Final

YOSEMITE VALLEY PLAN

Supplemental Environmental Impact Statement

volume Ia

Purpose and Need

Alternatives

Affected Environment

National Park Service
Yosemite National Park
California

United States Department of the Interior

United States Department of the Interior
NATIONAL PARK SERVICE
Yosemite National Park
P.O. Box 577
Yosemite National Park, CA 95389

Dear Yosemite Friends,

It is with a great deal of pleasure that I present to you the *Final Yosemite Valley Plan/Supplemental Environmental Impact Statement*. It is the culmination of a monumental effort by our planning team to synthesize your comments and concerns and integrate them into this framework for how the National Park Service proposes to manage Yosemite Valley in the future.

I want to add my personal thanks to each and every one of you who considered the draft and offered your input in some way. Many of you took the time to write to us. Many of you met and spoke with park staff directly involved in the plan's development. You may have attended one of the many formal public meetings held throughout California. Or perhaps you came to the Valley and participated in a ranger-led walk to see first-hand some of the places under discussion and issues in need of resolution. Many of you took advantage of the over 60 open houses presented at the Yosemite Valley Visitor Center where you were able to interact one-on-one with park staff.

It gratified me to meet so many of you and hear the breadth and depth of your feeling for Yosemite. As evidenced by your involvement, you took your role as citizens seriously and played a vital part in the plan's development. Moreover, it made me proud to be part of a park staff who believe as strongly as you do in Yosemite's future. By listening to your thoughts and incorporating them into our proposals, we were able to craft a better plan together.

We believe this *Final Yosemite Valley Plan/Supplemental Environmental Impact Statement* before you is just that—a better plan. Its implementation will result in a Yosemite Valley that better provides for your enjoyment of the park in a way that leaves this special place unimpaired for future generations. We listened to your testimony, read your letters, considered your comments, and heard what you said about how much you care for this special place. As a result, our Preferred Alternative was modified. Look closely and I think you will see a future Yosemite experience that will allow everyone to enjoy this place in a way that is commensurate with Yosemite's scenic majesty and grandeur, leaving behind the crowding, cars, and congestion that seem to be an increasing part of our everyday lives.

The National Park Service cares for special places saved by the American people so that all may experience our heritage. In every comment, in every concern, I heard that you care too. You entrust to the National Park Service a stewardship role for Yosemite and other special places like it. Our common ground is our caring for these places. Our common purpose is caring for Yosemite so that all may experience it. Our future generations depend on us to continue to work together to achieve these noble goals.

I look forward to continuing the dialogue.

Sincerely,

David A. Mihalic
Superintendent

Final Yosemite Valley Plan
Supplemental Environmental Impact Statement

Yosemite National Park

Lead Agency: National Park Service

ABSTRACT

The purpose of this *Final Yosemite Valley Plan/Supplemental Environmental Impact Statement* is to present and analyze alternatives that take a comprehensive look at Yosemite Valley – from Happy Isles at the east end of the Valley to the El Portal Road/Big Oak Flat Road intersection at the west end. The *Final Yosemite Valley Plan/Supplemental Environmental Impact Statement* provides direction and proposes specific actions to preserve Yosemite Valley's natural, cultural, and scenic resources, and to provide opportunities for high-quality, resource-based experiences for visitors. It is based on the broad goals of the 1980 *General Management Plan.* The results of studies and new information developed since 1980 have guided the development of this document. The four general areas of concern toward which specific actions are directed include: (1) resource preservation and restoration, (2) visitor enjoyment, (3) transportation, and (4) employee housing.

This *Final Yosemite Valley Plan/Supplemental Environmental Impact Statement* provides five alternatives for the National Park Service and the public to consider to meet the *General Management Plan's* broad goals for the Yosemite Valley. Under the No Action Alternative, current management direction and trends would continue. Each of the four action alternatives presents comprehensive proposals that would seek to restore degraded areas and to reduce development within the Merced River ecosystem and other highly valued natural and cultural resource environments. Orientation and interpretive services would be enhanced to improve the quality of the visitor experience in Yosemite Valley. The alternatives also seek to reduce automobile congestion. Some housing, administrative operations, and other functions would be removed from the Valley. A traveler information and traffic management system is proposed, and parking options both within and outside Yosemite Valley are analyzed.

Pursuant to the National Environmental Policy Act of 1969, this document analyzes the environmental effects of the project alternatives on resources and visitors. Based on the issues and concerns identified during the public comment process, impact analyses focus on natural and cultural resources, scenic resources, transportation, visitor experience, and the social and economic environments. Analyses include the identification and characterization of direct and indirect effects of each alternative, as well as evaluation of cumulative effects of the project alternatives in conjunction with other past, present, and reasonably foreseeable future actions.

Questions regarding this document can be addressed to:

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Yosemite National Park, California 95389

or visit the web site: *http//www.nps.gov/yose/planning.htm*

Final

YOSEMITE VALLEY PLAN

Supplemental Environmental Impact Statement

VOLUME IA

November 2000

National Park Service
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YOSEMITE NATIONAL PARK • CALIFORNIA
United States Department of the Interior

Scot Miller

The cover photographs for all volumes of this document were taken by nature and scenic photographer Scot Miller. Since his first visit to Yosemite in 1990, Miller has tried to capture the magnificence and grandeur of the park. Through his photography he hopes to inspire others to have an appreciation and understanding of Yosemite's uniqueness, along with its value as a national treasure worth preserving for future generations. He currently lives in Carrollton, Texas.

Lawrence Ormsby

The illustrations in this document were drawn in pencil and pen and ink by Lawrence Ormsby, partner in Ormsby and Thickstun Interpretive Design. For more than two decades, Ormsby has worked with National Park Service interpreters and historians to prepare illustrations for interpretive publications and exhibits. This year he received the National Park Service Director's Award for his illustration and cartography work in *A Land in Motion: California's San Andreas Fault*. He currently lives in Cave Creek, Arizona.

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Cover photos by Scot Miller

Yosemite Falls Mirror Image (front cover)

El Capitan and Yosemite Valley (back cover)

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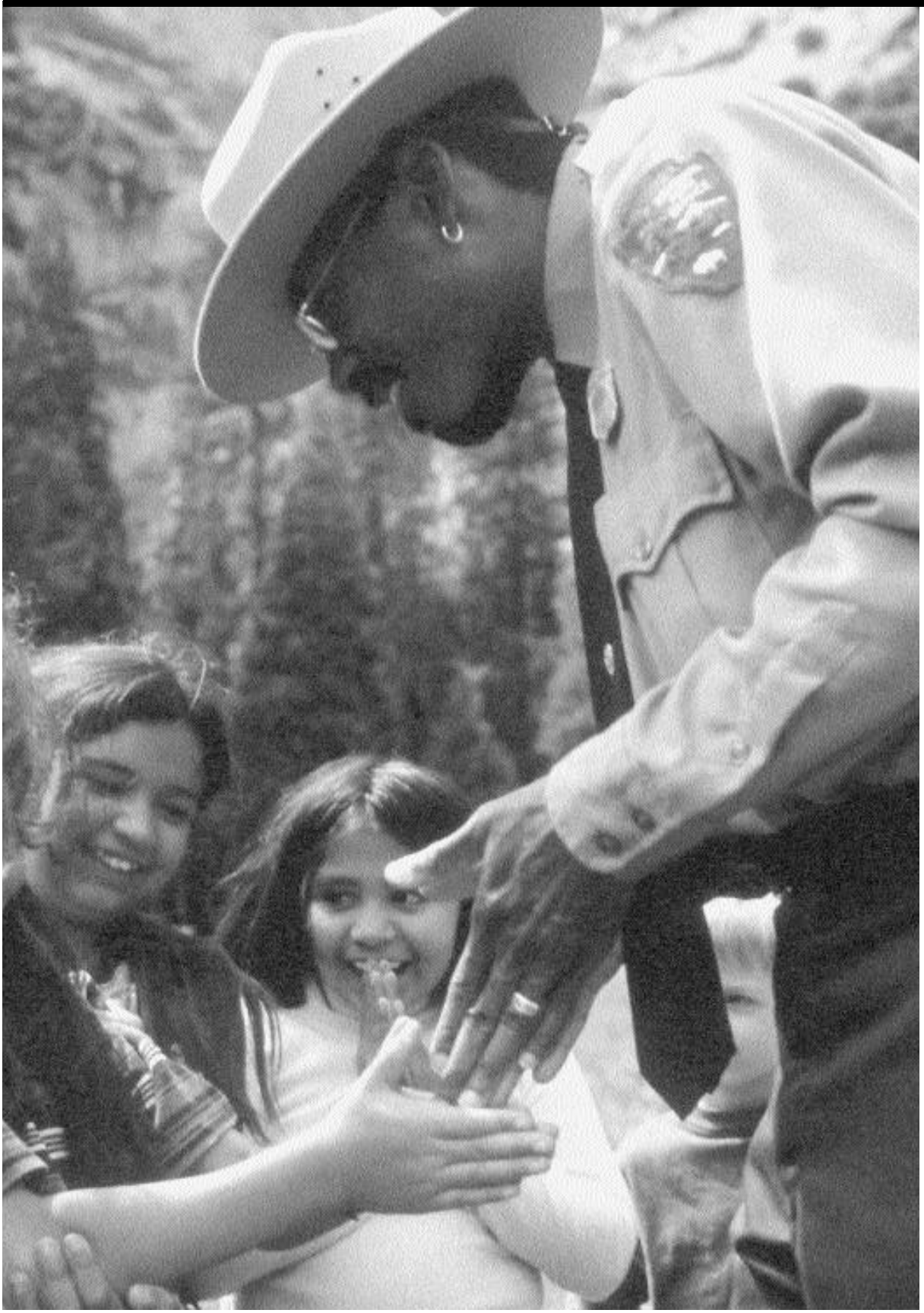


Executive Summary

Final Yosemite Valley Plan

Supplemental EIS

Photo on previous page courtesy of NPS

Ranger Sheldon Johnson with children in Yosemite Valley. A walk or talk with a National Park Service interpretive ranger can build lasting memories of a Yosemite visit.

EXECUTIVE SUMMARY

INTRODUCTION

This document is the Final Yosemite Valley Plan/Supplemental Environmental Impact Statement. It is a revision of the Draft Yosemite Valley Plan/Supplemental Environmental Impact Statement that was released for public review in April 2000. It presents and analyzes alternative proposals for managing natural and cultural resources, facilities, and visitor experience in Yosemite Valley. Following a required 30-day period of no action, the Pacific West Regional Director of the National Park Service is expected to sign a Record of Decision. This Record of Decision will represent the conclusion of the planning process and provide guidance for future actions in Yosemite Valley.

Focusing primarily on Yosemite Valley, the *Final Yosemite Valley Plan/Supplemental Environmental Impact Statement (Final Yosemite Valley Plan/SEIS)* would implement many of the provisions found in Yosemite National Park's 1980 *General Management Plan*. The *General Management Plan* established the five broad goals listed below to guide the management of Yosemite National Park and to perpetuate its natural splendor:

- Reclaim priceless natural beauty
- Allow natural processes to prevail
- Promote visitor understanding and enjoyment
- Markedly reduce traffic congestion
- Reduce crowding

The *General Management Plan* recognized that new analyses would be necessary to determine how best to accomplish these goals. Since 1980, additional studies and analyses have been conducted (along with additional planning and public involvement), particularly related to natural processes, transportation, and housing. Information from these analyses has been used in the preparation of this singular, comprehensive planning effort for Yosemite Valley. Because information from these additional analyses has been incorporated into this planning effort, the *Final Yosemite Valley Plan/SEIS* would modify some specific provisions while implementing many other provisions of the *General Management Plan*. Therefore, the *Final Yosemite Valley Plan/SEIS* would amend the 1980 *General Management Plan/Environmental Impact Statement* for Yosemite National Park.

The Merced Wild and Scenic River Comprehensive Management Plan

One of the principal results of analyses completed since 1980 is the clear recognition that, along with Yosemite Valley's granite formations and waterfalls, the Merced River is central to the Valley's scenery and ecological processes. In 1987, Congress designated the Merced River a Wild and Scenic River to protect the river's free-flowing condition and protect and enhance its unique values for the benefit and enjoyment of present and future generations.

In August 2000, the National Park Service signed the Record of Decision for the *Merced Wild and Scenic River Comprehensive Management Plan/FEIS* (*Merced River Plan*) (NPS 2000c). The *Merced River Plan* provides direction and guidance on how best to manage Yosemite National Park and El Portal Administrative Site lands within the river corridor for the protection and enhancement of Outstandingly Remarkable Values. The *Merced River Plan* will now become a foundation for related implementation plans and provide general direction and guidance for future management decisions. The action alternatives considered in the *Final Yosemite Valley Plan/SEIS* are consistent with the Record of Decision for the *Merced Wild and Scenic River Comprehensive Management Plan/FEIS*.

Purpose of and Need for the Action

The purpose of the *Final Yosemite Valley Plan/SEIS* is to present and analyze comprehensive alternatives for Yosemite Valley—from Happy Isles at the east end of the Valley to the intersection of the El Portal and Big Oak Flat Roads at the west end. It also presents and analyzes actions in adjacent areas of the park and the El Portal Administrative Site that would occur as a result of actions implemented in Yosemite Valley.

Specific purposes of the *Final Yosemite Valley Plan/SEIS* within Yosemite Valley are to:

- Restore, protect, and enhance the resources of Yosemite Valley
- Provide opportunities for high-quality, resource-based visitor experiences
- Reduce traffic congestion
- Provide effective park operations, including employee housing, to meet the mission of the National Park Service

The *Final Yosemite Valley Plan/SEIS* presents four action alternatives for consideration to enable the National Park Service to move toward meeting the *General Management Plan's* broad goals for the Valley. Each of the four action alternatives presents a distinct vision for preserving the resources that contribute to Yosemite Valley's splendor and uniqueness while making the resources available to people for their enjoyment, education, and recreation. In conjunction with protecting the Valley's natural and cultural resources and providing for high-quality visitor experiences, there is a need to provide improved facilities and services for people who visit and work in Yosemite Valley.

Previous Yosemite Valley Planning Efforts

The 1980 *General Management Plan* envisioned that additional planning, comprehensive designs for specific areas, and environmental compliance would be needed to evaluate how to best achieve its broad goals. Several major planning efforts relative to Yosemite Valley were initiated to implement aspects of the *General Management Plan* (1980) as amended by the *Concession Services Plan* (1992). These include the *Draft Yosemite Valley Housing Plan/SEIS* (1992 and 1996 addendum), the *Draft Yosemite Valley Implementation Plan/SEIS* (1997), the *Yosemite Lodge Development Concept Plan/EA/FONSI* (1997, modified 1998), and the Yosemite Falls Project. In response to litigation and public comments requesting a comprehensive plan to examine all of these activities together, the National Park Service consolidated these planning efforts into one single, comprehensive approach. Thus, the *Yosemite Valley Plan* would incorporate many of the goals of these previous plans and re-evaluate their interactions.

Direction for this Planning Effort

Park Purpose and Significance

Yosemite National Park was established and is managed in accordance with a series of laws, regulations, and executive orders. Two primary purposes for Yosemite National Park have been established:

- To preserve the resources that contribute to Yosemite's splendor and uniqueness, including its exquisite scenic beauty, outstanding wilderness values, and a nearly full diversity of Sierra Nevada environments.
- To make the varied resources of Yosemite available to people for their enjoyment, education, and recreation now and in the future.

Goals

In the mid-1970s, the National Park Service began the comprehensive planning process that was completed in 1980 with approval of the Yosemite National Park *General Management Plan*. Nearly 60,000 individuals, organizations, and government agencies received planning information during plan development, and 20,000 actively participated in the planning process. The broad goals identified in the *General Management Plan* and described below have been reaffirmed repeatedly and have guided development of the alternatives evaluated in the *Final Yosemite Valley Plan/SEIS*.

Reclaim priceless natural beauty

Yosemite Valley is recognized worldwide for its unique, stunning beauty. The proposed alternatives should build on actions already initiated to reduce the amount of administrative functions and commercial services and visual intrusions in Yosemite Valley.

Allow natural processes to prevail

Many of Yosemite Valley's natural processes have been altered, thus affecting the dynamic ecosystem that plays a major role in maintaining the Valley's scenic beauty. The proposed alternatives should restore significantly altered natural systems and protect unaltered systems.

Promote visitor understanding and enjoyment

Yosemite Valley offers visitors opportunities to experience the Valley's scenic, natural, and cultural resources. An appropriate balance of development and use should preserve nature's wonders and keep them from being overshadowed by the intrusions of the human environment. The alternatives should foster these diverse opportunities and resource stewardship through enhanced interpretive programming and effective, high-quality educational facilities.

Markedly reduce traffic congestion

Since 1917, private vehicles have provided increased access to Yosemite Valley. But these vehicles also affect resources and intrude on visitor experiences. The alternatives should seek to reduce traffic and congestion and move toward the *General Management Plan's* ultimate goal of freeing the Valley of the environmental and experiential degradation caused by thousands of vehicles.

Reduce crowding

Yosemite National Park's popularity continues to grow, and during peak visitation, crowding can diminish the quality of visitors' experiences. The National Park Service proposes to continue studies on the character of the Yosemite visitor experience and effects of crowding, and how best to achieve desired future conditions.

Criteria

Criteria were developed to provide guidance for accomplishing the broad goals of the 1980 *General Management Plan* in Yosemite Valley and the specific purposes of the *Yosemite Valley Plan*. The four action alternatives were selected based on the degree to which they met, and as appropriate, integrate these criteria:

- Protect and enhance natural and cultural resources
- Enhance visitor experience
- Provide effective operations
- Provide appropriate land uses

Public Involvement

Public participation in the planning process helps to ensure that the National Park Service fully understands and considers the public's interest. Through public involvement, the National Park Service shares information about the planning process, issues, and proposed actions.

Scoping

The scope of issues addressed in the environmental analysis of the *Final Yosemite Valley Plan/SEIS* was identified through consideration of concerns and issues expressed by the public about Yosemite Valley planning. Scoping has been ongoing since 1991 as part of the previous planning efforts consolidated into the *Final Yosemite Valley Plan/SEIS*. Concerns and issues identified during scoping fell into five topic areas: natural environment, cultural resources, visitor experience, transportation, and social and economic environments. These five topic areas were the basis for formulating a reasonable range of alternatives and guiding the environmental impact analysis.

Public Comment

The public comment period on the *Draft Yosemite Valley Plan/SEIS* (April 7 to July 14, 2000) brought forth approximately 10,200 letters, postcards, e-mails, faxes, comment forms, and public hearing testimony. Every comment was read and analyzed by a member of the planning team. After careful consideration of each of the issues and the range of public comment, and consultation with federal agencies and American Indian Tribes, the management/planning team recommended changes to the draft document. See Volume III, Public Comments and Responses, for a complete record of public comments and National Park Service responses.

In addition to written public comment, the National Park Service held 14 public meetings throughout California. Approximately 1,500 people attended the public meetings. Meetings were also held nationwide, in Seattle, Denver, Chicago, and Washington, D.C.

Concerns and Issues

Concerns identified during the public comment period that were within the scope of the *Draft Yosemite Valley Plan/SEIS* helped determine the need to revise the draft. Issues receiving the largest proportion of comments, or presenting difficult choices, included air quality, bridges, historic resources, camping, lodging, regional transportation, development, equity, timing of plans, environmental compliance, community impacts, phasing, and stock use.

Issues Beyond the Scope and Direction of this Planning Effort

Preparing a New General Management Plan

The *Yosemite Valley Plan* would amend the *General Management Plan*; however, it is not intended to replace it. The scope of the 1980 *General Management Plan* includes all of Yosemite National Park. The objective of the *Yosemite Valley Plan* is to provide more specific detail in carrying out the goals and actions that relate to Yosemite Valley.

Regional Transportation

Decisions on development of a regional transportation system will not be made through the *Yosemite Valley Plan*. Instead they will be made through processes coordinated through the Yosemite Area Regional Transportation System (YARTS) or other regional planning efforts. The *General Management Plan* guides Yosemite National Park in the development of a regional transportation system as a preferred long-term approach for transporting people to the park. The National Park Service does not have authority to create a regional transportation system outside park boundaries. However, park management will continue to work cooperatively with surrounding communities, the State of California, and the U.S. Department of Transportation to create a regional transit system, as called for in the *General Management Plan*.

Relationship to Other Park Plans and Projects

Yosemite National Park has many other current plans and ongoing planning efforts. Those most directly related to the *Final Yosemite Valley Plan/SEIS* or potentially affected by it are described below.

Merced Wild and Scenic River Comprehensive Management Plan

In 1987, Congress designated a 122-mile section of the Merced River as a Wild and Scenic River. The National Park Service, the U.S. Forest Service, and the Bureau of Land Management administer the Merced Wild and Scenic River in separate segments. In 1999 and 2000, the National Park Service developed a comprehensive management plan for the 81-mile section of the Merced Wild and Scenic River under its jurisdiction. The *Draft Merced Wild and Scenic River Comprehensive Management Plan/EIS* was reviewed by the public in early 2000 and the Record of Decision was authorized in August 2000. The purpose of the finalized *Merced River Plan* is to provide direction and guidance on how best to manage National Park Service lands, including the El Portal Administrative Site, within the river corridor to protect and enhance river values. The *Final Yosemite Valley Plan/SEIS* follows management direction established in the *Merced River Plan* for actions proposed within the river corridor in Yosemite Valley, Wawona, and the El Portal Administrative Site (see Vol. 1A, Chapter 3, Merced Wild and Scenic River; Vol. 1B, Chapter 4; and Vol. 1C, plates G-1 through G-3).

Concession Services Plan

The *Concession Services Plan/SEIS*, approved in 1992, presented guidance for management of concession services in Yosemite National Park to meet *General Management Plan* goals. The *Concession Services Plan* amends the *General Management Plan*, and provisions of it are incorporated into the action alternatives of the *Final Yosemite Valley Plan/SEIS*. The intent of the *Yosemite Valley Plan* would be to implement the provisions of the *Concession Services Plan*, unless data on floodplain, geologic hazard, or highly valued resource areas or new operational requirements suggest the need for adjustment. In these instances, the *Final Yosemite Valley Plan/SEIS* would modify the *Concession Services Plan*.

Resources Management Plan

The *Resources Management Plan* for Yosemite National Park was updated in 1994. It presents an inventory and description of natural and cultural resources; describes and evaluates the current resources management program; and prescribes an action program based on legislative mandates, National Park Service policies, and provisions of related planning documents. Actions within the *Final Yosemite Valley Plan/SEIS* have been developed in harmony with the goals of the *Resources Management Plan*.

Flood Recovery Projects

In early January 1997, one of the greatest floods in the park's history occurred. The flood came just as the *Draft Yosemite Valley Implementation Plan* was being prepared for release. This timing increased both the complexity of and opportunities for the planning process.

The January 1997 flood was comparable to three other floods over the last 100 years. It demonstrated the vulnerability of facilities constructed in the floodplain. The flood also allowed visitors to experience Yosemite Valley with reduced development. It presented opportunities and some funding to relocate damaged facilities and to increase restoration of riverside environments. It is these post-flood conditions that are being used as a fresh starting point for the *Final Yosemite Valley Plan/SEIS*.

El Portal Road Reconstruction Project

The El Portal Road, a main route into Yosemite Valley, was damaged extensively during the January 1997 flood. An environmental assessment was prepared in 1997 to propose repairs and safety improvements, including widening travel lanes by 1.5 feet, improving drainage, and constructing guardwalls to meet crash-test standards. Litigation was brought against this project; the resultant court ruling allowed 6 miles of road to be reconstructed, but enjoined work on the remaining 1.1 miles (from the intersection of the El Portal and Big Oak Flat Roads east to Pohono Bridge) pending further compliance. Reconstruction of the 6 miles of road was completed in the fall of 2000. The removal of the Cascades Diversion Dam, safety improvements at the intersection of the El Portal and Big Oak Flat Roads, and the final 1.1-mile segment of the El Portal Road have been delayed until further environmental analysis can be completed.

Alternatives, Including the Preferred Alternative

Four comprehensive alternatives were developed for the management and use of Yosemite Valley. Each of these four action alternatives meets the *General Management Plan* goals to a varying degree. The action alternatives incorporate information from three previous Yosemite Valley planning documents and from public comments received during scoping and the public review period. Each of these alternatives, as well as the No Action Alternative, has been analyzed and evaluated against specific environmental, economical, and operational criteria to identify the preferred alternative.

Changes Between the Draft and Final Yosemite Valley Plan/SEIS

Public and agency comments received on the *Draft Yosemite Valley Plan/SEIS* assisted park management and planners in identifying substantive concerns, new analyses, and applicable laws and policies. These comments were considered in developing the *Final Yosemite Valley Plan/SEIS*. Major changes that were made as the planning process moved from draft to final are identified in Chapter 2 and shown in Table A.

Changes include making each of the action alternatives comply with the Preferred Alternative and Record of Decision for the *Merced River Plan/FEIS.* Several notable changes occur in the Preferred Alternative as a result of public comment.

- Lodging was re-evaluated and the range of cost options was shifted toward lower-cost units.
- A greater number of Housekeeping Camp units would be retained and the historic integrity of Curry Village would be retained and rehabilitated.
- The number of higher-cost Yosemite Lodge units would be reduced, while Yosemite Lodge guests' connections with the park environment would be enhanced.
- Campsite numbers would be increased.
- The National Park Service would take a phased approach to the removal of historic bridges, re-evaluating its actions based on ecological and hydrologic monitoring findings.
- Out-of-Valley parking along the Big Oak Flat Road would be located on a privately owned parcel known as Hazel Green, or alternatively, at Foresta.
- The medical clinic would continue in its present location.

Development Considerations and Resource Stewardship

In narrow Yosemite Valley, both the cliffs and river present potential hazards to visitors, staff, and facilities. The National Park Service has identified those areas of the Valley better suited for providing the services and facilities necessary to meet the goals of this planning process. Additionally, the National Park Service has determined that particular natural and cultural resources in Yosemite Valley have the highest priority for protection and restoration, based on their sensitivity, biological productivity and diversity, and cultural value. The highly valued natural resources are the Merced River ecosystem, wetlands, riparian communities, meadows, California black oak woodlands, sensitive wildlife habitat, and rich soil areas. The highly valued cultural resources are cultural landscapes, National Historic Landmarks, archeological sites, and burial sites.

The Process of Formulating Alternatives

The action alternatives considered in the *Draft* and *Final Yosemite Valley Plan/SEIS* were developed over the last 9 years. Issues raised during several public comment periods, beginning with scoping on the 1992 *Draft Yosemite Valley Housing Plan/SEIS* and including the public comment period on the *Draft Yosemite Valley Implementation Plan/SEIS* (1997), were carried forward into the scoping for the *Draft Yosemite Valley Plan/SEIS.* A range of reasonable approaches to address these issues and achieve the goals of this plan was discussed, and alternative concepts were developed. Through an internal review process, including a Choosing by Advantage workshop, four comprehensive action alternatives were refined to form the alternatives considered in the *Draft Yosemite Valley Plan/SEIS*.

After the scoping period for the *Draft Yosemite Valley Plan/SEIS* closed, comments were analyzed and a scoping comment analysis report was prepared (USFS 1999b). Public concerns from the report were combined with a re-analysis of comments received on the 1992 *Draft Yosemite Valley Housing Plan/SEIS* (and its 1996 supplement, the 1997 *Draft Yosemite Lodge Development Concept Plan/Environmental Assessment*) and the 1997 *Draft Yosemite Valley Implementation Plan/SEIS*. As discussed previously, most of the concerns identified for the *Draft Yosemite Valley Plan/SEIS* fell within five main issue categories: natural environment, cultural resources, visitor experience, transportation, and social and economic environment (see Vol. IA, Chapter 1, Issues and Concerns). These issues, along with other approaches, were evaluated as to whether they were reasonable and/or feasible.

At this point in the process, some actions were considered and dismissed from detailed study. In general, reasons for dismissing these actions included:

- Technical or economic infeasibility
- Inability to satisfy guidance criteria, meet project goals, or resolve park planning needs in Yosemite Valley

National Park Service staff used the project goals and criteria as well as regulations and policies to combine individual actions and thus develop four concepts for action alternatives. When the alternative concepts had been developed, they were put through a series of evaluations. First, alternative concepts were evaluated within the framework of meeting or, as appropriate, balancing the criteria outlined in Chapter 1, Purpose and Need. This evaluation ascertained whether alternative concepts would need to be modified to better satisfy the guidance criteria for accomplishing the broad goals of the 1980 *General Management Plan* and the specific purpose and need of the *Yosemite Valley Plan*. Next, alternative concepts were evaluated against several factors in the process workshop mentioned earlier called Choosing by Advantage. Although the Choosing by Advantage factors were similar to the aforementioned guidance criteria, they were used in a different way—that is, to evaluate the relative advantages of the alternative concepts. Together, these evaluations enabled the National Park Service to determine where the four alternative concepts required strengthening. The evaluations also assisted the National Park Service in identifying which actions provided the greatest advantage, and how best to combine these alternative concepts to optimize achievement of plan goals.

The Preferred Alternative was chosen after evaluating each alternative based on the following: (1) how well it achieved the goals of the 1980 *General Management Plan*; (2) how well it protected park resources while providing for a quality visitor experience; and (3) how well it addressed issues and concerns expressed by the public. The planning team recommended Alternative 2 as the Preferred Alternative in the *Draft Yosemite Valley Plan/SEIS*.

Actions Common to All Action Alternatives

As the action alternatives were developed and refined, some elements became common to all action alternatives, including:

Implementation of the River Protection Overlay

The River Protection Overlay prescribed in the *Merced River Plan* would be implemented to provide a buffer area for natural flood flows, channel formation, riparian vegetation, and wildlife habitat while protecting riverbanks from human-caused impacts and associated erosion.

Cascades Diversion Dam Project

As part of implementing the *Merced River Plan*, all action alternatives propose the removal of the historic Cascades Diversion Dam. The dam removal would be subject to site-specific environmental compliance, including public involvement. The Cascades Diversion Dam is an impediment to the free-flowing character of the Merced Wild and Scenic River.

El Portal Road Project

Improvements to El Portal Road are included in each action alternative. Between Pohono Bridge and the intersection of Big Oak Flat Road with El Portal Road, roadway improvements for safety and minimization of roadway failure risk would be undertaken after removal of the Cascades Diversion Dam and stabilization of the river channel following dam removal. The road improvements would be subject to site-specific environmental compliance, including public involvement.

Visitor Use in Yosemite Valley and Land Management Zoning

About 70% of all summer visitors to Yosemite National Park travel to Yosemite Valley, which causes recurring problems with traffic congestion and parking during the peak season. The action alternatives provide for day-visitor parking and overnight parking for private vehicles and tour buses sufficient to accommodate this level of visitation. The number of parking spaces varies in each alternative to match the levels of overnight use in the corresponding alternative. (Chapter 2, table 2-1, shows expected visitor use based on overnight and day-visitor parking facilities for each alternative.)

The *Final Yosemite Valley Plan/SEIS* does not propose specific limits on visitation. The *General Management Plan* prescribed a maximum daily use (i.e., day and overnight use) level for Yosemite Valley, based on analysis of facilities and vehicles, with no criteria for protection of

resources or visitor experience. In the *Final Yosemite Valley Plan/SEIS*, a Visitor Experience and Resource Protection (VERP) study and program is to be implemented within 5 years of the Record of Decision for the *Final Yosemite Valley Plan/SEIS*.

Based on data obtained during the VERP study, the National Park Service would:

- Establish management zoning that complements the management zoning established in the *Merced River Plan*
- Develop indicators to measure visitor experience and resource conditions
- Develop standards that define acceptable measurements for each indicator
- Develop an assessment program to monitor standards
- Develop a decision-making process to be used in identifying management actions necessary to maintain or restore desired conditions
- Develop visitor-use level recommendations for each zone

Traveler Information and Traffic Management

To ensure that the number of vehicles entering the eastern portion of Yosemite Valley would not exceed roadways and parking capacities, each action alternative proposes the design and implementation of a traveler information and traffic management system. This system would be designed to improve visitor experience and safety, reduce congestion, and protect natural and cultural resources.

The traveler information and traffic management system would provide visitors with information about where to park private vehicles and the availability of overnight accommodations in Yosemite Valley well before they arrive at the park. The system could provide information and incentives to encourage day visitors to use out-of-Valley parking or (if available) use transit buses during times of peak visitation. If other measures of the system do not sufficiently reduce the number of visitors who travel into the Valley and sufficiently reduce traffic congestion, a traffic check station may be constructed on Southside Drive in the area of the El Capitan crossover.

McCauley Ranch Stable Operations

The National Park Service proposes removing the National Park Service and concessioner administrative stables operations from Yosemite Valley and relocating them to McCauley Ranch near Foresta. The *Final Yosemite Valley Plan/SEIS* analyzes potential environmental impacts of this action; however, before any action is taken, a Wilderness suitability or nonsuitability assessment must be prepared.

If McCauley Ranch is suitable for designation as Wilderness, stable operations would be relocated within Yosemite Valley to a site in the vicinity of the historic Curry dump, east of Curry Village. In this case, in all but Alternative 5, Yosemite Valley stables would support only district stock and trails operations.

Identification of the Preferred Alternative

Developing a single alternative that takes a maximum-benefit approach to (1) achieving the broad goals established in the *General Management Plan*; (2) meeting the purpose of this planning process; and (3) meeting the guidance criteria (see Chapter 1) is challenging because of inherent conflicts among the various goals and criteria. In many cases, an alternative that yields a maximum benefit to one project goal or criteria would likely result in reduced benefits in achieving another goal or criteria. Therefore, the alternative that best meets the various goals and their criteria would yield the highest sum of benefits.

The Preferred Alternative was selected based on:

- A comparison of the intensity, magnitude, and duration of environmental consequences of alternatives
- The alternative's ability to best satisfy the stated purpose and need for action
- How well the alternative satisfies the goals and criteria discussed in Chapter 1

Based on the above, Alternative 2 has been identified as the Preferred Alternative for the *Final Yosemite Valley Plan/SEIS*. Alternative 2 provides the best approach to demonstrating success at accomplishing the purpose and need for action: to restore, protect, and enhance natural and cultural resources, including the Merced River's Outstandingly Remarkable Values; reduce automobile traffic congestion; provide opportunities for enhanced, high-quality, resource-based visitor experiences; and provide effective park operations.

Overview of the Alternatives

Brief descriptions of each of the five alternatives evaluated in the *Final Yosemite Valley Plan/SEIS* are presented below. A fully developed, more detailed description is provided in Chapter 2, with an overview summary in Table A. A thorough discussion of the environmental impacts of each of the alternatives is described in Vol. IB, Chapter 4, Environmental Consequences. Graphical representations of actions presented in the alternatives are included in Vol. IC, Plates.

Alternative 1
(The No Action Alternative)

This alternative maintains the status quo in Yosemite Valley, as described in Vol. IA, Chapter 3, Affected Environment. It provides a baseline from which to compare other alternatives, to evaluate the magnitude of proposed changes, and to measure the environmental effects of those changes. There are currently 407 acres of existing development within Yosemite Valley.

No dramatic or comprehensive changes would take place in the management of Yosemite Valley. Primary modes of transportation into Yosemite Valley would be by private vehicle and bus. Access would continue to be controlled by the Restricted Access Plan during periods of high visitation. A combination of scattered parking and formal and informal parking lots would be maintained. Campsites and lodging units would remain at current levels (i.e., the number remaining after the January 1997 flood and its subsequent cleanup). The Valley Visitor Center would remain in its present location in Yosemite Village. A comprehensive approach to restoring highly valued natural communities in Yosemite Valley, such as the Merced River corridor, meadows, and wetlands, would not take place. The west end of Yosemite Valley would remain largely undeveloped.

Alternative 2 (Preferred Alternative)

Yosemite Village and Out-of-Valley Parking
(El Portal, Badger Pass, and Hazel Green or Foresta)

Alternative 2 would restore approximately 176 developed and disturbed acres in Yosemite Valley to natural conditions. In addition, 173 acres of developed land would be redeveloped and 73 acres of undeveloped land would be developed to accommodate visitor and employee services such as campgrounds, day-visitor parking, and employee housing. Alternative 2 would consolidate parking for day visitors at Yosemite Village, where a new Valley Visitor Center would be located, and in parking areas outside Yosemite Valley. There would be more campsites and fewer lodging units than there are now. This alternative would result in a major reduction in vehicle travel in the eastern portion of Yosemite Valley during periods of peak visitation. The area of the former Upper River and Lower River Campgrounds would be restored to a mosaic of meadow, riparian, and California black oak woodland communities. Roads would be removed from Ahwahnee and Stoneman Meadows, and parking and fruit trees would be removed from Curry Orchard and the area restored to natural conditions. Southside Drive would be converted to two-way traffic from El Capitan crossover to Curry Village, and Northside Drive would be closed to motor vehicles and converted to a multi-use (bicycle and pedestrian) paved trail from El Capitan crossover to Yosemite Lodge. There would be minimal new development west of Yosemite Lodge. The net effect of this alternative would be to reduce development in Yosemite Valley by 71 acres.

Alternative 3

Taft Toe Parking
(No Out-of-Valley Parking)

Alternative 3 would restore approximately 209 developed and disturbed acres in Yosemite Valley to natural conditions. In addition, 148 acres of developed land would be redeveloped and 99 acres of undeveloped land would be developed to accommodate visitor and employee services. This alternative would consolidate parking for day visitors in the Taft Toe area in mid-Yosemite Valley. A new Valley Visitor Center would be constructed at Taft Toe. There would be fewer campsites and lodging units than there are now. The area of the former Upper and Lower River Campgrounds and the Camp 6 parking area near Yosemite Village would be restored to riparian habitat, roads would be removed from Ahwahnee and Stoneman Meadows, and parking and the historic fruit trees would be removed from Curry Orchard. Northside Drive would be converted to a multi-use paved trail for pedestrians and bicyclists from Yosemite Lodge to El Capitan Bridge. Southside Drive would be converted to two-way traffic from Taft Toe to Curry Village. The net effect of this alternative would be to reduce development in Yosemite Valley by 72 acres.

Alternative 4

Taft Toe and Out-of-Valley Parking
(El Portal, Badger Pass, and South Landing)

Alternative 4 would restore approximately 194 developed and disturbed acres in Yosemite Valley to natural conditions. In addition, 154 acres of developed land would be redeveloped and 99 acres of undeveloped land would be developed to accommodate visitor and employee services. Parking for day visitors would be consolidated in the Taft Toe area in mid-Yosemite Valley and in three parking areas outside the Valley. A new Valley Visitor Center would be constructed at Taft Toe, and there would be fewer campsites and lodging units than there are now. The area of the former Upper and Lower River Campgrounds and the Camp 6 parking area near Yosemite Village would be restored to riparian communities. Roads would be removed from Ahwahnee and Stoneman Meadows, and parking would be removed from Curry Orchard. Northside Drive would be converted to a multi-use paved trail for hikers and bicyclists from Yosemite Lodge to El Capitan crossover. Southside Drive would be converted to two-way traffic from Taft Toe to Curry Village. The net effect of this alternative would be to reduce development in Yosemite Valley by 66 acres.

Alternative 5

Yosemite Village and Out-of-Valley Parking (El Portal, Henness Ridge, and Foresta)

This alternative would restore approximately 157 developed and disturbed acres to natural conditions within Yosemite Valley. In addition, 181 acres of developed land would be redeveloped and 54 acres of undeveloped land would be developed to accommodate visitor and employee services such as campgrounds, day-visitor parking, and employee housing. It would consolidate parking for day visitors at Yosemite Village, where a new transit center would be located, and in parking areas outside of Yosemite Valley. There would be more campsites and fewer lodging units than there are now. The area of the former Upper River and Lower River Campgrounds would be restored to a mosaic of meadow, riparian, and oak woodland communities. Traffic circulation would remain the same as at present; however, one lane of Northside and Southside Drives would be converted to a multi-use paved trail between El Capitan crossover and Yosemite Lodge. There would be minimal new development in the mid-Valley and west Yosemite Valley. The net effect of this alternative would be to reduce development in Yosemite Valley by 63 acres.

Mitigation Measures Common To All Action Alternatives

A consistent set of mitigation measures would be applied to actions resulting from this plan to ensure that implementation of the selected action alternative protects natural and cultural resources and the quality of visitor experience. These mitigation measures would also be applied to future actions guided by this plan. The National Park Service would prepare appropriate environmental review for these future actions, and as part of the environmental review, would avoid, minimize, and mitigate adverse impacts when practicable.

Best Management Practices During Construction

Best Management Practices would be implemented, as appropriate, prior to, during, and/or after specific construction. This would include a variety of operational and construction-related measures, such as implementing a compliance-monitoring program, implementing education programs, and developing architectural character guidelines for new construction in or near historic districts. In addition, resource-specific mitigation measures have been developed for the resource topics evaluated in the *Final Yosemite Valley Plan/SEIS* (see Vol. IB Chapter 4, Environmental Consequences). Best management practices and resource-specific mitigation measures are described in detail in Chapter 2.

