. The campus at Crane Flat has served as an educational facility since 1971, and the facilities are comprised of older buildings and structures that have been assembled over time and were not originally designed for educational purposes. To address this issue, the park and Yosemite Institute began planning for a new campus in 2002, including the preparation of a draft environmental impact statement (EIS).

The project team collected information on the new alternative site for the draft EIS, and released the draft EIS for public review in May 2009. One site being considered as an alternative, Henness Ridge, is located on Wawona Road close to its intersection with Glacier Point Road. If this alternative (the preferred alternative) is chosen, actions would include the following:

The water supply system at Chinquapin (which does not serve Badger Pass Ski Area) would be modified to provide water treatment at the Chinquapin garage for well water which would be piped to a storage tank at the campus site. Approximately 1,200 feet of 2.5-inch pipe and 2,900 feet of 8-inch main would be built along Wawona Road to distribute water from the water treatment facility to the Henness Ridge campus.

An underground electrical line, maintained by Pacific Gas and Electric, begins at El Portal, runs diagonally through the Henness Ridge site, feeds Yosemite West and Chinquapin, and stops at Badger Pass Ski Area. Both underground electric and telephone lines currently run along a corridor west of Wawona Road between Chinquapin and Henness Ridge. These lines would be replaced and relocated to follow the same alignment as the new water main, within the Wawona Road prism. Electrical power for the campus would connect to the current utility feed to Yosemite West along the existing utility corridor on the west side of Wawona Road.

The Final EIS for this project was released in January 2010. A Record of Decision for the Yosemite Environmental Education Center is expected in spring 2010.

## Current Actions

Agency Name: National Park Service

Project Name: Fire Management Plan

Description: The *Final Yosemite Fire Management Plan/Environmental Impact Statement* was completed in 2004 and guides current park fire policy. The plan updated an existing 12-year-old fire management plan, and was called for by the National Fire Policy. The plan proposed alternatives for managing wildland and prescribed fire. The chosen alternative calls for the use of prescribed fire and passive reduction techniques in all areas to achieve protection, fuel reduction, and ecosystem restoration goals. More aggressive treatment strategies are to be used in developed areas if needed. Managed wildland fire (lightning-ignited fires) are to be allowed to burn where practicable, under specific conditions. The park is divided into two units, Fire Use and Suppression, which determine appropriate fire management treatments. Additionally, there are buffer zones around areas of Wildland/Urban Interface, which have specific fuel reduction techniques available depending on the distance from the Wildland/Urban Interface and whether it falls within congressionally designated wilderness.

Badger Pass Ski Area is part of the Suppression unit, and it is surrounded by the Fire Use unit. Badger Pass Ski Area is not considered to have a Wildland Urban Interface. Treatments available at Badger Pass Ski Area include prescribed fire, and passive fuel reduction techniques (only along road corridor or utility lines).

Agency Name: National Park Service

Project Name: Glacier Point Road Rehabilitation

Description: The purpose of this project is to make improvements to 5.1 miles of Glacier Point Road from the Chinquapin intersection on Wawona Road to the Badger Pass Ski Area. The Badger Pass Ski Area is accessed via a spur road off of the Glacier Point Road. As part of the Glacier Point

Road Rehabilitation Project, replacement of drains and culverts is planned to reduce standing water and ice build-up on the Badger Pass Ski Area parking lots, and to redirect runoff and shallow groundwater around the parking lots and the ski lodge. To protect nearby wetlands from parking lot runoff, filters will be installed in the drains. Environmental impacts related to these actions were evaluated in the *Glacier Point Road Rehabilitation Environmental Assessment* (2008).

Planning for this project was completed in 2007, and construction was initiated in June 2009.

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Agency Name: National Park Service

Project Name: **Parkwide Invasive Plant Management Plan**

Description: The Parkwide Invasive Plant Management Plan guides control of invasive plants in Yosemite National Park. Invasive, non-native plants are introduced from other parts of the world. The spread of invasive plants, also known as weedy or noxious plants, is a primary cause of degradation to ecological systems. The plan provides a comprehensive, prioritized program of prevention, early detection, control, systematic monitoring, and research. Control methods may include hand-pulling, use of mechanical weed removal tools, release of predatory insects or fungi, and judicious use of chemical treatments.

A Finding of No Significant Impact for the plan was signed for the Parkwide Invasive Plant Management Plan and Environmental Assessment in September 2008. The plan is currently being implemented.

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Agency Name: National Park Service

Project Name: **Rehabilitate Wawona Road**

Description: This project will pulverize and repave approximately 25 miles of the Wawona Road between Southside Drive and South Entrance, and will include the following elements:

- The existing 24-foot wide paved road will be recycled (pulverized) and overlaid with spot reconstruction of subgrade and shoulders as required.
- Only minimal drainage work involving failed or severely undersized culverts will be included. For any culverts that are relatively deep, slip-lining will be considered.
- Only minimal work within the existing paved footprint will occur at pullouts and intersections.
- Pavement borings are required to design the structural section for the roadway, and began in spring of 2009 (fifty borings, approximately every 1/2 mile over the 25-mile segment).
- Areas disturbed by construction will be revegetated under guidance of the park revegetation staff.

The plan is currently being implemented.

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Agency Name: National Park Service

Project Name: **New Merced Wild and Scenic River Comprehensive Management Plan**

Description: In 1987, the U.S. Congress designated 122 miles of the Merced River—from the headwaters in the Yosemite Wilderness to the impoundment at Lake McClure—as a Wild and Scenic River. According to the Wild and Scenic Rivers Act, a river is eligible for designation if it possesses what the act calls *outstandingly remarkable values*. These are the rare, unique, or exemplary qualities that set it apart from all other rivers in the nation. The goal of designating a river as Wild and Scenic is to preserve its free-flowing condition and protect and enhance its distinct values for the benefit and enjoyment of present and future generations. The National Park Service manages 81 miles of the Merced River, encompassing both the main stem and the South Fork in Yosemite National Park and the El Portal Administrative Site. This designation gives the Merced River special protection under the Wild and Scenic Rivers Act and requires the managing agencies to prepare a comprehensive management plan for the river and its immediate environment.

Pursuant to the Wild and Scenic Rivers Act requirements, the National Park Service prepared and issued the *Merced Wild and Scenic River Comprehensive Management Plan and FEIS* in June 2000. After the Record of Decision was signed in August 2000, the *Merced Wild and Scenic River Comprehensive Management Plan and FEIS* entered a lengthy litigation process. The validity of the plan was challenged based on contentions that the National Park Service failed to prepare a plan that protected and enhanced the Outstandingly Remarkable Values of the Merced River, thereby violating the Wild and Scenic Rivers Act.

A *Revised Merced River Plan SEIS* was completed in June of 2005 and a Record of Decision was signed in July of 2005. Subsequent court proceedings culminated in a 2006 U.S. District Court decision that invalidated the park's Merced Wild and Scenic River Comprehensive Management Plan and ordered the National Park Service to prepare a new comprehensive management plan. The National Park Service appealed the U.S. District Court's decision that the 2005 *Revised Merced River Plan SEIS* was invalid. However, on March 27, 2008 the U.S. Court of Appeals for the Ninth Circuit issued an opinion affirming the judgment of the District Court and expanding the scope of what the National Park Service had previously understood must be included in a legally valid Merced Wild and Scenic River Comprehensive Management Plan.

The National Park Service is currently preparing a new comprehensive river management plan and environmental impact statement for the Merced Wild and Scenic River within Yosemite National Park. Public scoping was reopened for the new plan in July and August 2009 and extended through to February 2010.

## Past Actions

Agency Name: Delaware North Companies Parks and Resorts at Yosemite, Inc.

Project Name: **Badger Pass Interpretive Display**

Description: The purpose of this project is to attach interpretive placards inside the Badger Pass Ski Lodge. Approximately 10 placards were hung in pre-determined locations leading to and inside the Snow Flake room (located upstairs). Mounting brackets were installed using the manufacturers recommendations which include inserting 4 wood screws, 3 – 4 inches apart at a depth not to exceed 1 ¾ inch. The placards were attached to the brackets. The placards provide interpretive information about the history of Badger Pass Ski Area and winter sports in Yosemite National Park.

The project was completed in winter 2009/2010.

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Agency Name: Delaware North Companies Parks and Resorts at Yosemite, Inc.

Project Name: **Upgrade Kitchen Hood Fire Suppression System**

Description: This project replaced the Ansul fire suppression system in various kitchen hood locations to meet UL300 code standards. All existing dry-chemical and wet-chemical extinguishing systems shall comply with UL 300, no later than the second required servicing of the system following the effective date of this section (California State Fire Marshal Information Bulletin, issued January 31, 2008). The kitchen hoods that were upgraded are located at Degnan's Fast Food, Tuolumne Grill, White Wolf, Badger Pass, Yosemite Lodge, and Curry Village Fast Foods. A total of six systems required replacement as part of this project. In addition, Fire Alarm Communication Panels (FACPs) were upgraded or installed, as required, to provide automatic reporting of any fire incident, in accordance with current National Electrical Code.

This project was completed in summer 2009.

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Agency Name: Delaware North Companies Parks and Resorts at Yosemite, Inc.