Alternatives Considered But Dismissed

A diverse range of actions were considered for projects or activities taking place within Yosemite Valley. While many of these actions are reasonable, others were eliminated from detailed study based on the following reasons:

- Technical or economic infeasibility
- Inability to satisfy guidance criteria, meet project goals, or resolve park-planning needs in Yosemite Valley (see Chapter 1, Purpose and Need)
- Less environmentally damaging or less expensive options are available
- Unacceptable environmental, cultural, or scenic impacts would be caused
- Conflicts with the guidance and direction provided in the *Merced River Plan* for protecting the Merced River's Outstandingly Remarkable Values

Alternatives that were considered and dismissed are described in Chapter 2. Many of these dismissed potential actions related to transportation and parking, while others considered housing, visitor services, and recreation.

AFFECTED ENVIRONMENT

A list of specific resource topics was developed to focus on and compare environmental impacts among the alternatives. These resource topics were selected based on federal law, regulations, executive orders, National Park Service *Management Policies*, National Park Service subject-matter expertise, and concerns expressed by the public or other agencies during scoping and comment periods. Resources evaluated in the *Draft* and *Final Yosemite Valley Plan/SEIS* are listed below:

- Natural resources: water resources, floodplains, wetlands, soils, vegetation, wildlife, special-status species, and air quality
- Geologic hazards
- Scenic resources
- Cultural resources: archeological resources, ethnographic resources, cultural landscape resources, museum collection
- Merced Wild and Scenic River
- Visitor experience
- Transportation
- Noise
- Social and economic environments
- Park operations
- Energy consumption

The existing environment that could be affected by actions proposed in this *Final Yosemite Valley Plan/SEIS* is described in Chapter 3. These conditions establish the baseline for the

analysis of effects found in Vol. IB, Chapter 4, Environmental Consequences. Two additional specific resource topics, wilderness and geology, were dismissed from further analysis. None of the alternatives considered in the *Final Yosemite Valley Plan/SEIS* would appreciably affect these resources.

Environmental Consequences

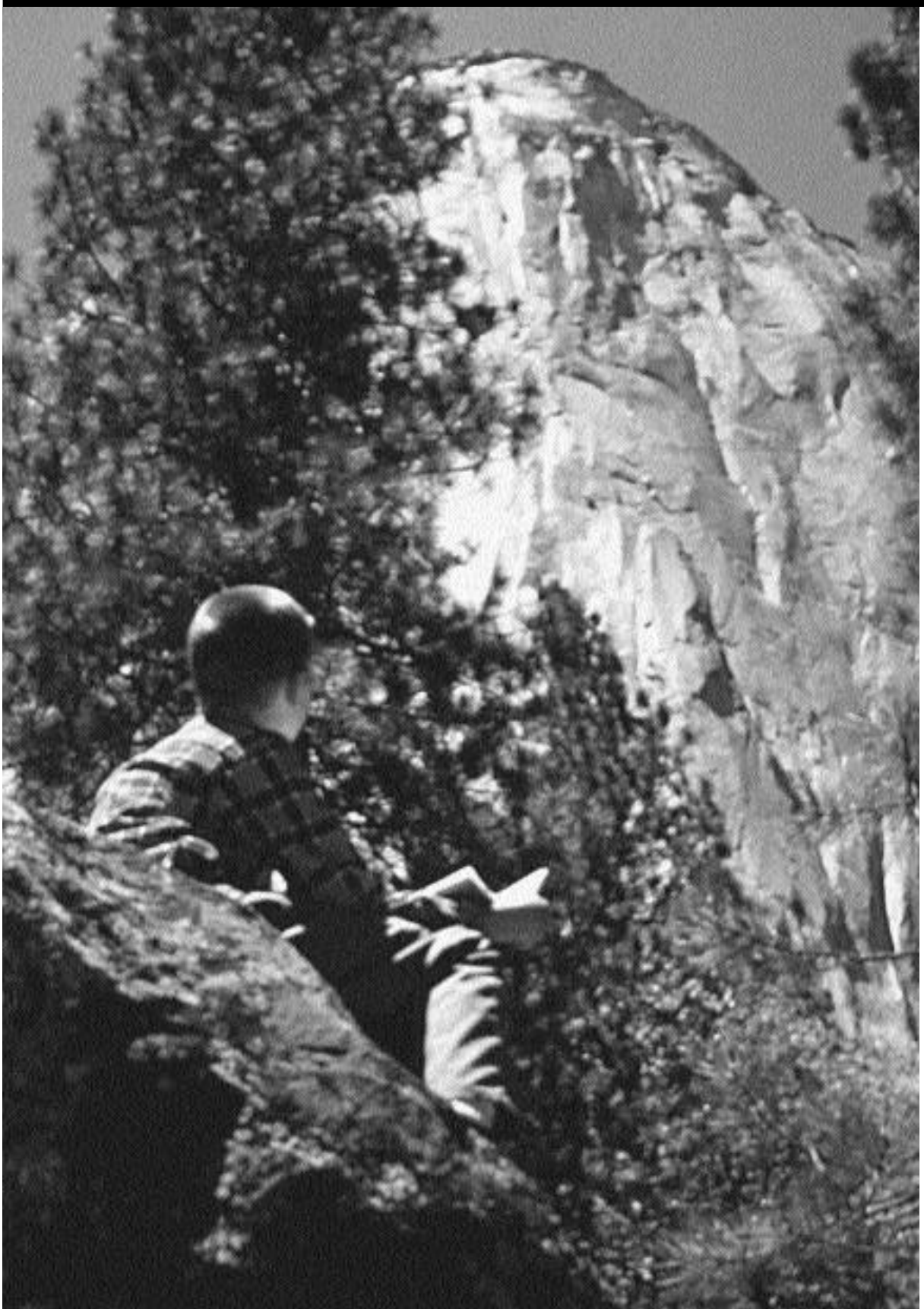
An impact analysis for each of the impact topic areas (listed above) has been completed for each of the five alternatives in the *Final Yosemite Valley Plan/SEIS*. Chapter 4, Environmental Consequences, describes both beneficial and adverse impacts in detail. A summary of environmental impacts for all five alternatives is included in Table B in Vol. IA, Chapter 2.

The National Environmental Policy Act (NEPA) requires identification and characterization of direct, indirect, and cumulative impacts in the impact analysis for each alternative. Analysis for each impact topic includes identification of impacts of the various actions in each alternative; characterization of the impacts (including duration and intensity); applicable mitigation measures and their effect on reducing impacts; a conclusion; and an assessment of cumulative impacts.

A key tool in analyzing impacts to resources is the graphic portrayal of new development and redevelopment areas (see Vol. IC, Plates). Direct impacts were analyzed in part by overlaying areas of new development and redevelopment on top of mapped resources and then evaluating the implications. While areas of potential development must often be generalized because precise locations and delineation at the planning stage are unknown, for purposes of this impact analysis, impacts to vegetation, wildlife habitat, wetlands, and other resources were assessed assuming the entire area delineated would be disturbed.

The National Park Service Director's Order 12 and its attachment, the NPS-12 Handbook (NPS 1999d) suggest an approach to identifying the intensity (or magnitude) and duration of impacts. That approach has been implemented in this evaluation. Indicators of the intensity of an impact, whether it be negligible, minor, moderate, or major, are included in the impact analysis and specifically defined by topic area. Impact duration is noted as either short-term or long-term. Where duration is not noted in the impact analysis, it is considered to be long-term. Mitigating actions listed in Vol. IA, Chapter 2 would be taken during implementation of the alternatives. With the exception of the cultural resource analysis, all impacts would be assessed assuming that mitigating measures have been implemented.

Projects within the region surrounding Yosemite National Park with the potential for impacts on related resources were identified. Reasonably foreseeable future projects include planning or development activity currently being implemented or that would be implemented in the reasonably foreseeable future. These actions were evaluated in conjunction with impacts of each alternative to assess whether they have any additive effects on a particular environmental, cultural, or social resource. A comprehensive list of reasonably foreseeable future actions is provided in Vol. II, Appendix H, Considering Cumulative Effects.



Purpose of and Need for the Action

Final Yosemite Valley Plan

Supplemental EIS

Photo on previous page courtesy of NPS

A goal of this Final Yosemite Valley Plan/SEIS is to ensure that future generations will have opportunities to experience Yosemite Valley in its full splendor; that the Merced River runs undamaged through the length of the Valley; that wildlife and vegetative communities thrive; and that Yosemite Valley's grand scenery continues to inspire people of all ages.

CHAPTER 1

PURPOSE OF AND NEED FOR THE ACTION

It should be noted that [in] permitting the sacrifice of anything that would be of the slightest value to future visitors to the convenience, bad taste, playfulness, carelessness, or wanton destructiveness of present visitors, we probably yield in each case the interest of uncounted millions to the selfishness of a few individuals … Before many years, if proper facilities are offered, these hundreds will become thousands and in a century the whole number of visitors will be counted by millions. An injury to the scenery so slight that it may be unheeded by any visitor now, will be one of deplorable magnitude when its effect is multiplied by these millions. But again, the slight harm which the few hundred visitors of this year might do, if no care were taken to prevent it, would not be slight, if it should be repeated by millions. At some time, therefore, laws to prevent an unjust use by individuals of that which is not individual but public property, must be made and rigidly enforced. The principle of justice involved is the same now that it will be then; such laws as this principle demands will be more easily enforced, and there will be less hardship in their action, if the abuses they are designed to prevent are never allowed to become customary but are checked while they are yet of unimportant consequence.

— Frederick Law Olmsted

The Papers of Frederick Law Olmsted, from Preliminary Report on the Yosemite and Big Tree Grove, August 1865

INTRODUCTION

Yosemite Valley is but a mile wide and seven miles long, yet this tiny place on the face of our planet is a premiere masterwork of the natural world. It is of incalculable value to those who seek it, and it is cherished in the consciousness of those who know it only through works of art and the written word. Yosemite Valley . . . possess[es] superlative scenic grandeur and [is] a constant test of our wisdom and foresight to preserve as a treasure for all people.

Yosemite is now at a crossroad. During a century of public custodianship of this great park, many decisions have been made, all well intended, which have resulted in a march of man-made development in the Valley. Today, the Valley is congested with more than a thousand buildings—stores, homes, garages, apartments, lodging facilities, and restaurants—that are reflections of our society; the Valley floor is bisected by approximately 30 miles of roadway which now accommodate a million cars, trucks, and buses a year. But the foremost responsibility of the National Park Service is to perpetuate the natural splendor of Yosemite and its exceedingly special Valley.

— *General Management Plan,* 1980

The 1980 *General Management Plan* established five broad goals[1] to guide the management of Yosemite National Park and to perpetuate its natural splendor:

- Reclaim priceless natural beauty
- Allow natural processes to prevail
- Promote visitor understanding and enjoyment
- Markedly reduce traffic congestion
- Reduce crowding

These five goals are intertwined, and no one goal can be emphasized to the complete exclusion of the others. In fact, achieving every goal in the *General Management Plan* to its fullest extent is not possible due to inherent conflicts among the goals. While broad, these goals are also ambitious, and the challenges associated with accomplishing them are both significant and complex. To that end, the National Park Service and the public must work together to achieve a plan that meets these goals to ensure long-term preservation for public enjoyment of Yosemite Valley.

1. These goals apply to Yosemite National Park and are not applicable to the El Portal Administrative Site. See the 1980 *General Management Plan* for specific goals for El Portal, and Volume II, Appendix A for the legislation establishing El Portal as the administrative site.

In addition to the five broad goals, the *General Management Plan* established a number of management objectives and proposed a host of specific actions. However, the *General Management Plan* recognized that new studies and analyses would be necessary to determine how best to accomplish its goals and objectives and to temper or refine its specific prescriptions. In particular, studies of natural processes, transportation, and housing requirements were envisioned. In the early 1990s, work on specific action-oriented plans was started to analyze and recommend actions for the effective preservation of Yosemite Valley's interconnected resources and visitor experiences in the face of rapidly increasing visitation.

These individual planning efforts, including plans for housing, restoration of areas to natural conditions, transportation, and visitor services, took on even greater urgency following the flood of January 1997. Through both extensive public comment and litigation, questions were raised about the wisdom and legality of these separate, yet connected, planning efforts. As a result, the National Park Service pulled four distinct planning projects together into one comprehensive planning effort for Yosemite Valley – the *Yosemite Valley Plan*.

The *Final Yosemite Valley Plan/Supplemental Environmental Impact Statement (SEIS)* would implement many of the Yosemite Valley provisions found in the *General Management Plan's* proposed action, while—because of new and more current information—it modifies other provisions. In its regulations for implementing the National Environmental Policy Act, the Council on Environmental Quality directs federal agencies to prepare a supplement to a final environmental impact statement (in this case, the environmental impact statement for the 1980 *General Management Plan*) when "(i) the agency makes substantial changes in the proposed action that are relevant to environmental concerns, or (ii) [t]here are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts" (40 CFR 1502.9). Because of the changes proposed by the *Yosemite Valley Plan* to the *General Management Plan*, guided by new information developed since 1980, the National Park Service has prepared this final environmental impact statement for the *Yosemite Valley Plan* to amend the 1980 *General Management Plan/EIS* for Yosemite National Park.

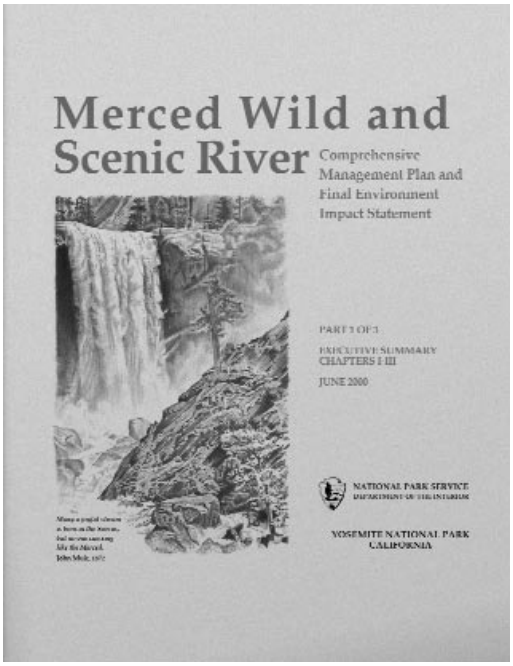
While the 1980 *General Management Plan* addresses parkwide issues, the *Yosemite Valley Plan/SEIS* focuses primarily on issues in Yosemite Valley. Out-of-Valley actions addressed in the *Yosemite Valley Plan/SEIS* occur as a result of actions

taking place in Yosemite Valley. The *Yosemite Valley Plan/SEIS* provides more details about the actions and excludes from consideration some of the Yosemite Valley issues already decided by the 1980 *General Management Plan*. However, potential actions identified in the 1980 *General Management Plan* that are outside the scope of the *Yosemite Valley Plan* still remain, and the National Park Service would continue to strive to implement those actions necessary to achieve the *General Management Plan* goals.

After the Record of Decision for the *Final Yosemite Valley Plan/SEIS* has been issued, a summary document, the *Yosemite Valley Plan*, will be prepared to provide a description of the actions selected for implementation and discuss recommendations that were recorded as part of the Record of Decision. Additional planning and compliance would be necessary before some of the actions that will be included in the *Yosemite Valley Plan* can be implemented (see Chapter 2, Regulatory Compliance Process, and Vol. II, Appendix M, Sequencing).

The Merced Wild and Scenic Comprehensive Management Plan

One of the principal results of analyses completed since 1980 is the clear recognition that, beyond the extraordinary grandeur of Yosemite Valley's granite formations and waterfalls, it is the Merced River that is central to the Valley's scenery and ecological processes. The Merced River ecosystem—the mosaic of aquatic, riverside, and meadow communities—relies on dynamic natural processes to sustain its diverse and productive plant and wildlife communities. These dynamic processes include allowing the Merced River to migrate and change course as it has over the centuries, and allowing annual high-water flows to move between the main river channel and adjacent floodplains. Park development and human activities have altered these and other natural processes, changing the ecological characteristics of the Valley. The restoration of these processes has guided the preservation effort for this exceedingly special place.



In 1987, Congress designated the Merced River a Wild and Scenic River to protect the river's free-flowing condition and protect and enhance the river's unique values for the benefit and enjoyment of present and future generations (16 USC 1271). The Wild and Scenic Rivers Act directs management agencies to prepare comprehensive management plans for Wild and Scenic Rivers under their jurisdiction. In August 2000, the National Park Service signed the Record of Decision for the *Merced Wild and Scenic River Comprehensive Management Plan/FEIS* (NPS 2000c). The *Merced River Plan* provides broad management direction for managing visitor use, land and facility development, and resource

protection within the Merced River corridor. The goals of the *Merced River Plan* are consistent with both the *General Management Plan* goals and the requirements of the Wild and Scenic Rivers Act:

- Protect and enhance river-related natural resources
- Protect and restore natural hydrological and geomorphic processes
- Protect and enhance river-related cultural resources
- Provide diverse river-related recreational and educational experiences
- Provide appropriate land uses

These goals are intended to guide decision-making processes for actions within and adjacent to the river corridor to ensure that proposed projects would protect and enhance river values. To accomplish these goals, the *Merced River Plan* established a number of management elements, including the Merced River corridor boundary, river segment classifications (wild, scenic, or recreational), Outstandingly Remarkable Values, management zoning prescriptions, and a River Protection Overlay. The action alternatives considered in the *Final Yosemite Valley Plan/SEIS* are consistent with the Record of Decision for the *Merced River Plan/FEIS*.

Purpose of and Need for the Action

The purpose of the *Final Yosemite Valley Plan/SEIS* is to present and analyze comprehensive alternatives for Yosemite Valley – from Happy Isles at the east end of the Valley to the intersection of the El Portal and Big Oak Flat Roads at the west end. It also presents and analyzes actions in adjacent areas of the park and the El Portal Administrative Site that would occur as a result of actions implemented in Yosemite Valley. Areas affected by actions presented in the *Yosemite Valley Plan/SEIS* are shown in Vol. Ic, plate C.

The specific purposes of the Final Yosemite Valley Plan/SEIS within Yosemite Valley are to:

- Restore, protect, and enhance the resources of Yosemite Valley
- Provide opportunities for high-quality, resource-based visitor experiences
- Reduce traffic congestion
- Provide effective park operations, including employee housing, to meet the mission of the National Park Service

The *Final Yosemite Valley Plan/SEIS* presents four action alternatives for consideration to enable the National Park Service to move toward meeting the *General Management Plan's* broad goals for the Valley. These four action alternatives are based on a thorough evaluation of the best-available information on park resources and the visitor experience. One additional alternative is addressed, the No Action Alternative, which presents the status quo. It is used as a basis of comparison for evaluating the effects of the four action alternatives.

Each of the four action alternatives in the *Final Yosemite Valley Plan/SEIS* presents a distinct vision for preserving the resources that contribute to Yosemite Valley's splendor and uniqueness while making the resources available to people for their enjoyment, education, and recreation.

While there are some differences among the action alternatives in the emphasis they place on the individual goals of the 1980 *General Management Plan*, each of these alternatives would allow the National Park Service to achieve the five broad goals of the *General Management Plan* as they relate to Yosemite Valley. However, the specific actions contained in the *Yosemite Valley Plan* alternatives would, if selected, modify some of the actions proposed in the *General Management Plan*, as well as in the *Concession Services Plan*. Since publication of these two plans in 1980 and 1992, respectively, new operational requirements have evolved and new information has been gained through research, resource studies, visitor studies, and planning efforts. The development of the specific actions proposed in the *Yosemite Valley Plan* was guided by this new information and by the results of recent planning efforts. For example, each of the actions contained in the four *Yosemite Valley Plan* action alternatives has been evaluated in light of the guidance established by the *Merced River Plan*. The *Yosemite Valley Plan's* action alternatives would therefore implement the guidance and direction prescribed for the Merced River by the *Merced River Plan* in areas that are affected by specific *Yosemite Valley Plan/SEIS* actions.[2] Similarly, new information on floodplains has led to the development of actions that would, if selected, modify actions called for in the *General Management Plan* and the *Concession Services Plan*.

In conjunction with protecting the Valley's natural and cultural resources and providing for high-quality visitor experiences, there is also a need to provide improved facilities and services for people who visit and work in Yosemite Valley. Planning efforts need to focus on enhancing the visitor experience, protecting natural and cultural resources, and on reducing congestion and crowding by managing traffic and parking in the Valley. Management actions should focus on using transportation options that are available now, that have been proven to work well within the Yosemite environment, and are cost effective. In addition, the National Park Service would continue strategies to implement technologies that reduce mobile sources of air pollution.

Working toward the achievement of the broad goals is critical to the long-term management, operation, restoration, and preservation of Yosemite Valley for the benefit of present and future generations. Furthermore, the development of this comprehensive planning process addressing these goals and incorporating previous Yosemite Valley planning efforts, as well as the *Merced River Plan*, is key to success.

Previous Yosemite Valley Planning Efforts

The 1980 *General Management Plan* envisioned that additional planning, comprehensive designs for specific areas, and environmental compliance would be needed to evaluate how to best achieve its broad goals. Several major planning efforts relative to Yosemite Valley were initiated to implement aspects of the *General Management Plan* (1980) as amended by the *Concession Services Plan* (1992), including the *Draft Yosemite Valley Housing Plan/SEIS* (1992 and 1996 addendum), the *Draft Yosemite Valley Implementation Plan/SEIS* (1997), the *Yosemite Lodge*

[2] The *Final Yosemite Valley Plan/SEIS* does not amend the *Merced Wild and Scenic Comprehensive Management Plan/FEIS*.

Development Concept Plan/EA/FONSI (1997, modified 1998), and the Yosemite Falls Project. In response to litigation and to public comments requesting a comprehensive plan to examine all of these activities together, the National Park Service has consolidated these planning efforts into one single, comprehensive approach. Thus, the *Yosemite Valley Plan* would incorporate many of the goals of these previous plans (summarized below) and re-evaluate their interactions.

Draft Yosemite Valley Housing Plan/ Supplemental Environmental Impact Statement (1992 and 1996 addendum)

This plan had two purposes: to implement the *General Management Plan* objective to remove nonessential employee housing from Yosemite Valley, and to improve employee housing for National Park Service, concessioner, and other employees who provide visitor services in Yosemite Valley. The plan prescribed the number and locations of new or relocated employee housing, identified housing to be rebuilt to comply with housing codes, and defined housing to be removed from Yosemite Valley to reduce overall development levels and allow for restoration to natural conditions.

Draft Yosemite Valley Implementation Plan/ Supplemental Environmental Impact Statement (1997)

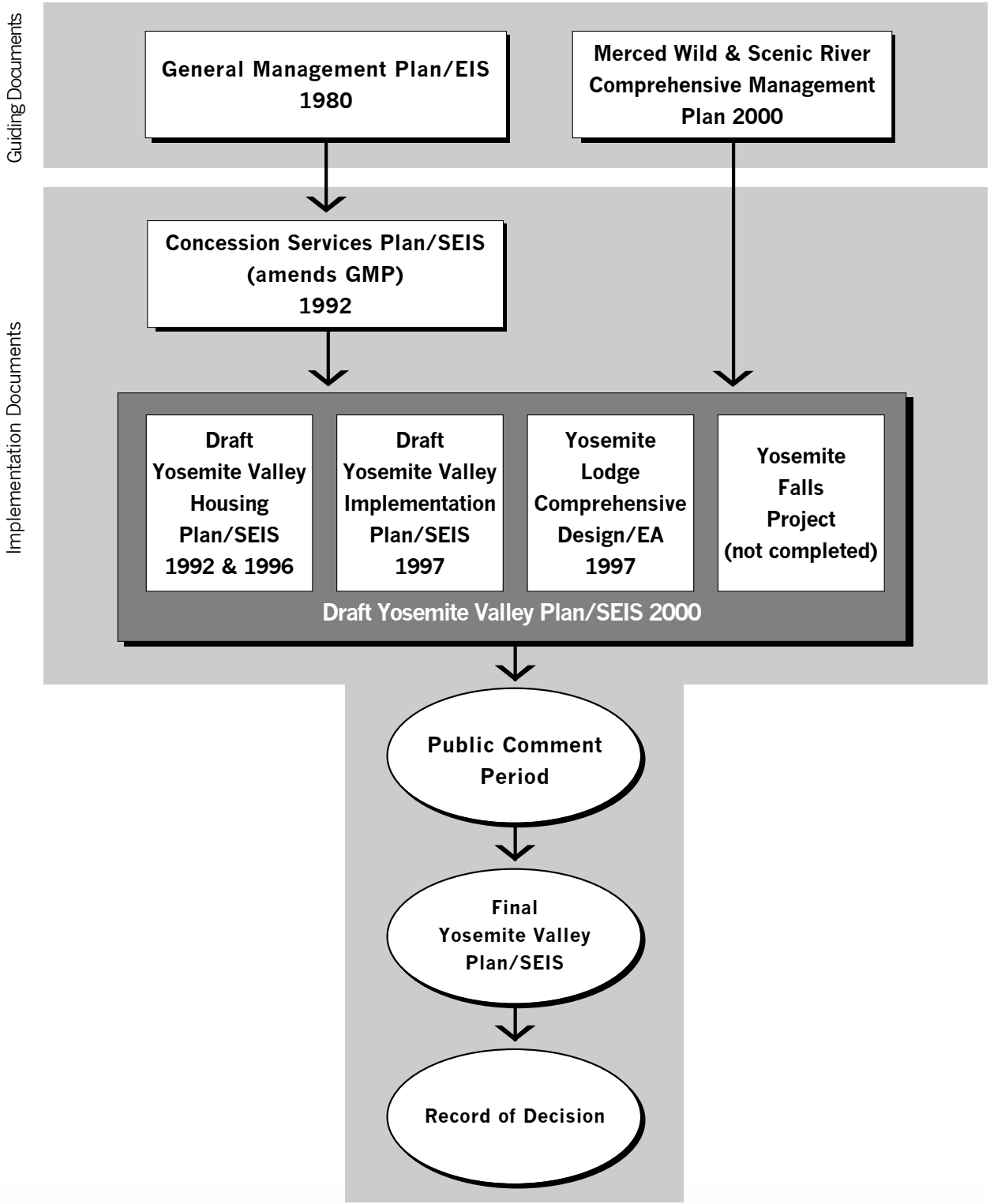
The purpose of this plan was to provide steps for carrying out the goals of the 1980 *General Management Plan* for Yosemite Valley; specifically, to enhance the quality of the visitor experience and to help ensure the preservation of the park's resources. The plan included the removal of nonessential structures, restoration and protection of natural areas, relocation of facilities out of sensitive or hazardous areas, and reduction of traffic congestion. The Preferred Alternative was a comprehensive approach that include detailed actions for visitor facilities and resource management, as well as a phasing schedule, but it did not include employee housing or the Yosemite Lodge complex. Those actions were considered in other plans, as discussed in this section.

Yosemite Lodge Comprehensive Design /Environmental Assessment/Finding of No Significant Impact (1997, modified 1998)

This environmental assessment addressed changes in visitor accommodations, employee housing, and vehicle circulation at Yosemite Lodge in response to the January 1997 flood. The number and mix of accommodations were derived from the *Concession Services Plan* (1992), which called for reducing lodging numbers in the park and Yosemite Valley below *General Management Plan* levels. Lodging and employee housing were to be relocated out of the floodplain to accommodate an extensive restoration project for riparian and floodplain values. Litigation on this project led to its being folded into the *Yosemite Valley Plan's* comprehensive approach to actions in Yosemite Valley.

Yosemite Falls Project (initiated but not completed)

This project focused on identifying design options for the corridor leading to Lower Yosemite Fall. The project identified actions to rehabilitate existing trails, repair bridges, remove parking, relocate restrooms, and restore disturbed natural resources and scenic areas within the site.



Direction for This Planning Effort

Park Purpose and Significance

Yosemite National Park was established and is managed in accordance with a series of laws, regulations, and executive orders (see Vol. II, Appendix A). On June 30, 1864, Yosemite Valley and the Mariposa Big Tree Grove were granted to California by the federal government to "be held for public use, resort, and recreation" to be "inalienable for all time." On October 1, 1890, Congress passed an act establishing Yosemite National Park as a "forest reservation" to preserve and protect "from injury all timber, mineral deposits, natural curiosities, or wonders" within the park area and to retain them in their "natural condition." The act excluded Yosemite Valley and the Mariposa Big Tree Grove, leaving them under the jurisdiction of California, as provided for in the 1864 act. A joint resolution of Congress on June 11, 1906 accepted the transfer of Yosemite Valley and the Mariposa Big Tree Grove from the State of California to the federal government as part of Yosemite National Park.

Two primary purposes for Yosemite National Park were established in the 1864 act and subsequent legislation:

- To preserve the resources that contribute to Yosemite's splendor and uniqueness, including its exquisite scenic beauty, outstanding wilderness values, and a nearly full diversity of Sierra Nevada environments.
- To make the varied resources of Yosemite available to people for their enjoyment, education, and recreation, now and in the future.

In 1916, the Organic Act established the National Park Service by act of Congress to:

> Promote and regulate the use of the Federal areas known as national parks, monuments and reservations by such means and measures as conform to the fundamental purpose of the said parks, monuments and reservations, which purpose is 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.

National Park System General Authorities Act (1970) states:

> The authorization of activities shall be construed and the protection, management, and administration of national park areas shall be conducted in light of high public value and integrity of the National Park System and shall not be exercised in derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress.

The international importance of Yosemite National Park was recognized by the World Heritage Committee in 1984 when the park was designated a World Heritage Site.

In 1958, Congress passed legislation for the Secretary of the Interior to provide an administrative site for Yosemite National Park in the El Portal area (16 USC 47-1). This land is under National Park Service jurisdiction, but is not included as part of Yosemite National Park (see Vol. II, Appendix A, Applicable Laws, Regulations, and Executive Orders). The purpose of this act is to:

> …set forth an administrative site in the El Portal area adjacent to Yosemite National Park, in order that utilities, facilities, and services required in the operation and administration of Yosemite National Park may be located on such site outside the park.

Section 5 of that act states:

> …the lands acquired by or transferred to the Secretary of the Interior, hereunder shall not become a part of Yosemite National Park, nor subject to the laws and regulations governing said park, but the Secretary of the Interior shall have supervision, management, and control of the area…

Goals

In the mid-1970s, the National Park Service began the comprehensive planning process that was completed in 1980 with the approval of the *General Management Plan*. Nearly 60,000 individuals, organizations, and government agencies received planning information during the plan development, and 20,000 actively participated in the planning process. The 1980 *General Management Plan* provides basic management direction for Yosemite National Park, based on the 1916 Organic Act (the law that established the National Park Service), the park's enabling legislation (the laws that established Yosemite National Park), and the 1958 act that established the El Portal Administrative Site. The broad goals identified in the *General Management Plan* have been reaffirmed repeatedly and are guiding development of the alternatives evaluated in the *Final Yosemite Valley Plan/SEIS*.

Reclaim priceless natural beauty

Yosemite Valley is recognized worldwide for its unique, stunning beauty. This beauty is made up not only of grand vistas and landmarks, but also of its components, such as the river and its banks, meadows, forests, wildlife, and a healthy ecosystem. Honoring Yosemite Valley's beauty requires more than simply removing structures; it requires the preservation of the natural environment and its processes. The alternatives considered in this *Final Yosemite Valley Plan/SEIS* should build on actions already initiated to reduce the amount of administrative and commercial services and visual intrusions in Yosemite Valley.

Allow natural processes to prevail

Many of Yosemite Valley's natural processes that shape and maintain its dynamic ecosystem have been altered. It is recognized that natural processes play a major role in maintaining a healthy ecosystem and the Valley's scenic beauty. Primary among these are the hydrologic

processes. The Merced River and its tributaries provide a mosaic of habitats, including meadows, wetlands, and woodlands, that support wildlife and biological diversity. The alternatives being considered should seek to restore significantly altered natural systems and protect unaltered systems. Facilities should be integrated into the park landscape and environs with sustainable designs and systems so as to avoid environmental impact. Development should not compete with or dominate park features, nor interfere with natural processes, such as the seasonal migration of wildlife or hydrologic activity associated with wetlands.

Promote visitor understanding and enjoyment

Yosemite Valley offers opportunities for people from around the world to experience the Valley's scenic, natural, and cultural resources. Contributing to an enjoyable visit for diverse users are the Valley's scenery and resources; appropriate, efficient, and high-quality visitor services and facilities; and interaction with other visitors. A balance of development and use should preserve nature's wonders and keep them from being overshadowed by the intrusions of the human environment. Educational programs, orientation, and interpretation should increase understanding of the Valley's resources and ecological processes. They should acquaint visitors with the many opportunities and experiences available in the Valley, and instill a sense of resource stewardship and understanding. The alternatives considered in the *Final Yosemite Valley Plan/SEIS* should foster these diverse opportunities through enhanced interpretive programming and effective, high-quality educational facilities.

Markedly reduce traffic congestion

Since 1917, private vehicles have provided increased access to Yosemite Valley, but they have affected park resources and have intruded on some visitors' experiences. That intrusion is more prevalent today, when during peak visitation periods the noise, smell, glare, and congestion associated with motor vehicles can overwhelm the resource-related visitor experience. Roads and parking areas that vehicles require have direct effects on natural processes, such as the flow of water through meadows, and they intrude on the Valley's natural beauty. However, while the *General Management Plan* calls for the eventual removal of private vehicles from Yosemite Valley, there remains, for the time being, a need to provide for their managed use. The alternatives considered seek to reduce traffic and its related congestion, and facilitate non-motorized modes of transportation around the Valley, moving toward the ultimate goal of freeing the Valley of the environmental and experiential degradation caused by thousands of vehicles.

Reduce crowding

The popularity of national parks, including Yosemite, continues to grow. During peak visitation periods in Yosemite Valley, crowding can diminish visitors' experiences, causing traffic delays, visitor frustration, and impacts to park resources. The *Final Yosemite Valley Plan/SEIS* proposes continuing studies on the character of the Yosemite visitor experience and the effects of crowding, and on how best to achieve desired future conditions. Data from these studies would be used to ensure resource protection and enhancement of positive visitor experiences by building upon the management zoning prescribed in the *Merced River Plan*.

Criteria

The criteria below provide guidance for accomplishing the broad goals of the 1980 *General Management Plan* in Yosemite Valley and the specific purposes of the *Yosemite Valley Plan*. The four action alternatives have been selected based on the degree to which they meet and, as appropriate, integrate these criteria.

Protect and Enhance Natural and Cultural Resources

- Protect highly valued natural and cultural resources (see Chapter 2, Alternatives, for a discussion of Highly Valued Resources).
- Remove unnecessary facilities from and locate new facilities outside of highly valued resource areas unless there are no feasible alternatives.
- Place new facilities in such a way as to avoid or minimize disruption of natural processes.
- Apply the following criteria from the *Merced Wild and Scenic River Comprehensive Management Plan/FEIS* for areas affected by actions proposed in the *Final Yosemite Valley Plan/SEIS* in Yosemite Valley, El Portal, and Wawona (see Vol. IA, Chapter 3, Affected Environment, Merced Wild and Scenic River; Vol. IC, plates G-1 through G-3; and Vol. II, Appendix B).
  - Actions within the boundaries of the river corridor must protect and enhance the Outstandingly Remarkable Values.
  - Actions must be consistent with the classification of that river segment.
  - Actions must protect the Outstandingly Remarkable Values, regardless of where the Outstandingly Remarkable Value is located. When Outstandingly Remarkable Values lie within the boundary of the Wild and Scenic River, the Outstandingly Remarkable Values must be protected and enhanced. When Outstandingly Remarkable Values are in conflict with each other, the net effect to Outstandingly Remarkable Values must be beneficial.
  - Actions that are considered "water resources projects" under Section 7 of the Wild and Scenic Rivers Act (i.e., occurring in the bed or banks of the Merced River) must follow a Section 7 determination process to determine if they have a direct and adverse impact on the values for which the river was designated Wild and Scenic. Proposed actions outside the river corridor in Merced River tributaries must also undergo Section 7 determination to determine whether they affect the values for which the river was designated Wild and Scenic.
  - Actions within the River Protection Overlay must comply with the River Protection Overlay conditions.
  - Actions must be compatible with the appropriate management zone and its prescriptions.
  - Actions must be compatible with desired visitor experience and resource conditions under the Visitor Experience and Resource Protection framework.

- Provide the opportunity for continuing traditional use by culturally associated American Indian people and protect places that are most important to local Indian people for maintaining their traditional culture.
- Preserve National Historic Landmarks.
- Preserve and adaptively use historic structures in place, whenever possible; preserve the integrity and character-defining features of historic districts.
- Protect important cultural landscape resources.
- Protect known human burials.

Enhance Visitor Experience

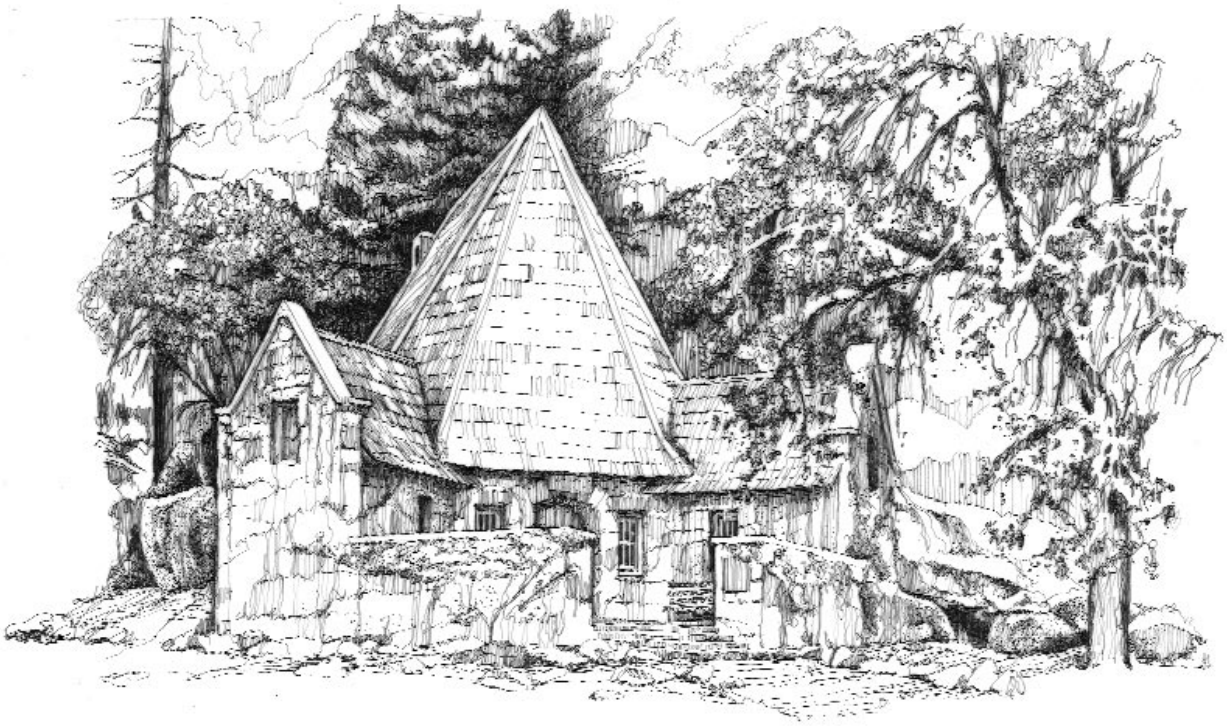
- Make sure visitors feel welcome in Yosemite Valley and have equitable access for appreciating the Valley's natural beauty.
- Provide high-quality basic facilities and services, including a wide range of camping and lodging experiences.
- Provide a wide spectrum of opportunities for bringing individuals into contact with the Valley's natural and cultural environments. (For example, areas of solitude and quiet should be available, in addition to areas of heavier visitor use such as campgrounds, lodging areas, and the visitor center.)
- Make high-quality interpretive and educational facilities and services available for all Yosemite Valley visitors.
- Enable visitors to learn about and enjoy the Merced River's Outstandingly Remarkable Values.
- Provide reliable, cost-effective shuttle bus service that operates on a reasonable schedule, accommodates most accessibility needs, and provides access to all major Valley destinations.
- Reduce, consolidate, and formalize Yosemite Valley day-visitor parking, and make it conveniently located near visitor services.
- Provide increased opportunities for non-motorized touring in Yosemite Valley.

Provide Effective Operations

- Ensure that park operations are cost effective and sustainable in meeting purposes and goals.
- Locate special-occupancy facilities (see Vol. IB, Glossary) and emergency-support structures and functions out of known geologic hazard zones.
- Retain Yosemite Valley housing for an appropriate number of National Park Service, community support, and concessioner employees who should live near their work sites to provide year-round, 24-hour visitor services.
- Ensure that Yosemite Valley is not the base for parkwide operations. Remove National Park Service headquarters and other functions not essential for Yosemite Valley operations from the Valley. Remove the headquarters of the primary concessioner from the Valley.
- Provide for effective and efficient emergency response.

Provide Appropriate Land Uses

- Site new facilities so that, in aggregate, they help achieve a benefit for park resources.
- Site and construct new roads, visitor services, and administrative facilities so that they maximize public and employee safety, provide protection of property, and maintain facilities for safety, while protecting the free flow of the Merced River and its Outstandingly Remarkable Values.