Project Name: **Replace Badger Ski Lift**

Description: The purpose of this project is to replace-in-kind the Badger ski lift in its current location/footprint on the Badger slope to insure safe operation during aerial lift transport of visitors and staff. Rehabilitation of the existing lift is not an option as the major components for this model and year of lift are now obsolete. A complete replacement of the existing ski lift (using the existing footings) with a newly designed aerial tramway is necessary to access to the Badger slope. The number of chairs, occupancy per chair and the capacity of the lift will remain the same as the existing lift. Currently there are 41 double chairs with a capacity of 1200 passengers per hour.

This project was completed in fall 2009.

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Agency Name: Delaware North Companies Parks and Resorts at Yosemite, Inc.

Project Name: **Bruin and Eagle Ski Lift DCS Drive Replacement**

Description: The purpose of this project was to replace the distributed control subsystem (DCS) drives on the Eagle and Bruin ski lifts located at the Badger Pass Ski Area. All work necessary to install the DCS drives was confined within the ski lift engine rooms. Excavation was not necessary. Access to the engine rooms for equipment installation occurred on existing ski area roads. There was no additional equipment accessing Monroe Meadow to Eagle or Bruin lifts.

Replacement of the Eagle lift DCS drive restored it to working condition – it was inoperable until the drive was replaced. The Bruin lift DCS drive was 25 years old and failure was imminent. Replacement of the drive will ensure full-time operation of the beginner's ski lift.

The old drives and controls were removed from the park by the installation contractor and disposed of in accordance with the appropriate local, state, and federal regulations.

This project was completed in November 2006.

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Agency Name: Delaware North Companies Parks and Resorts at Yosemite, Inc.

Project Name: **Eagle Ski Lift Replacement**

Description: The purpose of this project was to replace the major lift components on the Eagle Ski lift located at the Badger Pass Ski Area. The work scope to rehabilitate the Eagle lift was necessary to correct the problems and issues noted in the July 2008 Badger Pass Condition Assessment performed by Rick Jewett, PE, a professional third party engineer specializing in aerial tramways and ski lift design. This condition assessment was undertaken at the request of the CIF Account Committee for the express purpose of identifying possible hidden problems and issues associated with all the lifts at Badger Pass Ski Area. The condition assessment findings relating to the Eagle lift indicated deficiencies associated with major ski lift components that were not included in the original project scope. The original work scope for the Eagle lift included the replacement of grips, sheaves and carriers. The revised scope included the above work, plus replacement of the tension and brake system, tower alignment, bull wheel replacement, lifting frames on the towers, and collateral lift components affected by system replacements. Based on the results of the condition assessment (dry land visit), the towers and foundations and the pads at the bullwheel sites were sound and did not require replacement. They were re-used to support the retrofit of new equipment.

This project was completed in December 2008.

Agency Name: Delaware North Companies Parks and Resorts at Yosemite, Inc.

Project Name: **Badger Pass Emergency Phone Line Relocation and Repair**

Description: During the Badger Pass Rental Shop Demolition project, the contractor cut the main Badger Pass Ski Area phone line buried in the wetland meadow under the rental shop. The contractor was unable to repair the line before high groundwater infiltrated the lines making them irreparable.

This project repaired the phone line and relocated it out of the wetland. The relocation involved an above ground conduit running along the walkway on the Badger Pass Ski Lodge building from the existing phone pull-box to the adjacent asphalt parking area where it was placed underground. Burying the phone line involved trenching through disturbed soil (2 inches wide by 18 inches deep by 290 lineal feet) on the edge of the asphalt parking area to the phone pull-box located near the A-frame parking lot. This restored phone service to Badger Pass Ski Area and the functionality of the fire alarm system without disturbance to the meadow wetlands.

This project was completed in 2005.

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Agency Name: Delaware North Companies Parks and Resorts at Yosemite, Inc.

Project Name: **Badger Pass – Life/Safety Shoring of Main Lodge Decking**

Description: Based on the results of a structural integrity engineering evaluation, temporary shoring was installed at the lower level of the ski lodge (locker rooms B and C) to relieve excessive loads on deteriorated support structures under the decks located along the meadow (south) side of the building. This temporary shoring can be left in place for up to several winter seasons until permanent structural repairs can be completed.

Shoring consists of screw-operated metal shoring jacks set on steel channels, with wood beams set on top of the jacks that run continuous along the entire length of the sun decks outer edges, supporting the existing timber deck. Existing lockers were removed temporarily to install the shoring, and then placed back in front of the shoring. This will eliminate interference with the use of the lockers and better protect the shoring from damage or vandalism.

This project was completed in January 2007.

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Agency Name: Delaware North Companies Parks and Resorts at Yosemite, Inc.

Project Name: **Badger Pass Ski Lodge, Remodel Ground Floor Food Service**

Description: The purpose of this project was to remodel the main floor food service area in the Badger Pass Ski Lodge and return the self-service food section back to visitor seating, and reinstall cabinets and equipment to provide a full-service fast food operation.

Two temporary walls located in the self-serve food area and the cashier station were removed to increase the dining room capacity. All food, beverages, and cash registers were placed behind the

counter. Counter tops were placed to separate the food service area from the guest service area. Approximately 500 square feet of floor space was turned back into guest seating. Work performed restored the original food and beverage service offered at the Badger Pass Ski Lodge previous to the 2001 change.

This project was completed in the summer of 2008, and the new configuration served guests at Badger Pass Ski Area during the 2008/2009 winter season.

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Agency Name: Delaware North Companies Parks and Resorts at Yosemite, Inc.

Project Name: **Badger Pass Ski Lodge Lower Deck Repair**

Description: The purpose of this project was to repair up to 750 square feet of the Badger Pass Ski Lodge main deck, which is located on the ski slope (south) side of main building. The repair involved removing existing asphalt paving composite and replacing with structural plywood, then covering with a hot mix asphalt and waterproof membrane to allow safe access for skiers and visitors.

Work began in October 2001 and was completed before opening for the 2001/2002 season.

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Agency Name: Delaware North Companies Parks and Resorts at Yosemite, Inc.

Project Name: **Badger Pass Rental Shop Demolition and Site Restoration**

Description: The purpose of this project was to demolish the existing Badger Pass ski rental shop located in the southwest section of Monroe Meadow. The building was no longer structurally sound and had to be removed for safety considerations. In addition, because the ski rental shop was located in a meadow wetland, the building had to be relocated and the degraded meadow needed to be restored.

The project was completed in July 2006.

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Agency Name: Delaware North Companies Parks and Resorts at Yosemite, Inc.

Project Name: **Badger Pass Ski Area Terrain Park Relocation**

Description: The Badger Pass Ski Area terrain park was located on the Beaver Ski Run for more than eight seasons. For over five seasons, the terrain features were made from snow, and for three seasons, features consisted of a combination of manufactured features made out of metal, wood, and plastic and features made from snow. This project relocated the Badger Pass Terrain Park from Beaver Run to a new site on upper Eagle Run (called "Upper Terrain Park) and lower Red Fox Run (called "Lower Terrain Park). Beaver Run was restored to a natural ski slope with no features.

The design of the Upper and Lower Terrain Parks included the same terrain feature elements that existed in the terrain park that was located on the Beaver Run. The terrain park layout for both Upper and Lower Terrain Parks consists of small- to medium-sized jumps made from snow and small- to medium-sized manufactured features made from steel, wood, and/or plastic. At the end

of the season the manufactured terrain features are brought back to a storage area located at the Badger Pass maintenance building. All terrain features meet ski industry recommendations as outlined in the National Ski Area Association Freestyle Terrain Resource Guide.

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Agency Name: Delaware North Companies Parks and Resorts at Yosemite, Inc.

Project Name: **Badger Pass Ski Lodge Emergency Stabilization Measures**

Description: During a building condition assessment for the Badger Pass Ski Lodge Rehabilitation Project that took place in May 2008, the design team noted several conditions in need of immediate stabilization. The design team notified DNC of the issues in two memoranda. The following emergency stabilization measures were addressed:

1. Ticket counter floor: Floor sheathing and supporting floor structure on the first floor behind the ticket counter at the southwest corner of Room 100 were severely deteriorated and could have been stepped through. Floor elements were removed and replaced, as necessary.
2. Bathroom floors: Evidence of displacement between the floor and wall panel in the women's restroom, as well as in the second floor restroom above it, was observed, showing that the wood-framed stud walls in the basement below may no longer be able to reliably support the floor loads from above. Temporary shoring was installed to support the bathrooms from below, and the basement cripple walls and floor joists were re-framed.
3. Roof shingle patching: In localized areas across all roof surfaces, shingles had been dragged apart by snow and ice loads, exposing the surface below to weather which could lead to structure and interior damage. Loose shingles were removed, and self-adhering membrane, and new composite shingles were installed.
4. Deck shoring: Severe wood decay was observed in floor systems supporting several first floor decks and first floor elevated concrete slabs, to the point where some floor systems were beginning to lose support. Shoring already in place in these areas was deemed to be out of conformance with good construction practices. Proper temporary shoring was installed in crawlspaces below these areas.
5. Upper deck railing: The railing at the east end of the upper deck was in very poor condition, unstable, and constituted a falling hazard. The railing was disassembled, the integrity of the members was evaluated, missing or unusable members were replaced, and the railing was reassembled and reconnected with secure connections. Post connections at deck were reinforced.
6. South deck exterior stairs: The exterior metal stairs leading from the south deck to the meadow/ski slope were not adequately supported and their load carrying capacity was in question. Sound bolt connections between stairs and deck were reestablished, concrete footings were installed at base of stringers to prevent stairs from sinking into ground, metal grate treads with broken welds were reinforced, and railings were made sure to be sound.

Conditions 1-4 were addressed by July 2008, and all were substantially complete by October 2008.

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Agency Name: Delaware North Companies Parks and Resorts at Yosemite, Inc.

Project Name: **Snowflake Room Food Service Reactivation**

Description: In 2001, DNC removed the food service area along the west wall of the Snowflake Room, located on the second floor of Badger Pass Ski Lodge. This action did not provide good guest service to visitors. The purpose of this project was to reactivate the food service in the Snowflake Room which included reactivating existing utilities and reinstalling free-standing cabinets, prep tables, warming equipment, deck pizza ovens, and other miscellaneous free-standing equipment to accommodate food preparation and service operations. At the top of the stairs and along the west wall, a 10- by 25-foot section of carpet squares was removed and replaced with linoleum to enhance sanitation. DNC did not perform any installation activities outside the original food service footprint to prevent impacts to the original structure.

The scope of work included removal of existing carpet squares; reactivation of the plumbing, electrical systems, and drains; installation of 10- by 25-foot linoleum section; inserting free-standing prep tables, cold box, pizza ovens, cabinets, and other miscellaneous equipment related to food service operations; and skirting the counter space as needed.

This project was completed in September 2008.

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Agency Name: Delaware North Companies Parks and Resorts at Yosemite, Inc.

Project Name: **Badger Pass Temporary Modular Rental Shop Installation**

Description: The ski rental shop at Badger Pass Ski Area was in danger of structural failure and could no longer be utilized for rental operations (per a structural evaluation performed in 1994 by ARG). The purpose of this project was to replace the existing ski rental shop with a temporary building in an alternate location.

A temporary modular structure was installed in November and December 2006 to operate as a ski rental shop for the 2006/07 season. The modular is a 3,000 square foot custom-made temporary structure located at the northeast end of the ski lodge. Heat and electrical systems were provided, however utilities required connection. ADA access ramps were included. The structure was installed on a raised foundation built into the existing 42- by 100-foot asphalt area to prevent water infiltration. Excavation into the asphalt area was necessary. Snow load and a raised roof were included in the custom construction design.

The rental shop awning project consisted of adding a canopy covering the front door and the walkway that leads to the front door, which is ADA accessible route to the building. The awning protects handicapped and other guests from the elements while queuing up for rental equipment.

Although the structure is temporary, it has not been determined how long it will be utilized. The structure is considered a long-term temporary solution until a permanent ski rental shop is constructed. The modular installation is the first phase of the rental shop replacement. Future project phases include re-constructing a permanent rental shop and demolishing the existing rental shop.

Agency Name: Delaware North Companies Parks and Resorts at Yosemite, Inc.

Project Name: **Badger Pass Ski Lodge Upper Deck Repair**

Description: The purpose of this project was to repair the upper deck and railings located on the ski slope (south) side of main building and access through the Snowflake Room.

The repair to the deck involved removing existing asphalt paving composite and replacing with structural plywood, then covering with a hot mix asphalt and waterproof membrane to allow safe access for visitors. The repairs to the railings consisted of replacement-in-kind of certain components, reinforcing the railings and painting then to match.

Work began in October 2001 and was completed before the 2001/2002 season.

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Agency Name: National Park Service

Project Name: **Bridalveil Creek Campground Road Resurfacing**

Description: This project resurfaced the Bridalveil Creek Campground road. The asphalt roadway is comprised of a 20 foot wide two-way main road and three one-way loops that are 10 to 12 feet wide. The main road is 2900 feet long has double yellow centerline striping with informal roadside swales for drainage. The A, B, and C loop roads are 1472, 1390, and 1538 feet long respectively. The loop roads have some informal roadside swales for drainage and small shoulders. Existing drainage features were cleaned and the same drainage configuration was maintained with this project. This project resurfaced the existing paved road surfaces using a double chip seal or new asphalt overlay method. The total areas resurfaced were 58,000 square feet for the main road, 16,192 square feet for A loop, 15,290 square feet for B loop, and 16,918 square feet for C loop. Loop roads and existing developed pullouts were used for staging.

The project was completed in October 2008.

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Agency Name: National Park Service

Project Name: **Chinquapin Restore Rest Stop Structures**

Description: Background - Per a revised schedule announced in late 2007, the National Park Service in partnership with the Federal Highways Administration will embark on the renovation of both the Chinquapin intersection and Glacier Point Road sometime in 2010. The proposed work will involve the introduction of many new site features and include the partial realignment of the Chinquapin intersection. The road project does not provide for the restoration of adjacent historic landscape elements (like the comfort station and water fountain); however it does recommend their preservation and will be leaving them in their current condition.

Project Summary – The restoration of the rest stop structures, including the historic drinking fountain commenced in 2008 with the restoration of the rustic 1935 water fountain and associated terraces that are immediately in front of the comfort station at the Chinquapin intersection. Work on the water fountain included resetting loose stones, repointing masonry joints and restoring

plumbing to make it operational when potable water is restored to the area, currently projected to occur in 2010 or later. Preservation work on the 1933 comfort station included trimming of vegetation away from the building and retaining walls, and cleaning, repairing, and repointing the stone foundation and retaining walls. Restoration of the comfort station exterior included repairs to the siding, eaves, doors, windows, roof posts, and exterior trim, installation of water saving fixtures, and the restoration of the lattice entries on both ends. Accessibility to the comfort station will be included in the intersection realignment project. The interior stalls of the restroom building already complied with accessibility requirements but the door openings were resized to meet ADA guidelines. All work was done in accordance with the Secretary of the Interior's *Standards for the Treatment of Historic Properties*. Temporary port-a-potties outside of the comfort station were installed when interior comfort station work required limiting access.

Work began May 2008 and will conclude by September 2009.

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Agency Name: National Park Service

Project Name: **Comprehensive Interpretive Plan**

Description: The Comprehensive Interpretive Planning (CIP) process is established in Director's Order 6 and is the basic planning component for interpretation. The CIP is a tool for making choices. It helps parks decide what their objectives are, who their audiences are, and what mix of media and personal services to use. The product is not the plan, but an effective and efficient interpretive program that achieves management goals, provides appropriate services for our visitors, and promotes visitor experiences.

The heart of the CIP is the Long-Range Interpretive Plan (LRIP) that defines the overall vision and long-term (five to ten years) interpretive goals of the park. The process that defines the LRIP also encourages development of targeted, realistic strategies and actions that work toward achievement of its goals. Actions divided into annual, achievable steps are reproduced in the Annual Implementation Plan. Creating annual plans via this "stepping down" of the LRIP simplifies much of the annual planning process because specific goals already have been identified in the LRIP. The last section of the CIP is the Interpretive Database, which is a compilation of information needed to build the other two components. It includes media inventories, the park's strategic plan, enabling legislation, visitor surveys, reports, a bibliography, and other basic information.

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Agency Name: National Park Service

Project Name: **Glacier Point Geology Hut Exhibit Replacement**

Description: To improve visitor facilities at Glacier Point, this project updated the wayside exhibit located in the historic Geology Hut. This involved replacing the existing 60- by 36-inch exhibit panel with a new, more durable panel of the same size with updated information reflecting current geological theories. Content developed by park geologist Greg Stock for the Yosemite Valley Visitor Center exhibits was adapted for the final design of the Glacier Point exhibit. The sign is compatible in style and content with the modern wayside displays located at Glacier Point and other areas of the park, presenting a more consistent message and interpretive experience.

The project was completed in May 2008.

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Agency Name: National Park Service

Project Name: Tunnel View Overlook Rehabilitation

Description: Tunnel View scenic overlook was constructed in 1933 during the Public Works era. This era heralded a boom in design and development throughout the National Park Service, and helped initiate the NPS rustic design style. Wawona Tunnel and Tunnel View were determined eligible for listing on the National Register of Historic Places in 1986 because of their exemplary design. Very little physical change has occurred to Tunnel View's physical features (including rockwork, circulation patterns, and configuration) since it was built in 1933. The site is the most popular scenic overlook in Yosemite National Park. Tour buses, tram tours, and single-family vehicles bring an estimated 3,000 to 5,000 people to the site per day during the height of the tourist season. Expansive views of Yosemite Valley, Half Dome, and Clouds Rest have awed visitors at this site for more than 75 years.

The purpose of the Tunnel View Rehabilitation Project was to remedy long-standing vehicle-to-vehicle and vehicle-to-pedestrian safety issues, to correct drainage deficiencies and problems, to provide clear circulation patterns for pedestrians and vehicles, to enhance and maintain viewing opportunities for visitors, to provide accessibility to viewing areas, to correct safety problems associated with the Inspiration Point trailhead, and to address sanitation issues, while maintaining the naturalistic, rustic character and integrity of this historic site.

The project was dedicated in October 2008, however, the scope of the project was extended to include drainage improvements and eliminate stairways. Construction was completed in early 2009.

# Appendix B: Mitigation Measures Common to all Action Alternatives

The National Park Service places a strong emphasis on avoidance, minimization, and mitigation of impacts. To help ensure that field activities associated with the Badger Pass Ski Lodge Rehabilitation Project protect natural, cultural, and social resources and the quality of the visitor experience, mitigation measures have been developed. The following section discusses mitigation measures that would occur prior to, during, and after construction of the proposed improvements.