Public Involvement

Public participation in the planning process helps to ensure that the National Park Service fully understands and considers the publics' interest. Through public involvement, the National Park Service shares information about the planning process, issues, and proposed actions, and in turn, the planning team learns about the concerns of individuals and groups. Through public involvement, the National Park Service makes informed decisions and thus improves plans.

Scoping

The purpose of scoping is to identify issues and concerns related to the planning process and to determine the scope of issues that will be addressed in the environmental analysis. Typically, scoping occurs at the beginning of a planning process. In the case of the *Draft Yosemite Valley Plan/SEIS*, however, scoping had been taking place since 1991 as part of previous planning efforts for the *Draft Yosemite Valley Housing Plan/SEIS* (1992 and 1996 Addendum), *Draft Yosemite Valley Implementation Plan/SEIS* (1997), and the *Yosemite Lodge Development Concept Plan/EA/FONSI* (1997, modified 1998). These planning efforts each involved scoping and a public comment period. Public comments from these previous efforts were reanalyzed, and issues and concerns raised since 1991 were included as part of the scoping process for the *Draft Yosemite Valley Plan/SEIS*.

The formal scoping period for the *Draft Yosemite Valley Plan/SEIS* began with a *Federal Register* notice on December 16, 1998 that described the intent of the *Draft Yosemite Valley Plan/SEIS* and solicited comments from the public through January 15, 1999. In response to requests from the public, the formal scoping period was extended through February 1, 1999. The *Federal Register* notice, in addition to announcing the formal scoping period, stated that all comments associated with previous planning efforts would be "duly reconsidered" in the *Draft Yosemite Valley Plan/SEIS* planning process.

A total of 598 comment letters were received during the formal scoping period. Initially, a team of park staff evaluated the scoping comments and prepared a summary report (NPS 1999h). Later, these comments were included in the comprehensive reanalysis, which included all previous public comments from associated planning efforts. Because the comments from previous plans were originally analyzed in diverse contexts using different methods, they were reanalyzed using a common methodology developed by the U.S. Forest Service's Content Analysis Enterprise Team. The Content Analysis Enterprise Team also read and analyzed all letters, e-mails, and faxes received during the formal scoping period for the *Draft Yosemite Valley Plan/SEIS* in conjunction with previous comments.

In the reanalysis of previous comments, 6,468 letters, e-mails, and faxes were read and analyzed by the Content Analysis Enterprise Team. These responses contained 23,768 individual comments that were coded, categorized, and entered into the comment analysis database. This analysis, *Summary of Public Comment* (USFS 1999a), was a key tool used to ensure that public comments were addressed in the *Draft Yosemite Valley Plan/SEIS*. Concern statements raised through the public comment process and the park's response to those concern statements were included as Volume III of the *Draft Yosemite Valley Plan/SEIS*. These public comments have not been republished as part of the *Final Yosemite Valley Plan/SEIS*.

Public Comment

During the period of public comment on the *Draft Yosemite Valley Plan/SEIS* (April 7 to July 14, 2000), approximately 10,200 comment letters, postcards, e-mails, faxes, comment forms, and public hearing testimonies (see Public Hearings, below) were received. A joint U.S. Forest Service and National Park Service team read and analyzed comments, and then distilled them into 867 distinct public concern statements (see Vol. III, Public Comments and Responses, for a complete description of the comment analysis process). Concern statements with supporting quotes from public comments were grouped into 33 issue areas. These were presented to the park management/planning team for deliberation. Changes to the *Draft Yosemite Valley Plan/SEIS* were recommended by this team after careful consideration of each of the issues, the range of public comment, and the result of consultation with federal agencies and American Indian Tribes (see Chapter 5, Consultation and Coordination).

Public Hearings

During the public comment period for the *Draft Yosemite Valley Plan/SEIS*, the National Park Service held 14 public meetings throughout California. These meetings consisted of an open house where the public could view displays and interact with park staff, and a formal public hearing. Approximately 1,500 people attended the public meetings; written comments were received, and 365 people testified at the public hearings where their testimony was recorded by a court reporter. The National Park Service also held public meetings in Seattle, Washington; Denver, Colorado; Chicago, Illinois; and Washington, D.C. Over 100 individuals attended these meetings.

Scoping Issues

The concerns and issues identified during scoping and earlier public comment fell into five topic areas: natural environment, cultural resources, visitor experience, transportation, and social and economic environments. These five topic areas were the basis for formulating a reasonable range of alternatives and guiding the analysis of environmental impacts for the *Draft* and *Final Yosemite Valley Plan/SEIS*.

Natural Environment

Many commenters believe there is a need for restoration of natural areas within Yosemite Valley and minimization of human encroachment on the park's natural resources. Other comments indicate that the "extremely small percent of restoration would not enhance a visitor's experience." Some support removing what they feel are unnecessary human-made structures such as bridges, roads, lodging, and other concession facilities. Others believe that restoration of developed areas in the east Valley does not justify the development of new areas in the west Valley. Still others assert that the National Park Service should regulate visitation to restore natural habitat areas, including meadows and riparian areas, for native plants and animals. Restoration of specific areas along the Merced River and in the east Valley, some individuals comment, is necessary to improve the natural environment of Yosemite National Park. Others, however, feel that human use is part of the evolution of Yosemite Valley and that the Valley can never be returned to its natural state.

Cultural Resources

Historical and archeological sites and structures should receive special attention in any park planning effort, many people believe. Clarifying cultural resource protection priorities, some people feel, would allow the park to better determine what course to take regarding historic preservation, restoration of natural ecosystems, and development of new facilities. Against the background of the park's efforts to restore natural systems, several commenters worry that important aspects of the Valley's history may be damaged or removed. They do not want park activities to unnecessarily "erase all symbols of those pioneers and residents who added a significant chapter to Yosemite's history." In addition to the history of Euro-American settlers, the archeological history of indigenous peoples is important to many commenters. The National Park Service, they feel, should avoid disturbing archeological sites in the Valley.

Visitor Experience

The majority of commenters acknowledge that recreational opportunities should continue to be available to Yosemite Valley visitors. However, people diverge in their opinions as to what sort of activities should be allowed and how recreational activities should be managed. Activities "not directly related to the experience of Yosemite's natural environment or cultural heritage" should be removed from the park, according to some commenters. This sentiment is repeated by many individuals who feel that certain forms of recreation—such as rock climbing, hang gliding, and rafting—conflict with the underlying purpose of Yosemite National Park. Similarly, many commented on the appropriateness of resort-type facilities in the Valley. A number of these respondents vehemently oppose any recreational facilities that resemble those found in resorts. Swimming pools, skating rinks, and tennis courts, they contend, are neither natural nor in keeping with the park's mission. Still others urge the National Park Service to retain the Ahwahnee tennis courts and Curry Ice Rink on the basis that these are either legitimate outdoor activities or are no more inappropriate than allowing hotels in the Valley.

Transportation

Vehicle access to Yosemite Valley is the source of much disagreement and numerous passionate opinions. Many people feel strongly that automobile access must be limited or even eliminated to reduce traffic congestion, restore the Valley's natural setting, and improve visitor experience. In contrast, many other people feel strongly that automobile access must be retained to preserve a convenient, affordable, and individualized visitor experience. Although not everyone is convinced that Yosemite has a traffic congestion problem, many people agree that some restrictions are required during peak periods. Citing examples from Devils Postpile National Monument in California, Zion National Park in Utah, and Maroon Bells (White River National Forest) in Colorado, some people suggest limiting Valley automobile access to the early morning and late evening, while requiring visitors to use public transportation during the busiest hours of the day. Vehicle use also could be reduced, others believe, by offering incentives or disincentives to encourage people to leave their cars at home. Many recommend allowing disabled or elderly visitors vehicle access to the Valley even if others are restricted. Some people think the use of certain perceivably dangerous vehicles should be

limited; they believe recreational vehicles, large trucks, and motorcycles pose a hazard on winding mountain roads.

Respondents propose a wide range of ideas for how the National Park Service should manage parking in Yosemite Valley and Yosemite National Park. Some people call for further analysis of parking needs and suggest that the National Park Service either increase or decrease the amount of available parking. Many people feel that the National Park Service should abandon plans to build new parking areas in Yosemite National Park. They believe this action is in conflict with the 1980 *General Management Plan*. However, if new parking areas are built, many people believe they should be constructed in already-disturbed areas and designed in such a way as to blend with their natural surroundings. Especially troublesome to a number of respondents is the thought of temporary or interim parking, which, in the words of one person, "could easily become permanent." Several individuals believe the National Park Service should reduce the number of day-visitor parking spaces in the Valley and restore degraded parking areas—particularly nondesignated, informal parking areas.

Social and Economic Environments

Whether it is increased restrictions on private business, high costs of maintaining community infrastructure, or potential loss of tourist business, many members of the public ask the National Park Service to carefully consider the effects of proposals on social and economic environments, especially those of gateway communities. Many believe these towns have invested their future economic well-being in meeting visitors' needs. Potential impacts they want the National Park Service to account for and consider include the expenditures needed to implement the action alternative, and loss of revenue resulting from changes in visitor access or transportation options.

Issues Identified During Public Comment on the Draft

Public and agency concerns identified during the public comment period that were within the scope of the *Draft Yosemite Valley Plan/SEIS* were grouped into 33 issue areas. A brief description of the scope of each of these issues is provided in Volume III, Public Comments and Responses. All issues were considered by the planning team while reviewing the *Draft Yosemite Valley Plan/SEIS* and helped determine the need to revise the draft. Those issues receiving the largest proportion of comments or presenting tougher choices are briefly described below; all 33 topical issues are described in Volume III.

Air Quality

Included are concerns about potential increases in diesel emissions; the desire to immediately employ or plan for a transition to clean, alternative fuels or transportation modes; requests for specific goals to reduce use of existing diesel vehicles; the potential adverse effect on air quality of moving employee housing out of Yosemite Valley; and the need to assess the effects of air pollution in Yosemite Valley on vegetation, wildlife, and humans.

Alternative 2

A large number of people commented on Alternative 2, the Preferred Alternative. Many of those comments affirmed two key aspects of the alternative: the importance of restoring riverside areas and hydrological processes, and of improving the visitor experience. Comments in support of further restoration and visitor experience goals included those that advocate reducing the amount of camping, lodging, roads, bridges, and other infrastructure adjacent to the Merced River; removing National Park Service and concessioner administrative buildings and personnel from Yosemite Valley; reducing the number of vehicles and associated parking in Yosemite Valley and placing parking facilities outside the Valley; and converting Northside Drive to a multi-use paved trail. Other commenters suggested changes to Alternative 2 including increasing or further decreasing the number of units to be retained at Housekeeping Camp; a different balance in the proportion of low-, medium-, and high-cost overnight accommodations; devising a transportation plan more suited to the seasonality of park visitation; increasing or reducing the number of campsites; increasing or reducing development at Yosemite Lodge; and increasing or reducing the proportion of day-visitor parking to remain in the Valley. Yet others rejected certain elements of Alternative 2, including proposals to remove historic bridges, close portions of Northside Drive to vehicles, reduce the number camping or lodging facilities, and remove the medical facility or employee housing from Yosemite Valley.

Bridges

The proposed removal of four historic bridges in Yosemite Valley generated many comments. They ranged from support because the action would restore and protect river hydrology, to suggestions for bridge redesign to mitigate effects on the river, to simple rejection of the idea to remove bridges, emphasizing the primacy of their historic value and circulation functions. Most people, regardless of their position, acknowledged the beauty and historic value of Yosemite's bridges.

Historic

Comments on the historic value of certain features of Yosemite Valley, apart from historic bridges, included the Superintendent's House (Residence 1), Tresidder Residence, Mother Curry Bungalow, Huff House, concessioner stable, Cascades residences, and NPS Operations Building (Fort Yosemite). Many comments focused on larger historic elements such as orchards, districts, and landscapes. Specific elements that commenters suggested need greater protection included the Curry Village Historic District, the Yosemite Valley Cultural Landscape District, Lamon and Curry Orchards, historic travel corridors, Camp 4 (Sunnyside Campground), stock use as a historically significant activity, and the Curry Village tent cabins. Other commenters called for better assessment of ways to avoid adverse effects on historic properties, an alternative emphasizing historic and cultural preservation, reusing

historic structures slated for removal, clarifying what components shape the Yosemite Valley Cultural Landscape District, and identifying and mapping all cultural resources affected by proposals in the *Draft Yosemite Valley Plan/SEIS*.

Camping

Specific concerns related to camping included requests in support of or in opposition to actions that would increase the number of campsites to pre-flood levels, maintain the current number, reduce the number of campsites in Yosemite Valley, or eliminate campsites entirely; view camping as an affordable overnight option for all income groups; or expand camping to new areas of Yosemite Valley, including west Valley, and to other areas of the park outside the Valley. Other concerns involved actions that would rebuild or remove campsites within the floodplain; emphasize or reduce overnight accommodations, including camping, relative to day visitation; expand, reduce, or eliminate specific campgrounds, including Camp 4 (Sunnyside Campground), Upper River, Lower River, Lower Pines, North Pines, and Group Campgrounds; provide, segregate, or restrict different camping types including walk-in, drive-in tent, group, recreational vehicle (small and large), and low-impact; and provide or not provide recreational vehicle hookups.

Lodging

Comments were received requesting the retention of rustic and economy lodging, especially tent-type accommodations at Curry Village and Housekeeping Camp. This was based on their relative affordability for different socioeconomic groups, their rustic or historic character, and the type of experience they offer. These commenters often referred to the "mix" of different types of lodging facilities at different locations; other comments suggested that such facilities be removed because they are eyesores, crowded, unpleasant, or unneeded. Others requested a greater emphasis on overnight accommodations (including guest lodging) relative to facilities for day visitors and camping. It was suggested that lodging lost to the 1997 flood not be replaced and that lodging in the Valley should not be increased. Some propose reducing the amount of guest lodging in Yosemite Valley, particularly at Yosemite Lodge, to minimize development and restore areas to natural conditions, and because there is increased availability of similar lodging outside the park. Others request that lodging opportunities not be reduced.

Regional Transportation

Comments were about the Yosemite Area Regional Transportation System, other regional transportation services, and commercial tour buses. Specific comments were often contradictory and included both support and rejection of the proposal to construct a transfer facility in Yosemite Valley; requests that public transportation should be low-impact and based on alternative fuels; suggestions to restrict or ban commercial tour bus operations in Yosemite Valley; suggestions for noise-abatement devices on all buses operating in Yosemite; support for and rejection of greater reliance on regional public transportation to bring visitors to Yosemite; suggestions that park planners consider rail as a regional transportation option; and the request to clarify how the availability of regional transportation would enhance the visitor experience in Yosemite.

Development

Because of the effect, or lack of effect, of various actions on natural, cultural, and scenic resources and with views to increase or reduce the level of development and commercialization in Yosemite Valley, commenters offered requests to remove, not build new, not rebuild destroyed, retain, construct replacement, and construct new facilities in Yosemite Valley. Facilities mentioned included campgrounds, guest lodging, employee housing, parking, transfer facilities, a traffic check station, the Wawona Golf Course, dams, human-made obstacles to the river, the ice-skating rink, The Ahwahnee tennis courts, and the medical and dental facilities. Some commenters advocated reducing development in the Valley by moving or constructing various types of facilities in other areas of Yosemite National Park or in gateway communities. These include visitor centers, guest lodging, employee housing, National Park Service and concessioner headquarters, and a natural history museum. Others suggested dispersing visitors more evenly by using currently undeveloped areas of the Valley for parking and campgrounds.

Equity

Two primary concerns were raised related to equity: (1) the affordability of overnight accommodations (camping and lodging, including Housekeeping Camp) and the cost of an overnight visit to Yosemite for all income groups; and (2) the accessibility of Yosemite Valley, its services and facilities, to all people. Specific groups identified as being potentially disadvantaged by proposals included families (especially those with young children), those with low or middle income levels, ethnic or cultural minorities, senior citizens, young people and students, campers (relative to people who typically stay in lodging units), and the mobility impaired. Moving employees out of the Valley was also seen as limiting employment opportunities for people with certain types of impairments.

Merced River Plan/Yosemite Valley Plan Timing

Concerns were expressed about the ability of the National Park Service and the public to evaluate the potential environmental impacts of the *Draft Yosemite Valley Plan/SEIS* without a completed *Merced River Plan*; requests were made to stop work on the *Draft Yosemite Valley Plan/SEIS* until the *Merced River Plan* was completed.

Compliance

Compliance issues raised included comments that expressed the need for a comprehensive implementation program that clearly identifies when additional environmental review will be required for specific implementation projects. Other concerns include the need to clarify the scope of the proposed action to identify whether the range of alternatives is sufficient; the suggestion that the *General Management Plan* be updated to guide planning for Yosemite Valley; the idea that development standards and zoning regulations should be developed; suggestion that the Visitor Experience and Resource Protection study or other resource studies to be completed prior to a *Final Yosemite Valley Plan/SEIS* rather than within five years of completion; concerns about potential adverse impacts to Outstandingly Remarkable Values of the South Fork of the Merced River and other environmental and social values by placing high-density housing in Wawona; the adequacy of avoidance or mitigation measures, especially relative to

historic properties and air quality; and concerns about the potential violation of the Americans with Disabilities Act through the elimination of horseback riding in Yosemite Valley.

Park and Community

Issues important to some commenters, especially park residents, included the retention of the medical and dental facilities in Yosemite Valley; the need to better assess and re-evaluate the natural resource and social impacts of the proposal to build employee housing in El Portal, Wawona, and Foresta; the advisability of more thoroughly exploring options for moving employee housing into communities outside Yosemite National Park; the need to provide multi-use community facilities; and the suggestion that moving employees out of the Valley may not be in the best interests of employees, park visitors, or the environment.

Sequencing

This includes references to the need for a comprehensive implementation program prioritizing implementation based on goals of the plan. Comments also call for establishing assured funding, and identifying which actions will require further compliance and public involvement. Some suggest that an inventory and monitoring program be implemented before beginning other actions.

Stock Use

This includes references to commercial horseback rides, the provision of facilities to support private stock users, and the type, extent, and location of designated stock trails. While some commenters wanted to see the stable and commercial rides remain, others wanted all stock eliminated from the Valley. Those wanting to eliminate stock use expressed concerns about environmental impacts and the desire to improve visitor experience. Those wishing to retain stock use cited its traditional use and role in the history and development of Yosemite; proposed it as an alternative means for the elderly and disabled to enjoy the Valley; and commedted that it was an activity that they considered important and wanted to continue to enjoy. Stock as a means to access Yosemite's wilderness, including the need for facilities such as loading and parking areas for stock trailers, corrals with adjacent campsites, and well-maintained stock trails were mentioned as important for private stock users. Clarification of the impacts of relocating the stables to Foresta was requested.

Summary of Consultation and Coordination

In addition to the public scoping process and public meetings and hearings conducted for the *Draft Yosemite Valley Plan/SEIS*, the National Park Service has continued to facilitate numerous other public involvement activities related to the *Draft Yosemite Valley Plan/SEIS*. A four-to eight-page *Planning Update* newsletter is produced in the park and mailed to individuals on the park's extensive mailing list. This *Planning Update* provides status of ongoing planning activities, including information about the *Draft* and *Final Yosemite Valley Plan/SEIS*. The National Park Service also has conducted numerous informal informational meetings with a wide range of local and regional civic and employee groups, as well as various advocacy groups.

A number of public involvement opportunities were available for visitors to Yosemite National Park throughout the 90-day public comment period on the *Draft Yosemite Valley Plan/SEIS*. About 1,650 people attended 63 open-house sessions held by the National Park Service at the Visitor Center in Yosemite Valley; these provided park visitors with an opportunity to learn about the alternatives being considered and an opportunity to comment. There were also 26 regularly scheduled ranger walks about the *Draft Yosemite Valley Plan/SEIS* that were attended by 264 people. A special four-page insert was prepared about the planning process for the *Yosemite Guide*, the park's informational newspaper; over 380,000 were distributed to park visitors. In addition, 10 interpretive wayside exhibits were installed in locations around Yosemite Valley to inform visitors about actions proposed in the *Draft Yosemite Valley Plan/SEIS*. The National Park Service also maintains a web site (*nps.gov/yose/planning.htm*) that contains a wide range of information about planning activities and issues related to the development of the *Draft* and *Final Yosemite Valley Plan/SEIS*, as well as the full text of the draft document.

As part of the development of the *Draft* and *Final Yosemite Valley Plan/SEIS*, the National Park Service consulted with the U.S. Forest Service, the State Historic Preservation Office, the Advisory Council on Historic Preservation, and the following park-associated, federally recognized tribal groups and federally nonrecognized American Indian communities who refer to themselves as tribes: the American Indian Council of Mariposa County, Inc.; the North Fork Mono Rancheria; the Tuolumne Me-Wuk Tribal Council; the Chukchansi Tribal Government; the Mono Lake Indian Community; the Bridgeport Paiute Indian Colony; and the Bishop Paiute Tribal Council. These consultations have been ongoing throughout the planning process for the development of the *Draft Yosemite Valley Housing Plan/SEIS* and the *Draft Yosemite Valley Implementation Plan/SEIS*, and would continue through the design and implementation phases for activities taking place under the *Yosemite Valley Plan*. All of the activities outlined above are further detailed in Chapter 5, Consultation and Coordination.

Issues Beyond the Scope and Direction of this Planning Effort

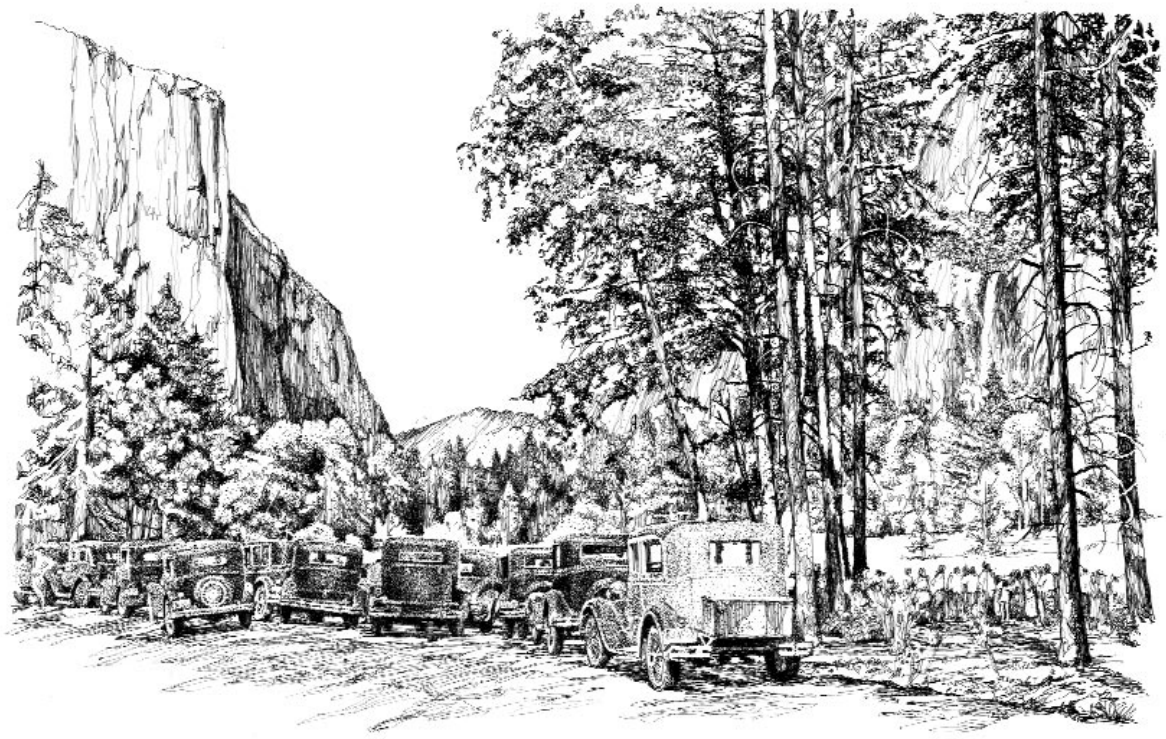
Preparing a New General Management Plan

While the *Yosemite Valley Plan* amends the *General Management Plan*, it is not intended to replace it. The scope of the 1980 *General Management Plan* is the entire national park, while the objective of the *Yosemite Valley Plan* is to provide more specific detail in carrying out the goals and actions prescribed in the *General Management Plan* as they relate to Yosemite Valley. Even though the *General Management Plan* is 20 years old and some members of the public have asked for a new plan, many others have asked that the existing *General Management Plan* be implemented. The National Park Service has assessed whether to prepare a new general management plan. It has concluded that the guidance of the 1980 *General Management Plan*, as synopsized in the five main goals, is still valid today and that the *General Management Plan* supports the purposes of Yosemite National Park. Furthermore, the National Park Service

recognizes that this "exceedingly special Valley" deserves a long-term perspective with a consistent course and management. As a result, the National Park Service will continue to move forward to implement the broad goals of the *General Management Plan* and the direction and guidance provided in the *Merced River Plan*, while updating specific actions through the planning and compliance process (like this *Yosemite Valley Plan* effort). This approach will allow the National Park Service to continue to build on accumulated knowledge.

Regional Transportation

Decisions on the development of a regional transportation system will not be made through the *Yosemite Valley Plan*. Those decisions will be made through processes coordinated through the Yosemite Area Regional Transportation System (YARTS) or other regional planning efforts. The *General Management Plan* guides Yosemite National Park in the development of a regional transportation system as a preferred, long-term approach for transporting people to the park. Although the National Park Service does not have the authority to create a regional transportation system (outside park boundaries), park management will continue to work cooperatively with surrounding communities, the State of California, and the U.S. Department of Transportation to create a regional transit system, as called for in the *General Management Plan*. The *Final Yosemite Valley Plan/SEIS* addresses cumulative impacts that may result from development of a regional transit system, as currently proposed by YARTS. While the alternatives evaluated in this *Final Yosemite Valley Plan/SEIS* consider the long-term possibility of visitors arriving by regional transit, none of the alternatives is dependent on the implementation of regional transit.



Relationship to Other Park Plans and Projects

Yosemite National Park has many other current plans and ongoing planning efforts. Those most directly related to the *Final Yosemite Valley Plan/SEIS* or potentially affected by it are described below.

Merced Wild and Scenic River Comprehensive Management Plan

In 1987, Congress designated a 122-mile section of the Merced River as a Wild and Scenic River. The National Park Service, the U.S. Forest Service, and the Bureau of Land Management administer the Merced Wild and Scenic River in separate segments. In 1999 and 2000, the National Park Service developed a comprehensive management plan for the 81-mile section of the Merced Wild and Scenic River under its jurisdiction. The *Draft Merced Wild and Scenic River Comprehensive Management Plan/EIS* was reviewed by the public in early 2000 and the Record of Decision was authorized in August 2000. The purpose of the finalized *Merced River Plan* is to provide direction and guidance on how best to manage National Park Service lands, including the El Portal Administrative Site, within the river corridor to protect and enhance river values.

The *Merced River Plan* establishes seven specific management elements: (1) river corridor boundaries; (2) classifications; (3) Outstandingly Remarkable Values; (4) Section 7 determination process; (5) River Protection Overlay; (6) management zoning prescriptions; and (7) a Visitor Experience and Resource Protection framework. As a programmatic plan, the *Merced River Plan* does not provide recommendations or site-specific, detailed actions. Instead, it applies management elements to prescribe desired future conditions, typical visitor activities and experiences, and allows for park facilities and management in the river corridor. The *Final Yosemite Valley Plan/SEIS* follows management direction established in the *Merced River Plan* for actions proposed within the river corridor in Yosemite Valley, Wawona, and the El Portal Administrative Site (see Vol. IA, Chapter 3, Affected Environment, Merced Wild and Scenic River; Vol. IB, Chapter 4; and Vol. IC, plates G-1 through G-3).

Concession Services Plan

The *Concession Services Plan/SEIS*, approved in 1992, presented guidance for the management of concession services in Yosemite National Park to meet the goals of the *General Management Plan*. The *Concession Services Plan* amends the *General Management Plan*, and provisions of the *Concession Services Plan* are incorporated into the action alternatives addressed in the *Final Yosemite Valley Plan/SEIS*. The *Concession Services Plan* established levels of visitor services to be provided through concession operations, with a major objective that they be compatible with park purposes and that they preserve ecological processes. The *Concession Services Plan* called for a greater reduction in the total number of overnight accommodations than did the *General Management Plan*, and it prescribed the types of lodging facilities that would be provided. The intent of the *Yosemite Valley Plan* is to implement facility, service level, and activity provisions of

the *Concession Services Plan*, unless data on floodplain, geologic hazard, or highly valued resource areas, or new operational requirements suggest the need for adjustment. In these instances, the *Final Yosemite Valley Plan/SEIS*, as a result of one or more of the above factors, would modify the *Concession Services Plan*.

Resources Management Plan

The *Resources Management Plan* for the park was updated in 1994. The plan presents an inventory and description of natural and cultural resources; describes and evaluates the current resources management program; and prescribes an action program based on legislative mandates, National Park Service policies, and provisions of related planning documents. The actions in the *Final Yosemite Valley Plan/SEIS* have been developed in harmony with the goals of the *Resources Management Plan*.

The January 1997 Flood

In early January 1997, just after the 1996 Draft Yosemite Valley Housing Plan was released for public review and as the Draft Yosemite Valley Implementation Plan was being prepared for release, one of the greatest floods in the park's history occurred. Coming at such a critical time, this flood increased both the complexity of and opportunities for the planning process.

This flood was of a similar magnitude to three others over the last 100 years. It clearly demonstrated the vulnerability of facilities constructed in the floodplain and the ultimate dominance of natural processes. While the Draft Yosemite Valley Implementation Plan was subsequently modified and released, planning for the Yosemite Lodge area was removed from the plan in hopes of expediting the recovery of lodging and employee housing in this heavily damaged area. The Upper River and Lower River Campgrounds, also damaged in the flood, were not rebuilt, since some plan alternatives called for their elimination. The information the flood provided, along with recent information about geologic hazards, has made Valley planning far more challenging – the land recognized as suitable for development has decreased dramatically (see Vol. IC, plate E, Development Considerations).

The flood also has allowed visitors to experience Yosemite Valley with reduced development. It has presented opportunities and some funding to relocate damaged facilities and to increase the restoration of riverside environments. It is these post-flood conditions that are being used as a fresh starting point for the Yosemite Valley Plan/SEIS, as Yosemite Lodge, employee housing, and other Valley planning efforts are integrated into one comprehensive plan.

Flood Recovery Projects

Flood Recovery

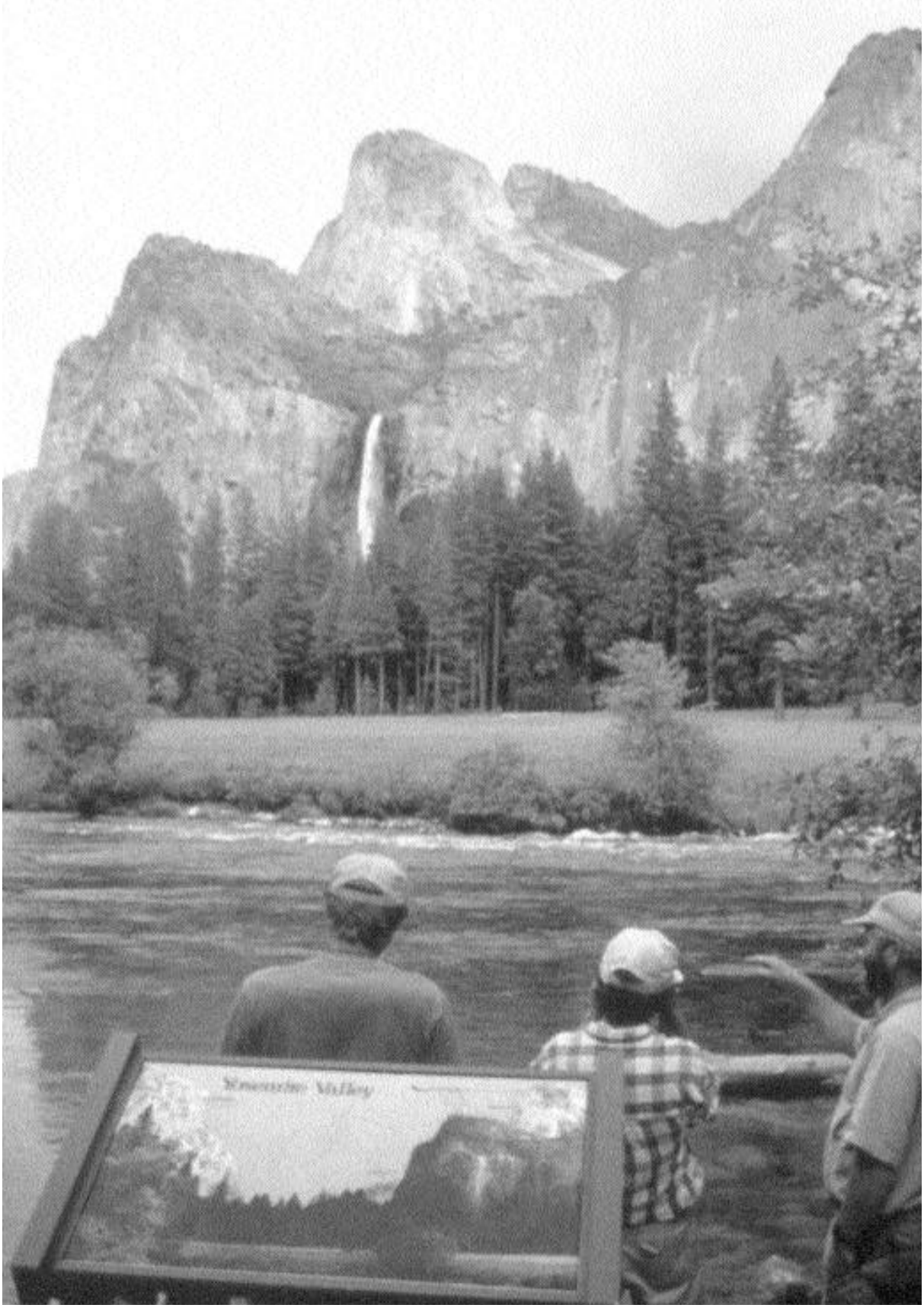
Facilities damaged by the 1997 flood included the four main routes leading into the park; substantial portions of the water, sewer, and power distribution systems; and campsites, lodging units, and employee housing. Although the January 1997 flood was the largest on record for Yosemite Valley, floods of similar or greater magnitude can be expected to occur in Yosemite Valley in the future.

Immediately following the flood, engineers, architects, resource managers, and other technical experts compiled over 350 damage assessments. These assessments captured the extent of damage to park resources and estimated the cost of repair. On June 12, 1997, the emergency Supplemental Appropriations Act (Public Law 105-18) was signed, providing the park with $186 million to fund the flood recovery projects identified in the damage assessments. Senate Report 105-16 requested that the National Park Service prepare a Flood Recovery Action Plan to describe organizational and procedural details of the flood recovery process and estimate costs to accomplish work. This plan was prepared and is being used to direct the flood recovery program. Additionally, quarterly reports are prepared for Congress to provide project status updates and budgetary information, and to list accomplishments to date.

El Portal Road Reconstruction Project

The El Portal Road, a main route into Yosemite Valley, was damaged extensively during the 1997 flood. An environmental assessment was prepared in 1997 to propose both repair of the weakened, flood-damaged road and to improve safety. Safety improvements included widening travel lanes by 1.5 feet, improving drainage along the entire roadway, and constructing guardwalls to meet crash-test standards. Litigation was brought against this project; the resultant court ruling allowed 6 miles of road to be reconstructed, but enjoined the remaining 1.1 miles (from the intersection of the El Portal and Big Oak Flat Roads east to Pohono Bridge) pending further compliance.

Reconstruction of the 6 miles of road was completed in the fall of 2000; however, revegetation and monitoring efforts will continue for several years to ensure that native vegetation is successfully established along the road corridor. The removal of the Cascades Diversion Dam, safety improvements at the intersection of the El Portal and Big Oak Flat Roads, and reconstruction of the final 1.1-mile segment of the road have been delayed until further environmental analysis can be completed.



Alternatives, Including the Preferred Alternative

Final Yosemite Valley Plan

Supplemental EIS

Photo on previous page by Michael Floyd

Valley View along Northside Drive at the west end of Yosemite Valley affords a dramatic view of Bridalveil Fall, Bridalveil Meadow, and the Merced Wild & Scenic River.

CHAPTER 2

ALTERNATIVES, INCLUDING THE PREFERRED ALTERNATIVE

INTRODUCTION

This chapter identifies and describes the four action alternatives (including a preferred alternative) proposed in the Final Yosemite Valley Plan/SEIS as well as a No Action Alternative that represents the status quo. Each of the four action alternatives is a comprehensive proposal for the management and use of Yosemite Valley. These alternatives also propose to meet the goals of restoring, protecting, and enhancing natural and cultural resources, including the Merced Wild and Scenic River's Outstandingly Remarkable Values; providing enhanced, high-quality, resource-based visitor experiences; reducing automobile traffic congestion; and providing more effective park operations. Various actions have been combined to meet these resource preservation and visitor experience goals in the Valley, including natural and cultural resource management and restoration, visitor services and recreational opportunities, park operations, transportation, and employee housing.

Each of these alternatives meets *General Management Plan* goals to varying degrees. Actions proposed in three previous planning documents — the 1992 *Draft Yosemite Valley Housing Plan/Supplemental Environmental Impact Statement* (SEIS) (and its 1996 supplement), the 1997 *Draft Yosemite Lodge Development Concept Plan/Environmental Assessment*, and the 1997 *Draft Yosemite Valley Implementation Plan/SEIS* — have been incorporated in each of the action alternatives to the extent possible. In addition, preliminary design concepts prepared for the Yosemite Falls Project have been incorporated. Each of the action alternatives incorporates information from public comments received during the scoping process, as well as public comments received on the *Draft Yosemite Valley Plan/SEIS* during the public review period.

The action alternatives were also modified to make them consistent with the guidance and direction provided in the *Merced Wild and Scenic River Comprehensive Management Plan/Final Environmental Impact Statement* (*Merced River Plan/FEIS*) and its Record of Decision.

This chapter is organized into the following sections:

- Changes between the *Draft* and *Final Yosemite Valley Plan/SEIS*
- Development Considerations
- Resource Stewardship
- The Process for Formulating Alternatives
- Developing a Range of Actions
- Regulatory Compliance Process
- Actions Common to All Action Alternatives
- Identification of the Preferred Alternative
- The Alternatives
- Mitigation Measures Common to All Action Alternatives
- Actions Considered but Dismissed
- Summary of Alternatives (Table A) and Summary and Comparison of Environmental Consequences (Table B)

CHANGES BETWEEN THE DRAFT AND FINAL YOSEMITE VALLEY PLAN/SEIS

During the public comment period, the National Park Service held 14 in-state public hearings to gather comments from the general public regarding the *Draft Yosemite Valley Plan/SEIS*. All public and agency comments were analyzed and substantive concerns identified. Substantive concerns, new analyses, and applicable laws and policies were considered by park management and planners in developing the *Final Yosemite Valley Plan/SEIS.* The process of comment analysis, concern screening, and management deliberation is described in Volume III, along with staff responses to all public concerns.

The changes that have been made as this planning process moved from draft to final are listed below. Table A at the end of this chapter highlights these changes.

All Action Alternatives

Merced Wild and Scenic River Comprehensive Management Plan/FEIS

All actions in each of the action alternatives in the *Draft Yosemite Valley Plan* were in compliance with the alternatives in the *Draft Merced Wild and Scenic River Comprehensive Management Plan/EIS*. However, the *Draft Merced River Plan/EIS* was modified in the final document; thus, all actions in each of the action alternatives for this document have been brought into compliance with the Preferred Alternative and the Record of Decision for the *Merced River Plan/FEIS*.

Traffic Check Station

The National Park Service would actively manage parking and congestion through the proposed traveler information and traffic management system by providing visitors with reliable information and by using incentives and disincentives. In order to meet the goal of reducing traffic congestion in Yosemite Valley, as a last resort, a traffic check station could be constructed to assure that the number of vehicles east of El Capitan crossover did not exceed available parking.

Indian Cultural Center

The *Draft Yosemite Valley Plan/SEIS* included the establishment of an Indian Cultural Center in all the action alternatives (Alternatives 2-5). However, the Indian Cultural Center should not have been included as an action of the *Yosemite Valley Plan.* The Indian Cultural Center is a distinct project to be undertaken by the American Indian Council of Mariposa County, Inc. (Southern Sierra Miwok), in cooperation with the National Park Service. In keeping with the *General Management Plan*, the National Park Service entered into a cooperative agreement with the Council to work together to establish an Indian Cultural Center at the site of the last historically occupied Indian village in Yosemite Valley, subject to compliance with applicable laws. Because the cultural center would be established with or without a *Yosemite Valley Plan*, mention of it has been removed from Alternatives 2, 3, 4, and 5. A description of the project and its associated compliance requirements is included in Vol. III, Appendix H, Considering Cumulative Effects.