Mitigation Measure	Responsibility	Critical Milestones
<b>CONSTRUCTION MITIGATION MEASURES</b>		
Prior to entry into the park, steam-clean heavy equipment to prevent importation of non-native plant species, tighten hydraulic fittings, ensure hydraulic hoses are in good condition and replace if damaged, and repair all petroleum leaks.	Yosemite National Park, Project Manager; Contractor	Prior to and concurrent with project activities
Inspect the project to ensure that impacts stay within the parameters of the project area and do not escalate beyond the scope of the environmental assessment, as well as to ensure that the project conforms with all applicable permits or project conditions. Store all construction equipment within the delineated work limits. Confine work areas within creek channels to the smallest area necessary.	Yosemite National Park, Project Manager; Contractor	Prior to and concurrent with project activities
Implement compliance monitoring to ensure that the project remains within the parameters of National Environmental Policy Act (NEPA) and National Historic Preservation Act (NHPA) compliance documents.	Yosemite National Park, Project Manager; Contractor	Concurrent with project activities
Provide a project orientation for all construction workers to increase their understanding and sensitivity to the challenges of the special environment in which they will be working.	Yosemite National Park, Project Manager	Prior to and concurrent with project activities
If deemed necessary, demolition/construction work on weekends or federal government holidays may be authorized, with prior written approval of the Superintendent.	Yosemite National Park, Project Manager;	Prior to and concurrent with project activities
Remove all tools, equipment, barricades, signs, surplus materials, and rubbish from the project work limits upon project completion. Repair any asphalt surfaces that are damaged due to work on the project to original condition. Remove all debris from the project site, including all visible concrete, timber, and metal pieces.	Yosemite National Park, Project Manager; Contractor	Upon completion of project activities
The Construction Contractor shall prepare a Health and Safety Plan to address all aspects of Contractor health and safety issues compliant with OSHA standards and other relevant regulations. The Plan shall be submitted for park review and approval prior to construction.	Contractor	Prior to and concurrent with project activities
A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared by the Construction Contractor and implemented for construction activities to control surface run-off, reduce erosion, and prevent sedimentation from entering water bodies during construction. The SWPPP shall be submitted for park review and approval prior to construction.	Contractor	Prior to and concurrent with project activities
A construction work schedule shall be prepared by the Construction Contractor for the project that minimizes effects on wildlife in adjacent habitats and peaks in visitation. The work schedule shall be submitted for park review and approval prior to construction.	Contractor	Prior to and concurrent with project activities
Supervisory construction personnel shall attend an Environmental Protection briefing provided by the park prior to working on site. This briefing is designed to familiarize workers with statutory and contractual environmental requirements and the recognition of and protection measures for archeological sites, sensitive habitats, water resources, and wildlife habitats.	Contractor	Prior to and concurrent with project activities
The park shall develop a Communications Strategy Plan to alert necessary park and Concessioner employees, residents and visitors to pertinent elements of the construction work schedule.	Yosemite National Park, Project Manager	Prior to and concurrent with project activities
Provide proper and timely maintenance for vehicles and equipment used during construction to reduce the potential for mechanical breakdowns.	Yosemite National Park, Project Manager; Contractor	Prior to and concurrent with project activities

Mitigation Measure	Responsibility	Critical Milestones
<b>HYDROLOGY AND WATER QUALITY</b>		
Where working areas are adjacent to or encroach on live streams, barriers shall be constructed that are adequate to prevent the discharge of turbid water in excess of specified limits.	Contractor	Prior to and concurrent with project activities
All disturbed soil and fill slopes shall be stabilized in an appropriate manner.	Contractor	Prior to and concurrent with project activities
Store equipment and materials away from all waterways.	Yosemite National Park, Project Manager; Contractor	Concurrent with project activities
Construction limits in the vicinity of wetlands should be clearly delineated with construction fencing	Contractor	Prior to and concurrent with construction activities
Wastewater contaminated with silt, grout, or other by-products from construction activities shall be contained in a holding or settling tank to prevent contaminated material from entering watercourses or wetlands.	Contractor	Concurrent with project activities
<p>Waters shall be free of changes in turbidity that cause a nuisance or adversely affect beneficial uses. Increases in turbidity attributable to controllable water quality factors shall not exceed the following limits, as described in <i>The Water Quality Control Plan</i> for the Central Valley Regional Water Quality Control Board (CVRWQCB 1998). In determining compliance with the limits below, appropriate averaging periods may be applied, provided that beneficial uses will be fully protected</p> <ul style="list-style-type: none"> <li>▪ Where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU.</li> <li>▪ Where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20%.</li> <li>▪ Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs.</li> <li>▪ Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10%.</li> </ul>	Contractor	Prior to and concurrent with project activities
Remove hazardous waste materials generated during implementation of the project from the project site immediately.	Contractor	Concurrent with project activities
Dispose of volatile wastes and oils in approved containers for removal from the project site to avoid contamination of soils, drainages, and watercourses. Keep absorbent pads, booms, and other materials onsite during projects that use heavy equipment to contain oil, hydraulic fluid, solvents, and hazardous materials spills.	Contractor	Concurrent with project activities
Incorporate trench plugs into new and abandoned utility corridors through wetland areas where required to prevent formation or continuation of groundwater conduits.	Yosemite National Park; Project Manager; Contractor	Concurrent with project activities
Surface drainage facilities shall be designed to transport runoff in a non-erosive manner.	Yosemite National Park; Project Manager; Contractor	Prior to and concurrent with project activities
Use silt fencing at drainages to prevent construction materials from escaping work areas.	Contractor	Concurrent with project activities
Material from construction work shall not be deposited where it could be eroded and carried to the stream by surface runoff or high stream flows.	Contractor	Concurrent with project activities

Mitigation Measure	Responsibility	Critical Milestones
<b>VEGETATION (INCLUDING SPECIAL STATUS PLANTS)</b>		
Contractor will develop a Revegetation Plan in conjunction with the park's Resources Management and Science Division, to be approved prior to construction activities.	Yosemite National Park, Project Manager; Contractor	Prior to project activities
<p>Ensure that all earth moving equipment and hand tools enter the park free of mud or seed-bearing material to prevent the introduction of non-native plants. The NPS will inspect all equipment prior to use on the project.</p> <p>Map and treat noxious weeds prior to construction. Certify all seeds and straw material as weed-free. Ensure that imported top-soil is weed-free. The NPS will approve sources of imported fill material that will be used within the top 12 inches of the finished grade. Monitor and treat invasive plants for three years post-construction.</p>	Yosemite National Park, Project Manager; Contractor	Prior to, concurrent with and following project activities
Install temporary fencing (black silt fencing or orange construction fencing) around the entire project area to protect natural surroundings (including sensitive plants, trees, and root zones) from damage. Avoid fastening ropes, cables, or fences to trees.	Yosemite National Park, Project Manager; Contractor	Prior to and concurrent with project activities
Use native seed mix or seed-free mulch to minimize surface erosion and the introduction of noxious weeds.	Contractor	Concurrent with project activities
<p>The Park Botanist shall be notified if any special status plant species are identified in the construction disturbance zone. Adverse impacts to the Yosemite bog orchid, a special status plant species, are not acceptable. If other special-status plant species are identified within the construction disturbance zone, in particular within restoration and revegetation areas, the Park Botanist will work with the project manager to avoid impacts or mitigate unavoidable impacts. If it is not feasible for construction activities to avoid special-status plant species, species conservation measures may include salvage of special-status plants for use in revegetating disturbed areas and transplantation of special-status plants wherever possible using methods and monitoring identified in the revegetation plan, monitoring to ensure successful revegetation, protection of plantings, and replacement of unsuccessful plant materials if practicable.</p>	Yosemite National Park, Project Manager; Contractor	Prior to and concurrent with project activities
Delineate wetlands and apply protection measures during construction. Wetlands shall be delineated by qualified National Park Service staff or certified wetland specialists and clearly marked prior to work. Perform activities in a cautious manner to prevent damage caused by equipment, erosion, siltation, etc.	Yosemite National Park, Project Manager; Contractor	Prior to and concurrent with project activities

Mitigation Measure	Responsibility	Critical Milestones
<b>WILDLIFE (INCLUDING SPECIAL STATUS WILDLIFE)</b>		
Schedule construction activities with seasonal consideration of wildlife lifecycles to minimize impacts during sensitive periods (i.e., after bird nesting seasons, when bats are neither hibernating nor have young, etc).	Yosemite National Park, Project Manager	Prior to project activities
Limit the effects of light and noise on adjacent habitat through controls on construction equipment.	Yosemite National Park, Project Manager; Contractor	Prior to and concurrent with project activities
Prior to tree management activities, qualified biologists will screen the area for bat roosts, nesting birds, and other features that are important wildlife habitat.	Yosemite National Park, Project Manager; Contractor	Prior to and concurrent with project activities
Provide adequate education and enforcement to limit construction worker activities that are destructive to wildlife and habitats.	Yosemite National Park, Project Manager	Concurrent with and following project activities
A qualified bat biologist will conduct surveys prior to construction to evaluate whether habitat that will be affected by the proposed action provide hibernacula or nursery colony roosting habitat for bat species.	Yosemite National Park, Project Manager	Prior to project activities
If bats are detected during reproduction or hibernation periods, disturbance of potential habitat will be delayed until the bats can be excluded from the area in a manner that does not adversely affect their survival or that of their young.	Yosemite National Park, Project Manager, Contractor	Concurrent with project activities
If bats are detected during reproduction or hibernation periods, disturbance of potential habitat will be delayed until the bats can be excluded from the area in a manner that does not adversely affect their survival or that of their young.	Yosemite National Park, Project Manager, Contractor	Concurrent with project activities
If surveys conducted immediately prior to construction do not reveal any bat species present within the project area, then the action will begin within three days to prevent the destruction of any bats that could move into the area after the survey.	Yosemite National Park, Project Manager	Prior to and concurrent with project activities
<b>FEDERAL AND STATE PERMIT REQUIREMENTS</b>		
The NPS will apply for and comply with all federal and state permits required for construction-related activities.	Yosemite National Park, Project Manager	Prior to project activities
<b>HISTORIC PROPERTIES</b>		
The Park will adhere to the <i>Park Programmatic Agreement Among the National Park Service at Yosemite, the California State Historical Preservation Officer, and the Advisory Council on Historic Preservation Regarding Planning, Design, Construction, Operations, and Maintenance, Yosemite National Park, California (1999 PA)</i> to mitigate adverse effects.	Yosemite National Park, Project Manager	Prior to and concurrent with project activities
Mitigation measures include avoiding impacts and designing new development to be compatible with surrounding historic resources. Standard mitigation measures, as defined in the 1999 PA, include photo documentation, salvage, and reevaluation of National Register status (updating National Register Nomination form.	Yosemite National Park, Project Manager	Prior to and concurrent with project activities
Culturally associated tribes will be given notice prior to ground disturbing activities at the project site and may be present at the project site to monitor ground disturbance during construction.	Yosemite National Park, Project Manager, Contractor	Prior to and concurrent with project activities
Continue to consult with culturally associated American Indian tribes throughout the project to avoid or mitigate damage to American Indian traditional resources.	Yosemite National Park, Project Manager	Prior to, concurrent with and following project activities
Design all new construction within historic districts and landscapes or adjacent to historic sites to be compatible in terms of architectural elements, scale, massing, materials, and orientation.	Yosemite National Park, Project Manager	Prior to project activities
Undertake all treatments within historic landscapes in keeping with the Secretary of The Interior's Standards for the Treatment of Historic Properties.	Yosemite National Park, Project Manager	Prior to project activities

Mitigation Measure	Responsibility	Critical Milestones
<b>DUST ABATEMENT MEASURES</b>		
Cover and/or seal truck beds and stockpiles to minimize blowing dust or loss of debris.	Contractor	Concurrent to project activities
Limit truck and related construction equipment speeds in active construction areas to a maximum of 15 miles per hour and strictly adhering to park regulations and posted speed limits in other areas while inside park boundaries.	Contractor	Concurrent to project activities
Maintain adequate dust suppression equipment and using clean water to control excess airborne particulates at staging areas, active construction zones, and unpaved roads leading to/from active construction areas.	Contractor	Concurrent with project activities
<b>EMERGENCY NOTIFICATION MEASURES</b>		
Develop an emergency notification plan that complies with park, federal, and state requirements and allows contractors to properly notify park, federal, and/or state personnel in the event of an emergency during construction activities. This plan will address notification requirements related to fire, personnel, and/or visitor injury, releases of spilled material, evacuation processes, etc. The emergency notification plan will be submitted to the park for review/approval prior to commencement of construction activities.	Yosemite National Park, Project Manager	Prior to project activities
Notify utilities prior to construction activities. Identify locations of existing utilities prior to removal activity to prevent damage to utilities. The Underground Services Alert and NPS maintenance staff will be informed 72 hours prior to any ground disturbance. Construction-related activities will not proceed until the process of locating existing utilities is completed (water, wastewater, electric, communications, and telephone lines). An emergency response plan will be required of the contractor.	Yosemite National Park, Project Manager	Prior to and concurrent with project activities
<b>EROSION CONTROL MEASURES</b>		
Use approved siltation and sediment control devices in construction areas to reduce erosion and surface scouring.	Contractor	Concurrent with project activities
Use approved siltation and sediment control devices appropriate to the situation in grading areas to capture eroding soil before discharge to riparian channels.	Contractor	Concurrent with project activities
Conserve and salvage topsoil for reuse. Materials will be reused to the maximum extent possible.	Contractor	Concurrent with project activities
<b>HAZARDOUS MATERIALS MEASURES</b>		
An Oil and Hazardous Materials Spill Prevention, Control, and Countermeasure Plan shall be prepared by the Construction Contractor for the project to address hazardous materials storage, spill prevention and response. The Plan shall be submitted for park review and approval prior to construction.	Contractor	Prior to and concurrent with project activities
Store and use all hazardous materials in compliance with federal regulations. All applicable Materials Safety Data Sheets will be kept on site for inspection.	Contractor	Concurrent with project activities
Hazardous or flammable chemicals shall be prohibited from storage in the staging area, except for those substances identified in the Oil and Hazardous Materials Spill Prevention, Control, and Countermeasure Plan. Hazardous waste materials shall be immediately removed from project site in approved containers.	Contractor	Concurrent with project activities
Comply with all applicable regulations and policies during the removal and remediation of asbestos, lead paint, and polychlorinated biphenyls.	Contractor	Concurrent with project activities
<b>SOUNDSCAPES</b>		
Ensure that all construction equipment has functional exhaust/muffler systems.	Contractor	Concurrent with project activities
Submit a construction work plan/schedule that minimizes construction-related noise in noise-sensitive areas to the park for review/approval prior to commencement of construction activities.	Contractor	Prior to project activities
Use hydraulically or electrically powered construction equipment, when feasible.	Contractor	Concurrent with project activities
Locate stationary noise sources as far from sensitive receptors as possible.	Contractor	Concurrent with project activities
Limit the idling of motors except as necessary (e.g., concrete mixing trucks).	Contractor	Concurrent with project activities
To the extent possible, perform all on-site noisy work above 76 A-weighted decibels (dBA) (such as the operation of heavy equipment) between the hours of 8:30 a.m. and 5:00 p.m. to minimize disruption to nearby park users.	Contractor	Concurrent with project activities

Mitigation Measure	Responsibility	Critical Milestones
<b>SCENIC RESOURCES PROTECTION MEASURES</b>		
Fence construction staging areas and construction activity areas to visually screen construction activity and materials.	Contractor	Concurrent with project activities
Consolidate construction equipment and materials to the staging areas at the end of each work day to limit the visual intrusion of construction equipment during nonwork hours.	Contractor	Concurrent with project activities
<b>SPILL PREVENTION/ RESPONSE MEASURES</b>		
Develop and implement a comprehensive spill prevention/response plan that complies with federal and state regulations and addresses all aspects of spill prevention, notification, emergency spill response strategies for spills occurring on land and water, reporting requirements, monitoring requirements, personnel responsibilities, response equipment type and location, and drills and training requirements. The spill prevention/response plan will be submitted to the park for review/approval prior to commencement of construction activities.	Contractor	Prior to project activities
To minimize the possibility of hazardous materials seeping into soil or water, check equipment frequently to identify and repair any leaks. Standard measures include hazardous materials storage and handling procedures; spill containment, cleanup, and reporting procedures; and limitation of refueling and other hazardous activities to upland/nonsensitive sites. Provide an adequate hydrocarbon spill containment system (e.g., absorption materials, etc.) on site, in case of unexpected spills in the project area. Ensure equipment is equipped with a hazardous spill containment kit at all times. Ensure that personnel trained in the use of hazardous spill containment kits.	Contractor	Concurrent with project activities
<b>STORMWATER POLLUTION PREVENTION MEASURES</b>		
Develop and implement a comprehensive stormwater pollution prevention plan for construction activities that complies with federal and state regulations and addresses all aspects of stormwater pollution prevention. The plan will be submitted to the park for approval prior to construction activities. The plan will include measures such as: <ul style="list-style-type: none"> <li>▪ Take measures to control erosion, sedimentation, and compaction, and thereby reduce water pollution and adverse water quality effects. Use silt fences, sedimentation basins, etc. in construction areas to reduce erosion, surface scouring, and discharge to water bodies.</li> <li>▪ To the extent possible, schedule the use of mechanical equipment during periods of low precipitation to reduce risk of accidental hydrocarbon leaks or spills. When mechanical equipment is necessary outside of low precipitation periods, use NPS– approved methods to protect soil and water from contaminants</li> <li>▪ Dispose of volatile wastes and oils in approved containers for removal from construction sites to avoid contamination of soils, and drainages. Inspect equipment for hydraulic and oil leaks prior to use on construction sites, and implement inspection schedules to prevent contamination of soil and water. Keep absorbent pads, booms, and other materials on site during projects that use heavy equipment to contain oil, hydraulic fluid, solvents, and hazardous material spills</li> </ul>	Contractor	Prior to and concurrent with project activities
<b>TRAFFIC CONTROL AND VISITOR PROTECTION MEASURES</b>		
Provide protective fencing enclosures around construction areas, including utility trenches, to protect public health and safety.	Contractor	Concurrent with project activities
<b>TRANSPORTATION MEASURES</b>		
Install appropriate traffic signs.	Yosemite National Park, Project Manager	Concurrent with and following project activities
<b>UTILITY MEASURES</b>		
Verify utility locations by contacting the Underground Services Alert prior to the start of construction.	Yosemite National Park, Project Manager; Contractor	Prior to project activities
Promptly reconnect utility services that are interrupted because of construction activities and provide advance notification if utility service will be disrupted.	Yosemite National Park, Project Manager; Contractor	Concurrent with and following project activities
<b>VISITOR EXPERIENCE MEASURES</b>		
Limit construction activities to the off-season to allow for continued visitor access to the ski area during the winter.	Yosemite National Park, Project Manager; Contractor	Prior to and concurrent with project activities

Mitigation Measure	Responsibility	Critical Milestones
<b>NIGHT SKY MEASURES</b>		
Direct and shield night lighting associated with construction equipment to minimize light scatter effects.	Contractor	Concurrent with project activities
All new exterior lighting installed as part of this rehabilitation project will conform to the <i>Yosemite National Park Outdoor Lighting Guidelines</i> .	Yosemite National Park, Project Manager	Concurrent with and following project activities
<b>WASTE MANAGEMENT MEASURES</b>		
Require construction personnel to adhere to park regulations concerning food storage and refuse management.	Yosemite National Park, Project Manager; Contractor	Concurrent with project activities
Properly secure trash during the workday and remove all trash from site at the end of each workday.	Yosemite National Park, Project Manager	Concurrent with and following project activities
Develop and implement a comprehensive waste management plan that complies with federal and state regulations and addresses all aspects related to the transportation, storage, and handling of construction-related hazardous and nonhazardous liquid and solid wastes and submit the plan to the park for review/approval prior to the commencement of construction activities.	Contractor	Prior to project activities

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# Appendix C: Wetland Statement of Findings

This Wetland Statement of Findings is included in this document for public review to meet the obligations of Executive Order 11990 (Protection of Wetlands) and National Park Service *Procedural Manual 77-1: Wetland Protection*.