Alternative 1

No changes.

Alternative 2

Lodging

Overall – The total number of lodging units would change from 981 to 961, and the range of cost options would shift toward more lower-cost units.

Housekeeping Camp – The number of Housekeeping Camp units proposed would change from 52 units in the draft to 100 units (all units would be removed from the River Protection Overlay, but some units would still remain in areas identified as highly valued natural resources).

Yosemite Lodge – The experience at Yosemite Lodge would be less of a motel experience and more of a traditional national park lodge experience, designed to enhance connections with the outdoors. New floodplain data (Stantec 2000) have resulted in the recalculation of the River Protection Overlay; Maple, Alder, Juniper, Laurel, and Hemlock motel units would be removed to allow for the realignment of Northside Drive and redesign of Yosemite Lodge. The new road alignment would allow for more restoration in the lodge area to the south of the road (particularly in the area of the Hemlock motel unit). Birch cottage would also be removed to allow for redevelopment/redesign. No new motel buildings would be constructed; five cottages (90 rooms) and 11 cabins (44 rooms) would be built instead. The total number of rooms proposed at Yosemite Lodge would be reduced from 386 in the draft to 251 units.

Curry Village – The historic character of the Camp Curry National Register Historic District would be retained and several individual buildings would be rehabilitated. The number of units proposed at Curry Village would increase from 420 in the draft to 487. The Mother Curry Bungalow, Tresidder Residence, Huff House, Cottage 819, and Cabin 90A/B (all historic structures) would be rehabilitated and used for lodging. An additional 24 tent cabins over the 150 proposed in the draft would remain. Eighty cabins-without-bath would remain and be rehabilitated, and 108 cabins-with-bath would be built.

The Ahwahnee – The single Ahwahnee cottage that is in the River Protection Overlay would be retained, as it is a contributing element to the National Register property.

Camping

Overall – The number of campsites proposed would be increased from 465 in the draft to 500.

Lower Pines Campground – The number of drive-in sites proposed would be increased from 40 in the draft to 60.

Upper Pines Campground – The number of drive-in sites proposed would be increased from 255 in the draft to 270 through redesign within the existing area.

Cultural Resources

Bridges – The National Park Service would take a phased approach to the removal of historic bridges. Sugar Pine Bridge would be removed first, and the existing ecological and hydrologic monitoring program would be re-evaluated. Stoneman Bridge would be removed next, if necessary, based on ecological and hydrologic monitoring findings. Housekeeping Bridge would be retained to provide access across the Merced River to and from Housekeeping Camp.

Orchards – Lamon Orchard: The fruit trees would be retained and managed (though not replaced when they die), and the orchard and historic area would become an interpreted site. Curry Orchard: All fruit trees would be removed and much of the area restored to natural conditions. Two acres would be redeveloped for overnight parking (wilderness parking).

Superintendent's House (Residence 1) – The house and its associated garage would be relocated if feasible to a site within the Yosemite Village Historic District. After the house and garage are moved, the original location would be restored to natural conditions.

Fire Station

The National Park Service and concessioner structural fire operations would be consolidated. Two new fire stations would be constructed: one in the Yosemite Village area (out of the historic district) and one in the Curry Village area.

Current Visitor Center

The Yosemite Village area would be the focus of educational and interpretive opportunities for visitors. The current visitor center and the auditoriums would be evaluated to determine if they could be adapted to meet the park's needs for museum storage and curatorial functions, and to serve as an education/interpretive center with classroom space. If not, they would be removed and the area redeveloped to meet that need. Community space would be included in this complex.

Out-of-Valley Parking

Hazel Green would be the preferred out-of-Valley parking location along the Big Oak Flat Road because it would provide the opportunity for a public-private partnership to meet the goals of this planning effort, and it would provide for parking outside of Yosemite National Park, reducing development within the park. However, if negotiations with the private landowner fail to fully address the goals and objectives of this plan and receive approval from Mariposa County, Foresta would become the in-park preferred out-of-Valley parking location for the Big Oak Flat Road corridor. There is no change to out-of-Valley parking proposed for Badger Pass and El Portal. The National Park Service would explore the option of providing limited food service at out-of-Valley parking areas.

Medical Clinic

The medical clinic function would remain for as long as viable and financially feasible. The historic medical clinic building would continue to serve as the clinic; if the medical function is removed, then the building would be adaptively reused.

Concessioner Stable

The concessioner stable and 12 associated outbuildings would be removed, but the feasibility of moving the historic concessioner stable buildings to Foresta to serve National Park Service and concessioner administrative stables would be evaluated.

Courthouse

The U.S. District Court Magistrate function and the courthouse would remain in Yosemite Valley for as long as viable and feasible.

El Portal

The commercial bulk fuel facility would be removed from its site in El Portal.

Employee Housing

Yosemite National Park is committed to reducing the government's role in providing employee housing while reserving the ability to provide housing when appropriate and necessary. The National Park Service would facilitate the private acquisition of housing in the region by park employees. There would be a total of 2,084 employee beds located in Yosemite Valley and the El Portal Administrative Site to meet the operational needs of this alternative. Yosemite Valley would support 723 employee beds while 1,037 would be located in El Portal. The number of beds called for in Wawona has not changed.

Alternative 3

No significant changes.

Alternative 4

Cultural Resources

Superintendent's House (Residence 1) – The house and garage would be removed, the area within the River Protection Overlay restored, and a picnic area developed at the site.

Out-of-Valley Parking

South Landing would be the out-of-Valley parking area for the Big Oak Flat Road (Highway120) corridor.

Alternative 5

Cultural Resources

Curry Orchard – The orchard would not be used for day-visitor parking (due to the zoning prescribed in the *Merced River Plan/FEIS*). Historic fruit trees would be retained and managed (though not replaced when they die); however, the area would be restored to natural conditions over the long term. The adjacent picnic area would be developed as proposed in the draft.

In-Valley Parking

In-Valley parking would be consolidated at Yosemite Village, with a total of 550 day-visitor parking spaces, since the *Merced River Plan/FEIS* management zoning does not allow for parking in Curry Orchard.

Camping

Upper River and Lower River Campgrounds would be restored to natural conditions. The *Merced River Plan/FEIS* management zoning does not allow for overnight accommodations in this area. The total number of campsites proposed would be reduced from 713 in the draft to 585.

Lodging

The total number of lodging units in this alternative would be reduced from 1,145 units to 1,012 units.

Housekeeping Camp – The number of units at Housekeeping Camp would be reduced to 100 units (because of new floodplain information and removing all units from the River Protection Overlay, as prescribed by the *Merced River Plan/FEIS*).

Yosemite Lodge – The total number of units would be reduced from 440 units to 369 units (because of new floodplain data, removing all units from the River Protection Overlay, and to allow for realignment of Northside Drive).

Multi-use Trails

One lane of Northside Drive would be converted for use as a multi-use paved trail from Camp 4 (Sunnyside Campground) to El Capitan crossover. On Southside Drive, one lane would be converted for use as a multi-use paved trail from El Capitan crossover to Sentinel Bridge. Analysis of traffic volumes after publication of the draft showed that lanes could not be removed for vehicular traffic west of El Capitan crossover.

Employee Housing

Yosemite National Park is committed to reducing the government's role in providing employee housing while reserving the ability to provide housing when appropriate and necessary. The National Park Service would facilitate the private acquisition of housing in the region by park employees. There would be a total of 2,118 employee beds located in Yosemite Valley and the El Portal Administrative Site to meet the operational needs of this alternative. Yosemite Valley would support 752 employee beds while 1,042 would be located in El Portal. The number of beds called for in Wawona has not changed.

Development Considerations

Yosemite Valley is only one mile wide. Its walls are steep and several thousand feet high, and the Merced River meanders through its center. Both the cliffs and river present potential hazards to visitors, staff, and development, leaving only small areas of land with a low probability of being affected by falling rocks or rising water. General guidance for the placement and continued use of facilities within areas subject to natural hazards (e.g., rockfall) is provided in the *Yosemite Valley Geologic Hazard Guidelines* and NPS *Management Policies*. Furthermore, floodplains are a critical component of the natural ecosystem. As a result, existing policy and guidelines direct the National Park Service to avoid construction of facilities within the 100-year floodplain. Considering these constraints, the National Park Service has endeavored to identify those areas in the Valley better suited for providing the services and facilities necessary to meet the goals of this planning process (see Vol. Ic, plate E).

Rockfall

Rockfall and related movement of rock (i.e., rockslides, debris flows, and rock avalanches) continue to shape Yosemite Valley. More than 400 rockfall incidents have been documented in the Valley since 1850, and many more have likely gone unrecorded. These incidents have taken lives and caused countless injuries. Additionally, trails, roads, and buildings have been severely damaged or destroyed during these events. Thus, from a human perspective, these rockfalls and related events are considered geologic hazards.

The recent identification of geologic hazard zones in Yosemite Valley has allowed the National Park Service and U.S. Geological Survey (USGS) to develop guidelines to reduce risk to park visitors, staff, and development in the Valley. The National Park Service would strive to avoid placing new facilities in geologically hazardous areas. Existing facilities would be phased out or relocated outside geologic hazard areas, unless no practicable alternative exists and safety and hazard probability factors have been considered. It is not possible to avoid all rockfall-related risks in a narrow valley like Yosemite. This means that some facilities in the Valley will be exposed to risk of damage by rockfall.

The *Yosemite Valley Geologic Hazard Guidelines* (see Vol. II, Appendix C) recommend that natural processes be allowed to occur unimpeded. They also provide for continued National Park Service and USGS cooperation, in consultation with local, state, and federal disaster management agencies, to devise even more effective geologic hazard identification and management strategies. Although the exact magnitude and timing of future rockfall incidents would remain difficult to forecast, the National Park Service would strive to more clearly understand potential hazards and to minimize their potential consequences for visitors, staff, and developed areas.

Floods

High water, or from a human development perspective, flooding, occurs in Yosemite Valley nearly every year. From an ecological perspective, annual high water and periodic flooding are critical natural processes. As a result, federal policy requires that special consideration be given

to areas that are within the regulatory floodplain. Since 1916, four winter floods, including the 1997 flood, have approximated the 100-year flood level in some Valley areas. Because of the dynamics of water movement to and through Yosemite Valley, each of these floods affected areas of Yosemite Valley differently. Requirements for developing facilities within floodplains and wetlands are contained in Executive Order 11988 (Floodplain Management); Executive Order 11990 (Protection of Wetlands); Director's Orders 77-1 (Wetland Protection) and 77-10 (Floodplain Management); and other National Park Service guidance.

Resource Stewardship—Highly Valued Resources

The National Park Service has determined that the following natural and cultural resources in Yosemite Valley are the highest priority for protection and restoration, based on their sensitivity, biological productivity and diversity, or cultural value. Many of these resources are considered to be altered, impaired, or at risk. These highly valued resources, as shown in the Highly Valued Resources plate (Vol. Ic, plate D), guided land-use planning decisions and the development of alternatives in this document.

Highly Valued Natural Resources

Merced River Ecosystem

Most of the highly valued resource areas in Yosemite Valley are closely linked to the Merced River and hydrologic processes. Processes such as flooding, sedimentation, and erosion are powerful natural forces that shape and maintain the character of plant and wildlife communities in Yosemite Valley. When examining the current condition of the Merced River ecosystem in Yosemite Valley, it is important to distinguish normal river dynamics from processes that have been altered by human land-use practices. It is natural for a river to meander and migrate sideways, while maintaining the same width, when flowing across a gently graded plain with fine-grained soils such as in Yosemite Valley. The diversity of riparian and wetland areas is largely due to dynamic processes such as erosion, sediment deposition, channel migration, and flood regimes (Odum 1978; Gregory et al. 1991). As the Merced River changes course, it erodes portions of its riverbank and deposits new sediments. This provides a constantly changing substrate for vegetation and promotes diverse age classes and types of vegetation, which in turn support a wide variety of wildlife.

In the east end of Yosemite Valley, the Merced River has widened significantly as a result of human-induced alterations of the river corridor. All riparian areas are highly sensitive to human-related disturbance, especially those portions closest to water (UC Davis 1996d). Eroded sediments in a typical river in a floodplain are generally deposited at nearby mid-channel or lateral bars. In areas where the natural flow of the river has been disrupted, much sediment can continue to wash downstream. In Yosemite Valley, this has resulted in widening of the river (see Chapter 3, Affected Environment, Water Resources).

The Merced River ecosystem is made up of the river's channel and tributaries, wetlands, riparian habitat along the riverbank, and meadow communities. The river corridor is a central component of the Yosemite Valley cultural landscape. To restore and maintain the Merced River ecosystem's complex and diverse communities, the aquatic, riparian, and meadow communities must be interlinked by episodes of flooding. Elements needed for the Merced River ecosystem to function naturally include:

- Natural flow between the main river channel and the floodplain during regular high water
- Room for natural channel migration
- Natural density and species composition of vegetation along stream banks
- Riparian corridor and meadow habitat to support a natural abundance and diversity of wildlife species and allow their movement within and among habitat types
- Natural water levels within meadow communities
- Natural structure, diversity, and productivity of native plant communities
- Natural subsurface water flows (groundwater) between the meadows and river

Wetlands

Wetlands are integral to the Merced River ecosystem and are usually found adjacent to the river and its tributaries. Wetland communities include the river channel (riverine wetlands) and riparian and meadow communities (palustrine wetlands). Wetlands are among the most biologically diverse natural communities. Palustrine wetlands, in particular, are some of the most productive of any natural community. Over the past 150 years, wetlands in Yosemite Valley have become smaller and less productive due to the impacts of development and recreation.

Riparian Communities

Riparian communities extend outward from the banks of the Merced River and its tributaries. In the Sierra Nevada, more species and greater numbers of wildlife are found in riparian habitats than any other habitat type. Riparian communities are among the most degraded in the park, as well as in the Sierra Nevada, due to development and recreational activities along the riverbanks. Riparian communities have been declining in size since the late 1800s. The riparian corridor is an important component of the Yosemite Valley cultural landscape.

Meadows

Meadows in Yosemite Valley alternate between aquatic and terrestrial states. Meadows support unique and specialized plants and wildlife that have adapted to this variable habitat, rather than depending solely on permanent water bodies or dry upland habitats. In the past 150 years, meadow communities have decreased markedly in complexity (habitat and native species diversity) and continuity (i.e., habitat fragmentation has increased). The hydrologic processes that form, maintain, and develop these meadows have also been degraded (see Chapter 3, Affected Environment).

Meadows are an important cultural landscape feature and critical components of the scenic grandeur of Yosemite Valley. Meadows in Yosemite Valley have been mapped regularly since the 1860s, when J. D. Whitney completed the first known map of the Valley.

California Black Oak Woodlands

California black oaks are valued because they grow in a unique manner in Yosemite Valley, as a dominant member of an otherwise herbaceous community. California black oaks elsewhere typically occur in dense stands with conifers and other shrubs. California black oak woodlands are also valued because they are an abundant seasonal food source for a variety of animals.

The extent and unique characteristics of California black oak stands in Yosemite Valley are partly a result of pre-contact American Indian land management practices. These stands are an important traditional resource for culturally associated American Indian people and an important component of the Yosemite Valley cultural landscape. California black oaks are at risk in Yosemite Valley because the proportion of younger trees appears to have declined, and many mature stands of black oaks have been encroached upon by conifers.

Sensitive Wildlife Habitat

Wildlife habitat that, if changed, has a high potential for affecting the diversity and abundance of species in Yosemite, is defined as sensitive or highly valued. This is habitat that has high numbers of species unique to it, that is used by special-status species (rare, threatened, or endangered), or that is rare relative to other types. These criteria, linked with models and studies of vegetation communities inside and outside the park, indicated that changes to riparian, meadow, and wetland habitats would have the most effect on wildlife. These analyses indicated that changes in ponderosa pine, mixed conifer, and live oak habitats would have the least effect.

Rich Soil Areas

These areas include soils that either support or have the potential to be restored to highly valued vegetative communities. These soils include loams that are deposited by the Merced River and that generally support exceptional native vegetation communities – particularly wetlands, meadows, and riparian areas. Rich soil areas also include hydric soils that support wetlands, and soils formed from morainal deposits.

Highly Valued Cultural Resources

Cultural Landscapes

Yosemite Valley is a nationally significant cultural landscape reflecting patterns of human use that have shaped the landscape for thousands of years. The most distinguishing characteristics of this cultural landscape include the Merced River corridor and its relationship with open meadows, oak woodlands, and coniferous forests that define the spatial organization of the Valley floor; the historic circulation system that routes visitors through the Valley and provides open and spectacular views of the natural features; the rustic character of early park development exemplified by The Ahwahnee, Yosemite Village, and Curry Village; the Valley's archeological resources; and the cultural traditions and spiritual associations held by American Indian groups.

National Historic Landmarks

There are three National Historic Landmarks in Yosemite Valley: The Ahwahnee, the Rangers' Club, and the LeConte Memorial Lodge. National Historic Landmark structures are nationally significant historic properties that are designated by the Secretary of the Interior as possessing exceptional value that commemorates or illustrates the history of the United States. Federal law requires agencies to protect these to the maximum extent possible. They are also important components of the cultural landscape in Yosemite Valley.

Archeological Sites

Yosemite Valley contains over 100 archeological sites, all contributing elements in the Yosemite Valley Archeological District, that are listed on the National Register of Historic Places. Sites in Yosemite Valley, especially those that are relatively undisturbed, are valuable for their information regarding prehistoric and historic lifeways. Especially important in Yosemite Valley is the link between documented historic American Indian villages and prehistoric and historic archeological sites. This is one of few places in California where so many of these direct links can be made, which makes their information and cultural value extremely important to science and culturally associated American Indian people.

Burial Sites

Yosemite Valley contains one documented historic and prehistoric cemetery, as well as several isolated graves and at least one cremation site. El Portal contains at least three historic and prehistoric American Indian cemeteries and many isolated burials. These places are especially important to culturally associated American Indian people; many of the individuals and families currently living in and around Yosemite trace their ancestry to individuals buried here. All known burial areas will be protected from development.

The Process for Formulating Alternatives

The alternatives considered in the *Final Yosemite Valley Plan/SEIS* were developed over the last nine years. Issues raised during several public comment periods, beginning with scoping on the 1992 *Draft Yosemite Valley Housing Plan/SEIS* and including the public comment period on the *Draft Yosemite Valley Implementation Plan/SEIS* (1997), were carried forward into the scoping for the *Draft Yosemite Valley Plan/SEIS*. A range of reasonable approaches to address these issues and achieve the goals of this plan was discussed, and four alternative concepts were developed. Through an internal review process, including a Choosing by Advantage workshop, four comprehensive action alternatives (in addition to the No Action Alternative) were refined to form the alternatives considered in the *Draft Yosemite Valley Plan/SEIS*.

After the scoping period for the *Draft Yosemite Valley Plan/SEIS* closed, comments were analyzed and a scoping comment analysis report was prepared (USFS 1999b). Public concerns from the report were combined with a reanalysis of comments received on the 1992 *Draft Yosemite Valley Housing Plan/SEIS* (and its 1996 supplement, the 1997 *Draft Yosemite Lodge Development Concept Plan/Environmental Assessment*) and the 1997 *Draft Yosemite Valley Implementation Plan/SEIS*. Most of the concerns identified for the *Draft Yosemite Valley Plan/SEIS* fell within five main issue categories: natural environment, cultural resources, visitor experience, transportation, and social and economic environment (see Vol. IA, Chapter 1, Issues and Concerns). These issues, along with other approaches, were evaluated as to whether they were reasonable and/or feasible.

At this point, some actions were considered and dismissed from detailed study. In general, reasons for dismissing these actions included:

- Technical or economic infeasibility
- Inability to satisfy guidance criteria, meet project goals, or resolve park planning needs in Yosemite Valley

National Park Service staff used the project goals and criteria as well as regulations and policies to combine individual actions and thus develop four concepts for action alternatives. Once the alternative concepts had been developed, they were put through a series of evaluations. First, alternative concepts were evaluated within the framework of meeting or, as appropriate, balancing the criteria outlined in Chapter 1, Purpose and Need. This evaluation ascertained whether alternative concepts would need to be modified to better satisfy the guidance criteria for accomplishing the broad goals of the 1980 *General Management Plan* and the specific purpose and need of the *Yosemite Valley Plan*. Next, alternative concepts were evaluated against several factors in a process called Choosing by Advantage. Although the Choosing by Advantage factors were similar to the aforementioned guidance criteria, they were used in a different way, that is, to evaluate the relative advantages of the alternative concepts. Together, these two evaluations enabled the National Park Service to determine where the four alternative concepts required strengthening. The evaluations also assisted in identifying which actions provided the greatest advantage, and how best to combine these alternative concepts to optimize achievement of plan goals.

By May 1999, five action alternatives had been developed; these were refined to four action alternatives by November 1999. These proposed alternatives were then used to make a preliminary evaluation of environmental consequences. The consequences were presented at a workshop comprised of the planning team and other members of park staff. During this workshop, the proposed alternatives were modified and refined, and suggestions were made as to how analysis of environmental consequences could be modified to better address effects of changes on park resources and visitor experience. The planning team also met with the *Merced River Plan/FEIS* team to ensure that the *Draft Yosemite Valley Plan/SEIS* was compliant with the direction and guidance provided in the *Draft Merced River Plan/EIS* with respect to the Wild and Scenic Rivers Act. A revised version of the proposed action alternatives for the *Draft Yosemite Valley Plan/SEIS* was produced as a result of this workshop.

The Preferred Alternative was chosen after evaluating each alternative based on: (1) how well it achieved the goals of the 1980 *General Management Plan*; (2) how well it protected park resources while providing for a quality visitor experience; and, (3) how well it addressed issues and concerns expressed by the public. The planning team recommended Alternative 2 as the Preferred Alternative in the *Draft Yosemite Valley Plan/SEIS*.

The *Draft Yosemite Valley Plan/SEIS* was released to the public on April 7, 2000, with a 90-day public comment period. Each of the public comment letters and other communications (including emails, faxes, and public hearing transcripts) were read and analyzed. The planning team examined public comments in the context of improving the proposed alternatives to better achieve plan goals and meet project purpose and need.

Reviewing and Modifying the Draft Plan

In July 2000, the planning team held a week-long workshop to review and consider issues raised during the public comment period. Each substantive issue was evaluated in terms of its:

- Magnitude
- Linkage(s) to other issues
- Basis for modification of proposed alternatives, including technical and fiscal feasibility, compliance, planning, and implementation
- Compliance with guidance and direction provided in the *Merced River Plan/FEIS* for protecting the Outstandingly Remarkable Values in areas affected by specific actions identified in the four action alternatives
- Ability to achieve planning goals for resource protection and visitor experience

The team recommended changes to the draft alternatives, including the Preferred Alternative, and the *Final Yosemite Valley Plan/SEIS* was prepared. A Record of Decision will be completed following the release of the *Final Yosemite Valley Plan/SEIS* to the public, and the completion of a 30-day waiting period.

After the Record of Decision for the *Final Yosemite Valley Plan/SEIS* is approved, a separate document, which will be referred to as the *Yosemite Valley Plan*, will be prepared and made available to the public. It will present the project purpose, provide a detailed description of the

alternative selected for implementation, and discuss any recommendations and actions that were recorded as part of the Record of Decision.

Developing a Range of Actions

After a range of actions for each subject area was identified, they were then studied to determine the feasibility of packaging them with other actions and determining if they contributed to the feasibility of an alternative. Although there are numerous options in each subject area, and many potential ways to package these options into alternatives, it is neither necessary nor practicable to analyze every feasible option within the range. The Council on Environmental Quality has indicated that only a "reasonable number of examples covering the full spectrum of alternatives must be analyzed and compared" (40 CFR Parts 1500-1508 [1987]). The emphasis in developing alternatives for the *Draft Yosemite Valley Plan* was to formulate combinations of actions for detailed analysis that represent the full range of possible alternatives.

Alternatives range from providing parking for day visitors at Yosemite Village in the east Valley to parking at Taft Toe in the middle of the Valley. Most alternatives also provide for out-of-Valley parking for day visitors. Other principal differences, and numerous smaller ones, are also present. Lodging and camping numbers differ, as does the amount of highly valued natural resource restoration, cultural resource protection, and new development. While all action alternatives would reduce the amount of vehicle traffic in the Valley, some would also create new areas free of the direct influence of motorized vehicles (e.g., Stoneman Meadow, Ahwahnee Meadow, and sections of Northside Drive closed to traffic). These and other distinctive actions are described in Table A at the end of this chapter and in the summary of major changes at the beginning of each alternative description.

Visitor Use and Parking Considerations

The advantages of locating parking for day visitors in a single lot were considered in developing the action alternatives for the *Yosemite Valley Plan.* The advantages include a need for fewer parking spaces due to more efficient use, less traffic from visitors traveling to scattered locations, and a better ability to direct visitors to parking. These advantages were considered more important than the advantages of scattered parking, which include potentially less visibility and, for some, the ability to park closer to Valley destinations. As a result, all of the action alternatives provide parking for day visitors in a single lot that can be managed to maximize access for day visitors.

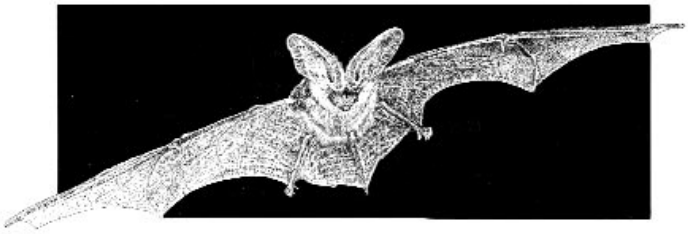
The 1980 *General Management Plan* prescribed 1,271 parking spaces as the maximum for Yosemite Valley day visitors (10,530 visitors per day). The number of campsites and lodging units has been reduced since 1980, so to reach the daily maximum number of day and overnight visitors prescribed for Yosemite Valley in the *General Management Plan* (18,241), 1,622 day-visitor parking spaces would be required, if all parking spaces were located in Yosemite Valley.

Since 1980, traffic flow, traffic volume, and the accumulation of vehicles in the Valley during the day have been analyzed to assess congestion, the potential for protecting and restoring highly

valued natural and cultural resources, and the potential for reducing the influence of traffic on visitors' experience. Seasonal variations in visitor use and the need for visitor parking were also analyzed. An analysis of resource values and topography has determined that 1,622 parking spaces (the number of day-visitor parking spaces prescribed in the *General Management Plan* [1,271] adjusted for higher day and less overnight parking), could be accommodated in mid-Valley, at Taft Toe, without substantially impacting highly valued natural resources (although it would impact a previously undeveloped area). Maintaining day parking in the east Valley would allow the placement of parking in previously developed areas, but it would also limit the ability to protect and restore highly valued natural and cultural resources near Yosemite Village. Further traffic analysis found that a maximum of 800 day-visitor vehicles could be accommodated in the east Valley while allowing for the closure of Northside Drive to vehicles from Yosemite Lodge to El Capitan crossover. Any reduction in the number of day-visitor parking spaces below 800 would provide opportunities to pull parking facilities farther back from the Merced River and out of highly valued resource areas.

The alternatives provide a range of Yosemite Valley parking combinations, from 550 spaces for day visitors to 1,622 spaces for day visitors. For alternatives providing fewer than 1,622 spaces in the Valley, additional out-of-Valley day-visitor parking and shuttle service are proposed. The number of spaces at out-of-Valley parking lots has been determined by calculating the expected number of times that parking spaces would be vacated and refilled, travel time on shuttle buses, and the relative demand for parking along each park entrance corridor. While the *Final Yosemite Valley Plan/SEIS* does not propose specific limits on visitation, each combination would support a daily visitation level in the Valley (18,241 visitors) approximating that described in the *General Management Plan* (see "Visitor Use in Yosemite Valley and Land Management Zoning" in Actions Common to All Action Alternatives toward the end of this section).

An operations analysis was conducted for shuttle bus service to and from out-of-Valley parking locations. This analysis concluded that service from out-of-Valley parking locations between November and March would not be cost-effective, and would be at times infeasible. Snow, particularly along the Big Oak Flat and Wawona Roads, could cause roads to close and keep visitors from their vehicles for extended periods. Thus, some parking would continue to be necessary in Yosemite Valley for day visitors. The present-day peak demand for parking by day visitors on winter weekends has been used to establish the minimum number of day-visitor parking spaces (550) for Yosemite Valley.



Regulatory Compliance Process

The National Park Service is committed to continued public involvement as the *Yosemite Valley Plan* is implemented. The *Final Yosemite Valley Plan/SEIS* has been prepared with the best available data, fully describes the affected environment, and analyzes environmental consequences. However, as individual actions or projects from the *Yosemite Valley Plan* are implemented, it may become necessary to complete additional National Environmental Policy Act compliance tiered from the *Final Yosemite Valley Plan/SEIS*. Additional tiered National Environmental Policy Act compliance documents may be prepared if:

- Proposed actions extend beyond the area identified and analyzed in the *Final Yosemite Valley Plan/SEIS*
- Proposed actions involve an appreciable change in function and capacity from that discussed in the *Final Yosemite Valley Plan/SEIS*
- Previously unknown resources are discovered (e.g., archeological site, or special-status plant or animal species) during the design phase

The *Final Yosemite Valley Plan/SEIS* is the foundation document for compliance with the National Environmental Policy Act for actions proposed for Yosemite Valley. The next step would be to prepare site-specific design plans for these actions. Site designs would be evaluated to determine the need for additional National Environmental Policy Act or other regulatory compliance (e.g., National Historic Preservation Act, Endangered Species Act, Clean Water Act, Wild and Scenic Rivers Act). Regardless of the need for additional National Environmental Policy Act compliance, as site designs are prepared, the design alternatives would be made available to the public. It is anticipated that site plans would be developed (or revised) for *Yosemite Valley Plan* actions in the following areas:

- Yosemite Lodge
- Yosemite Falls
- Camp 4 (Sunnyside Campground)
- Yosemite Village, including Visitor Center and Transit Facility
- Curry Village
- Campgrounds

Many *Yosemite Valley Plan* actions are directly linked to areas outside of Yosemite Valley, such as El Portal, Wawona, and Foresta. Comprehensive site plans would be prepared for these areas in order to develop site-specific alternatives for facility design and placement. Environmental assessments or environmental impact statements would be prepared for these areas in conjunction with comprehensive site plans and would be made available to the public for comment and consideration.

ACTIONS COMMON TO ALL ACTION ALTERNATIVES

As the action alternatives were developed and refined, some elements became common to all action alternatives. The common actions include the following:

Implementation of the River Protection Overlay

The River Protection Overlay prescribed in the *Merced River Plan* would be implemented to provide a buffer area for natural flood flows, channel formation, riparian vegetation, and wildlife habitat while protecting riverbanks from human-caused impacts and associated erosion. The River Protection Overlay is intended to be the highest priority location for restoration of hydrologic processes and biotic habitats within the river corridor (see figure 2-1). Development within the River Protection Overlay in Yosemite Valley would be removed, except when it is required for access to or across the river, for health and safety, for the maintenance of historic properties, and where it is impractical to locate facilities outside of the River Protection Overlay. It would allow for recreational access to the river in areas that are most able to withstand heavy use, such as sand and gravel bars. Most areas within the River Protection Overlay where development is removed would be restored to natural conditions.

The River Protection Overlay includes the Merced River channel, areas flooded during ordinary high water events, and a buffer zone that is measured from the ordinary high water mark. The *Merced River Plan* uses the U.S. Army Corps of Engineers definition of "ordinary high water". Using this definition, the River Protection Overlay is 150 feet on each side of the Merced River's ordinary high water mark at elevations above 3,800 feet (including Yosemite Valley and Wawona). Below 3,800 feet in elevation (including the El Portal Administrative Site), where the river gradient and hydrologic characteristics change, the River Protection Overlay is 100 feet on each side of the Merced River's ordinary high water mark.

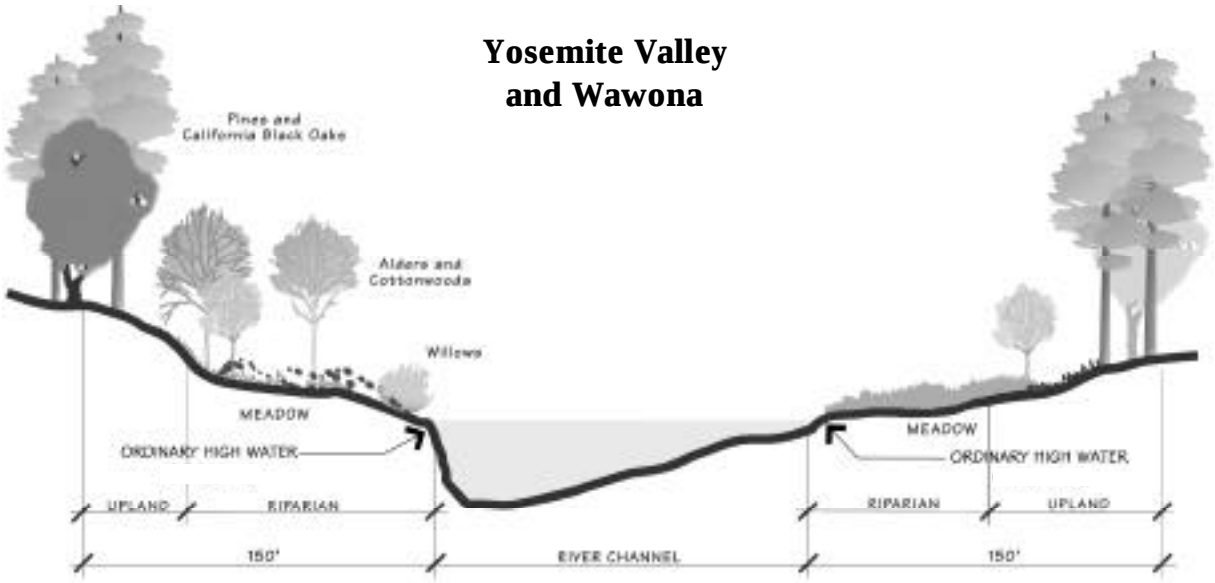
Cascades Diversion Dam Project

As part of implementing the *Merced River Plan*, all alternatives propose the removal of the historic Cascades Diversion Dam. The Cascades Diversion Dam is an impediment to the free-flowing character of the Merced River. The dam removal would be subject to site-specific environmental compliance, including public involvement.

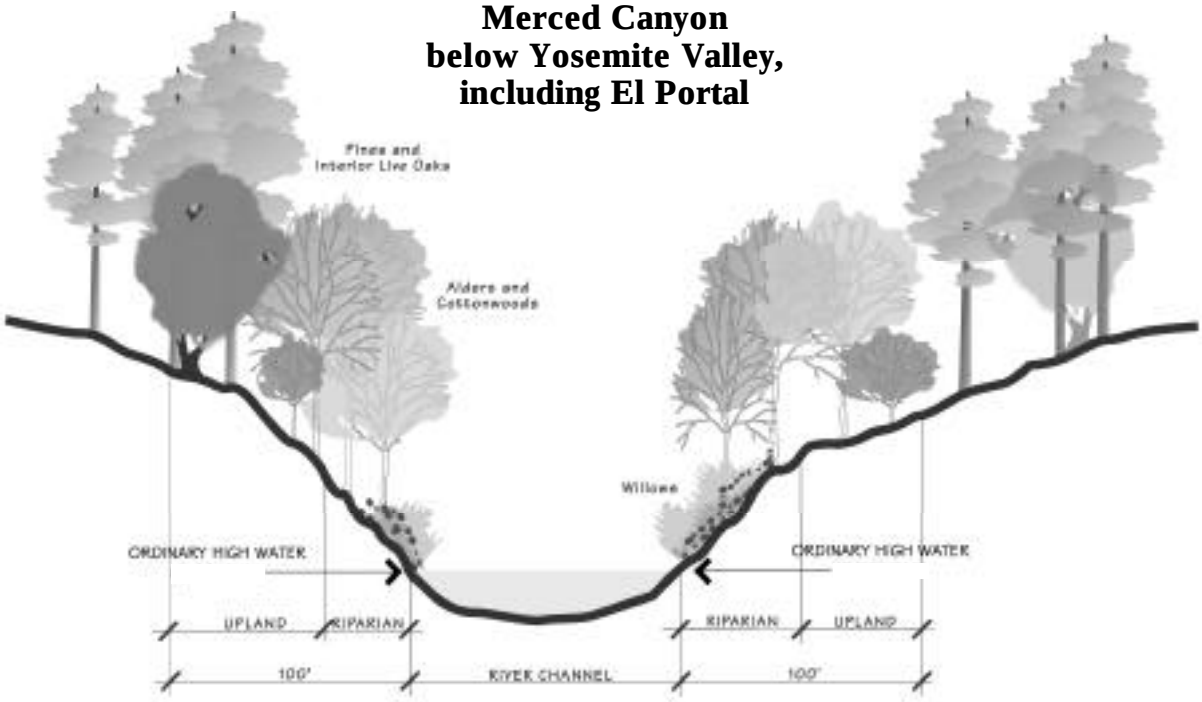
El Portal Road Project

As part of the road improvements included in each action alternative, El Portal Road between Pohono Bridge and the intersection of the Big Oak Flat Road with the El Portal Road (at the west end of Yosemite Valley) would be improved. This segment of road has two narrow travel lanes, each 9.5 feet wide. Subsequent to the January 1997 flood, this road failed east of the Big Oak Flat/El Portal Road intersection and was repaired temporarily. Road improvements would be designed to improve safety and minimize the chance of roadway failures in the future.

Figure 2-1
River Protection Overlay



River Protection Overlay



River Protection Overlay

The management zoning and River Protection Overlay of the *Merced River Plan* allow for the maintenance and improvement of the El Portal Road. Projects that occur within the bed and banks of the river are subject to a Wild and Scenic Rivers Act Section 7 determination to assess "affect[s] to the values for which such river was established." The El Portal Road is an important transportation link to Yosemite Valley and supports the recreation Outstandingly Remarkable Values by providing access.

The project would not be implemented until after the removal of the Cascades Diversion Dam. Road improvements would not be initiated until the river channel had stabilized following dam removal to allow for the creation of a road design that would protect Outstandingly Remarkable Values. Road improvements would be subject to site-specific environmental compliance, including public involvement.

Visitor Use in Yosemite Valley and Land Management Zoning

Yosemite Valley is the most popular destination in Yosemite National Park, attracting about 70% of all summer visitors. This popularity has resulted in recurring problems with traffic congestion and parking during the peak season. In 1980, when visitation was about half its present level, the *General Management Plan* established maximum overnight and day-use levels for each developed area in the park, including Yosemite Valley. This step was taken to meet several of the plan's broad goals: preserving Yosemite's priceless beauty, markedly reducing traffic congestion, reducing crowding, and allowing natural processes to prevail. The maximum daily use level prescribed for Yosemite Valley by the *General Management Plan* was 18,241 visitors in a 24-hour period. This number was calculated using the number of campsites, lodging units, and day-visitor parking spaces proposed in the *General Management Plan*, and the average size of visitor parties.

The action alternatives in the *Final Yosemite Valley Plan/SEIS* provide for day-visitor and overnight parking for private vehicles and tour buses sufficient to accommodate this level of visitation. Numbers of parking spaces in each alternative vary to appropriately match the levels of overnight use in that alternative. Table 2-1 shows the expected visitor use based on overnight and day-visitor parking facilities for each alternative.

Table 2-1
Expected Visitor Use in Yosemite Valley

Alternative	Expected Use Level of Yosemite Valley Overnight Facilities	Expected Use Level of Valley by Day Visitors	Total Daily Visitation
1	6,387	10,950 (13,950)[1]	17,337 (20,337)
2	5,389	12,852	18,241
3	5,212	13,029	18,241
4	5,164	13,077	18,241
5	5,891	12,350	18,241

Note: The table assumes that existing visitor characteristics and visitor use patterns would continue. Characteristics that could change over time and affect the number of visitors who would use facilities in the park include the number of people in each party or vehicle, the length of stay, the distribution of visitor arrivals and departures over the course of the day, the ridership on tour buses, the locations in the Valley visited by each party, and the number of vehicles at each campsite, among others. Additionally, the number of visitors (use level) on any particular day will vary according to daily fluctuations in these characteristics.

1. 10,950 is the peak season average day-visitor level, while 13,950 is the 4th-largest peak summer day visitor level.

In addition to parking for Yosemite Valley day visitors, Alternatives 2, 3, 4, and 5 provide facilities for transit buses. These buses could bring additional day visitors to the Valley from locations outside the park and could be operated as part of a regional transit service or by other methods. Because the level of potential use of transit buses is not yet determined, facilities for accommodating transit buses would be designed to accommodate a range of numbers of visitors and buses.

The *Final Yosemite Valley Plan/SEIS* does not propose specific limits on visitation. While the *General Management Plan* prescribed a maximum daily use (i.e., day and overnight use) level for Yosemite Valley, its analysis was facility- and vehicle-based, with no criteria for protection of resources or visitor experience. The *Final Yosemite Valley Plan/SEIS* proposes to fully implement a Visitor Experience and Resource Protection (VERP) study and program within five years of the Record of Decision for the *Final Yosemite Valley Plan/SEIS*. To identify existing and desired conditions for natural resources, cultural resources, and visitor experience, scientific data would continue to be collected and analyzed. Based on these data, the National Park Service would (1) establish management zoning that complements the management zoning established in the *Merced River Plan*; (2) develop indicators to measure visitor experience and resource conditions; (3) develop standards that define acceptable measurements for each indicator; (4) develop an assessment program to monitor standards; (5) develop a decision-making process to be used in identifying management actions necessary to maintain or restore desired conditions; and (6) develop visitor-use level recommendations for each zone. If the results of the VERP study indicate the need to establish a maximum visitation level for Yosemite Valley, supplemental environmental compliance and a public involvement process would be conducted prior to establishing Valleywide use levels.

Traveler Information and Traffic Management

To assure that the number of vehicles entering the eastern portion of Yosemite Valley would not exceed the capacity of roadways and parking, each of the action alternatives includes the design and implementation of a traveler information and traffic management system. The traveler information and traffic management system would be designed to improve visitor experience and safety, reduce congestion, and protect natural and cultural resources.

This system would be planned and designed through a process that would include extensive public involvement and appropriate environmental compliance; implementation would likely be phased to ensure each step taken meets park goals. The system could use various techniques to manage vehicle access to Yosemite Valley and, if required, other areas in Yosemite National Park. These may include vehicle reservations, registration of vehicles at the entrance stations, pricing and other incentives to encourage travel by alternative modes, and informing visitors about the most convenient, least expensive, and most environmentally sound ways to travel to and visit Yosemite Valley. All types of vehicle traffic, including visitor and employee vehicles, tour buses, and administrative traffic, would be managed by the system. Among the first components of the system to be developed would be methods to assist visitors in planning their Yosemite vacations, provide current access information, and publicize any proposed changes in access.

The intent of the traveler information and traffic management system would be to provide visitors with information about where to park private vehicles and the availability of overnight accommodations in Yosemite Valley well before they arrive at Yosemite National Park. The system would provide information and incentives to encourage day visitors to use out-of-Valley parking or (if available) use transit buses during times of peak visitation.

Preliminary research has identified several components of traveler information and traffic management systems that are being employed throughout the country. Aspects of some or all of these components may be necessary for a successful traveler information and traffic management system at Yosemite National Park. These include:

- Pre-visit, en route, and in-park information for visitors
- Management of access and parking
- Coordination and management of transit services
- Management of National Park Service, concessioner, and public transportation vehicles within the park
- Collection of data on traffic to assist in managing and forecasting congestion

If the information, education, and incentives provided by the traveler information and traffic management system are insufficient to assure that visitors do not travel into the Valley when day-visitor parking is not available, and if traffic congestion is not solved by these measures, a traffic check station may be constructed on Southside Drive in the area of the El Capitan crossover. The traffic check station would require up to four lanes approximately 500 feet long.

McCauley Ranch Stable Operations

It is the intent of the National Park Service to remove the National Park Service and concessioner administrative stables operations from Yosemite Valley and relocate them to McCauley Ranch near Foresta. Since the parkwide trails operation is dependent on the use of stock, that program would also be relocated to McCauley Ranch from Yosemite Valley. Although the *Final Yosemite Valley Plan/SEIS* calls for this action and analyzes the consequent environmental impacts, the action cannot be initiated until a Wilderness suitability or nonsuitability assessment has been prepared as called for in the 1984 California Wilderness Act. The relocation of the Valley stables operations would not occur until the Wilderness suitability assessment is completed.

If it is determined that the McCauley Ranch addition is suitable for designation as Wilderness, the stable operations would be relocated within Yosemite Valley to a site in the vicinity of the historic Curry dump (about 3 acres), east of Curry Village. If relocated to this site, the consolidated National Park Service and concessioner administrative stables operations would support only district stock and trails operations.

Identification of the Preferred Alternative

It is difficult to develop a single alternative that takes a maximum-benefit approach to (1) achieving the broad goals established in the *General Management Plan*; (2) meeting the purpose of this planning process; and (3) meeting the criteria presented in Chapter 1. This is because there are inherent conflicts among the various goals and criteria. For example, achieving the goal of allowing natural processes to prevail, and the criteria set forth in Chapter 1 to preserve historic structures and protect important cultural landscape resources, are in conflict when evaluating the free-flowing nature of the Merced River and retention of historic bridges. In many cases, an alternative that yields a maximum benefit to one project goal or criteria would likely result in reduced benefits in achieving another goal or criteria. In this example, it could mean either eliminating a cultural resource or continuing impacts to natural processes. Thus, the alternative that best meets the various goals, and their criteria, would yield the highest sum of benefits.

The Preferred Alternative was selected based on:

- A comparison of the intensity, magnitude, and duration of the environmental consequences of each of the alternatives
- The alternative's ability to best satisfy stated purpose and need for action
- How well the alternative satisfies the goals and criteria discussed in Chapter 1

Based upon the above, Alternative 2 has been identified as the Preferred Alternative of the *Yosemite Valley Plan*. It provides the best approach to preserving the natural and cultural resources that contribute to Yosemite Valley's splendor and uniqueness, and to making those resources available to present and future generations for their enjoyment, education, and recreation.

The goals and criteria were applied to all four of the action alternatives, but alternatives emphasized different action items (e.g., all day-visitor parking in the Valley, or in a combination of in-Valley and out-of-Valley parking). It was determined that Alternative 2 would be the most successful at accomplishing the purpose and need for the *Yosemite Valley Plan*: to restore, protect, and enhance natural and cultural resources, including the Merced River's Outstandingly Remarkable Values; reduce automobile traffic congestion; provide opportunities for enhanced, high-quality, resource-based visitor experiences; and provide effective park operations.

Photo by Howard Weamer, 1973

Yosemite Valley from Inspiration Point, with El Capitan on the left, Half Dome on the right, and Clouds Rest in the distance.

ALTERNATIVE 1
No Action Alternative

This alternative maintains the status quo in Yosemite Valley, as described in Vol. IA, Chapter 3, Affected Environment. It provides a baseline from which to compare other alternatives, to evaluate the magnitude of proposed changes, and to measure the environmental effects of those changes. There are currently 407 acres of existing development within Yosemite Valley. This no action concept follows the guidance of the Council on Environmental Quality, which describes the No Action Alternative as no change from the existing management direction or level of management intensity.

Under this alternative, no dramatic or comprehensive changes would take place in the management of Yosemite Valley. The primary modes of transportation into Yosemite Valley would be by private vehicle and bus. Access would continue to be managed by the Restricted Access Plan during periods of high visitation. A combination of scattered parking and formal and informal parking lots would continue. Campsites and lodging units would remain at current levels (i.e., the number remaining after the 1997 flood and its subsequent cleanup). The Valley Visitor Center would remain in its present location in Yosemite Village. A comprehensive approach to restoring highly valued natural communities in Yosemite Valley, such as the Merced River corridor, meadows, and wetlands, would not take place. The west end of Yosemite Valley would remain largely undeveloped.

For a thorough discussion of the environmental impacts of this alternative, see Vol. IB, Chapter 4, Environmental Consequences. For graphic representations of actions presented in this alternative, see Vol. IC, plates 1-1 to 1-8.

Summary of Major Changes in Relation to Existing Conditions

There would be no major changes as a result of actions in this alternative.

Natural Resources

Individual projects that are proposed in the *Resources Management Plan* (1994) that would not affect existing developed areas and visitor facilities would be undertaken based on opportunity and availability of funding. These actions include:

- Prevent the spread of non-native plants
- Manage visitor use in meadows, riparian corridors, California black oak woodlands, and other sensitive habitats
- Restore biotic communities through such methods as prescribed burning
- Monitor air quality (ozone, visibility, and particulate matter)
- Maintain and restore natural wildlife abundance and diversity through protection of rare, threatened, and endangered species, habitat preservation, and control of non-native species
- Manage human/bear and other human/wildlife interactions
- Conduct baseline and continuing water quality monitoring studies
- Clean up sources of environmental pollution that affect soil and water quality

Merced River Ecosystem

The River Protection Overlay and zoning prescribed in the 2000 *Merced Wild and Scenic River Comprehensive Management Plan/Final Environmental Impact Statement* (*Merced River Plan/FEIS*) would be adopted. However, no removal of human-made structures and obstructions would be initiated. Above 3,800 feet in elevation, the River Protection Overlay is a 150-foot corridor on each bank, measured from ordinary high water. Below 3,800 feet in elevation, where the river gradient and characteristics change, the overlay is 100 feet on each side of the river, measured from ordinary high water. The overlay would allow the restoration of degraded riverside vegetation and wildlife habitat, provide a corridor for wildlife movement through the Valley, and protect the riverbank from unnatural erosion on a site-specific basis, except where existing human-made structures and obstructions exist (see Actions Common to All Action Alternatives at the beginning of this chapter; and Vol. IA, Chapter 3, Affected Environment).

Under this alternative, existing human-built features, such as buildings, bridges, and roads, would continue to be used regardless of their effect on ecological processes. The Merced River ecosystem in the east end of Yosemite Valley would remain degraded and fragmented by development and facilities. The west end of Yosemite Valley would remain largely undeveloped, except for existing picnic areas, roads, associated turnouts, utility corridors, and parking.

The recreational vehicle dump station at Upper Pines Campground would remain in a riparian area. The areas of Upper and Lower River Campgrounds, the west portion of Lower Pines Campground, and Group Campground would be neither restored to natural conditions nor rebuilt as campgrounds. North Pines Campground, the concessioner stable, Housekeeping Camp, Camp 6, Curry Orchard, the Village Store parking lot, parts of Lower Tecoya employee housing complex, and the concession headquarters would remain in potential riparian, meadow, or oak communities. At Yosemite Lodge, the area where lodging units and housing units were removed following the January 1997 flood would be neither restored to natural conditions nor rebuilt. The Art Activity Center (former bank building) and Yellow Pine Campground would remain.

Roads and utilities would continue to bisect Stoneman, Sentinel, Cook's, Ahwahnee, El Capitan, and Bridalveil Meadows. Groundwater and surface water flows that sustain native meadow vegetation and wildlife and that discourage conifer invasion are diverted by these roads. Southside Drive crossing Bridalveil Creek would remain the same. This road acts as a dam, diverting surface and subsurface water flows that fan from the base of Bridalveil Fall.

California Black Oak Woodland

The Superintendent's House (Residence 1) adjacent to Cook's Meadow, and the tennis courts at The Ahwahnee would remain.

Upland Communities

The Swinging Bridge and Church Bowl Picnic Areas and associated parking would remain, as would guest lodging at Curry Village and the Ahwahnee Row houses. The site of the former gas station at Yosemite Lodge would not be restored to natural conditions.

Cultural Resources

This alternative would retain the historically significant sites, structures, and landscape features in Yosemite Valley in their existing condition and configuration, with the exception of the construction of the Indian Cultural Center (see Vol. II, Appendix H, Considering Cumulative Effects). Archeological sites and ethnographic resources would be managed and protected through ongoing programs, and traditional uses by culturally associated Indian people would continue to be encouraged. Historic structures and landscape features would continue to be managed, maintained, and protected as they are today. There would be no changes at the Lamon, Hutchings, and Curry Orchards. The Yosemite Museum collections (including research library and archives) would continue to be housed in separate locations in Yosemite Valley, El Portal, and Wawona.

Archeological Sites

Archeological resources would continue to be managed as they are today. Archeological sites would be preserved in place as much as possible. Known human burials would be protected, but one burial area in Yosemite Village would remain paved over, and one burial area in El Portal would remain covered by an abandoned wastewater treatment plant. Resource monitoring, rehabilitation, and impact mitigation would continue on a project-specific basis, as funding allowed.

Ethnographic Resources

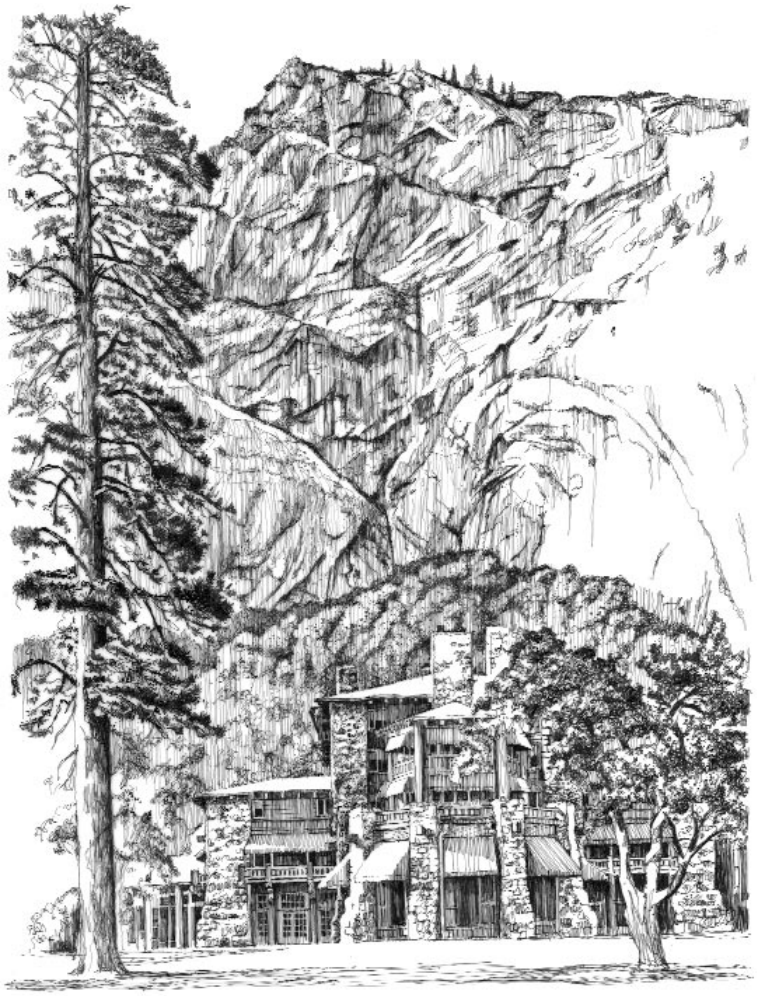
Through existing agreements and ongoing consultation with culturally associated American Indian tribes, access to and use of special resources in Yosemite Valley would continue. As prescribed in the *General Management Plan*, the National Park Service would continue to work with the American Indian Council of Mariposa County, Inc. (Southern Sierra Miwok) to enable the council to establish an Indian Cultural Center. The cultural center would be established after site-specific planning and compliance. The center would be located west of Camp 4 (Sunnyside Campground), the site of the last historically occupied Indian village in Yosemite Valley. This center would provide a location for these American Indian people to conduct traditional ceremonies and functions and to practice and teach traditional lifeways. While the center would be open to the public, access may be limited during times of special ceremonies. Some public interpretation would occur, but this cultural center would not replace the primary educational function of the current Indian Village of Ahwahnee at Yosemite Village.

The National Park Service and culturally associated American Indian tribes would continue to develop a gathering plan for traditional plants. Burial areas, where previously identified, would continue to be protected. Access would be provided for American Indian participants in traditional and ceremonial activities. When previously unknown burials are discovered, provisions outlined in the Native American Graves Protection and Repatriation Act and its implementing regulations would be followed. Other important areas, such as gathering locations, historic American Indian villages, and areas of spiritual or traditional importance, would be protected as much as possible.

The park's Programmatic Agreement for compliance with Section 106 of the National Historic Preservation Act also includes provisions for including culturally associated American Indian tribes in the park's planning process. This agreement stipulates that the park and associated American Indian tribes will develop an agreement for government-to-government relations, a protocol for official consultations regarding issues of concern and park actions that may affect traditional resources, and park-specific guidelines for implementing provisions of the Native American Graves Protection and Repatriation Act (see Vol. II, Appendix D).

Cultural Landscape Resources (Including Individually Significant Historic Sites and Structures)

Under this alternative, historically significant characteristics of the proposed Yosemite Valley Cultural Landscape Historic District would be retained. The spatial organization and natural systems and features that define and physically structure the landscape of Yosemite Valley would remain as they are today. The historically significant meadows, black oak woodlands, and conifer forests would continue to be managed using prescribed fire, as they are today. Patterns of land use would remain as they are today, within the existing configuration of historic developed areas and circulation systems. Historic structures would neither be removed nor rehabilitated. The historic orchards and individually significant historic sites would remain as they are today. Structures, spatial organization, cluster arrangements, and other landscape characteristics in the historic developed areas would remain as they are today.



Historic sites and structures would be preserved in place as much as possible. National Historic Landmarks–The Ahwahnee, LeConte Memorial Lodge, and the Rangers' Club–would continue to be managed as they are today to protect them from any development or change that would degrade integrity or important historical or architectural characteristics. National Register districts and structures (listed or potentially eligible) would be protected, retained, and adaptively reused as much as possible (e.g., historic stone-arch bridges, Yosemite Village and Camp Curry Historic Districts, Yosemite Chapel, Camp 4 [Sunnyside Campground]). However, the Superintendent's House (Residence 1), inundated by floodwaters in the January 1997 flood and unoccupied since that time, would neither be rehabilitated as a residence nor removed.

The fruit trees in the historic Curry, Lamon, and Hutchings Orchards would not be removed, nor would they be cultivated. Parking would remain in the historic Curry Orchard.

Museum Collection (including Archives and Research Library)

The museum collection, archives, and research library would continue to be stored in dispersed facilities in Yosemite Valley, El Portal, and Wawona. Many of these storage facilities do not meet National Park Service standards for museum preservation.

Visitor Experience

Key distinguishing visitor experience elements of this alternative include:

- Both day and overnight visitors to Yosemite Valley continue to drive private vehicles to the east end of the Valley
- Provide parking spaces for 1,558 to 1,662[1] day-visitors' vehicles throughout Yosemite Valley
- Provide parking at destinations throughout the Valley, such as the Village Store, Camp 6, Curry Orchard, Yosemite Falls, lodging areas, picnic areas, paved and unpaved roadside turnouts
- Use of the same parking areas by overnight visitors, day visitors, and employees
- Retain existing facilities, including the visitor center, retail outlets, and food service
- Maintain current trails, including hiking and stock trails Valleywide, plus paved bicycle trails in the east Valley
- Maintain road circulation and bridges
- Provide 1,260 lodging units and 475 campsites

Access and parking availability into Yosemite Valley for day visitors on the busiest days would continue to be uncertain and would be managed by the Restricted Access Plan (see Vol. IA, Chapter 3, Affected Environment). The Restricted Access Plan temporarily bars access to the eastern portion of Yosemite Valley, and at times to the entire park, when parking spaces are filled and traffic congestion is most problematic. No management zoning would be implemented, other than that established by the *Merced River Plan.*

Access into and around the Valley would continue as at present. Most visitors would arrive by private vehicle or bus. Visitor use would continue to be focused along Northside and Southside Drives, at Bridalveil Fall, and in the eastern end of the Valley. The existing spectrum of recreational activities and opportunities would be unaltered. Orientation and interpretive services would continue at existing levels, focused in the eastern end of the Valley.

Access by visitors with mobility impairments would remain as at present, with placards available for accessing Happy Isles and Mirror Lake via the Happy Isles Loop Road, and for parking private vehicles in specially marked spaces. The shuttle bus system would continue to be accessible to the extent it is today, with all buses eventually becoming fully accessible as they are replaced.

Orientation and Interpretation

Orientation would remain as at present. The visitor center–the principal parkwide orientation facility–would remain at Yosemite Village in the eastern end of the Valley. Small visitor contact stations at or near three of four principal park entrances would continue to provide seasonal orientation services.

1. Day-visitor parking spaces are expressed as a range, as some parking areas are not paved or striped, and the number of spaces depends on parking patterns and vehicle sizes.

Interpretive and educational services and facilities (e.g., ranger programs, tours, exhibits, and school programs) provided by the National Park Service, concessioners, and other partners would continue at present levels. The Valley Floor Tour would use both Northside and Southside Drives, and turnouts would remain available for visitors touring by private vehicles and commercial buses.

Yosemite Village would remain a hub of both visitor services and administrative activity. The visitor center would continue as the principal parkwide interpretive and orientation center (seasonal contact stations at Wawona and Big Oak Flat, plus a summer visitor center at Tuolumne Meadows, would continue to provide orientation and minimal interpretation). The Wilderness Center and Art Activity Center would continue to serve their present functions. The NPS Administration Building and Yosemite Museum/Valley District Building would continue to house administrative functions. The Indian Cultural Exhibit and Museum Gallery in the Yosemite Museum/Valley District Building would remain the only places in which the park's extensive museum collection would be exhibited.

Interpretive amphitheaters at lodging areas would remain in their existing locations. In campgrounds, only the existing Lower Pines amphitheater would serve campers; the Lower River Campground amphitheater would be retained for special interpretive events and studied to determine the feasibility of using it for fee interpretive programs, such as Yosemite Theater.

Recreation

There would be no change to recreational activities in Yosemite Valley.

Trail Use

Walking, Hiking, and Bicycling

Trails would remain unchanged, including the Valley Loop Trail. Trails would connect activity areas (lodging and campgrounds) and provide access to most Valley destinations, including Yosemite Village, picnic areas, Yosemite Falls, El Capitan, Bridalveil Fall, and Valley View. There would not be direct access to the John Muir Trail from Happy Isles, as the pedestrian bridge at Happy Isles has been closed since it was damaged in the January 1997 flood.

Bicycling would continue as at present, with use of multi-purpose paved trails in the eastern portion of the Valley, and the sharing of Northside and Southside Drives with motor vehicles west of Yosemite Lodge. Off-pavement bicycle use, because of its adverse environmental consequences and conflicts with other visitors, would continue to be prohibited.

Bicycle rentals would continue to be available at Curry Village and Yosemite Lodge.

Lower Yosemite Fall

At Yosemite Falls, access to the base of the falls and restrooms, shuttle bus service, and trails would remain unchanged (see Vol. Ic, plate 1-3). The route to the base of the falls would not meet Americans with Disabilities Act accessibility guidelines. Commercial day-tour buses would continue to use this area for loading and unloading passengers and for parking.

Wilderness Access

Wilderness hiking would continue to originate in Yosemite Valley. Wilderness trailhead permits would continue to be available on both a first-come, first-served basis at the Wilderness Center, or by advance reservation. Pre- and post-trip Valley campsites and parking would still be available for wilderness permit holders.

Climbing

Climbing in Yosemite Valley would continue. There would be no change to climbing access.

Stock Use

Private stock would still share trails with hikers throughout the Valley. Private stock and guided trips would continue. The concessioner stable would remain near North Pines Campground, and private stock users could board their stock there. The kennel operation associated with the stable would remain.

Picnicking

Picnic areas would continue to be available in Yosemite Valley. These include Church Bowl, Swinging Bridge, Sentinel Beach, Cathedral Beach, and El Capitan (see Vol. IC, plate 1-1).

Other Activities

Recreational activities, such as touring the Valley by private vehicles and tennis at The Ahwahnee, would continue. The ice rink would remain at Curry Village. No changes to rafting would take place; rafting would continue to be managed under other park resource-based plans. Swimming at existing lodging pools, as well as swimming and fishing in the Merced River, would continue.

Visitor Services

Camping

The 475 existing campsites in Yosemite Valley would be retained at Upper Pines, North Pines, Backpackers, Lower Pines, Yellow Pine (for volunteers), and Camp 4 (Sunnyside) Campgrounds (see Vol. Ic, plate 1-2). Some campsites would remain in highly valued resource areas. Campground conditions and layout would be maintained as at present, and campsite use would continue to be managed with little segregation among user types (recreational vehicles, cars, walk-in campers). Backpacker campsites would continue to be provided. Yellow Pine would continue to be used as a campground for park-sponsored volunteer groups. No utilities would be provided for this administrative campground. No group campsites would be available in the Valley. No utility hookups would be available for recreational vehicles. Campground orientation, parking, and circulation would be the same as at present. Table 2-2 presents the summary of existing campsites to be maintained.

Table 2-2
Campsites in Yosemite Valley

Location	Number of Sites
Upper Pines (drive-in)	240
Lower Pines (drive-in)	78
North Pines (drive-in)	86
Backpackers (walk-in)	30
Camp 4 (Sunnyside Campground) (walk-in)	37
Upper and Lower River	0
Yellow Pine (volunteer group walk-in)	4
Total Campsites	**475**

Note: The National Park Service uses some of these sites for administrative purposes, particularly for park volunteers.

Lodging

A total of 1,260 lodging units would continue to be available in Yosemite Valley (see Vol. Ic, plate 1-2), with accommodations providing a range of styles and prices, including 691 rustic, 181 economy, 265 mid-scale, and 123 deluxe units (see Vol. Ib, Glossary, for definitions of room types; see table 2-3 for room totals by type). The number of units available to commercial tour operators would continue to be capped to ensure access to lodging by independent travelers.

Table 2-3
Accommodations In Yosemite Valley By Room Type

Location	Rustic Units	Economy Units	Mid-Scale Units	Deluxe Units	Total
Housekeeping Camp	264				264
Curry Village	427	181	20		628
Yosemite Lodge			245		245
The Ahwahnee				123	123
Total Rooms	**691**	**181**	**265**	**123**	**1,260**

Housekeeping Camp

The 264 existing units at Housekeeping Camp would be retained (see Vol. IC, plate 1-5).

Curry Village

Curry Village would provide activities and services as at present (see Vol. IC, plate 1-5). There would be no changes in circulation, facility locations, or number of lodging units. A total of 628 overnight guest accommodations would be retained, including tent cabins, cabins with and without bath, and Stoneman Lodge rooms (see table 2-4).

Table 2-4
Curry Village – Lodging Unit Summary

Description	Number of Units
Cabin rooms with bath	103
Cabin rooms without bath	80
Tent cabins	427
Stoneman Lodge	18
Total Rooms	**628**

Yosemite Lodge

Yosemite Lodge would continue to provide activities and services as at present (see Vol. IC, plate 1-3). There would be no changes in circulation, facility locations, or number of lodging units. A total of 245 motel and cottage rooms with bath would be retained (see table 2-5). No other lodging types would be provided.

The January 1997 flood damaged four motel structures at Yosemite Lodge. Interim repairs were made to these structures (Maple, Juniper, Alder, and Hemlock), and they are still in use. They would receive normal maintenance and repair, but no significant rehabilitation. Motel buildings currently in use at Yosemite Lodge are Cedar, Elderberry, Juniper, Manzanita, Alder, Hemlock, Maple, and Laurel. Buildings that contain cottage rooms are Aspen, Azalea, Cottonwood, Dogwood, Tamarack, Birch, and Willow.

Table 2-5
Yosemite Lodge – Lodging Unit Summary

Description	Number of Units
Existing motel rooms with bath, in 8 buildings	181
Existing cottage rooms with bath, in 7 buildings	64
Total Rooms	**245**

The Ahwahnee

The Ahwahnee would provide activities and services as at present. The Ahwahnee's 123 deluxe lodging rooms (99 hotel rooms and 24 cabin/cottage rooms) would be retained. There would be no change to circulation, facility locations, or number of lodging units.

Food and Retail Services

Yosemite Lodge

Food and retail services at Yosemite Lodge would remain as at present, with periodic facility upgrades within the existing footprint. The interconnected buildings at the center of Yosemite Lodge would provide visitor food and retail services. The three restaurants, one gift and grocery shop, main gift and grocery store, and the Mountain Room Bar would remain in their current locations.

The swimming pool, bicycle rental stand, and snack bar would remain. The post office at the lodge would be retained. The Cliff Room and outdoor amphitheater would continue to be used primarily for evening interpretive programs, group meetings, seminars, and other special functions.

The maintenance/housekeeping facility that was damaged by flooding in January 1997 would not be replaced.

The service station would not be replaced. A mobile service truck, designed to deal with minor emergency services and provide gas on the road, would continue to be operated; this service would be expanded as needed. Service stations at other park locations would be retained.

Yosemite Village

Food and retail services in Yosemite Village would remain, with periodic facility upgrades within the existing footprint (see Vol. Ic, plate 1-4). The Village Store, Sport Shop, Grill, Degnan's, recycling, ATM, check cashing, and transportation kiosk would remain in their current locations.

The medical and dental clinics would stay, as would the main Yosemite Village Post Office, The Ansel Adams Gallery, Village Garage, Art Activity Center (in the former bank building), and Wilderness Center.

The Ahwahnee

Food and retail services at The Ahwahnee would remain as at present, with periodic facility upgrades within the existing footprint.

Happy Isles

The modular snack stand that replaced an ice cream/snack stand destroyed by rockfall in 1996 would remain.

Curry Village

Food and retail services at Curry Village would remain as at present, with periodic facility upgrades within the existing footprint. The pool, ice rink, Mountain Shop, bicycle and ski rentals, and outdoor amphitheater would remain in their existing locations. The seasonal post office would remain.

Transportation

This alternative would maintain the existing transportation system and visitor access in Yosemite Valley. All visitors could drive to destinations throughout Yosemite Valley and park in available spaces. Parking for day visitors would continue to be provided in scattered locations and along roadsides. Traffic circulation on Valley roads would remain as at present. When traffic congestion reached unacceptable levels, and when sufficient staff is available for implementation, the Restricted Access Plan would be implemented.

The existing shuttle bus system would continue to serve east Valley destinations. The National Park Service is currently replacing its diesel in-Valley shuttle bus fleet. Low noise, low emissions, cost effectiveness, and use of alternative fuels are the criteria for selecting new vehicles. Additionally, these buses must meet or exceed California air quality standards. Transit and tour bus access would continue.

Nonvehicular modes of transportation and access (hiking, bicycling, and stock use) are described in the Recreation section, above.

Traffic Management

On busy days when unacceptable crowding and congestion occurred, access to the Valley for day visitors would be managed under the Restricted Access Plan. The plan would prohibit visitors in private vehicles from entering the east Valley, and at times the entire park, when parking spaces in the Valley were filled and traffic congestion was problematic.

Parking

Day-Visitor Parking

Day-visitor parking would remain dispersed throughout Yosemite Valley. Day visitors would continue to park at the locations shown in table 2-6.

Parking throughout the Valley would continue on a first-come, first-served basis. Approximately 740 to 900 day-visitor parking spaces would remain in parking areas in the east end of the Valley (see Vol. Ic, plate 1-1). These spaces would continue to be used by day visitors, overnight visitors, and employees. Some day-visitor parking spaces would continue to be available at lodging facilities (these are accounted for in table 2-6 as the difference between the total number of spaces in the parking lot and the

Table 2-6
Day-Visitor Parking Summary

Location	Parking Spaces
Camp 6	285 – 450
Village Store	130
Curry Orchard	47
Yosemite Lodge	219
Yosemite Falls	50
The Ahwahnee	8
Subtotal East Valley spaces	**739 – 904**
West Valley roadside spaces	654 – 758
Total	**1,393 – 1,662**

Note: The number of day-visitor parking spaces listed in this table for all areas that are not paved or striped are estimates. Some areas are expressed as a range because the number of spaces depends on parking patterns and vehicle sizes. The number of day-visitor parking spaces indicated at lodging locations (including Curry Orchard) includes only those spaces not allocated for overnight guests.

number allocated for overnight guests). Road shoulders and turnouts would continue to be used for parking; many of these spaces are used for overflow parking during the summer and are not paved or clearly marked. About 654 to 758 spaces would continue to be located west of Yosemite Village along Northside and Southside Drives.

Visitors with mobility impairments would receive placards to be used for parking private vehicles in specially marked spaces.

Commercial tour buses would continue to bring approximately 14% of day visitors and lodging guests to Yosemite Valley in the summer. Tour buses carrying day visitors would park, load, and unload passengers at Lower Yosemite Fall. Overnight tour buses would park at Yosemite Lodge.

National Park Service, concessioner, and other employees living outside the Valley would commute to their job sites by private vehicles, carpools, and transit buses.

Overnight Visitor Parking

Parking for overnight guests' vehicles would remain at lodging, campgrounds, and the wilderness permit-holders' parking lot (see table 2-7).

Table 2-7
Overnight Parking Summary

Location	Parking Spaces
Housekeeping Camp	264
Curry Village	628
Yosemite Lodge	245
The Ahwahnee	123
Campgrounds[1]	549
Wilderness Parking	120
Total	**1,929**

1. These numbers are based on one parking space per campsite, although up to two cars can be parked in individual campsites. For Camp 4 (Sunnyside Campground), a ratio of 3 parking spaces per site was used.

Employee Parking

Parking for National Park Service, concessioner, and other employees residing in the Valley would be located at or near each residence. Parking for employees commuting from outside the Valley would be near work sites, and in lots and informal parking areas shared with day and overnight visitors.

Road Circulation

Existing roads would be maintained (see Vol. IC, plate 1-1). Southside Drive would remain one-way eastbound from Pohono Bridge to Stoneman Bridge, and two-way from Curry Village through the campgrounds. Northside Drive would remain one-way westbound from Stoneman Bridge to Yosemite Village, two-way from Yosemite Village to Yosemite Lodge, and one-way westbound from Yosemite Lodge to Pohono Bridge. The Happy Isles Loop Road would continue to be open only to shuttle buses, service vehicles, and vehicles carrying visitors with disabilities.

Transit

This alternative would maintain existing transit service to and within the Valley. Shuttle bus service, regional transit, and park tours are described in Vol. IA, Chapter 3, Affected Environment. No changes are proposed to existing transit operations as part of this alternative.

Park Operations

Both the National Park Service and concessioner would continue to base parkwide administrative functions in Yosemite Valley; National Park Service and concessioner headquarters would remain in their present locations. No other National Park Service or concessioner administrative offices would be relocated from Yosemite Valley to El Portal. The National Park Service and concessioner administrative stables operations would continue in their existing locations. Shuttle bus maintenance would continue at the Village Garage area.

National Park Service

The NPS maintenance area would continue to house its present functions (see Vol. Ic, plate 1-4). The NPS Operations Building (Fort Yosemite) would remain in its present location. The Superintendent's House (Residence 1) at the edge of Cook's Meadow would be neither rehabilitated nor removed. Yellow Pine Campground, adjacent to the Sentinel Beach Picnic Area, would continue to be used as a campground for park-sponsored volunteer groups.

The following National Park Service functions and offices would remain in Yosemite Valley:

- Park management, including the superintendent, deputy superintendent, and parkwide supervision and administration of park operations
- Supervision of Valley District roads operations and parkwide trails maintenance
- Valley District buildings and grounds maintenance and supervision, including materials storage and shops
- Valley District utilities maintenance and wilderness utilities maintenance for the Vernal/Nevada Falls and Little Yosemite Valley areas
- Valley District resource and visitor protection, including emergency medical response and structural fire protection, parkwide wildfire protection (including equipment and materials storage), parkwide search and rescue, parkwide enforcement support (including jail facility and criminal investigations), and parkwide wilderness management
- U.S. District Court Magistrate facility
- Parkwide wildlife management
- Interpretive workspace, presentation of visitor services, and storage of interpretive supplies and materials

Concessioner and Other Entities

The administrative headquarters and warehouse for the park's concessioner would remain in Yosemite Village (see Vol. Ic, plate 1-4). The Village Garage facility would remain.

- The medical and dental clinic would remain in its present location
- The U.S. Post Office in Yosemite Village would continue at its present location
- The Pacific Bell telephone facility would remain
- Field support offices for the Yosemite Institute would remain in Yosemite Village

Employee Housing

This alternative would provide 1,695 total employee beds in Yosemite Valley, El Portal, Cascades/Arch Rock, and Wawona to support Yosemite Valley operations, divided as follows:

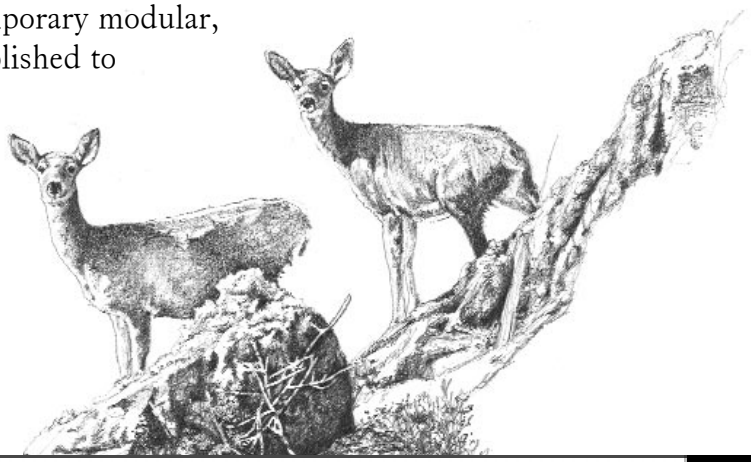
- Yosemite Valley - 1,277 beds (retain all temporary housing in Yosemite Valley)
- El Portal - 290 beds
- Wawona - 112 beds
- Cascades/Arch Rock - 12 beds

There would be no change to the current number, location, or distribution of employee beds (see Vol. IB, Glossary, for definition of beds). Table 2-8 presents a summary of employee beds dedicated to support Valley employees who serve functions and operations within Yosemite Valley. No employee housing would be removed from Yosemite Valley, and no replacement or additional housing would be provided in El Portal, Wawona, or Foresta. The visitor service level criteria developed in the 1992 *Draft Yosemite Valley Housing Plan* (Appendix A of that document) would not be adopted. Trailers in the El Portal Trailer Village would be removed, as described in the 1980 *General Management Plan* and as defined in the 1993 *Trailer Village Closure Policy*.

Table 2-8
Employee Housing Summary

Location	National Park Service	Primary Concessioner	Others	Total
El Portal	177	65	48	290
Yosemite Valley	73	1,167	37	1,277
Wawona	50	62	0	112
Cascades/Arch Rock	12	0	0	12
Foresta	0	0	0	0
Total	**312**	**1,294**	**85**	**1,691**

Since 1997, temporary concessioner housing (345 beds) has been established at several locations in Yosemite Valley, including Lost Arrow cabins (80 beds) in the Yosemite Village Historic District, Yosemite Lodge Highland Court (82 beds), Curry Village Huff House tents (50 beds), Huff House cabins (104 beds), and Boys Town cabins (29 beds) in the Curry Village Historic District. The temporary modular, cabin, and tent housing units that were established to offset housing lost during the January 1997 flood would remain at their current locations.



Yosemite Valley Housing Actions

In Yosemite Valley, all existing housing (1,277 beds) would remain (see table 2-9). No tents, cabins, or modular housing would be removed or replaced, including the temporary housing constructed after the 1997 flood and the 1999 rockfall, except where required by Occupational Safety and Health Administration housing codes. No Valley employee housing would be relocated outside Yosemite Valley.

Yosemite Lodge

The Yosemite Lodge cabins (8 beds) would continue to be used for employee housing. Modular housing (82 beds) in the west Yosemite Lodge parking lot (Highland Court) would remain (see Vol. Ic, plate 1-3).

Table 2-9
Yosemite Valley – Housing by Employer

Location	Existing Beds	Primary Concessioner	NPS	Others[1]	Change From Existing
Ahwahnee Row houses and apartments[2]	45	45			0
Lower Tecoya dormitories and apartments	234	234			0
Hospital Row apartments	12	12			0
Middle Tecoya dormitory and houses (clinic area)	13		1	12	0
Upper Tecoya houses	26	14	7	5	0
Lost Arrow dormitory and apartments[3]	39	39			0
Lost Arrow cabins	80	80			0
Yosemite Village area[4]	14	1	3	10	0
Ahwahnee dormitory and tent cabins	49	49			0
Yosemite Lodge units	8	8			0
Yosemite Lodge Highland Court[5]	82	82			0
Concessioner stable houses, apartments, and tent cabins	49	49			0
Curry Village area[6]	37	37			0
Curry Village Huff House tent cabins[7]	50	50			0
Curry Village Huff House cabins	104	104			0
Curry Village Terrace	156	156			0
Curry Village Boys Town tent cabins	178	178			0
Curry Village Boys Town cabins[8]	29	29			0
National Park Service housing, historic district (including the Rangers' Club)	72		62	10	0
Yosemite Valley Totals	**1,277**	**1,167**	**73**	**37**	**0**
Total Beds to Remain in Yosemite Valley	**1,277**				

Note: Numbers indicate beds dedicated to employees. For example, a single-family house dedicated to one employee is considered to be one bed. Spouses or partners employed by other Valley employers are not double-counted, as beds are assigned to the primary employee whose job requires his/her location in Yosemite Valley.

1. Other possible employers are Yosemite Institute, Yosemite Association, Yosemite Valley Day Care, Yosemite Dental Office, Yosemite Medical Clinic, Pacific Bell, U.S. District Court, The Ansel Adams Gallery, U.S. Post Office, and approved community service organizations.
2. Includes Ahwahnee Row houses and apartments (22 beds), Indian Creek apartments (14 beds), Y apartments (8 beds), and Village Garage apartment (1 bed).
3. Lost Arrow dorm (36 beds) and Lost Arrow manager apartments (3 beds).
4. Includes housing for The Ansel Adams Gallery (3 beds), Yosemite Elementary School (3 beds), Yosemite Post Office (4 beds), Camp 1 (3 beds), and Visitor Center house (1 bed).
5. 82 temporary modular beds (Highland Court) in the west parking lot of Yosemite Lodge.
6. Includes Cooks' cabins (12 beds), Cooks' tents (8 beds), Huff House studios (4 beds), Huff House trailers (6 beds), and Curry Village manager housing (Cabin 101–1 bed; Tresidder Residence–2 studios; and Mother Curry Bungalow–4 studios).
7. 50 temporary tent cabin beds located in the Huff House area of Curry Village.
8. 29 temporary cabin beds located in the Boys Town area of Curry Village.