## Purpose of this Statement of Findings

The purpose of this Wetland Statement of Findings is to review the Badger Pass Ski Lodge Rehabilitation Project area (Figure C-1) in sufficient detail to:

- Avoid, to the extent possible, the short-and long-term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative
- Describe the effects on wetland values associated with the proposed action
- Provide a thorough description and evaluation of mitigation measures developed to achieve compliance with Executive Order 11990 (Protection of Wetlands) and National Park Service *Director's Order 77-1: Wetland Protection*
- Ensure “no net loss” of wetland functions or values

## Affected Wetlands

### Wetland Extent

Wetlands and deepwater habitats within the delineation area include palustrine scrub-shrub wetlands, palustrine emergent wetlands and the lower perennial, riverine habitat of Grouse Creek. To facilitate discussion, the delineation area is divided into three zones: Monroe Meadow, the Grouse Creek outfall area, and a vegetation island within the ski area parking lot (Figure C-2).

The delineation area within Monroe Meadow is located within a topographical depression with side slopes ranging between 1 and 5 percent, and is bounded by the steeper slopes of the Badger Pass Ski Area to the south and the elevated paved Badger Pass Ski Area parking area to the north.

The Grouse Creek outfall delineation area is located to the northwest of the lodge. This area is deeply incised with a steep slope of 5 to 40 percent.

The vegetation island delineation area is an isolated stand of vegetation within the southernmost tree island of the ski area parking lot, located northeast of the ski lodge. The vegetation island has localized south-facing slopes of 1 to 10 percent and is bounded on all sides by pavement.

Ground surface elevations within the entire delineation area range from approximately 7,210 to 7,270 feet above mean sea level. The delineation area is bisected by Grouse Creek, which originates east of Monroe Meadow. As it approaches the ski lodge, Grouse Creek appears to be diverted below grade (Figure C-2, point 19) via a culvert system of unknown age, construction, condition, and configuration, and is discharged to the downgradient surface expression of the creek at a culvert outfall located southwest of the retail addition (west building) (Figure C-2, point 21). During wet periods of the year, other minor tributaries exist south of Grouse Creek.

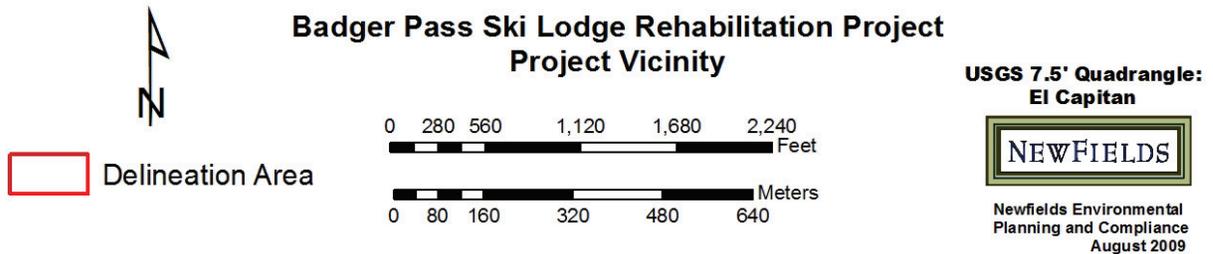
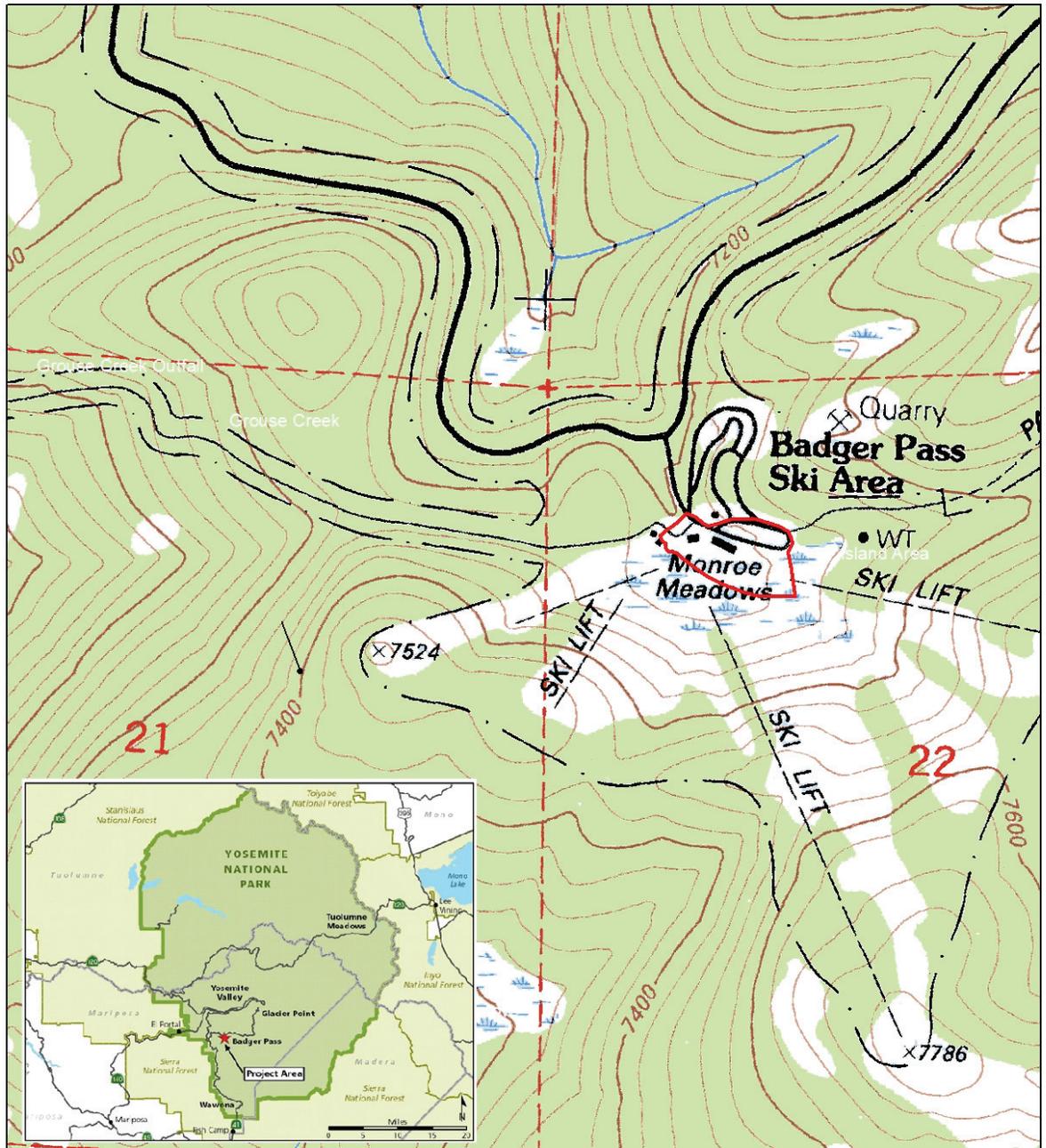
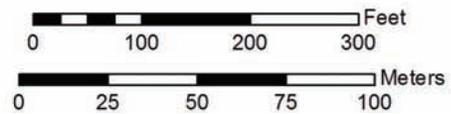


Figure C-1 Project Vicinity.



**Badger Pass Ski Area Rehabilitation Project  
Wetland and Riverine Habitat Delineation  
Total Survey Area: 7.43 acres**

-  Delineation Area
-  Riverine (0.01 Acres)
-  Palustrine Emergent Wetland (4.36 Acres)
-  Palustrine Scrub - Shrub Wetland (0.40 Acres)



-  Riverine Waypoints
-  Positive Wetland Waypoints
-  Negative Wetland Waypoints

Imagery: National Agricultural Imagery Program, 2005

Figure C-2 Wetland and Riverine Habitat Delineation.