Yosemite Village

The Ahwahnee Row houses (22 beds), Hospital Row apartments (12 beds), Indian Creek apartments (14 beds), Y Apartments (8 beds), Village Garage apartment (1 bed), and Lower Tecoya dorms and apartments (234 beds) that are adjacent to Ahwahnee Road, Northside Drive, and Ahwahnee Meadow would remain. Housing would remain in the Middle Tecoya area near the Yosemite Medical Clinic (13 beds), at the Upper Tecoya area (26 beds), and in the Yosemite Village area (elementary school Teacherage – 3 beds; post office – 4 beds; The Ansel Adams Gallery – 3 beds); Camp 1 (National Park Service – 3 beds); and Visitor Center house (primary concessioner – 1 bed). The Lost Arrow dorm (36 beds), Lost Arrow manager apartments (3 beds), and the Lost Arrow cabins (80 beds) would remain.

Housing in the Yosemite Village Historic District and at the Rangers' Club (72 beds combined) would remain unchanged (see Vol. IC, plate 1-4).

The Ahwahnee

The Ahwahnee dorm (43 beds) and three tent cabins (6 beds) adjacent to the dorm would remain.

Concessioner Stable

Two houses (2 beds), seven cabins (14 beds), all ten tent cabins (30 beds), and three apartments (3 beds) at the concessioner stable would remain (see Vol. IC, plate 1-5).

Curry Village

Cooks' cabins (12 beds), Cooks' tents (8 beds), Huff House studios (4 beds), Huff House trailers (6 beds), and Curry Village manager housing (Cabin 101 – 1 bed; Tresidder Residence – 2 studios; and Mother Curry Bungalow – 4 studios) would remain. Also, employee housing would continue to be located at the Huff House tent cabins (50 beds), the Huff House cabins (104 beds), and the Boys Town tent cabins (178 beds). Employee housing at the Boys Town cabins (29 beds) would remain. The 156 employee beds at the Terrace would remain (see Vol. IC, plate 1-5).

Housing Support Facilities

No additional housing support facilities would be constructed in Yosemite Valley. The Yosemite Elementary School would continue in its existing function. The Valley Visitor Center auditoriums would continue to be used for community and permitted functions. The Yosemite Chapel would continue in its existing functions. The day care facility would continue to provide services using existing buildings.

Utilities

Domestic water would continue to be supplied from groundwater wells in Yosemite Valley. Sewage from the existing housing facilities in Yosemite Valley would continue to be transported to and treated at the El Portal Wastewater Treatment Plant. Electrical and telephone service would continue to be provided using existing facilities.

El Portal Housing Actions

All existing housing in El Portal (290 beds), except for that located in the El Portal Trailer Village, would remain where it is (see Vol. Ic, plate 1-6). El Portal housing is currently located at four distinct locations: Trailer Village (and Abbieville, known historically as Hennessey's Ranch), Old El Portal, Rancheria Flat, and Village Center. Housing is distributed among the primary concessioner, National Park Service, and other employers (see table 2-10). The Trailer Village would be closed, as defined in the 1993 *Trailer Village Closure Policy*, and in accordance with provisions of the 1970 Uniform Relocation Act.

Trailer Village and Abbieville (Hennessey's Ranch)

Due to flood-related risks, all existing trailers (68 beds) would be removed, as described in the 1993 *Trailer Village Closure Policy.* Houses at Abbieville (4 beds) would remain.

Old El Portal

Housing (71 beds) would remain.

Table 2-10
El Portal – Housing by Employer

Location	Existing Beds	Primary Concessioner	NPS	Others[1]	Change from Existing
Hillside West	0				0
Hillside East	0				0
Trailer Village[2]	68	37	27	4	–68[3]
Abbieville[2]	4			4	0
Old El Portal houses	71	24	24	23	0
Rancheria Flat houses (Mission 66)	21		21		0
Rancheria Flat duplex	4			4	0
Rancheria Flat apartments	58		58		0
Rancheria Flat houses (Housing Initiative Program)	19		19		0
Rancheria Flat studios/dorms	0				0
Village Center apartments	0				0
Village Center houses	9	4	4	1	0
Village Center Motor Inn cabins	24		24		0
Village Center, El Portal Hotel	12			12	0
El Portal Totals	**290**	**65**	**177**	**48**	**-68[4]**
Total Beds In El Portal	**290[4]**				

Note: Numbers indicate bed dedicated to employees, not total beds in a unit. For example, a three-bedroom house dedicated to one employee is considered to provide one bed. Spouse/partners employed by other Valley employers are not double-counted, as beds are assigned only to the primary employee whose job requires his/her location in the Valley.

1. Other possible employers are Yosemite Institute, Yosemite Association, El Portal and/or Yosemite Valley Day Care, Yosemite Dental Office, Yosemite Medical Clinic, Pacific Bell, U.S. District Court, The Ansel Adams Gallery, U.S. Post Office, and approved community service organizations.
2. These units (68 beds) make up the El Portal Trailer Village. There are 59 trailer spaces occupied as follows: 37 primary concessioner; 9 National Park Service permanent; 18 National Park Service seasonal (in 9 trailers, 2 employees each); and 4 others.
3. The 1980 *General Management Plan* proposed the Trailer Village for closure; in 1993 the National Park Service issued an official closure policy and closure is under way.
4. 290 beds including 68 beds relocated from the Trailer Village. The *Trailer Village Closure Policy* anticipated relocation of Trailer Village beds to other locations within El Portal.

Rancheria Flat

The houses, duplexes, and apartments (102 beds) would be retained.

Village Center

Existing houses (9 beds), Motor Inn cabins (24 beds), El Portal Hotel (12 beds), commercial services, and administrative facilities would remain unchanged.

Housing Support Facilities

The El Portal Elementary School would continue in its present function. Some improvements to commercial and retail services in the El Portal Village Center may be necessary. The post office would continue in its present function. The small market would continue in its present function. The day care facility would continue to provide services using the existing building.

Utilities

Domestic water would continue to be supplied from groundwater wells in El Portal. Sewage from housing facilities in El Portal would continue to be treated at the El Portal Wastewater Treatment Plant. Electrical and telephone service would continue to be provided using existing facilities.

Wawona Housing Actions

There would be no change to the existing number, location, or distribution of employee housing units in Wawona (see table 2-11). Employee housing and other land-use designations would remain subject to provisions of the Wawona Town Plan (see Vol. Ic, plate 1-8).

Table 2-11
Wawona – Housing by Employer

Location	Existing Beds	Primary Concessioner	NPS	Others	Change From Existing
Beds for employees with Yosemite Valley as a duty station	6	0	6	0	0
Beds for employees with Wawona as a duty station	106	62	44	0	0
Total Beds	**112**	**62**	**50**	**0**	**0**

Foresta Housing Actions

There would be no change to the existing number, location, and distribution of employee housing units in Foresta (see Vol. Ic, plate 1-7).

Cascades and Arch Rock Housing Actions

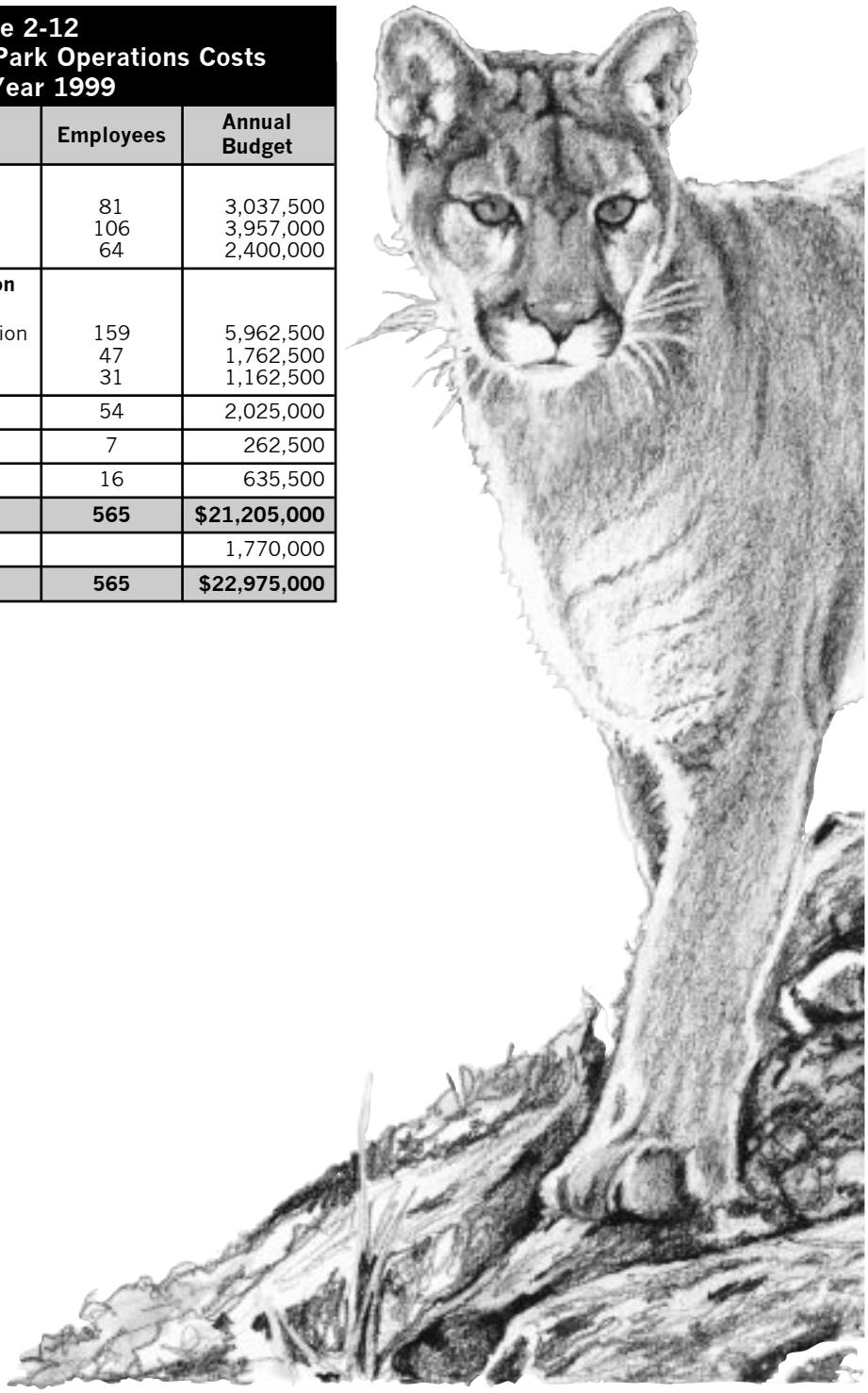
Four historic houses (4 beds) would remain in the Cascades area. Two buildings with 8 beds would remain at Arch Rock.

Operations Costs

Funding for National Park Service operations in Yosemite National Park in 1999 was $21,205,000. Table 2-12 presents the personnel and budget for the National Park Service by division within the park. It is estimated that there would be no change to staffing or funding levels under this alternative.

Table 2-12
Yosemite National Park Operations Costs
Fiscal Year 1999

Division	Employees	Annual Budget
Maintenance Operations:		
Buildings and Grounds	81	3,037,500
Roads and Trails	106	3,957,000
Utilities	64	2,400,000
Visitor and Resource Protection Operations:		
Visitor and Resource Protection	159	5,962,500
Interpretation and Education	47	1,762,500
Resource Management	31	1,162,500
Administration	54	2,025,000
Concessions Management	7	262,500
Superintendent's Office	16	635,500
Subtotal Employees	**565**	**$21,205,000**
Transit Operations		1,770,000
Total	**565**	**$22,975,000**



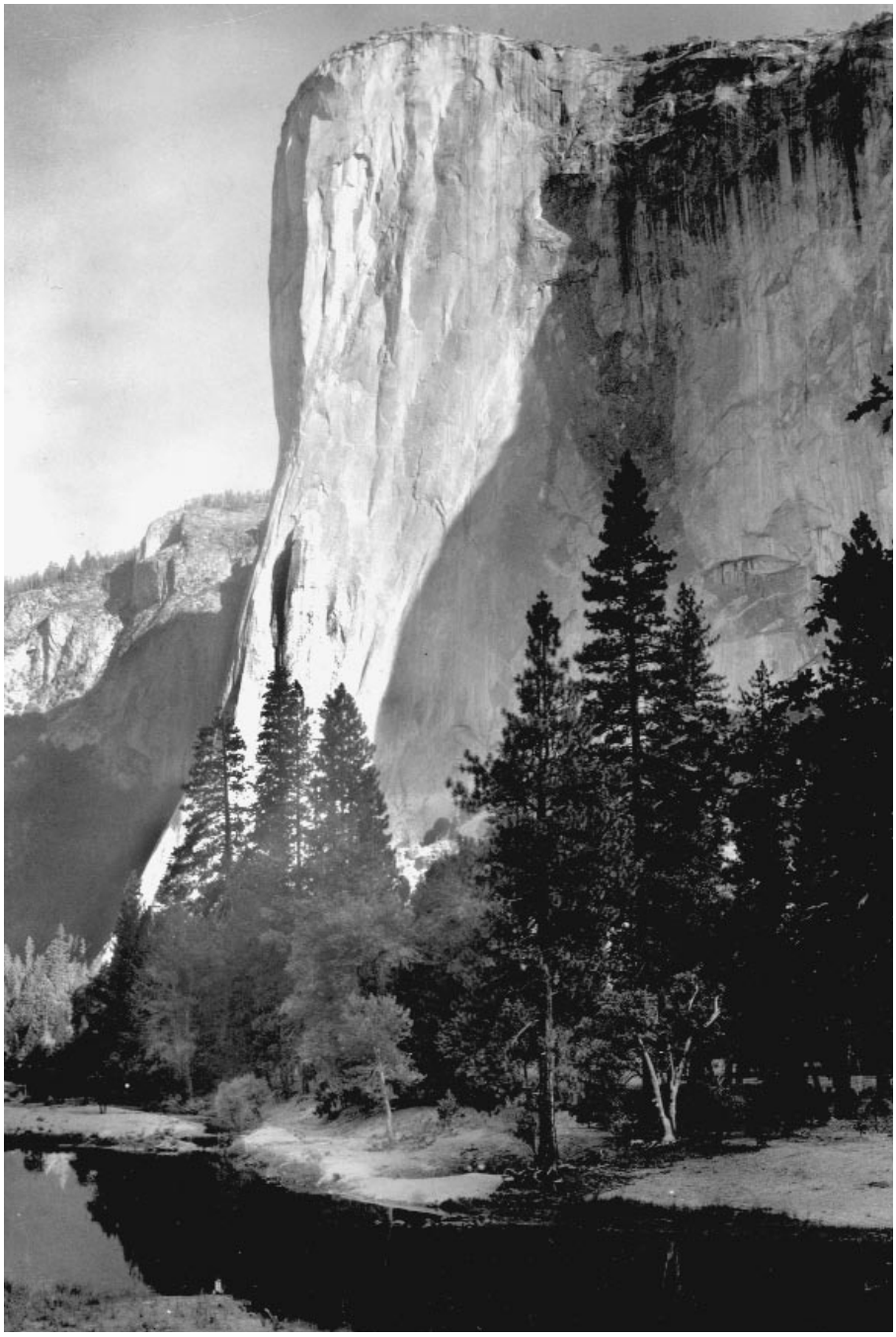


Photo above by Ralph H. Anderson, courtesy of Yosemite Museum

El Capitan in early morning, July 1934.

ALTERNATIVE 2

PREFERRED ALTERNATIVE

Yosemite Village and Out-of-Valley Parking
(El Portal, Badger Pass, and Hazel Green or Foresta)

This alternative would restore approximately 176 developed and disturbed acres in Yosemite Valley to natural conditions. In addition, 173 acres of developed land would be redeveloped and 73 acres of undeveloped land would be developed to accommodate visitor and employee services such as campgrounds, day-visitor parking, and employee housing. It would consolidate parking for day visitors at Yosemite Village, where a new Valley Visitor Center would be located, and in parking areas outside Yosemite Valley. There would be more campsites and fewer lodging units than there are now. This alternative would result in a major reduction in vehicle travel in the eastern portion of Yosemite Valley during summer months. The area of the former Upper River and Lower River Campgrounds would be restored to a mosaic of meadow, riparian, and oak woodland communities; roads would be removed from Ahwahnee and Stoneman Meadows; parking and fruit trees would be removed from Curry Orchard and the area restored to natural conditions; Southside Drive would be converted to two-way traffic from El Capitan crossover to Curry Village; and Northside Drive would be closed to motor vehicles and converted to a multi-use (bicycle and pedestrian) paved trail from El Capitan crossover to Yosemite Lodge. There would be minimal new development west of Yosemite Lodge. The net effect of this alternative would be to reduce development in Yosemite Valley by 71 acres.

For more actions proposed in this alternative, see the Actions Common to All Action Alternatives section at the beginning of this chapter. For a discussion of the impacts associated with this alternative, see Vol. IB, Chapter 4, Environmental Consequences. For graphic representations of this alternative, see Vol. IC, plates 2-1 to 2-9.

Summary of Major Changes in Relation to Existing Conditions

Restore

- Large tracts of meadow, riparian, and California black oak woodland communities along the river from Clark's Bridge downstream to Swinging Bridge

Remove

- Roads through Stoneman and Ahwahnee Meadows (including the road through the former Upper River and Lower River Campgrounds)
- North Pines Campground
- Historic Sugar Pine Bridge and possibly historic Stoneman Bridge to restore the hydrologic system of the Merced River
- Other historic structures: concessioner stable, Cascades Diversion Dam, and Cascades houses
- The abandoned wastewater treatment plant in El Portal from a sensitive cultural resource area
- Most parking in east Valley other than at lodging, campgrounds, and the Yosemite Village area
- Five motel buildings from Yosemite Lodge
- The historic concession administration building and Village Garage
- Commercial trail rides in Yosemite Valley

Establish or Prescribe

- A Visitor Experience and Resource Protection (VERP) study and program to identify existing and desired conditions for natural resources, cultural resources, and visitor experience
- A traveler information and traffic management system to provide information to visitors, provide incentives for efficient use of available parking and transportation services, and manage access and parking
- Out-of-Valley day-visitor parking areas at Badger Pass, El Portal, and Hazel Green or Foresta
- Some utility hookups for recreational vehicles, and shower facilities in campgrounds
- Land management zoning throughout Yosemite Valley
- Design guidelines for new construction and for rehabilitating the landscape in historic developed areas

Implement

- A contiguous River Protection Overlay, as prescribed in the Merced *Wild and Scenic River Comprehensive Management Plan/Final Environmental Impact Statement* (*Merced River Plan/FEIS*)

Construct

- A day-visitor parking area for 550 vehicles at Yosemite Village
- A visitor center and transit center near the day-visitor parking area at Yosemite Village
- A vehicle bridge across Yosemite Creek near Yosemite Lodge
- A replacement footbridge at Happy Isles near the Nature Center
- Lodging at Yosemite Lodge and Curry Village
- Campsites at Camp 4 (Sunnyside Campground); east of Curry Village; in the Upper Pines area; and along Tenaya Creek
- Employee housing at Curry Village, El Portal, Wawona, and Foresta
- Two fire stations, one in the Yosemite Village area (outside of the Yosemite Village Historic District), and one in the Curry Village area

Convert

- Yosemite Museum/Valley District Building back to its historic function as a museum
- Southside Drive from El Capitan crossover to Curry Village to two-way traffic, one lane each direction (road widened where necessary)
- Northside Drive from El Capitan crossover to Yosemite Lodge from a vehicle road to a multi-use (bicycle and pedestrian) paved trail
- Trail to the base of Yosemite Falls to a route accessible by people with mobility impairments, and provide a larger viewing platform

Increase/Expand

- Shuttle bus service west to Bridalveil Fall and out-of-Valley parking areas
- Interpretive and orientation services, including a new visitor center in Yosemite Valley and at or near principal park entrances
- Multi-use paved trails

Reduce

- Stock trails by approximately 0.5 mile
- Lodging by 299 units (including 164 units at Housekeeping Camp)
- Traffic entering the east Valley on a typically busy day by 50%

Relocate

- Employee housing to El Portal and Wawona, leaving 683 beds in Yosemite Valley
- National Park Service and concessioner administrative stables operations to McCauley Ranch in Foresta
- National Park Service and concessioner headquarters out of Yosemite Valley
- Historic Superintendent's House (Residence 1) and its garage to a site within the Yosemite Village Historic District
- Museum collections storage, research library, and archives consolidated adjacent to the museum building in Yosemite Valley

Natural Resources

This alternative would link highly valued natural resource areas that have been degraded or fragmented (such as the Merced River and its tributaries, wetlands, meadows, and California black oak woodlands) into one large and dynamic river-governed ecosystem (see Vol. Ic, plate D, Highly Valued Resources). Parking would be consolidated in the east end of Yosemite Valley in the Yosemite Village area. There would be minimal new construction in the west end of Yosemite Valley (including a new multi-use paved trail from Swinging Bridge to El Capitan crossover along Southside Drive, and a new picnic area near El Capitan).

Merced River Ecosystem (including tributaries, wetland, riparian, and meadow areas)

As described in Actions Common to All Action Alternatives at the beginning of this chapter, the River Protection Overlay prescribed in the *Merced River Plan* would be implemented in Yosemite Valley and El Portal. The River Protection Overlay would provide a buffer area for natural flood flows, channel formation, riparian vegetation, and wildlife habitat and would protect riverbanks from human-caused damage and associated erosion. Above 3,800 feet in elevation (including Yosemite Valley), the River Protection Overlay is 150 feet on either side of the river, measured from ordinary high water. Below 3,800 feet in elevation (including El Portal), where the river gradient and characteristics change, the overlay is 100 feet on each side of the river, measured from ordinary high water.

Meadows are an important part of the Merced River ecosystem. Naturally high water tables in meadows protect them from conifer invasion. When water tables have been altered by development or encroachment, and restoration of natural water levels is unlikely, an ongoing program of prescribed fire and mechanical clearing would be employed to prevent conifer invasion into meadows.

The Merced River corridor, riparian vegetation, wetlands, and meadows are central components of the Yosemite Valley cultural landscape. River restoration, riparian area revegetation, and meadow management would also rehabilitate these important landscape resources.

In the Yosemite Valley area, all development in the Camp 6 area would be removed from the River Protection Overlay. The area would be restored to riparian communities.

Roads would be removed from Stoneman Meadow and the southern end of Ahwahnee Meadow. After the roads are removed, the historic topography of the meadows would be restored and disturbed sites would be replanted (if necessary) with appropriate native plants of the same local genetic makeup. Southside Drive in the Bridalveil Fall area would be reconstructed to improve water movement through the braided stream system. The roads and utilities through Bridalveil, Cook's, and El Capitan Meadows would be evaluated and, if needed, realigned or reconstructed to restore critical surface water and shallow subsurface water flows that sustain the native meadow vegetation and wildlife and discourage conifer invasion. Parking lanes would be removed from Northside Drive through El Capitan Meadow and through Cook's Meadow to reduce impacts associated with current levels of use in the meadows.

Yellow Pine, used as an informal campground for park volunteer groups, would be removed and the area restored to riparian and conifer communities.

At Housekeeping Camp, all accommodations and associated services (e.g., restrooms and roads) within the River Protection Overlay would be removed in order to implement the River Protection Overlay as it is prescribed in the *Merced River Plan* (see Actions Common to All Action Alternatives). The area within the River Protection Overlay would be restored to riparian communities. A total of 164 lodging units would be removed, reducing the number of units from 264 to 100.

Historic Cascades Diversion Dam on the Merced River west of Pohono Bridge (near the intersection of the Big Oak Flat and El Portal Roads) would be removed to restore natural channel grades and hydrologic processes along this segment of the river. This would implement the River Protection Overlay as prescribed in the *Merced River Plan* (see Actions Common to All Action Alternatives at the beginning of this chapter).

Historic Sugar Pine Bridge would be removed to allow for the unconstrained flow and meandering of the Merced River. Historic Stoneman Bridge would subsequently be evaluated and possibly removed as well. The riverbanks adjacent to the bridges that are removed would be restored. While all bridges west of Happy Isles to Swinging Bridge affect river dynamics, each was evaluated to determine the degree to which it impacts the river's natural hydrology and the importance of the access to and across the river (under other provisions of this alternative). Sugar Pine Bridge and Stoneman Bridge, both historic bridges, currently impede the Merced River's natural dynamics and natural processes to the greatest degree of any of the bridges, both upstream and downstream of the bridges.

Sugar Pine Bridge and the old road segment (existing multi-use trail) between Sugar Pine and Ahwahnee Bridges would be removed to restore river processes, adjacent riverbanks, and the cutoff channel. Once Sugar Pine Bridge has been removed, the National Park Service would continue to conduct monitoring to evaluate the effectiveness of ecological restoration.

Subsequently, results of the monitoring program would be evaluated to ascertain whether the removal of Stoneman Bridge would be necessary to restore natural conditions. Ahwahnee Bridge would be retained to provide a nonvehicular connection between Yosemite Village, the campgrounds, and Curry Village. If necessary, a small new bridge or bridges (possibly even removable during flood events) would be constructed over the cutoff channels southeast of Ahwahnee Bridge to facilitate a pedestrian trail and multi-use paved trail connection to the Lower Pines area. Housekeeping Bridge would also be retained to provide nonvehicular access across the river.

The recreational vehicle dump station at Upper Pines would be relocated outside of the River Protection Overlay, and the area would be restored to a riparian community.

All camping would be removed from the River Protection Overlay and the areas restored to natural conditions. The areas that were formerly Upper River, Lower River, and the northwest end of Lower Pines Campgrounds would be restored to a mosaic of meadow, riparian, and oak woodland. Restoration would involve removing imported fill, contouring the sites to match historic topography, mechanical clearing, and replanting the sites if necessary with appropriate plants of the same local genetic makeup as neighboring plant communities. Utilities in Upper and Lower River Campgrounds and the southern part of Ahwahnee Meadow would be removed and realigned along transportation corridors.

All of North Pines Campground would be removed, fill material removed if necessary, and the area restored to riparian/California black oak communities. The utility corridor would remain, including access to a lift station. The former Group Campground and existing Backpackers Campground along Tenaya Creek would be removed and the areas restored to riparian/upland communities.

The Swinging Bridge Picnic Area and its associated parking would be removed and the area restored to riparian communities.

The parking lot and the fruit trees at the historic Curry Orchard would be removed and the area restored to a meadow/California black oak community, except for the southernmost two acres, which would be redeveloped to accommodate overnight wilderness parking. A genetic conservation program would be developed and implemented at Curry Orchard to provide for preservation of unique varieties of these fruit trees through propagation and planting of cuttings at an appropriate facility outside the park. Once this process is complete, fruit trees in the orchard would be removed.

The human-built rock-rubble pile in Yosemite Creek, directly downstream from the bridge at the base of Yosemite Falls, would be removed to restore natural water flow in the western channels of Yosemite Creek.

The area between the proposed realignment of Northside Drive at Yosemite Lodge and the Merced River (the site of former Yosemite Lodge cabins, Pine Cottage, and employee housing) would be restored to riparian and meadow communities.

The concessioner stable and related employee housing as well as the kennel would be removed and the area restored to riparian/California black oak woodland.

The sand pit in El Portal would be removed from operational use and restored to riparian communities.

In El Portal, the sand pit, the River Protection Overlay, and the site of the old treatment plant at Rancheria Flat would be designated as a Conservation Area for the Valley elderberry longhorn beetle (as specified in the Biological Opinion, Vol. II, Appendix L).

Establishment of day-visitor parking with a picnic area in the Camp 6 area of Yosemite Village would affect small, remnant areas of riparian and meadow habitats that are already affected by existing development. In El Portal, the establishment of housing, parking, and administration facilities would affect riparian areas.

California Black Oak Woodland

The tennis court at The Ahwahnee would be removed and the area restored to California black oak woodland.

The Superintendent's House (Residence 1) and its garage, adjacent to Cook's Meadow, would be relocated to a site within the Yosemite Village Historic District for adaptive reuse. The current site would be restored to California black oak woodland.

Black oak habitats would be affected in Yosemite Valley by construction of employee housing west of Curry Village, and development of campsites east of Curry Village. Construction of new lodging and housing units at Curry Village could result in the loss of some oaks, as would the construction of the visitor/transit center in Yosemite Village. In El Portal, areas of black oaks would be affected by development of housing, parking, and administrative facilities.

Upland Community

The Church Bowl Picnic Area and associated parking would be removed and the area restored to upland/California black oak woodland.

The administrative/utility area to the east of The Ahwahnee would be restored to upland/California black oak woodland.

Developments likely to have an impact on this habitat type in Yosemite Valley include: development of new campsites east of Curry Village, north of Tenaya Creek, and north of Upper Pines Campground; construction of employee housing west of Curry Village; construction of new lodging units at Yosemite Lodge and Curry Village; development of Camp 6 for parking; widening of Southside Drive and the addition of a nearby foot/bicycle trail; and possible establishment of a traffic check station at El Capitan crossover. Upland areas outside of Yosemite Valley would be potentially impacted by: construction of housing in Wawona and El Portal; development of parking areas at Hazel Green or Foresta, El Portal, and Badger Pass; and expansion of facilities at Big Oak Flat Entrance and South Entrance. Construction of a small number of employee housing units in Foresta, the moving of concessioner and National Park Service administrative stable operations to nearby McCauley Ranch, re-establishment of a campground for park volunteer groups, and possible construction of out-of-Valley parking would potentially impact upland habitats in this area.

Cultural Resources

This alternative would retain to a large degree the historically significant sites, structures, and landscape features in Yosemite Valley. Archeological sites and ethnographic resources would be protected wherever possible, and traditional uses by culturally associated Indian people would be encouraged. Large tracts of meadow, California black oak woodlands, and the river's riparian corridor (all important components of the cultural landscape) would be restored to a more natural condition. To achieve these restoration goals, up to two historic bridges would be removed, the Superintendent's House (Residence 1) would be relocated, and other structures that contribute to the Valley's cultural landscape would be removed. Other historic structure would be rehabilitated and adaptively reused wherever possible. Although changes would occur in the vicinity of the three National Historic Landmark structures, they would be protected from actions that would affect their historic significance. While the Curry Orchard would be removed, Lamon and Hutchings Orchards would be retained, and Lamon Orchard would be managed and interpreted. The Yosemite Museum collection (including the research library and archives) would be consolidated in Yosemite Valley.

Archeological Sites

Archeological sites would continue to be preserved in place as much as possible. The most highly valued sites (i.e., those with high research potential) would be avoided during new construction or development wherever possible. No new development would occur in areas where human burials are known to exist. Existing development that is causing ongoing site degradation would be removed and the site rehabilitated wherever possible. The abandoned treatment plant in the Rancheria Flat area of El Portal would be removed from a prehistoric cemetery. A building and parking area would be removed from a burial site in Yosemite Village. In the Lower Yosemite Fall area, a large and important prehistoric village site would be protected and rehabilitated by removing a parking area, restroom, and associated utilities.

Where special opportunities exist, prehistoric and historic archeological resources would be interpreted to visitors. Surface prehistoric archeological features, local American Indian traditions, and important historic archeological features would be interpreted through wayside exhibits along the Lower Yosemite Fall loop trail.

Ethnographic Resources

Through existing agreements and ongoing consultation with culturally associated American Indian tribes, access to and use of special resources in Yosemite Valley would continue. The National Park Service and culturally associated American Indian groups would continue to develop a parkwide gathering plan for the tending and use of traditional plants. Access would continue to be provided for American Indian participants in traditional and ceremonial activities. American Indians conducting traditional activities in Yosemite Valley would not be restricted to day-visitor parking and shuttle transit. Special provisions would be implemented to allow parking in short-term turnouts. Known burial areas would continue to be protected. These areas (the last American Indian village and all known burial areas) are considered among the valued resources of American Indian people, and they were so considered during this planning effort.

Where previously unknown burials are discovered, provisions outlined in the Native American Graves Protection and Repatriation Act and its implementing regulations would be followed. Other important areas, such as gathering locations, historic Indian villages, and areas of spiritual or traditional importance, would be protected as much as possible.

The park's Programmatic Agreement for compliance with Section 106 of the National Historic Preservation Act also provides for the inclusion of culturally associated American Indian tribes in the park's planning process. This agreement stipulates that the park and associated American Indian tribes will develop an agreement for government-to-government relations, protocols for official consultations regarding issues of concern and park actions that may affect traditional resources, and park-specific guidelines for implementing provisions of the Native American Graves Protection and Repatriation Act.

Cultural Landscape Resources (including Individually Significant Historic Sites and Structures)

Yosemite Valley

Under this alternative, many of the historically significant characteristics of the proposed Yosemite Valley Cultural Landscape Historic District would be rehabilitated and enhanced. To a large degree, general landscape characteristics such as spatial organization, natural features, land use, circulation systems, views, and vegetation would be retained and rehabilitated. However, some individually significant historic structures and many structures that contribute to the Valleywide cultural landscape would be removed and/or relocated.

The overall character of the Valley's spatial organization and the concentration of development in east Valley would be perpetuated. Key natural resource restoration actions, such as implementation of the River Protection Overlay and restoration of the associated natural river processes and adjacent meadows, would enhance natural features and vegetation that are characteristic of the landscape in Yosemite Valley. However, physical historic structures that have modified the river and meadows (such as Sugar Pine Bridge, riprap and other river-revetment structures, meadow ditches, etc.) would be removed in order to achieve these restoration objectives. The historic circulation system that encircles the Valley floor would largely be retained. However, the use of this system would change with the closure of part of Northside Drive to motor vehicles and the conversion of Southside Drive to two-way traffic. Portions of both Northside and Southside Drives (both contributing circulation structures in the Valleywide cultural landscape) would also be realigned; a portion of Southside Drive would be widened. Some noncontributing circulation structures would be removed, such as the roads across Stoneman and Ahwahnee Meadows.

Valleywide land-use patterns would continue, although the location of some activities would change. Camping would continue in the Valley, but campgrounds themselves (which are not contributing resources) would be relocated away from the river. Stable operations would be relocated outside Yosemite Valley, but a day-use corral facility would be constructed east of Curry Village. Access to historically significant views would be retained and enhanced.

Of the many individually significant historic structures, up to two would be removed and one would be relocated. Sugar Pine Bridge would be removed to restore a more natural river flow. The final decision on removal or retention of historic Stoneman Bridge would be based on results of monitoring of the river processes subsequent to the removal of Sugar Pine Bridge. If this monitoring demonstrates an improvement in the natural hydrologic flow of the river at the location of Stoneman Bridge, and the restoration objectives are being met for the River Protection Overlay and the areas of the former Upper River and Lower River Campgrounds, removal may not be necessary. The Superintendent's House (Residence 1) and its associated garage would be relocated adjacent to the housing in the Yosemite Village Historic District.

Other changes would also occur in the Yosemite Village area. The historic NPS Operations Building (Fort Yosemite), other historic maintenance shops, and the Camp 1 complex (all of which are contributing elements in the Valleywide cultural landscape) would be studied to determine the feasibility of adaptive reuse as part of the district maintenance and shuttle bus light maintenance operations. If they could not be reused for these functions, these structures would be removed. Day-visitor parking, a transit center, and a new visitor center would be constructed in the eastern portion of the historic developed area. All new development would be designed to be compatible with the adjacent historic district. In order to accommodate these facilities, other historic structures, which are also contributing elements in the Valleywide cultural landscape, would be removed. Structures to be removed include the Concessioner Headquarters Building and the Village Garage and its associated apartment. The Ahwahnee Row houses would be retained as employee housing.

The designed landscape in the Yosemite Village Historic District would be rehabilitated. All the historic structures, which are contributing elements of this historic district, would be retained. The Yosemite Museum/Valley District Building (the historic Museum Building) would be rehabilitated and converted to serve entirely as a museum. The historic NPS Administration Building would be rehabilitated for a new use supporting interpretive and educational operations. No changes would occur at the National Historic Landmark Rangers' Club. Other structures in Yosemite Village's civic core, including The Ansel Adams Gallery and associated structures, the Yosemite Village Post Office, and the historic Pohono Indian Studio (current Wilderness Center), would be retained. Historic views within Yosemite Village would be re-established, and the California black oak community would be stabilized and protected in the historic residential area. At the Hutchings Orchard, a genetic conservation program would be initiated to salvage cuttings and establish representative plants at an appropriate facility outside Yosemite National Park. The trees would neither be maintained nor replaced as they die, and thus, over the long term, the orchard would cease to exist and the area would be restored to natural conditions.

The Ahwahnee is both a National Historic Landmark and a National Register historic property. No changes would occur to the National Historic Landmark hotel structure or its setting. The employee dormitory, a contributing element of the larger National Register property, would be rehabilitated. Three nonhistoric employee tent cabins would be removed. The tennis courts, which are also contributing elements of the larger National Register property, would be removed in order to restore a California black oak woodland community. The western portion of the parking area, which lacks historical integrity, would be reconfigured.

In the Curry Village area, all employee tent housing would be removed. The fruit trees would be removed from the historic Curry Orchard and the area restored to natural conditions. Prior to removal, a genetic conservation program would be initiated to salvage cuttings and establish representative plants at an appropriate conservation facility outside Yosemite National Park. Wilderness parking would occupy the southern portion of the orchard area, and the remainder of the area would be restored to natural conditions.

At the Camp Curry Historic District, visitor services would remain concentrated in the central portion of the district, and significant historic buildings such as the Lounge (original registration building) and Registration Building (original post office) would be retained and rehabilitated for continued use. A number of the historic guest tent accommodations would be retained in their original historic extent and configuration, and would continue to encircle the administrative core, although 253 of the existing 427 tents would be removed. The 48 architecturally significant historic bungalows, as well as Cabin 90A/B and Cottage 819, would be retained and rehabilitated for continued use as guest lodging. Other significant historic structures (Huff House, Tresidder Residence, and Mother Curry Bungalow) would be retained and adaptively reused for visitor accommodations. New cabin rooms with bath (108 units), similar in architectural character, workmanship, scale, mass and cluster arrangement to the historic bungalows, would be constructed within the historic district to the north and east sides of the bungalows. Guest parking would be relocated from the historic Curry Orchard area.

At Lower Yosemite Fall, the eastern trail to the base of the fall would be rehabilitated to make it accessible for people with mobility impairments. Of the historic footbridges in this area (all contributing elements in the Valleywide cultural landscape), five would be rehabilitated or rebuilt (including the bridge at the base of the falls), one would be relocated, and one would be removed. New facilities (a restroom and shuttle stop) east of Yosemite Creek would be designed to be compatible with the adjacent Yosemite Village Historic District.

The historic concessioner stable and associated facilities would be removed. These structures may be relocated and adaptively reused at McCauley Ranch, pending results of a Wilderness suitability study and the feasibility of such reuse. The Nature Center at Happy Isles (historic Happy Isles Fish Hatchery) would be used year-round.

At historic Camp 4 (Sunnyside Campground), the five westernmost campsites would be removed to provide a buffer for the proposed Indian Cultural Center. Important historic features would be retained, and 33 additional campsites would be established east of the existing core of the campground. These new sites would be designed to be compatible with the historic site.

No changes would occur at the National Historic Landmark LeConte Memorial Lodge. No changes would occur at the Bridalveil Meadow historic site.

Lamon Orchard historic site would be managed, maintained, and interpreted; this is the historic site from the early homesteading era with the most historical integrity. Although trees would not be replanted as they die, they would be pruned and maintained to prolong their life and maintain the historic setting. A genetic conservation program would be initiated to salvage cuttings and establish representative plants at an appropriate facility outside Yosemite National Park. Over the long term, the site would be restored to natural conditions once all

the trees have died. As mentioned above, fruit trees would be removed from historic Curry Orchard. A portion of this area would be restored to natural conditions, and a portion would be redeveloped for wilderness parking. Historic Hutchings Orchard would neither be removed nor maintained. The genetic conservation program described above would include treatment at both Curry and Hutchings Orchards.

Merced River Gorge

The segment of the El Portal Road between the intersection of the Big Oak Flat/El Portal Roads and Pohono Bridge would be rebuilt. This reconstruction would be designed to be compatible with other segments of the road and would retain the important historic characteristics of this National Register property.

Six of the remaining seven components of the Yosemite Hydroelectric Power Plant, a property determined eligible for inclusion in the National Register of Historic Places, would be removed. The six to be removed are: (1) the diversion dam, (2) the screenhouse and associated features, and (3) the four Cascades residences.

El Portal

In El Portal, final decisions regarding the location of new facilities and retention or removal of some historic structures would be deferred until site-specific development planning. The three historic National Lead Company residences would be retained as housing and rehabilitated. The historic railroad residences and the old El Portal Store (all privately owned historic structures on leased National Park Service lots) would be retained as housing. The historic El Portal Chapel (the old El Portal School) and the Yosemite Research Center (Murchison House) would be retained. The El Portal Hotel would be studied for rehabilitation and possible adaptive reuse. If it would not be feasible to reuse this building and meet park needs for this area of El Portal, it would be removed. The existing El Portal Market would either be retained or removed and the area redeveloped as part of the commercial core of El Portal.

Museum Collection (including Archives and Research Library)

The Yosemite Museum collection, which includes the research library and park archives, would be consolidated in Yosemite Valley adjacent to the museum building. These facilities would allow for increased visitor access to the museum collection by moving the collection into a single facility. The existing visitor center and auditoriums would be evaluated as part of the Yosemite Village site plan to determine if they could be adapted for use as museum storage. If it is infeasible, the existing visitor center and auditoriums would be removed and a new facility would be designed to meet current museum standards for preservation and protection of the nationally significant collection. Space for staff and visitors wishing to conduct research would be provided.

Visitor Experience

Key distinguishing visitor experience elements of this alternative include:

- A new visitor center and transit center constructed in Yosemite Village adjacent to the day-visitor parking
- Formalized parking for 550 day-visitors' vehicles in the Yosemite Village area, and the removal of most parking for day visitors elsewhere in Yosemite Valley
- Parking (about 1,480 spaces) outside Yosemite Valley at Badger Pass (for visitors using the South Entrance), Hazel Green or Foresta (for visitors using the Big Oak Flat or Tioga Pass Entrances), and El Portal (for visitors using the Arch Rock Entrance)
- Reduced development, crowding, and automobile traffic (but increased bus traffic) in the east Valley
- Increase shuttle bus service throughout Yosemite Valley
- Closure of Northside Drive to motor vehicles from Yosemite Lodge to El Capitan crossover and conversion to a multi-use paved trail
- New multi-use paved trails for pedestrians and bicyclists from the east Valley to El Capitan crossover, and an existing loop trail for pedestrians and stock users from east Valley to the west end of the Valley
- Visitor centers near park entrances
- Removal of concessioner stable and the elimination of guided horseback rides in the Valley
- 961 lodging units and 500 campsites
- Minimal new development in the west end of the Valley

Management of the number of vehicles entering the east end of Yosemite Valley on any given day would be a substantial change from existing conditions. Traffic and congestion in the Valley would be reduced, and pedestrians and bicyclists would have expanded opportunities to access the length of the Valley. While access into Yosemite Valley for visitors with reservations for overnight accommodations in the Valley would not change significantly, access for day visitors (including visitors staying overnight elsewhere in the park) would change. Valley day visitors would use out-of-Valley parking areas and arrive by shuttle bus, drive to and park their cars at Yosemite Village (capacity of 550 vehicles), or arrive by tour buses or regional transit.

In the Valley, a spectrum of recreational activities and experiences would continue to be available. Upon arrival in Yosemite Village, visitors would find themselves at the centrally located new Yosemite Village Visitor and Transit Center. From this location, visitors could become oriented in the visitor center and choose their mode of travel (hiking, bicycling, concessioner tours, or in-Valley shuttle buses). While extensive touring in personal vehicles would no longer be an option, park shuttle buses would serve the entire Valley rather than just the east end. Under this alternative, visitor use would continue to be focused in the eastern end of the Valley, with an increased use of new and existing multi-use paved trails to the mid-Valley. The number of campsites would be higher than existing levels. The number of lodging units

would decrease from current levels, but a diversity of experiences and prices would still be available. Orientation and interpretive services would be expanded.

Access for Visitors with Disabilities

As implementation of the *Yosemite Valley Plan* occurs, accessibility needs would be fully analyzed and an accessibility plan would be developed to provide the best-feasible access for visitors with disabilities. Improvements in access to structures, features, and programs would continue, based on this new plan. New facilities would meet accessibility guidelines. In the interim, the method of access by visitors with mobility impairments would remain similar to existing conditions, with controlled access available for personal vehicles to, and specially marked parking spaces at, principal Valley features. However, vehicle access to the sections of Northside Drive closed to vehicle traffic would not be available; access would be via multi-use paved trails. Eventually, as buses became fully accessible, visitors with disabilities could use these buses to access Valley destinations. Overnight users would drive directly to their lodging or campsites.

Visitor Use and Land Management Zoning

As described under Actions Common to All Action Alternatives in this chapter, this alternative would accommodate visitation levels established in the 1980 *General Management Plan*. The National Park Service would fully implement a Visitor Experience and Resource Protection (VERP) program within five years of a Record of Decision to identify existing and desired conditions for natural resources, cultural resources, and visitor experience. Based on the VERP, the National Park Service would (1) establish management zoning that complements the management zoning established in the *Merced River Plan*; (2) develop indicators to measure visitor experience and resource conditions; (3) develop standards that define acceptable measurements for each indicator; (4) develop an assessment program to monitor standards; (5) develop a decision-making process to be used in identifying management actions necessary to maintain or restore desired conditions; and (6) develop visitor-use level recommendations for each zone.

Traveler Information and Traffic Management

As described under Actions Common to All Action Alternatives, this alternative would include the design and implementation of a traveler information and traffic management system that would use a variety of techniques to help visitors plan their trips, to encourage efficient use of available transportation facilities and services, and to assure that vehicle volumes do not exceed the capacity of roads and parking.

Orientation and Interpretation

Orientation opportunities would remain decentralized but would be expanded to include new and/or improved visitor centers near entrance stations. Orientation would be provided sequentially starting with improved resources for visitors to use prior to visiting the park, including the park's web site and pre-visit publications. Greater emphasis would be placed on

supporting joint-agency visitor centers at gateways, particularly to provide current information on access and overnight lodging availability.

New visitor centers would be provided near each entrance station, contributing to visitors' sense of arrival and their ability to discover and take advantage of parkwide offerings. At these visitor centers, visitors would receive assistance in planning their visits; obtaining maps, publications, wilderness and other permits; and making or confirming reservations for overnight accommodations. The park orientation film would also be shown in small theaters at each facility. Visitors parking in the out-of-Valley areas would find orientation to the shuttle bus operations at the parking areas.

Once in the Valley, day visitors traveling by bus or car would arrive near a new full-service Valley Visitor Center in the Yosemite Village area. Visitors with overnight accommodations in Yosemite Valley would find new, small, unstaffed orientation facilities at their lodges or campgrounds. These visitors could also take a shuttle to the visitor center. At all staffed orientation centers, the park's cooperating association would sell orientation and interpretive publications.

Information at shuttle bus stops would be improved, with clear and consistent signs posted throughout the Valley to help visitors use the system with ease and efficiency.

Interpretive services and facilities (e.g., ranger programs, tours, exhibits, school programs) offered by the National Park Service, concessioners, and other partners would be increased above current levels, as proposed in the *General Management Plan*. This would enhance understanding of park themes, facilitate resource stewardship, and accommodate visitors touring park features. The variety and locations of interpretive programs would be greatly increased to meet the needs of various visitors, including those with disabilities or those speaking languages other than English. Emphasis would be placed on new programs at popular views and on trails, including talks, short walks, bicycle tours, and occasional half-day or all-day programs. Ticketing and boarding areas for the Valley Floor Tour would continue to be at Valley lodging areas and Yosemite Village.

Yosemite Village would become the focus of educational and interpretive opportunities for visitors. Visitor center functions, including theater productions and the orientation film, would be moved to the new visitor center in the vicinity of the present Village Store. The Wilderness Center function would be incorporated into the new visitor center. Exhibits at the new visitor center would focus on Yosemite Valley themes. The Indian Village of Ahwahnee would continue to serve its interpretive function. The Art Activity Center function would be relocated to its former location in the current Wilderness Center building and the current Art Activity Center building would be removed. The existing informal gathering and program area near the visitor center would be redesigned and relocated. The present Yosemite Museum/Valley District Building would be the site of a museum presenting in-depth interpretation of parkwide themes. The park's museum collection, including the research library, archives, and photo collection, would be consolidated in the Valley at the site of the existing visitor center. The current visitor center and auditoriums would be evaluated as part of the Yosemite Village site plan to determine if they would meet park needs to house the museum collection and serve as an

educational-interpretive center. If not, these buildings would be removed and the area redeveloped to meet park museum, educational, and interpretive needs.

Interpretive amphitheaters at lodging areas would remain at their present locations. To reduce noise conflicts with adjacent campsites, the Lower Pines Campground amphitheater would be replaced by a new amphitheater in the vicinity of the current concessioner stable parking lot. The Lower River amphitheater would be removed and the area restored. The Nature Center at Happy Isles would be operated as a year-round facility.

A Valleywide exhibit plan would be produced to evaluate the locations of existing outdoor exhibits and to recommend new exhibits and interpretive trails, focusing on new pedestrian and bicycle trails. The plan would also include recommendations for view maintenance and for some exhibit shelters that could be used for cover during inclement weather.

A program of sociological studies would be implemented to routinely examine the effectiveness of interpretive and orientation services and media offered by the National Park Service, concessioner, and other partners.

Recreation

The modes of accessing parts of the Valley for recreational activities would be altered as a result of changes proposed in this alternative. Access to most recreation sites and activities in Yosemite Valley would be by shuttle bus, bicycle, or on foot rather than by private vehicle. Visitors riding shuttle buses would carry their recreational gear and supplies throughout the Valley, or store it in variably sized lockers (including bear-resistant lockers for food), that would be provided at Yosemite Village and at major shuttle bus stops and destination areas. Shuttle buses would be outfitted to transport recreational equipment such as bicycles, backpacks, coolers, skis, and climbing gear.

The traveler information and traffic management system and consolidated parking would reduce opportunities for touring Valley features by private vehicles. Although some turnouts would be removed, other turnouts would be retained for emergency use or to provide for short-term viewing of outstanding scenic features, particularly historic views. Auto touring would be replaced by guided tours (vehicular and walking), shuttle bus riding, bicycle touring, and walking. The in-Valley shuttle bus system would be expanded to include stops between the east Valley and Bridalveil Fall, and shuttle bus stops would be added to increase access to Valley destinations.

Trail Use

The development of interpretive trails would be emphasized, along with the interpretation of features more easily accessed by bicycles or on foot. Publications and exhibits to facilitate self-guided experiences would continue to be developed for hikers, bicyclists, and bus riders; these would be available at all visitor centers. Ranger-led programs would be scheduled for the convenience of visitors, with varying starting times, program lengths, and distances to be walked or bicycled.

Walking, Hiking, and Bicycling

Improved and additional trails for walking and bicycling would be available throughout Yosemite Valley, and bicycle touring and hiking would be encouraged. Trails in some areas, including the Yosemite Lodge, Curry Village, and the former Upper River and Lower River Campground areas, would be realigned or converted to multi-use. In some cases, trail alignments could be adjusted during the final site design process. Trails would be clearly marked with directional and mileage signs. Conflicts between hikers, bicyclists, and horseback riders would continue, but would be reduced by separating trails in some developed areas and eliminating guided horseback rides. Trails previously shared by hikers and stock between Mirror Lake Road and Lower Yosemite Fall would be reserved for pedestrian use only.

Multi-use paved trails would be extended west to El Capitan crossover. On the north side of the Valley, this paved trail would be the converted Northside Drive (which would be closed to vehicles) from Yosemite Lodge to El Capitan crossover. On the south side of the Valley, a new multi-use paved trail would be constructed adjacent to Southside Drive from El Capitan crossover to connect with the existing multi-use trail at Swinging Bridge. A new multi-use trail would be constructed along Sentinel crossover to connect the Southside Drive multi-use trail, across Sentinel Bridge, to Yosemite Village. East of Yosemite Lodge, the historic Yosemite Creek vehicle bridge would be converted to bicycle and hiker use only and the multi-use paved trail would be rerouted across it.

For access between Yosemite Village, the campgrounds, and Curry Village, a realigned or new multi-use paved trail would pass through the area of the former Upper River and Lower River Campgrounds, continuing across Ahwahnee Bridge, through Lower Pines Campground, and connecting with the existing bicycle path. A multi-use paved trail would also extend from the Ahwahnee Meadow east along the north side of the Merced River and connect with the existing paved bicycle path in the Sugar Pine Bridge area. There would be another new multi-use paved trail from The Ahwahnee to the east to connect with the existing paved bicycle path in the Sugar Pine Bridge area. The informal trail from Ahwahnee Bridge along the south side of the river at the edge of Stoneman Meadow to the Southside Drive/ Curry Village Road intersection would be improved as a hiking trail. A new multi-use trail would be constructed east from Curry Village toward Happy Isles. A trail would connect Housekeeping Camp, across Housekeeping Bridge, to the multi-use paved trail in the Upper River and Lower River area.

Access to the John Muir Trail at Happy Isles would be re-established at its historic location near the Nature Center by replacement of the historic Happy Isles Footbridge, damaged beyond repair during the 1997 flood.

Access to Bridalveil Fall would be by the existing Valley Loop Trail (for hikers and stock). There would be no multi-use trail to Bridalveil Fall. New trails accessible to wheelchair users would be provided at Sentinel Beach, the new North American Wall Picnic Area at El Capitan, and other areas determined by the proposed accessibility study and plan (see Access for Visitors with Disabilities). Seating would be provided along trails and at shuttle bus stops.

Bicycle rentals would be available at Yosemite Lodge, Curry Village, and Yosemite Village. The extension of rental hours and periods (e.g., multi-day bicycle rentals) would be evaluated and implemented if feasible. Bicycle racks and lockers for gear and food would be located at major destinations throughout the Valley.

Off-pavement bicycle use, because of the damage it causes to the natural environment and conflicts with other users, would continue to be prohibited. To promote safe bicycle use, lane designations would be provided where appropriate and as necessary on multi-use paved trails to reduce pedestrian and bicycle conflicts and mishaps. Potential environmental damage caused by increased bicycling and pedestrian use would be minimized through trail design, messages in interpretive programs, and management action.

Lower Yosemite Fall

Access to the Lower Yosemite Fall area would be by shuttle bus, bicycle, or on foot (see Vol. IC, plate 2-3). The existing parking area would be removed and informal seating would be added in the area. A new shuttle bus stop would be located on the north side of Northside Drive east of the Yosemite Creek Bridge. Access to the base of the fall would be by foot on either a rehabilitated Western Channel Trail (the existing main access) or a better-defined and hardened Eastern Channel Trail; both trails could be combined into a loop trip. Access to the base of the fall for visitors with mobility impairments would be via the redesigned and hardened eastern trail. At the base of the fall, the historic bridge across Yosemite Creek would be rehabilitated and the viewing area enlarged. The human-built rock-rubble pile downstream from this bridge would be removed from the western creek channel.

Restrooms would be relocated adjacent to the new Yosemite Falls shuttle stop on the north side of Northside Drive. Five of the existing historic bridges along the eastern trail would be rehabilitated or rebuilt. Bridge 1 would be relocated; bridge 2 would be rehabilitated to provide a wheelchair-accessible trail to pass through the historic Hutchings Sawmill site; bridge 3 would be rehabilitated to maintain access to the Muir plaque and Clark bench; bridge 4 would be removed; and bridges 5 and 6 (closest to the shuttle bus stop) would be rehabilitated to help separate bicyclists from pedestrians. A seventh bridge would be constructed to replace a bridge once located east of bridge 3. The pedestrian/bicycle bridge north of and parallel to the current Yosemite Creek Bridge would be removed; the multi-use trail would be routed across the existing vehicle bridge after the new vehicle bridge is built and Northside Drive is rerouted to the south of Yosemite Lodge. Interpretive exhibits and seating would be added to both the western and eastern trails. An informal gathering/viewing area would be provided at the beginning of the western trail, and an informal viewing area would be located east of the shuttle bus stop.

Bridalveil Fall

A study would be done of the Bridalveil Fall area to analyze parking, traffic flow, pedestrian access to the base of the fall, the impacts of visitor use in the area, and the quality of the visitor experience. This study would be based on the visitor experience and resource protection study and program (see Actions Common to All Action Alternatives). As a result of the Bridalveil Fall study, a plan could be developed for improving trails, interpretation, and access in the area.

Wilderness Access

Much wilderness hiking would continue to originate in the Valley. Wilderness permits and trip planning would be available for Valley trails at all park visitor centers, including new visitor centers near entrance stations. Pre- and post-trip walk-in campsites, as well as 150 parking spaces in the Curry Village area (at the south end of the existing orchard/parking area), would be available for overnight wilderness users holding permits for Valley trailheads.

Climbing

Climbing in Yosemite Valley would continue, and the number of climbers would not be limited under this planning process. Day climbers would access the Valley in the same manner as all other day visitors. For overnight climbers with wilderness permits, parking spaces would be available in the wilderness parking area at the south end of the existing Curry Orchard. Overnight climbers could also access the Valley by using regional transportation. Once in the Valley, access to climbing routes would be by shuttle bus or on foot.

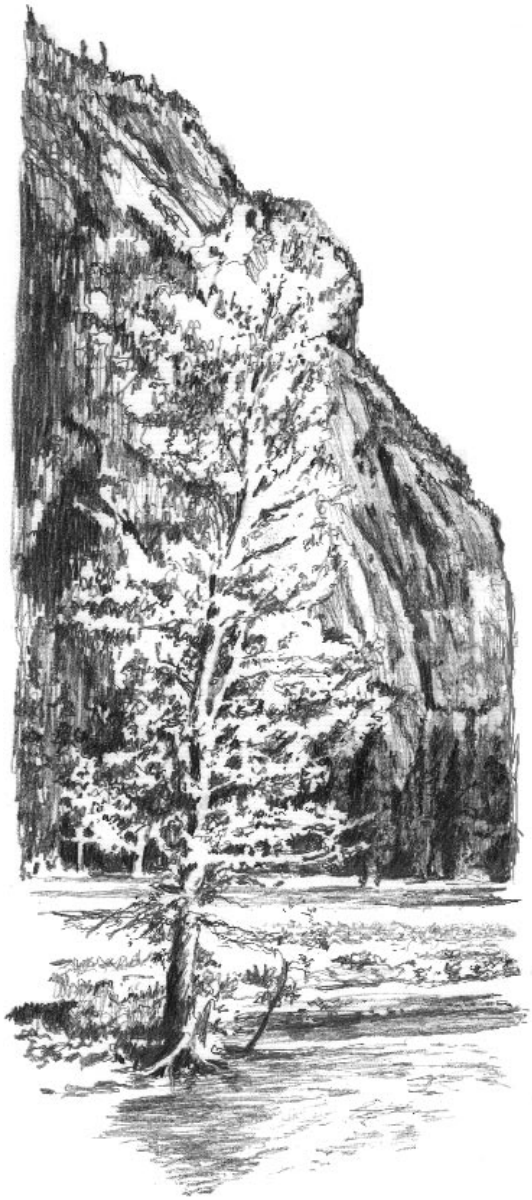
Stock Use

Although the National Park Service continues to support stock use in the park, commercial trail rides in the Valley would be eliminated and the concessioner stable would be removed from a highly valued natural resource area and restored to natural conditions. The impacts it has on this area include water pollution, erosion, trail degradation, and attraction of non-native cowbirds. Due to unacceptable conflicts between commercial horse use and other trail users, the National Park Service proposes to eliminate commercial rides in the Valley based on safety and aesthetic reasons. However, private stock (e.g., horse) use would continue in Yosemite Valley. A new, unstaffed corral for day-use staging of stock would be located east of Curry Village. Parking for private stock trailers would be available at the day-use corral. There would be no facilities for keeping private stock overnight in Yosemite Valley. Horse trails would be maintained in the Valley, but the segment of the Valley Loop Trail between Mirror Lake Road and Yosemite Lodge would be closed to stock in order to reduce pedestrian/stock conflicts in busy areas. Swinging Bridge would become a new connector between the northside and southside stock trails. In addition, National Park Service and concessioner administrative stables in the Valley would be relocated outside Yosemite Valley (see Park Operations).

The kennel operation currently associated with the concessioner stable would be discontinued. Visitors would be encouraged through pre-visit information sources to board their pets in facilities outside the park.

Picnicking

Picnic areas would continue to be available in the Valley (see Vol. IC, plate 2-1), but picnicking would probably change from car-oriented (the use of large coolers and grills) to less equipment-intensive modes. While picnicking facilities would be removed from the Church Bowl area east of Yosemite Village, a new picnic area would be constructed near the day-visitor parking area at Yosemite Village. The Swinging Bridge Picnic Area and its associated parking would be removed and restored to natural conditions (the river at that location would still be accessible from the north side of the bridge), but picnic areas at Cathedral and Sentinel Beaches would be accessible by shuttle bus. A new group picnic area would be developed adjacent to Sentinel Beach. A new picnicking and viewing area—the North American Wall Picnic Area—would follow the old road alignment at El Capitan. Picnickers could carry food and gear on the Valley shuttle bus, where bins and overhead racks would be available, or could obtain picnic supplies in Yosemite Village or at other retail facilities in the Valley. The parking area associated with the existing El Capitan Picnic Area would no longer be necessary, as it is along the portion of Northside Drive that would be closed to motor vehicles; the parking area would be removed.



Other Activities

The tennis courts at The Ahwahnee would be removed and the area restored to natural conditions. Ice skating would continue to be available at a new ice rink north of the Curry Village Pavilion, adjacent to the area historically used for skating at Camp Curry. This facility would concentrate recreational activities (rental of ice skates and skis in the winter, and bicycles and rafts in the summer) into one area. The sport/mountaineering shop would also be relocated to this facility.

No changes to rafting on the Merced River would take place under this planning process; rafting would continue to be managed by other park resource-based plans. Swimming would continue to be available in summer at lodging pools. Swimming and angling in the Merced River would continue, but they would be directed toward river areas most able to withstand heavy use, such as sand and gravel bars.

Visitor Services

Camping

Some campground locations would change (see Vol. Ic, plate 2-2), and the total number of campsites would be increased by 25, from 475 to 500 (see table 2-13). The National Park Service would evaluate different layouts and configurations for campgrounds to improve visitor experience and better serve family groups. This design and reconfiguration would also be done to avoid, to the greatest extent possible, placing campsites in highly valued resource areas, the Merced River floodplain, and rockfall zones. Reconfiguring campsite layouts would allow for the removal of campsites from the River Protection Overlay. Many campsites closest to the river would no longer be on the river due to riverbank restoration and revegetation. River use would be directed to nearby access points in areas most able to withstand heavy use, such as sand and gravel bars. Relocated campsites would provide a range of camping experiences, from walk-in sites to those that would accommodate recreational vehicles. Campground orientation, parking, and circulation would be improved.

Visitors would arrive at all campgrounds except Camp 4 (Sunnyside Campground) by driving through Curry Village. The size of the camp store at Curry Village would be increased, and other camper services would be augmented so campers would not have to travel to other parts of the Valley for services, supplies, and groceries. There would be one campground check station and office at the east end of Curry Village. The Upper Pines Campground recreational vehicle dump station would be relocated away from the river and placed near this check station. The Lower Pines amphitheater would be relocated to the current site of the concessioner stable parking area (the stable would be removed). Showers would be added to campgrounds wherever feasible for convenience and to reduce crowding at other Valley shower facilities.

Table 2-13
Campsites in Yosemite Valley

Location	Number of Sites
Upper Pines (drive-in)	270
Upper Pines (new walk-in)	45
Lower Pines (drive-in)	60
North Pines	0
Backpackers on Tenaya Creek	0
Camp 4 (Sunnyside Campground) (walk-in)	65
Upper and Lower River	0
Yellow Pine	0
Tenaya Creek (new walk-to)	20
South Camp (new group walk-in)	10
Backpackers at South Camp (new walk-in)	30
Total Campsites	**500**

Note: Locations that show zero sites are included to provide a comparison with tables in other alternatives. The number of campsites proposed are approximate. Exact numbers would be determined in the final design phase for each campground.

Campgrounds would be redesigned to better separate sites by using natural and design features. Campsite density (number of sites per acre) would generally remain the same as at present. Some designated recreational vehicle sites in Upper Pines and possibly Lower Pines would have utility hookups; electrical hookups would reduce generator use and associated noise. Walk-in sites would have parking available nearby, except for the new Tenaya Creek walk-to sites, which would have no associated parking and would be available only to campers entering Yosemite Valley by means other than private motor vehicle (e.g., bus, bicycle, hiking).

Campsites at Upper River and Lower River Campgrounds, plus a portion of Lower Pines Campground, which were damaged by or removed following the 1997 flood, would not be reconstructed. These areas would be restored by re-establishing natural topography, hydrology, and riparian or California black oak communities. North Pines Campground, which was also affected by flooding in January 1997, would be removed to preserve and restore highly valued resource areas.

Thirty new drive-in sites and 45 new walk-in sites would be constructed in Upper Pines. Twenty new walk-to campsites would be constructed (in two groups of 10 sites each) along Tenaya Creek. New group sites (10) and a backpackers' campground (30 sites) would be established east of Curry Village to replace existing sites along Tenaya Creek; those sites would be removed and the area restored to natural conditions.

At Camp 4 (Sunnyside Campground), 32 sites would be retained, and the five sites west of the intermittent creek would be removed to provide a buffer for the new Indian Cultural Center (See Volume II, Appendix H, Considering Cumulative Effects). Under this alternative, 33 new sites would be constructed in the vicinity of the existing campground, including the area of the former gas station. Camp 4 (Sunnyside Campground) would continue to be managed as a first-come, first-served campground, but visitors may be able to secure a site at entrance station visitor centers as well as at the campground.

Yellow Pine Campground would no longer be used as an unimproved group campground for park-sponsored volunteer groups. The area would be restored to riparian and conifer communities. The campground for park-sponsored volunteer groups would be relocated to a site previously used for this purpose at Foresta.

Lodging

A total of 961 overnight lodging units would be available in Yosemite Valley (see table 2-14 and Vol. IC, plate 2-2) to provide overnight experiences that connect the visitor to the natural and historic values of the park. Accommodations would continue to be provided with a range of styles and prices, including 274 rustic, 405 economy, 159 mid-scale, and 123 deluxe units (see Vol. IB, Glossary, for definitions of room types). The number of units available to commercial tour operators and conferences/group meetings would continue to be capped to ensure availability of lodging to independent travelers.

Table 2-14
Accommodations In Yosemite Valley By Room Type

Location	Rustic Units	Economy Units	Mid-Scale Units	Deluxe Units	Total
Housekeeping Camp	100				**100**
Curry Village	174	288	25		**487**
Yosemite Lodge		117	134		**251**
The Ahwahnee				123	**123**
Total Rooms	**274**	**405**	**159**	**123**	**961**

Note: The number of lodging units is approximate. Exact numbers would be determined in the final design phase for each facility.

Housekeeping Camp

Housekeeping Camp provides visitors the opportunity to rent developed camping shelters adjacent to the Merced River. Beds and a picnic table are provided in each unit. At Housekeeping Camp, 100 individual housekeeping units would be retained (all at the rustic level). All 164 units within the River Protection Overlay would be removed (see Vol. IC, plate 2-5). Redevelopment of the Housekeeping Camp area may be necessary.

Curry Village

Many of the facilities at Curry Village would be retained and rehabilitated in order to maintain as much of the historic integrity as possible, and the unique visitor experience of the most intact and significant tent cabin complex in the National Park System. Originally known as Camp Curry, this complex has been in operation since 1899 and has offered rustic lodging facilities of a type once common across America to generations of Yosemite visitors. Curry Village is the last remaining lodging of its kind in a national park. The historic Mother Curry Bungalow, Tresidder Residence, and Huff House would be rehabilitated and used for lodging (see Vol. IC, plate 2-5). Improvements would be made to some lodging facilities, while others would be relocated outside of the rockfall zone. The total number of lodging units would be reduced from 628 to 487 (see table 2-15).

Table 2-15
Curry Village – Lodging Unit Summary

Description	Number of Units
Cabin rooms with bath (existing)	100
Cabin rooms without bath (existing)	80
Tent cabins (existing)	174
Stoneman Lodge (existing)	18
Rooms in historic cottages (existing, adaptive reuse)	7
Cabin rooms with bath (new)	108
Total Rooms	**487**

Note: Room types that show zero units are included to provide a comparison with tables in other alternatives.

Overnight guests would continue to have the option of staying in rustic tent cabins (174 units), cabin-without-bath units (80), cabin-with-bath units (100 units), historic Mother Curry Bungalow (1 unit), historic Tresidder Residence (1 unit), historic Huff House (2 units), historic Cabin 819 (1 unit), historic Cabin 90A/B (2 units), or in historic Stoneman Lodge rooms (18 units). In addition, 108 new cabins-with-bath would be constructed. The historic registration building (original Camp Curry Post Office) would remain, and the lounge (historic Camp Curry registration office) would be rehabilitated for use as an information center as well as a lounge. Of the 487 lodging units at Curry Village, 174 would be rustic, 288 would be economy units, and 25 would be mid-scale units.

Yosemite Lodge

The character of Yosemite Lodge would be changed from a motel-type experience to one more connected to a national park lodge experience and Yosemite Valley. This would be accomplished through replacement of some motel buildings with smaller units and the design of facilities to enhance connections between interior spaces and the outdoors. Traffic circulation would be shifted to the south of Yosemite Lodge to reduce congestion at the

Yosemite Falls/Yosemite Lodge intersection. Parking for Yosemite Lodge would be located on the periphery of the Yosemite Lodge complex. Yosemite Lodge would provide activities and services similar to those now offered, although there would be changes in circulation, facility locations, and numbers of lodging units (see Vol. Ic, plate 2-3). Existing and replacement lodging units would total 251 rooms, an increase of six rooms over the existing level (see table 2-16).

The January 1997 flood damaged four motel structures that are still in use at Yosemite Lodge (Maple, Juniper, Alder, and Hemlock). Interim repairs were made to these structures, but under this alternative they would be removed from the floodplain. Some of the area occupied by these motel units would be restored to natural conditions, and some of it would accommodate redevelopment. Laurel and Birch would also be removed to accommodate redesign of Yosemite Lodge. Motel buildings remaining would include Cedar, Elderberry, and Manzanita. Cottage units remaining would include Aspen, Azalea, Cottonwood, Dogwood, Tamarack, and Willow.

Table 2-16
Yosemite Lodge – Lodging Unit Summary

Description	Number of Units
Existing motel rooms with bath, in 3 buildings	59
Existing cottage rooms with bath, in 6 buildings	58
New motel rooms with bath	0
New cottage rooms with bath, in 5 buildings	90
New cabin rooms with bath, in 11 buildings	44
Total Rooms	**251**

Note: Room types that show zero units are included to provide a comparison with tables in other alternatives.

Five two-story cottages of similar character to the Pine and Oak Cottages and 11 four-plex cabin structures would be constructed. At Yosemite Lodge, 117 lodging units would be economy units, while 134 units would remain as mid-scale.

The Ahwahnee

The opportunity to stay at The Ahwahnee, Yosemite Valley's grand National Historic Landmark hotel, would not be changed under this alternative. The Ahwahnee would provide activities and services similar to those currently offered, but there would be some changes in circulation and parking configuration. The existing 123 deluxe lodging rooms (99 hotel rooms and 24 cabin/cottage rooms) would be retained. The one Ahwahnee cottage that is within the River Protection Overlay would be retained, as it is a contributing element to The Ahwahnee National Register historic property.

Food and Retail Services

Yosemite Lodge

The interconnected buildings at the center of Yosemite Lodge would continue to be the location of food and retail services. The three restaurants and one gift shop would remain unchanged; the Mountain Room Bar would be redesigned as a public lobby and lounge. The main gift store would be permanently reduced in size, matching its existing winter configuration.

The swimming pool, bicycle rental stand, and snack bar would also remain in their existing locations. All facilities could be redesigned over time to improve guest services. The post office building would be removed.

A new building would be constructed for lodge registration, and the existing registration building would be adaptively used for informal seating, administrative and interpretive functions, information, and Valley tour reservations. The Cliff Room and the outdoor amphitheater in the courtyard would be improved and would continue to be used primarily for evening interpretive programs, group meetings, seminars, and other special functions.

A new maintenance and housekeeping facility would be constructed behind the cafeteria and restaurant complex to replace the facilities damaged by flooding. All housekeeping, storage, maintenance, and associated management space would be consolidated in this new facility.

The service station would not be replaced. A mobile repair truck, designed to deal with minor emergency services and provide gas on the road, would continue to be operated; this service would be expanded as needed. Service stations at other park locations would be retained.

Yosemite Village

Yosemite Village would become the primary location within Yosemite Valley for visitors to obtain information and orientation. It would also serve as the principal center for learning about Yosemite Valley. To accommodate a new visitor center, transit center, day-visitor parking, and visitor services, portions of Yosemite Village would be redesigned. A Yosemite Village site plan would be prepared for this area. A new visitor/transit center would be constructed in the vicinity of the current Village Store, which would be removed (see Vol. Ic, plate 2-4; compare to plate 1-4, No Action Alternative). Gift sales would be provided either in the new visitor center or close by. A food service and grocery outlet would be developed adjacent to the new visitor/transit center. A short-term locker/storage facility where visitors could check their belongings would be designed into the new visitor/transit center. Recycling, ATM, check cashing, and transportation kiosk functions would be retained. Outdoor tables and seating would be provided in the Yosemite Village area. The principal grocery store function would be relocated to Curry Village. The sport shop function would be incorporated with the sport/mountaineering shop at Curry Village.

In keeping with the *General Management Plan* goal to remove nonessential facilities and services from Yosemite Valley, the dental clinic would be removed. The medical clinic would remain for as long as feasible and financially viable.

The Village Garage building would be removed. Public garage functions would be relocated to El Portal.

The Art Activity Center would continue to provide artistic activities for the public, but it would be moved to its original location at the current Wilderness Center. The former bank building, which currently houses the Art Activity Center, would be torn down to make room for the Yosemite Village Visitor and Transit Center and parking area.

The historic Ansel Adams Gallery photography and gift shop and the historic Yosemite Valley Post Office in Yosemite Village would remain.

The Ahwahnee

The Ahwahnee dining room, gift shop, sweet shop, and bar would remain in their current locations. Services offered at The Ahwahnee would remain much as they are and would not take on a more resort- or spa-type character.

Happy Isles

The ice cream/snack stand destroyed by rockfall in 1996 would not be replaced, and no food service would be available at Happy Isles. The temporary snack stand would be removed.

Curry Village

The Curry Pavilion and Meadow Deck food service areas would be redesigned as proposed in the *Concession Services Plan*. The grocery and gift functions in the Meadow Deck building would be separated to reduce congestion. The grocery store would be substantially expanded to include deli operations and/or serve as a camp store. This would meet the needs of visitors staying in the adjacent campgrounds, Housekeeping Camp, and Curry Village, thus reducing their need to drive to other locations to secure supplies.

The outdoor amphitheater and pool would be rehabilitated or replaced. The lounge (historic Camp Curry registration office) would be rehabilitated and remain in use; it would also be used for information and interpretive functions.

The Curry Ice Rink would be relocated to its historic location north of the Curry Pavilion and Meadow Deck buildings. The Mountain Shop, along with bicycle and ski rentals, would be relocated to a new facility in the ice rink area to consolidate space and recreational uses. Raft rentals would occur seasonally at this location. A short-term locker/storage facility where visitors could check their belongings would also be designed into the building.

The seasonal post office would be removed; mailboxes would be incorporated into employee housing. Registration would remain in the existing registration building (historic Camp Curry Post Office).

Transportation

The major transportation actions that distinguish this alternative include:

- Provide parking for 550 day-visitor vehicles at Yosemite Village in the east Valley
- Construct a new visitor/transit center in Yosemite Village adjacent to day-visitor parking
- Provide out-of-Valley parking (about 1,470 total spaces) at Badger Pass, Hazel Green or Foresta, and El Portal
- Expand shuttle service throughout Yosemite Valley
- Convert Southside Drive to two-way traffic (one lane in each direction) from El Capitan crossover to Curry Village, with wider lanes and shoulders where needed
- Close Northside Drive to vehicles from Yosemite Lodge to El Capitan crossover and convert it to a multi-use paved trail
- Close Northside Drive from Stoneman Bridge to Yosemite Village and restore Upper River and Lower River Campgrounds and the roadbed through Ahwahnee Meadow to natural conditions
- Reduce daily vehicle trips to the east Valley by 50% on a typically busy day

This alternative would result in a major reduction in vehicle travel in the eastern portion of Yosemite Valley. Trips into the east end of the Valley by visitors in private vehicles would be reduced; these trips would be replaced by a much smaller number of bus trips. This would be accomplished through limiting day-visitor parking in the Valley to 550 spaces and providing additional day-visitor parking outside Yosemite Valley. The number of vehicles passing the Yosemite Chapel on Southside Drive near Sentinel Bridge would be reduced from about 7,200 vehicles on a typically busy summer day (1998) to about 3,670 vehicles. About 220 of these would be new daily bus trips by shuttles from out-of-Valley parking areas, and 80 would be by in-Valley shuttles.

Traveler Information and Traffic Management

The broad goals of Yosemite's *General Management Plan* include the reduction of traffic congestion and crowding in Yosemite Valley. Progress toward achieving these goals would be accomplished by developing a traveler information and traffic management system to provide visitors with information about where to park and whether overnight accommodations were available in the Valley well before they arrive in the Valley. The system would rely on incentives to encourage visitors to use out-of-Valley parking, and it would assist visitors in selecting the best means of travel for their specific needs. If required, to assure that the number of vehicles east of El Capitan crossover did not exceed available parking, a traffic check station would be developed near El Capitan crossover (see Actions Common to All Action Alternatives at the beginning of this chapter).

Day-Visitor Parking

Day-visitor parking facilities in the Valley would change. Under this alternative, a new day-visitor parking area for 550 cars would be constructed in the Yosemite Village area of Yosemite Valley (see Vol. Ic, plate 2-4). The parking area would encompass a portion of the former Camp 6; however, development within the River Protection Overlay would be removed and the area restored to natural conditions. Day visitors arriving in private vehicles would park their vehicles in the new facility. When parking was not available in the Valley, day visitors arriving at park entrance stations would have the option to park in out-of-Valley parking areas, where shuttle service to the Valley and to other park destinations would be provided.

The out-of-Valley day-visitor parking areas would be at Badger Pass (about 400 spaces) for visitors using the South Entrance, Hazel Green (about 720 spaces) or Foresta (about 700 spaces) for visitors using the Big Oak Flat or Tioga Pass Entrances, and El Portal (about 360 spaces) for visitors using the Arch Rock Entrance (see Vol. Ic, plate 2-9). Each of these areas would be equipped with small transit facilities that would provide restrooms and visitor information. The out-of-Valley parking areas would not be used during periods of low visitation (November through March). A 200-foot road would be constructed to provide access between Hazel Green and the Big Oak Flat Road.

Development of day-visitor parking at Hazel Green would be provided through a public-private sector partnership. This would enable the park to meet a need for out-of-Valley parking at this privately owned parcel adjacent to Yosemite National Park along the Big Oak Flat Road. If a public-private partnership is not possible, then Foresta would be developed for day-visitor parking.

Tour buses and regional transit buses would travel to the new Yosemite Village Visitor and Transit Center. Up to 16 bus bays would be constructed in that area for loading and unloading passengers arriving by tour bus, regional transit, and out-of-Valley shuttle bus. Parking for day-visitor tour buses, as well as nighttime parking for Valley shuttle buses would be in the northern portion of Yosemite Village (site of the existing National Park Service maintenance area).

Overnight Parking

Overnight visitors with lodging or camping reservations or wilderness permits would drive directly to their lodging or campground, or to the wilderness parking area. To reduce traffic congestion, parking for overnight visitors would no longer be provided at other destinations or along Valley roads. Vehicles would remain parked in assigned areas unless they were needed for travel to out-of-Valley destinations. Travel within the Valley to trailheads, activity areas, and facilities would be by shuttle bus, bicycle, or on foot.

Parking for new walk-in campsites and Camp 4 (Sunnyside Campground) would be provided within walking distance of the sites. No parking would be provided at the Tenaya Creek walk-to campsites, as they would be designated for overnight campers arriving in the Valley by means other than private vehicles. Parking for overnight wilderness users holding permits for Valley trailheads would be provided at 150 spaces in a lot at Curry Village; two acres at the south end of the existing Curry Orchard parking area would be redeveloped for wilderness parking after the historic fruit trees are removed. Overnight visitor parking locations in the Valley are shown in table 2-17.

Table 2-17
Overnight Parking Locations

Overnight Parking Location	Parking Spaces
Housekeeping Camp	100
Curry Village	487
Yosemite Lodge	251
The Ahwahnee	123
Campgrounds	610
Wilderness Parking	150
Total	**1,721**

Note: These numbers are based on one parking space per campsite, although up to two cars can be parked in individual campsites and up to three at group sites. No parking spaces are allotted for walk-to campsites. For Camp 4 (Sunnyside Campground), a ratio of three parking spaces per site was used.