## **Wetland Characteristics**

Specific wetland classes identified within the project area are limited to riverine (rivers, creeks, and streams) and palustrine (shallow ponds, marshes, swamps, and sloughs). Wetlands delineated in the project area meet both National Park Service and U.S. Army Corps of Engineers (USACE) wetland classifications. A summary of the conclusions of the jurisdictional delineation are as follows:

- Approximately 4.36 acres of palustrine emergent wetland were delineated within the delineation area
- Approximately 0.40 acre of palustrine scrub-shrub wetland were delineated within the delineation area
- Approximately 0.01 acre of lower perennial, riverine system were delineated within the delineation area

## **Existing Structures in Wetlands**

The Badger Pass Ski Lodge was constructed in 1935 within Monroe Meadows, a potentially jurisdictional wetland and wetland as defined by the National Park Service (NPS). At the present time, east and west additions to the main lodge, a temporary Nordic center, the pups hut, the turtle rope tow, the eagle lift and the bruin lift are structures that exist within wetlands in the project area or immediately adjacent.

# **Environmental Consequences of the Proposed Action on Wetlands**

## **Analysis**

There would be no permanent reduction in the size of wetland and aquatic habitats related to implementation of Alternative 3 (Preferred): Rehabilitation and Improvements.

Potential short-term impacts on wetlands would occur from construction activities during rehabilitation of the ski lodge and the west building, drainage and foundation improvements, infrastructure upgrades, and demolition and replacement of the Nordic and Alpine rental buildings. It is anticipated that construction would be executed over the course of four summer seasons.

The construction zone for this project extends into approximately 0.38 acre of palustrine emergent wetlands to the east, south, and west of the ski lodge to accommodate building reconstruction/rehabilitation, utility upgrades, and site drainage improvements. The construction buffer for utility upgrades and site drainage improvements on the east side of the Alpine rental buildings includes approximately 0.07 acre of palustrine scrub shrub (willow thicket). The replacement of the temporary Nordic rental building with a permanent structure would require a construction zone that may enter a small isolated palustrine emergent wetland approximately 950 square feet (0.02 acre) in size located to the east of the existing building. These action may result in a local, short-term, minor adverse impact to wetlands. Adherence to mitigation measures described in Appendix B of the *Badger Pass Ski Lodge Rehabilitation Environmental Assessment* and avoidance of wetlands where possible would minimize these impacts.

Dewatering activities and water runoff from impermeable surfaces could potentially cause sediment-laden and/or contaminated water to enter Grouse Creek along the west end of the facility during construction and potentially result in adverse impacts to wetlands. Implementation of standard mitigation measures and those recommended in Chapter 3, Hydrology in the *Badger Pass Ski Lodge Rehabilitation Environmental Assessment*, as well as following avoidance procedures should reduce impacts to localized, adverse, short-term and negligible to minor.

## **Cumulative Impacts**

Cumulative effects to wetlands are based on analysis of past, present and reasonably foreseeable future actions within the project area in combination with the potential effects of the proposed action.

Past projects which contributed to adverse impacts to wetlands within the project area include the construction, modification, and expansion of the ski lodge and parking areas, construction of the access road, ski runs, lifts and associated infrastructure; the diversion of Grouse Creek in the vicinity of the ski lodge, past and present routine maintenance activities, demolition of the Alpine rental shop and subsequent natural resource restoration, installation of temporary rental facilities, emergency stabilization measures, and the replacement of the Badger, Bruin, and Eagle ski lifts. The interception and redirection of runoff from the ski lodge and parking areas would continue to have a long-term adverse effect on wetlands, although this situation has been recently improved by the Glacier Point Road rehabilitation project improvements to the Badger Pass Ski Area parking lot.

Wetlands on the west side of the ski lodge would benefit from remediation of the residual fuel-oil contamination as part of a state-approved corrective action plan. In addition, actions potentially undertaken under the *High-Elevation Aquatic Ecosystem Recovery and Stewardship Plan* would result in the protection and enhancement of wetlands within the project area. In combination with construction-related activities and long-term site drainage improvements under the proposed action, there would be an overall localized, long-term, negligible, adverse cumulative impact on wetlands.

## **Conclusion**

The adherence to mitigation measures and avoidance of wetlands where possible should reduce potential construction related effects to localized, short-term, minor adverse impacts to wetlands. Implementation of the proposed action would not further disrupt the continuity or integrity of the native plant communities in the project area.

## **Alternatives Considered**

Alternatives considered in the Badger Pass Lodge Rehabilitation Project include Alternative 1 (the No Action Alternative), Alternatives 2 and 4.

### **Alternative 1: No Action**

Under this alternative, emergency repairs and routine maintenance would continue to take place as needed, but no comprehensive, long-term rehabilitation, restoration, or renovation would occur. This alternative would result in the continuation of the current conditions.

## **Alternative 2: Essential Repairs and Upgrades**

The central objective of Alternative 2 is to repair and upgrade the Badger Pass Ski Lodge to meet essential project requirements. The existing buildings would be maintained with minor physical alteration, while comprehensively addressing critical life-safety, code, accessibility, drainage and systems improvements. The upgrades are intended to bring the facility to an acceptable level of safety and code compliance. Building systems with deficiencies that compromise the ski lodge structure or visitor services would be addressed. Failing systems would be repaired or replaced with new systems meeting industry building standards as appropriate, without compromising the historic character of the site. The ski lodge operations would be maintained in their current configuration, with minor improvements where code-compliance and building repairs are necessary.

## **Alternative 4: Emphasize Historic Character**

The objective of Alternative 4 is to solve project requirements, restore primary features of the main lodge that contribute to the historic character of the site, and provide the optimal level of visitor service within the overall confines of the project site. Physical alterations would be made to all portions of the facility. Construction dating from after the historic period of significance of the site would be removed, including the second floor deck and south dining room extension (window wall) at the main lodge. The south façade of the main lodge would be restored, as would be the interior lounge and its direct relationship to the deck. New construction would be added both east and west of the main lodge, incorporating ski operations and visitor services in an efficient manner responsive to the site parameters.

# **Best Management Practices and Resource-Specific Mitigation Measures**

Best Management Practices and resource-specific mitigation measures would be implemented, as appropriate, prior to, during, and/or after construction.

## **Best Management Practices During Construction Activities**

The National Park Service (and its contractors) would implement the following Best Management Practices, as appropriate, prior to, during, and/or after construction activities. Specific tasks would include, but are not limited to, the following:

- Prior to entry into the park, steam-clean heavy equipment to prevent importation of non-native plant species, tighten hydraulic fittings, ensure hydraulic hoses are in good condition and replace if damaged, and repair all petroleum leaks. Implement compliance monitoring to ensure the project remains within the parameters of National Environmental Policy Act and National Historic Preservation Act compliance documents, USACE Section 404 permits, etc. Compliance monitoring would ensure adherence to mitigation measures and would include reporting protocols.
- Inspect the project to ensure that impacts stay within the parameters of the project area and do not escalate beyond the scope of the environmental assessment, as well as to ensure that the project conforms with all applicable permits or project conditions. Store all construction equipment within the delineated work limits. Confine work areas within creek channels to the smallest area necessary.

- Steam-clean heavy equipment prior to its entry into the park to prevent importation of non-native plant species, and repair all petroleum leaks prior to work. Tighten hydraulic hoses and ensure they are in good condition.
- Provide a project orientation for all construction workers to increase their understanding and sensitivity to the challenges of the special environment in which they will be working. project area. Ensure equipment allowed within the river channel is equipped with a hazardous spill containment kit. Ensure that personnel trained in the use of hazardous spill containment kits are on site at all times during construction activities.
- A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared by the Construction Contractor and implemented for construction activities to control surface run-off, reduce erosion, and prevent sedimentation from entering water bodies during construction. The SWPPP shall be submitted for park review and approval prior to construction. Store all construction equipment within the delineated work limits.
- Supervisory construction personnel shall attend an Environmental Protection briefing provided by the park prior to working on site. This briefing is designed to familiarize workers with statutory and contractual environmental requirements and the recognition of and protection measures for archeological sites, sensitive habitats, water resources, and wildlife habitats. The park shall develop a Communications Strategy Plan to alert necessary NPS and concessioner employees, residents, and visitors to pertinent elements of the construction work schedule.
- Develop an emergency notification plan that complies with park, federal, and state requirements and allows contractors to properly notify park, federal, and/or state personnel in the event of an emergency during construction activities. This plan will address notification requirements related to fire, personnel, and/or visitor injury, releases of spilled material, evacuation processes, etc. The emergency notification plan will be submitted to the park for review/approval prior to commencement of construction activities.
- Notify utilities prior to construction activities. Identify locations of existing utilities prior to removal activity to prevent damage to utilities. The Underground Services Alert and NPS maintenance staff will be informed 72 hours prior to any ground disturbance. Construction-related activities will not proceed until the process of locating existing utilities is completed (water, wastewater, electric, communications, and telephone lines). An emergency response plan will be required of the contractor.
- Avoid damage to natural surroundings in and around the work limits. Provide temporary barriers to protect existing trees, plants, and root zones, if necessary, as determined by vegetation management staff. Trees and other vegetation shall not be removed, injured, or destroyed without prior written approval. Ropes, cables, or fencing shall not be fastened to trees. All existing resource protection fencing (post and rope) shall be left in place and protected from heavy equipment.
- Remove all tools, equipment, barricades, signs, surplus materials, and rubbish from the project work limits upon project completion. Repair any asphalt surfaces that are damaged due to work on the project to original condition. Remove all debris from the project site, including all visible concrete, timber, and metal pieces. Grade disturbed areas and rake them smooth to eliminate tire tracks and tripping hazards.
- Locate, contain, and stabilize excavated and stored materials within upland staging areas and prevent re-entry into wetland or aquatic habitats.
- Use approved siltation and sediment control devices appropriate to the situation in grading areas to capture eroding soil before discharge to riparian channels.
- Delineate wetlands and apply protection measures during construction. Wetlands shall be delineated by qualified National Park Service staff or certified wetland specialists and clearly

marked prior to work. Perform activities in a cautious manner to prevent damage caused by equipment, erosion, siltation, etc.

## **Resource-Specific Measures**

### **Hydrology, Floodplains, and Water Quality**

Prepare an erosion control plan specifying measures to prevent erosion/sedimentation problems during project construction. Include a map of the project site delineating where erosion control measures will be applied. Include the following minimum criteria, adapted from the *Guidelines for Protection of Water Quality During Construction and Operation of Small Hydro Projects* (CVRWQCB 1983):

- Where working areas are adjacent to or encroach on live streams, barriers shall be constructed that are adequate to prevent the discharge of turbid water in excess of specified limits.
- Material from construction work shall not be deposited where it could be eroded and carried to the stream by surface runoff or high stream flows.
- All disturbed soil and fill slopes shall be stabilized in an appropriate manner.
- Surface drainage facilities shall be designed to transport runoff in a non-erosive manner.
- Wastewater contaminated with by-products from construction activities shall be contained in a holding or settling tank to prevent contaminated material from entering watercourses or wetlands.
- Waters shall be free of changes in turbidity that cause a nuisance or adversely affect beneficial uses. Increases in turbidity attributable to controllable water quality factors shall not exceed the following limits, as described in *The Water Quality Control Plan* for the Central Valley Regional Water Quality Control Board (CVRWQCB 1998). In determining compliance with the limits below, appropriate averaging periods may be applied, provided that beneficial uses will be fully protected:
  - Where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU.
  - Where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20%.
  - Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs.
  - Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10%.
- Implement stormwater management measures to reduce nonpoint-source pollution discharge. This could include measures such as oil/sediment containment or street sweeping.
- Remove hazardous waste materials generated during implementation of the project from the project site immediately.
- Dispose of volatile wastes and oils in approved containers for removal from the project site to avoid contamination of soils, drainages, and watercourses. Keep absorbent pads, booms, and other materials onsite during projects that use heavy equipment to contain oil, hydraulic fluid, solvents, and hazardous materials spills.
- Final design and installation of site drainage improvements will be closely coordinated with the park's Resources Management and Science Division.
- Salvage hydric soils and use them as fill in wetland excavations to the maximum extent possible. Minimize use of fill materials with high permeability in wetland areas to prevent development of unnatural groundwater conduits.

- Incorporate trench plugs into new and abandoned utility corridors through wetland areas where required to prevent formation or continuation of groundwater conduits.

## Vegetation

- The contractor will develop a Revegetation Plan in conjunction with the park's Resources Management and Science Division, to be approved prior to construction activities.
- Ensure that all earth moving equipment and hand tools enter the park free of mud or seed-bearing material to prevent the introduction of non-native plants. The NPS will inspect all equipment prior to use on the project.
- Map and treat noxious weeds prior to construction. Certify all seeds and straw material as weed-free. Ensure that imported top-soil is weed-free. The NPS will approve sources of imported fill material that will be used within the top 12 inches of the finished grade. Monitor and treat invasive plants for three years post-construction.
- Install temporary fencing (black silt fencing or orange construction fencing) around the entire project area to protect natural surroundings (including sensitive plants, trees, and root zones) from damage. Avoid fastening ropes, cables, or fences to trees.
- Use native seed mix or seed-free mulch to minimize surface erosion and the introduction of noxious weeds.
- If special-status plant species are identified within the construction disturbance zone, in particular within restoration and revegetation areas, avoid special-status plant populations during construction activities. If the project manager is unable to avoid adverse impacts to rare plants, immediately contact the Park Botanist prior to work. Adverse impacts to the Yosemite bog orchid, in particular, are not acceptable. The Park Botanist will work with the project manager to mitigate unavoidable impacts to other special-status plants in the vicinity.
- If it is not feasible for construction activities to avoid special-status plant species (with the exception of the Yosemite bog orchid, which must be avoided), species conservation measures will be developed in coordination with Yosemite National Park natural resources staff. Measures may include salvage of special-status plants for use in revegetating disturbed areas and transplantation of special-status plants wherever possible using methods and monitoring identified in the revegetation plan, monitoring to ensure successful revegetation, protection of plantings, and replacement of unsuccessful plant materials if practicable.
- Provide proper and timely maintenance for vehicles and equipment used during construction to reduce the potential for mechanical breakdowns.
- Use silt fencing at drainages to prevent construction materials from escaping work areas.

Refer to the *Badger Pass Lodge Rehabilitation Project Environmental Assessment* Appendix B for a complete list of Best Management Practices and resource-specific mitigation measures applicable to the proposed action. The proposed action has been designed to avoid or mitigate harmful effects to wetlands.

## Site Restoration

The last phase of the project is site restoration. Following construction activities, disturbed areas will be graded and recontoured, as necessary, to revegetate with appropriate wetland, riparian, and upland plant species. Ground surface treatment will include grading to natural contours, topsoiling, seeding, and planting. Accepted erosion protection measures, including jute mesh and hydro mulch, may be used, if necessary, to prevent soil loss. The National Park Service will prepare a prescription for revegetating any disturbed areas, including riverbanks, to be included in the

construction specifications. This prescription would comply with the Yosemite *Vegetation Management Plan* (NPS 1997) and the *Invasive Plant Management Plan* (2008). Revegetation of disturbed sites would be conducted by park staff immediately following construction to reduce the potential for non-native plant invasion. All plant materials will be from genetic stock indigenous to Yosemite National Park, including trees, shrubs, and forbs obtained from the construction site by salvage methods or by propagating container plants from seed or cuttings. Following restoration efforts, the reclaimed sites will be monitored to determine if reclamation efforts are successful or if additional remedial actions are necessary. Remedial actions could include the installation of erosion control structures, reseeding, and/or replanting the area, and controlling non-native plant species.

### **Proposed Compensation**

Potential compensation for disturbance to wetlands, if any, will be agreed to by the National Park Service and the USACE, and implemented by the National Park Service.

## **Justification**

### **Nonwetland Alternatives to the Proposed Action**

The Badger Pass Lodge Rehabilitation Project would occur within lower perennial riverine, palustrine scrub-shrub and palustrine emergent wetland habitat. The purpose of the project is to meet the policy goals stated in the NPS *Management Policies 2006* by correcting structural and design deficiencies that are contributing to the deterioration of the Badger Pass Ski Lodge, a contributing feature to the Badger Pass Ski Area historic site, and/or are affecting visitor services, and to support the park management goals for Badger Pass, as identified in the Yosemite *General Management Plan*. The rehabilitation project would repair and stabilize deteriorated structural and exterior elements to prevent further damage, and contribute to full rehabilitation of the ski lodge and associated support facilities.

Due to the historic location of the existing structures, there are no alternatives to the proposed action that could be located outside wetland and aquatic habitat.

### **New Development**

Alternative 3 would replace the temporary east building (Alpine rental building) and the temporary Nordic rental building with permanent buildings. There are wetlands to the east and south of the Alpine rental building, to the south of the original ski lodge, and to the south and west of the west building (Figure C-2). The Nordic rental building is also adjacent to wetlands. The new Alpine rental building and rehabilitated west building would maintain their existing square footage, but would be expanded into a previously developed and paved area. The new Nordic building would be slightly larger and shifted westward, away from existing wetlands. Proposed site drainage improvements along the east, south, and west side of the ski lodge complex are within wetland areas; they would be designed to redirect surface drainage away from the building towards the wetlands and Grouse Creek.

## **Existing Development**

A number of structures exist within the proposed project area. Buildings within the project area include the west building, the main lodge, the east building (Alpine rental building) and the Nordic rental building.

## **Redevelopment**

Alternative 3 would rehabilitate the west building and the main lodge.

## **Conclusion**

Alternative 3 would likely have localized, adverse, direct, short-term, minor impacts to wetlands within the project vicinity. No permanent adverse impacts to wetlands would occur from implementation of the proposed action. The National Park Service has determined that there is no practicable alternative that could be located outside of the wetland habitat and meet the stated goals of the Badger Pass Ski Lodge Rehabilitation Project.

Individual permits with other federal and cooperating state and local agencies will be obtained or updated as appropriate prior to construction and removal activities. There would be no change to the natural and cultural integrity of the park, or discernable effects to resource values identified in the 1980 *Yosemite General Management Plan*. Therefore, the National Park Service finds the proposed action to be acceptable under Executive Order 11990 for the protection of wetlands.

## **References**

Central Valley Regional Water Quality Control Board (CVRWQCB)

1998. *The Water Quality Control Plan (Basin Plan) for the California Regional Water Quality Control Board, Central Valley Region*. Sacramento River Basin and San Joaquin River Basin. Fourth Edition.

National Park Service (NPS)

1997 *Vegetation Management Plan*, Yosemite National Park, California

NewFields (NewFields Environmental Planning and Compliance, LLC)

2009 “Badger Pass Ski Lodge Rehabilitation Project Delineation of Jurisdictional Waters, Including Wetlands.” Prepared by: Adam Hamburg, NewFields Environmental Planning and Compliance, LLC, Las Vegas, Nevada. Prepared for: National Park Service, Yosemite National Park, California.

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[www.nps.gov/yose/](http://www.nps.gov/yose/)

As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public land 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 historical 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 on 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.