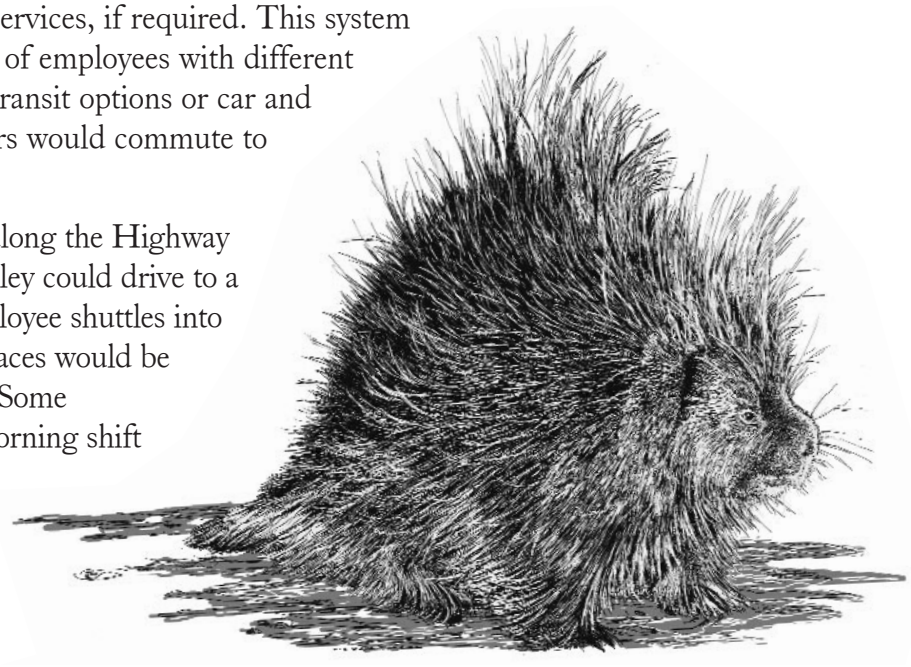
Some overnight visitors would arrive by commercial tour bus. These buses would deliver visitors directly to their lodging or campground areas and would then park at one of 15 designated parking spaces at Yosemite Lodge.

Employee Parking

Parking for National Park Service, concessioner, and other employees residing in the Valley would be located at or near each residence.

Most employees commuting from outside the Valley would be required to use an employee transportation system. Employee shuttle service could be provided with the same buses that would serve as out-of-Valley shuttles at other times of the day. Alternatively, buses could be dedicated to employee transportation services, if required. This system would be developed to meet the needs of employees with different schedules and could include regional transit options or car and vanpools. Approximately 1,400 workers would commute to work in the Valley in the summer.

Employees who live west of El Portal along the Highway 140 corridor and work in Yosemite Valley could drive to a parking area in El Portal and take employee shuttles into the park. Approximately 60 parking spaces would be provided at El Portal for this purpose. Some employees (e.g., late-night and early-morning shift workers) would still drive their private vehicles to the Valley and park in designated spaces as prescribed by the traveler information and traffic management system.



Summary of road and circulation changes:

- Convert Southside Drive to two-way traffic east of El Capitan crossover
- Realign approach to Sentinel Bridge
- Close Northside Drive to vehicles from Yosemite Lodge to El Capitan crossover and convert to a multi-use paved trail
- Reroute Northside Drive to the south of Yosemite Lodge
- Realign Curry Village Road from Southside Drive to campgrounds
- Remove Southside Drive through Stoneman Meadow
- Remove Northside Drive through the former Upper and Lower River Campgrounds and Ahwahnee Meadow
- Remove scattered parking areas and some roadside turnouts throughout the Valley; retain turnouts for emergency use and for short-term viewing of scenic features

Bridge summary:

- Sugar Pine – remove historic bridge
- Stoneman – remove historic bridge (if necessary to restore hydrologic processes)
- Swinging – widen or rebuild
- Yosemite Creek – construct a new vehicle bridge; convert existing vehicle bridge to use for bicycles and pedestrians; remove bicycle bridge
- Happy Isles – construct replacement footbridge
- Lower Yosemite Fall area – rehabilitate or rebuild five historic footbridges, remove one, relocate one

Valley Access via El Portal Road

As described in Actions Common to All Action Alternatives in this chapter, the section of El Portal Road between the intersection of the El Portal and Big Oak Flat Roads and Pohono Bridge would be improved. Road improvements would be designed to minimize the chance of road failure during flood events, to improve safety, and to minimize damage to riparian areas by focusing visitor use.

West Valley (El Capitan Bridge to Pohono Bridge)

Minimal changes to road circulation would occur in the western half of the Valley. Southside Drive from Pohono Bridge to El Capitan Bridge would continue to be a two-lane, one-way road eastbound, and Northside Drive would be a two-lane, one-way road westbound. El Capitan crossover would be one-way northbound across the Merced River at El Capitan Bridge between Southside and Northside Drives. Some turnouts would be retained for emergency use and short-term viewing of scenic features.

Under the Preferred Alternative, as part of the traveler information and traffic management system, a traffic check station may have to be constructed in the area of El Capitan crossover on Southside Drive (see Vol. Ic, plate 2-1 and Actions Common to All Action Alternatives). Day visitors or visitors with overnight reservations in the Valley would continue eastbound on Southside Drive. When the Valley day-visitor parking area was full, day visitors would proceed across El Capitan crossover to Northside Drive to continue out of the Valley to other park destinations or to out-of-Valley parking facilities.

East Valley (El Capitan Bridge to Curry Village and the Campgrounds)

Southside Drive from El Capitan to Curry Village and the Campgrounds

From El Capitan crossover east through Curry Village, Southside Drive would be converted to two-way traffic with one lane in each direction (see Vol. Ic, plate 2-1). This section of road would be widened to no more than 26 feet, accommodating 11-foot lanes and a 2-foot paved shoulder on each side of the two-way road. From the Yosemite Chapel to Sentinel Bridge, the road would be realigned to improve the approach to Sentinel Bridge and facilitate traffic circulation. Near Curry Village, the portion of Southside Drive that crosses Stoneman Meadow would be removed and all traffic would be rerouted along a realigned Curry Village Road. This would provide two-way access to Curry Village, wilderness parking, and the campgrounds. Curry Village Road would be realigned along the south edge of the historic Curry Orchard, following an existing access road through Boys Town to the campgrounds. The access road to Southside Drive at the west edge of the Curry Orchard would be removed. The one-way loop road to Curry Village registration and parking would remain, although the parking area would be redesigned.

Southside Drive to Yosemite Village and Yosemite Lodge

Traffic from the west Valley or from Curry Village would cross Sentinel Bridge to reach Yosemite Village, The Ahwahnee, and Yosemite Lodge (see Vol. Ic, plate 2-2). This road, the Sentinel crossover, would be two-way, with one lane in each direction. To reduce traffic congestion in the area of the day-visitor parking and transit center at Yosemite Village, the final design could include turning lanes and realignment of the road.

Yosemite Lodge Area

Northside Drive in the Yosemite Lodge and Camp 4 (Sunnyside Campground) area would be relocated south of the lodge to reduce conflicts between vehicles and pedestrians and to provide safer pedestrian access between the lodge and Yosemite Falls (see Vol. Ic, plate 2-3). Vehicular circulation to Yosemite Lodge would be routed across Yosemite Creek via a new motor vehicle bridge just south of the historic Yosemite Creek Bridge. Restricted vehicle access would also be provided to the proposed Indian Cultural Center. West of the cultural center site, Northside Drive would be closed to vehicles and converted to a multi-use paved trail for bicycles and hikers (it would also be available as an emergency route).

This alternative would provide 550 parking spaces for day visitors at Yosemite Village. Additional day-visitor parking would be provided at three out-of-Valley locations: Badger Pass on the Glacier Point Road, El Portal, and Hazel Green or Foresta (see Vol. IC, plate 2-9). Out-of-Valley shuttle buses would transport day visitors to and from the Valley, and in-Valley shuttles would transport day and overnight visitors throughout the Valley.

Shuttles operating within Yosemite Valley would provide service year-round. Generally, the peak visitation season for Yosemite National Park occurs from mid-June through Labor Day weekend. April, May, September, and October are the shoulder season months, with intermediate levels of visitor use. Visitation is lowest from November through March. The operating hours of the shuttles and the frequency of service would be adjusted within each season as required to meet visitor needs.

Shuttles from out-of-Valley parking areas to the Valley would not operate from November through March, when parking in Yosemite Valley would be sufficient to serve day visitors. Service on out-of-Valley shuttle routes would start in April, beginning with the weekends. As visitation increased, the amount of service would be expanded reaching a maximum level on weekends in the summer. Service would be reduced in the fall as the need decreased, with shuttles to out-of-Valley parking areas operating only on weekends in the last weeks of the season in October.

Yosemite Village Transit Center

This alternative would provide a transit center adjacent to a parking area for 550 day-visitors' vehicles. The transit center would serve as a transit hub for shuttle and tour buses, and would require up to 16 bus bays, as well as a loading area for in-Valley shuttle buses (6 bus bays).

In-Valley Shuttles

The in-Valley shuttle system would provide transportation for day visitors parking at Yosemite Village, day visitors parking at out-of-Valley parking areas, and those who ride regional transit or tour buses, as well as for overnight visitors. The in-Valley shuttle system proposed for this alternative consists of three separate shuttle routes, all of which cycle through the Yosemite Village Visitor and Transit Center:

- Ahwahnee Connector – transportation between the new Visitor/Transit Center and The Ahwahnee
- West Valley Connector – transportation between the new visitor/transit center and Bridalveil Fall, and access to destinations along Northside Drive west of El Capitan crossover and Southside Drive
- East Valley Connector – transportation within the east Valley between Yosemite Lodge/Camp 4 (Sunnyside Campground) and Happy Isles

These three routes would converge at the Yosemite Village Visitor and Transit Center, where six bus bays would be constructed to serve the in-Valley shuttle system. This facility would provide interpretive/orientation and transfer opportunities. Operation of routes would be monitored and adjusted as needed to meet visitor needs.

In-Valley Shuttle Service

During the busiest times of the day in the peak season, in-Valley shuttle buses would circulate through the Yosemite Village Visitor and Transit Center as follows: one bus approximately every 15 minutes for the Ahwahnee Connector, approximately every 7.5 minutes for the West Valley Connector, and every 4 minutes for the East Valley Connector. It is estimated that these three routes combined would result in one bus at the visitor/transit center every 2.2 minutes. Peak-season shuttle service would be provided between early morning and late evening (hours could be expanded to accommodate special events). There would be an average of approximately 56 passengers per trip in the peak season for the three routes. Table 2-18 presents estimated characteristics for the proposed in-Valley shuttle system.

Table 2-18
In-Valley Shuttle Service in Peak Season

Characteristics	Ahwahnee Connector	West Valley Connector	East Valley Connector
Route Description	Visitor Center to The Ahwahnee	Visitor Center to Bridalveil	Visitor Center to Yosemite Lodge, Curry Village, and campgrounds
Route Length (round trip)	2.1 miles	11.2 miles	7.8 miles
Travel Time (round trip)	9 minutes	60 minutes	60 minutes
Minimum Time between Buses in Peak Season	15 minutes	7.5 minutes	4 minutes
Type of Bus	Low Floor Shuttle	High Capacity/ Low Floor Shuttle	High Capacity/ Low Floor Shuttle
Number of Buses Needed	**1**	**10**	**18**

In-Valley Shuttle Vehicles

The shuttle buses used on routes operated within Yosemite Valley would be designed to operate over the gentle grades on Valley roads and to allow passengers to get on and off the bus easily at the many stops. Buses would use the best-available fuel and propulsion systems designed for the special characteristics of travel within Yosemite Valley. Buses would be selected to minimize noise and air pollutant emissions, while providing sufficient capacity and cost-effective, reliable service. Buses would be replaced or modified to take advantage of advances in fuel propulsion technology as they become available.

Out-of-Valley Shuttles

While out-of-Valley shuttle buses would not be ordered for several years, the National Park Service would evaluate new technology and alternative fuels when making selections for purchasing buses. Out-of-Valley shuttles would provide service between the parking facilities at Badger Pass, El Portal, and Hazel Green or Foresta and the new Yosemite Village Visitor and Transit Center. Once in the Valley, the out-of-Valley shuttles would stop at locations along the Valley floor to allow passengers to transfer to the in-Valley shuttle routes or to access Valley destinations. From the visitor center, passengers would walk, bicycle, or transfer to the in-Valley shuttle system to reach destinations within the Valley.

Out-of-Valley Shuttle Service

During the peak season, out-of-Valley shuttle buses would serve the out-of-Valley parking areas as follows: one bus approximately every 12 minutes for the Badger Pass route, approximately every 12 minutes for the El Portal route, and approximately every 6 minutes for the Hazel Green or Foresta route. These three routes combined would result in one bus arriving at the Yosemite Village Visitor and Transit Center every 3 minutes. Peak-season shuttle service would be provided between early morning and late evening (hours could be expanded to accommodate special events). Table 2-19 presents characteristics for the proposed out-of-Valley shuttle system.

Table 2-19
Out-of-Valley Shuttle Services in Peak Season

Characteristics	Badger Pass	El Portal	Hazel Green (or Foresta)
Valley Access Route	Glacier Point Road via Wawona Road	El Portal Road/ Highway 140	Big Oak Flat Road
Route Length (round trip)	35.5 miles	28.1 miles	38.7 miles (20.9)
Travel Time (round trip)	120 minutes	98 minutes	130 minutes (78)
Minimum Time between Buses	12 minutes	12 minutes	6 minutes
Type of Bus	Over-the-Road Coach	Over-the-Road Coach	Over-the-Road Coach
Number of Buses Needed	**13**	**10**	**25 (16)**

( ) Represents information for Foresta (if that site is used for out-of-Valley parking)

Out-of-Valley Shuttle Vehicles

Buses used on out-of-Valley shuttle routes would be designed to provide relatively high-speed service over roads with steep grades and curves. These buses would provide storage areas for recreational equipment (e.g., bicycles) carried by visitors, including under-floor storage if needed. Out-of-Valley shuttle buses would use the best-available fuel and propulsion system technology to minimize noise and air pollutant emissions while providing sufficient capacity and cost-effective, reliable service to visitors. Because the operating conditions for out-of-Valley shuttles would be different than those required for in-Valley shuttles, these buses could use a different fuel and propulsion technology than the in-Valley shuttle buses.

Regional Transit

Day visitors who do not park in the Valley or in one of the out-of-Valley parking areas would have the option of traveling to the Valley via regional transit or other modes of transportation not requiring parking. These buses would deliver passengers directly to the Yosemite Village Visitor and Transit Center.

Commercial Tour Buses

Commercial tour buses would continue to bring about 14% of day visitors and lodging guests to Yosemite Valley in the summer. Tour buses carrying day visitors would load and unload at the Yosemite Village Visitor and Transit Center and would park north of Yosemite Village in the vicinity of the shuttle bus light maintenance area. Approximately 20 tour bus parking spaces would be provided. Overnight tour buses would park at Yosemite Lodge.

Summary

Combined in-Valley shuttles and out-of-Valley shuttle bus operations would equate to one bus at the visitor/transit center every 1.3 minutes in the peak hour of the peak season (June through September), and one bus every 1.4 minutes in the peak hour during October, April, and May. There would be no out-of-Valley shuttle bus service in the off-season (November through March).

Park Operations

National Park Service operations in Yosemite Valley would be scaled down to the level of district operations, similar to Tuolumne Meadows and Wawona. Both the National Park Service and concessioner headquarters functions would be removed from the Valley and relocated to El Portal.

National Park Service administration and headquarters functions would be relocated to El Portal and combined with existing National Park Service operations facilities at Railroad Flat in the western portion of El Portal. Depending on land development constraints in El Portal or other considerations, the relocated headquarters functions for both the National Park Service and concessioner could be relocated to neighboring communities. If the National Park Service pursued this opportunity, appropriate environmental review would be completed.

National Park Service and concessioner administrative stables operations, as well as the parkwide trails operation, would be relocated to the McCauley Ranch in Foresta (see Vol. Ic, plate 2-7). Since McCauley Ranch was identified as a possible Wilderness addition in the 1984 California Wilderness Act, a Wilderness suitability assessment would be prepared. If McCauley Ranch is determined to be eligible for designation as Wilderness, stable operations would be relocated within Yosemite Valley to the site of the proposed corral, east of Curry Village (see Actions Common to All Action Alternatives). The historic concessioner stable would be considered for adaptive reuse at the site of the relocated stable.

If stables were relocated to McCauley Ranch, access to the area would be improved by widening the road and possibly by replacing the bridge over Crane Creek to allow for stock trailers and hay trucks. Access improvements would be identified during the site design process, which would allow for the participation of National Park Service and concession employees, residents of Foresta, Mariposa County officials, and other interested parties. Under this alternative, a corral east of Curry Village would provide a Yosemite Valley staging area for limited National Park Service and concessioner administrative stock operations; the staging area would have parking for five trailers.

The following National Park Service functions and offices would be removed from Yosemite Valley:

- Park management, including the superintendent, deputy superintendent, and division chiefs, would move out of Yosemite Valley
- Parkwide supervision and administration of the Divisions of Interpretation, Resources Management, Concessions Management, Resource and Visitor Protection, and Administration would move to El Portal
- Parkwide stock and trails maintenance operations would move to McCauley Ranch near Foresta
- Parkwide wilderness utilities maintenance would move to El Portal
- Parkwide wildfire protection, search and rescue, law enforcement support, and wilderness management would move out of Yosemite Valley to El Portal
- The jail/detention facility would move to El Portal
- Interpretive support workspace (e.g., exhibit shop) would move to El Portal

The following functions and offices would remain in Yosemite Valley:

- Supervision of Valley District roads operations
- Valley District trails operations
- Valley staging areas for stock, trails, and wilderness utilities operations
- Valley District buildings and grounds maintenance and supervision, including district materials storage and shops
- Valley District utilities maintenance
- Valley District Resource and Visitor Protection, including emergency medical response and structural fire protection
- The U.S. District Court Magistrate facility
- Bear management program
- Interpretive workspace, presentation of visitor services, and storage of district supplies and materials
- Museum collections, archives, and research library and support staff would be consolidated adjacent to the museum building in Yosemite Valley

The historic Superintendent's House (Residence 1) and its garage, at the edge of Cook's Meadow, would be relocated to the historic district for adaptive reuse. Its current site would be restored to natural conditions.

In Yosemite Village, the NPS maintenance area would be redesigned to accommodate essential district offices and maintenance shops (see Vol. IC, plate 2-4). The historic NPS Operations Building (Fort Yosemite) and associated shops would be evaluated to determine the feasibility of their meeting park needs for this area; if it is determined they would not, the buildings would be removed and the area redeveloped to meet park needs.

National Park Service and concessioner structural fire operations would be consolidated. Two new fire stations would be constructed: one in the Yosemite Village area (outside of the Yosemite Village Historic District) and one in the Curry Village area.

Yellow Pine Campground, adjacent to the Sentinel Beach Picnic Area would no longer be used as an unimproved group campsite for park-sponsored volunteers; instead the area would be restored to a conifer/riparian community. This park-sponsored volunteer group campground would be relocated to a site previously used for this purpose at Foresta.

A new two-story building (approximately 8,500 square feet) would be constructed adjacent to the existing El Portal maintenance/warehouse complex to house National Park Service Resources Management staff.

Shuttle Bus Support Facilities

The NPS maintenance area in Yosemite Village would be redesigned to accommodate fueling, light maintenance, and overnight vehicle storage for in-Valley and out-of-Valley shuttles. Heavy vehicle maintenance and associated vehicle storage would be located at El Portal. For regional transit and tour buses, the National Park Service would provide parking and layover areas for daytime use at the shuttle bus maintenance area, but overnight vehicle storage and maintenance would be the responsibility of the service provider outside of Yosemite National Park. Overnight tour buses would park at Yosemite Lodge.

Shuttle Employee Requirements

Under this alternative, a total of 282 employees would be required to operate the in-Valley and out-of-Valley shuttle bus systems (or 252 if Foresta is used for out-of-Valley parking instead of Hazel Green). Of these employees, 85 supervisors and drivers would be dedicated to the in-Valley shuttle, 128 (105 with Foresta) supervisors and drivers would be dedicated to the out-of-Valley shuttle, and the remaining 69 (62 with Foresta) personnel would support both shuttle systems. Off-peak season operations (October, April, and May) would require a total of 239 employees (213 with Foresta). Of these, 77 would be Valley shuttle drivers and supervisors, 102 (83 with Foresta) out-of-Valley shuttle drivers and supervisors, and 60 (53 with Foresta) shared employees between the two systems. Table 2-20 identifies the number of employees required, by position.

Table 2-20
Shuttle Employee Requirements

Position	Number of Employees[1]	
	Peak Season	Off-Season[2]
Valley Shuttle Supervisors	12 (12)	12 (12)
Valley Shuttle Drivers	73 (73)	65 (65)
Out-of-Valley Shuttle Supervisors	10 (10)	10 (10)
Out-of-Valley Shuttle Drivers	118 (95)	92 (73)
Dispatch/Clerical	10 (10)	10 (10)
Mechanics	26 (23)	22 (19)
Hostlers	8 (7)	7 (6)
Administration	7 (6)	6 (5)
Parts/Inventory	7 (6)	6 (5)
Janitorial	3 (3)	2 (2)
Other	8 (7)	7 (6)
Total Employees	**282 (252)**	**239 (213)**

1. All numbers outside parentheses represent Hazel Green; all numbers inside parentheses represent Foresta.
2. October, April, and May

Concessioner and Other Entities

The administrative headquarters for the park's concessioner would be relocated to new facilities in El Portal, or at the option of the concessioner, to another out-of-park location. Under this alternative, the historic Concessioner Headquarters Building would be removed and the area redeveloped (see Vol. Ic, plate 2-4; compare to plate 1-4, No Action Alternative). The concessioner would retain the warehouse building in the Valley to support operations, including inventory and supply distribution, building maintenance shops, security, recycling, uniforms, personnel, payroll, housing, and computer support. A new warehouse would be constructed in El Portal to provide for short-term storage of materials. With the removal of the historic Village Garage facility, shuttle bus servicing functions would be relocated to the current NPS maintenance area under this alternative. Heavy maintenance of concessioner vehicles would be relocated to a new garage facility in El Portal. Site-specific locations for these facilities would be evaluated and determined during the site design and development process.

- The medical clinic would remain, the dental clinic function would be removed
- The historic U.S. post office in Yosemite Village would remain; limited postal facilities could be incorporated into new employee housing designs
- The Pacific Bell telephone operation would remain, although the location could be changed
- The historic Ansel Adams Gallery and related structures would remain
- While administrative offices for the Yosemite Institute would be located in El Portal, the Institute would retain an office in the Valley to facilitate the coordination of its educational programs, many of which take place in Yosemite Valley
- The commercial bulk fuel storage facility in El Portal would be removed

Employee Housing

Housing is necessary to accommodate employees who are responsible for natural and cultural resource protection, serving the needs of park visitors, and meeting the operational requirements of the park. During the summer, over 18,200 people per day may visit Yosemite Valley. Only by providing employee housing at or within a reasonable proximity to Yosemite Valley would resources be protected and the needs of these visitors be met.

Housing Program Overview

This alternative considers providing up to 2,084 total employee beds to support Yosemite Valley district functions (National Park Service, primary concessioner, and other partners). The housing would be distributed as follows:

- Retain up to 723 employee beds in Yosemite Valley
- Remove 554 employee beds from Yosemite Valley; of these, relocate 366 to the El Portal Administrative Site, 174 to Wawona, and 14 to Foresta
- Provide up to an additional 369 employee beds in the El Portal Administrative Site and 24 beds in Wawona to accommodate present unmet needs and potential demand

Housing Objectives

Yosemite National Park is committed to following the direction set by National Park Service policy that seeks to reduce the government's role in providing employee housing while reserving the ability to provide housing when appropriate and necessary. At Yosemite National Park, one way of reducing the government's role is to facilitate the private acquisition of housing by employees. To this end, under this alternative the National Park Service would actively pursue and facilitate policies, programs, and arrangements that would: (1) encourage National Park Service and park partner employees to find private housing in the region, and (2) work with county governments and, as appropriate, the private sector, to develop strategies to house National Park Service and park partner employees within the region.

Additionally, the National Park Service would develop housing policies and programs as allowed by the Omnibus Parks and Public Lands Management Act of 1996. The act states that the National Park Service shall consider actions to:

a) Develop where necessary an adequate supply of quality housing units for field employees for the National Park Service within a reasonable time frame;
b) Expand the alternatives available for construction and repair of essential government housing;
c) Rely on the private sector to finance or supply housing to the maximum extent possible, in order to reduce the need for federal appropriations;
d) Ensure that adequate funds are available to provide for long-term maintenance needs of field employee housing; and
e) Eliminate unnecessary government housing and locate such housing as is required in a manner such that primary resource values are not impaired.

This alternative identifies locations that can be used for employee housing within Yosemite National Park (Yosemite Valley, Wawona, and Foresta) and the El Portal Administrative Site. These locations have been identified in order to guide potential future land use. However, to the greatest degree possible the National Park Service would attempt to facilitate the private acquisition of housing in the region for a reasonable portion of the National Park Service and park partner workforce. Prior to the construction of housing, the National Park Service would encourage employees to find private housing in the region, and work with county governments and, as appropriate, the private sector, to develop strategies to house Yosemite National Park employees collectively.

Because the National Park Service does not have authority over the use of private lands in the region outside Yosemite National Park and the El Portal Administrative Site, and because an ample supply of housing is not guaranteed, the National Park Service would be prepared to meet housing needs within areas under its jurisdiction in Yosemite Valley, El Portal, Wawona, and Foresta. If an adequate supply of employee housing were not available in the local region, then the National Park Service would construct housing in these areas. Furthermore, the National Park Service recognizes that active involvement in the appropriate county and state government processes, and compliance with county ordinance and state government laws and regulations (such as the California Environmental Quality Act) would be required and essential when considering land use options outside the boundaries of Yosemite National Park.

Presently, during peak summer season, the combined total workforce serving Yosemite Valley is approximately 2,183[1] and housing is provided for a total of 1,620[2] employees. Therefore, approximately 563[3] employees (or 26%) of the total workforce is housed privately within the region, including privately owned homes on National Park Service leased land in Old El Portal.[4]

This alternative would increase the Yosemite Valley related workforce by 369[5] employees for a total of 2,552[6] employees (including those in private housing) to accommodate increases in staffing levels associated with alternative actions. To meet the needs of this additional workforce this alternative would provide an additional 369 employee bed spaces. Again, it is expected that many employees would seek housing in the region. Therefore, this alternative has anticipated that a minimum of 115 of the 369 additional employees could seek housing in the region, potentially increasing the number of employees privately housed from 563 (or 26%)[7] to 678 (or 27%)[8] of the total workforce.

The related potential additional demand for 1%[9] more employee housing in the region would likely be broadly dispersed over a wide area and occur gradually throughout plan implementation (15 to 20 years), thereby allowing for a sufficient level of housing to become available over time in the local communities. Because the National Park Service does not have authority over the use of private lands in the region outside Yosemite National Park, the number of beds proposed in this alternative would meet housing needs within Yosemite Valley, El Portal, Wawona, and Foresta if housing were not available within the region.

Site Design and Development Process

Upon completion of this plan, site-specific studies would be prepared to evaluate options for new housing and administrative facilities. These studies would include, if necessary, additional environmental review, evaluation and compliance, archeological surveys and data collection, ethnographic resource inventories and evaluation, historic resource studies, biological assessments, erosion control plans, geologic assessments, and the development of architectural guidelines. Housing types and densities, and support facility locations might change if site-specific constraints were identified, if National Park Service or concessioner staffing programs changed, or if housing program requirements change in response to changes in the demand for housing.

The site design and development process would allow for the participation of National Park Service and concession employees, residents of El Portal, Wawona, and Foresta, Mariposa County officials, and other interested parties in the preparation of site development studies for

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1. Current staffing level: 1,750 park partners + 433 NPS = 2,183
2. Current beds under park jurisdiction: 1,691 beds – 71 private beds (at Old El Portal) = 1,620 beds. There are 1,691 existing beds for Yosemite Valley employees (see Alternative 1 – Housing).
3. Employees privately housed: 2,183 current staff – 1,620 current beds = 563
4. Homes in Old El Portal are included in the calculation because they are privately owned and acquired, even though they are on National Park Service leased lands.
5. Growth in staffing and related bed spaces: 30 NPS operations + 282 transportation + 45 concessioner + 12 other partners = 369 beds.
6. Total number of employees necessary to serve Yosemite Valley under Alternative 2 (2,183 existing + 369 growth = 2,552)
7. 563 / 2,183 = 0.26
8. 563 + 115 / 2,552 = 0.27
9. 0.27 – 0.26 = 0.01

housing, administrative functions, and community or commercial facilities. These processes would consider appropriate county and/or town planning area specific plans and would prescribe development characteristics and criteria that would be compatible with the character, density, and scale of existing development. Site-specific environmental review, evaluation, and compliance would also be completed as appropriate during the site design process on a project-by-project basis.

Housing Program

A total of 723 National Park Service, primary concessioner, and other park employee beds would be located in Yosemite Valley. This represents an approximate application of criteria proposed in the 1992 *Draft Yosemite Valley Housing Plan/SEIS*.

There would be 1,037 employee beds at the El Portal Administrative Site. Of these, 290 are existing, though 104 of these would be relocated from the Village Center and the Trailer Village (Hennessey's Ranch) to allow for redevelopment. Facilities for employee housing relocated from Yosemite Valley (366 beds) and Cascades and Arch Rock (12 beds) would be constructed, as would facilities for up to an additional 369 beds to accommodate present unmet needs and potential future growth as a result of operational changes associated with this alternative.

There would be 310 employee beds at Wawona, including 112 existing beds. Of the 310 employee beds, 174 would be relocated from Yosemite Valley; 24 additional employee beds would be constructed to accommodate unmet Wawona operational needs.

A total of 14 employee beds would be relocated from Yosemite Valley to Foresta, where houses would be built to replace those lost to fire in 1990.

There would be a total of 2,084 beds in Yosemite Valley, Wawona, Foresta, and El Portal. Of these, 1,631 beds would be allocated for the primary concessioner, 356 for the National Park Service, and 97 for others (see table 2-21). The total number of beds was determined by evaluating the specific operational requirements of this alternative and then projecting the related staffing requirements.

Following the January 1997 flood, temporary concessioner housing (345 beds) was established at several locations in Yosemite Valley, including the Yosemite Village area (80 beds), Yosemite Lodge (82 beds), and Curry Village (183 beds). All of these temporary beds would be removed.

Table 2-21
Location of Housing by Employer

Location	National Park Service	Primary Concessioner	Others[1]	Total
El Portal	222	755	60	**1,037**
Yosemite Valley	70	616	37	**723**
Foresta	14	0	0	**14**
Wawona	50	260	0	**310**
Cascades and Arch Rock	0	0	0	**0**
Total	**356**	**1,631**	**97**	**2,084**

1. Others include park partners, other concessioners, and approved community service organizations.

Minor adjustments to the housing number, type, and density for each location may be needed in response to the site design process, or constraints or conditions not identified during this planning process. If significant adjustments are required, additional site-specific environmental review may be necessary.

Yosemite Valley Housing Actions

Three principal locations are identified for up to 723 employee beds in Yosemite Valley: Curry Village, Yosemite Village, and The Ahwahnee. A total of 554 employee beds would be removed from Yosemite Valley. Yosemite Valley housing numbers (beds), locations, and distribution by employer are summarized in table 2-22.

All temporary housing in Yosemite Valley would be removed and replaced with permanent structures in Yosemite Valley, El Portal, Foresta, and Wawona. Areas in Yosemite Valley to be used for employee housing are generally within existing developed or disturbed areas. This alternative would remove some housing from highly valued resource areas and the rockfall zone and relocate it (see Vol. Ic, plates D and E). Concentrating housing in multi-level (two- or three-story) buildings would minimize building footprints.

Yosemite Lodge

All employee housing would be removed from Yosemite Lodge in this alternative. The temporary modular housing in the parking area (82 beds) and cabins (8 beds) would be removed.

Yosemite Village

The historic Ahwahnee Row houses and apartments (22 beds) adjacent to Ahwahnee Meadow would be retained (see Vol. Ic, plate 2-4). Three of these Ahwahnee Row houses may need to be elevated above the 100-year floodplain. The Indian Creek apartments (14 beds) would be removed and the area redeveloped. The Y Apartments (8 beds) near the Tecoya dormitories would be retained. The historic apartment next to the Village Garage (1 bed) would be removed and the area redeveloped. Of the 45 existing beds in this area, 15 would be removed.

Two dormitories—Lower Tecoya (234 beds) and Lost Arrow (36 beds)—would be retained. The Hospital Row dormitory (12 beds) would be removed and a new dormitory constructed to accommodate up to 40 additional beds (52 total beds). The Upper Tecoya houses (26 beds) and the Middle Tecoya houses and dormitory (13 beds near the medical clinic) would be retained. The apartments above the post office (4 beds), apartments adjacent to the Lost Arrow dormitory (3 beds), apartments behind The Ansel Adams Gallery (3 beds), and the Yosemite Elementary School Teacherage (3 beds) would be retained.

The temporary Lost Arrow cabins (80 beds) would be removed. The cabins at Camp 1 (3 beds) and the house (1 bed) behind the current visitor center would be removed.

Housing in the Yosemite Village Historic District and at the Rangers' Club (72 beds combined) would be retained.

Table 2-22 Yosemite Valley – Proposed Housing by Employer					
Location	Existing Beds	Bed Allocation by Employer			Bed Change from Existing
		Primary Concessioner	NPS	Others	
Ahwahnee Row houses and apartments	45	30			–15
Lower Tecoya dormitories and apartments	234	234			0
Hospital Row apartments	12	52			+40
Middle Tecoya dormitory and houses (clinic area)	13		1	12	0
Upper Tecoya houses	26	14	7	5	0
Lost Arrow dormitory and apartments	39	39			0
Lost Arrow cabins	80				–80
Yosemite Village area	14			10	–4
Ahwahnee dormitory and tent cabins	49	30			–19
Yosemite Lodge cabins	8				–8
Yosemite Lodge modular units	82				–82
Concessioner stable houses and tent cabins	49				–49
Curry Village area	37				–37
Curry Village Huff House tent cabins	50				–50
Curry Village Huff House cabins	104				–104
Curry Village Huff House dormitories	0	217			+217
Curry Village Terrace	156				–156
Curry Village Boys Town tent cabins	178				–178
Curry Village Boys Town	29				–29
National Park Service housing – historic district (including Rangers' Club)	72		62	10	0
Valley Totals	**1,277**	**616**	**70**	**37**	**–554**
Total Beds to Remain in Valley		**723**			

The Ahwahnee

The historic Ahwahnee dormitory would be retained but remodeled; it would accommodate 13 fewer beds (reduced from 43 to 30 beds). The three tent cabins (6 beds) adjacent to the dorm would be removed and the area restored.

Curry Village

Two new dormitories (up to three stories and 217 beds) would be constructed west of Curry Village adjacent to the Curry Village Historic District. A total of 37 beds would be removed (see Vol. Ic, plate 2-5). These include Cooks' cabins (12 beds), Cooks' tents (8 beds), Huff House studios (4 beds), Huff House trailers (6 beds), Curry Village manager housing – Cabin 101 (1 bed), Tresidder Residence studios (2 beds), and Mother Curry Bungalow studios (4 beds). Some of the historic structures would be adaptively reused as lodging units. Temporary housing would be removed including Huff House tent cabins (50 beds), Huff House cabins (104 beds), and Boys Town cabins (29 beds). The Boys Town tent cabins (178 beds) would be removed and the area redeveloped. The Terrace tent cabins (156 beds) would be removed.

Concessioner Stable

Two houses (2 beds), three apartments (3 beds), seven cabins (14 beds), and 10 tent cabins (30 beds) at the concessioner stable would be removed and the area restored to natural conditions (see Vol. IC, plate 2-5).

Housing Support Facilities

In Yosemite Village, areas have been set aside and designated for necessary community support facilities. These include the post office, grocery, and fuel service. The employee wellness center, concessioner housing management office, and housing-related storage space would be located at the new dormitories in Curry Village. A new employee cafeteria would be constructed in the Curry Village area to reduce seating and use conflicts with park visitors. If possible, the same kitchen would serve both the guest and employee cafeterias. The employee cafeteria at Curry Village would also serve as a community center. Under this alternative, a community center would also be incorporated into the Yosemite Village area. An employee child care facility would continue to be provided in Yosemite Valley.

Utilities

Water would be obtained from existing wells in Yosemite Valley. All sewage would be treated at the El Portal Wastewater Treatment Plant. Electrical and phone service would be upgraded to accommodate the additional loads.

El Portal Housing Actions

Legislation in 1958 established the El Portal Administrative Site for the purpose of locating utilities, facilities, and services required for the operation of Yosemite National Park (see Vol. II, Appendix A). Much of the available land suitable for development within the El Portal Administrative Site would be used for housing (see Vol. IC, plate 2-6). Housing needs in El Portal could change based on the potential for some employees to obtain private housing in the region, thus reducing the overall need for housing in El Portal.

The number and type of housing that would be constructed in El Portal are summarized in table 2-23. There would be 1,037 total beds within the El Portal Administrative Site, including 290 existing beds (104 of which would be relocated within El Portal), 366 beds relocated from Yosemite Valley, 12 beds relocated from Cascades and Arch Rock, and 369 new beds to accommodate present unmet needs and projected growth (see table 2-24). This alternative considers six locations in El Portal as suitable for employee housing or other facilities: Hillside East, Hillside West, Village Center, Old El Portal, Rancheria Flat, and Hennessey's Ranch (includes Trailer Village and Abbieville).

Hillside East

A total of 40 apartments or studio apartments (40 beds) would be constructed.

Hillside West

A total of 130 studio apartments or dorms (130 beds) would be constructed.

Table 2-23 El Portal – Proposed Housing by Employer					
Location	Existing Beds	Bed Allocation by Employer			Bed Change from Existing
		Primary Concessioner	NPS	Others[1]	
Hillside West	0	32	70	28	+130
Hillside East	0	40			+40
Hennessey's Ranch[2]	68				–68
Abbieville houses	4			4	0
Hennessey's Ranch apartments, studios, and dormitories	0	644	13		+657
Old El Portal houses	71	35	30	23	+17
Rancheria Flat houses (Mission 66)	21		21		0
Rancheria Flat duplex	4			4	0
Rancheria Flat apartments	58		58		0
Rancheria Flat houses	19		26		+7
Rancheria Flat studios	0				0
Rancheria Flat dormitories	0				0
Village Center houses	9	4	4	1	0
Village Center dormitories, studios, and apartments	0				0
Village Center Motor Inn cabins	24				–24
Village Center, El Portal Hotel	12				–12
El Portal Totals	**290**	**755**	**222**	**60**	**+747**
Total Beds in El Portal		**1,037**			
El Portal Bed Summary		**Primary Concessioner**	**NPS**	**Others**	**Total**
El Portal existing beds and beds relocated within El Portal		65	177	48	290
El Portal beds relocated from Yosemite Valley		363	3	0	366
El Portal Beds relocated from Cascades and Arch Rock		0	12	0	12
El Portal new beds		327[3]	30	12	369[4]
El Portal Total		**755**	**222**	**60**	**1,037**

Note: Numbers indicate beds dedicated to an employee, not total beds in a unit. For example, a three-bedroom house dedicated to one employee is considered to provide one bed. Spouses or partners employed by other Valley employers are not double-counted, as beds are assigned only to the primary employee whose job requires his/her location in the Valley. Minor adjustments to distribution by employer and location may occur during the implementation of this plan.

1. Other employers are Yosemite Institute, day care, dental, El Portal gas station, and community service organizations.
2. These units (68 beds) make up the El Portal Trailer Village. They represent a mixture of NPS, primary concessioner, and other Valley employees and would be accommodated with replacement housing in Hillside East and Hillside West.
3. A total of 282 of these beds would be necessary to accommodate potential staffing increases associated with the visitor transportation system. The remaining 45 beds would be necessary to accommodate increases in operational-related staffing of the primary concessioner.
4. It is expected that many employees would seek to find housing in the region. Therefore, this alternative has anticipated that a minimum of 115 of the 369 additional employees would seek housing in the region; potentially increasing the number of employees privately housed from 563 (or 26%) to 678 (or 27%) of the total workforce.

Hennessey's Ranch (Trailer Village and Abbieville)

All existing trailer and modular housing (59 units/68 beds) would be removed and the area redeveloped as employee housing and parking. Employees living in these housing units would either move to new housing constructed in El Portal or find other housing outside the El Portal Administrative Site. Under this alternative, the site would be redeveloped with 657 beds in apartments, studio apartments, or dormitories. The Abbieville houses would be retained. The redevelopment could be phased as the Trailer Village closes.

The area would be protected from flooding by extending and raising the existing dike. This would place the area out of the 100-year floodplain, as defined by the U.S. Army Corps of Engineers. Additionally, flood hazards would be mitigated by designating an open space along the river's edge (to promote riverbank stability), and by engineering and elevating structures to withstand flood inundation.

Old El Portal

A total of 17 one-, two-, and three-bedroom homes (1 bed each) would be built on available lots. The 71 existing single-family homes (1 bed each) are privately owned on federally leased land and would be retained.

Rancheria Flat

Seven new two-, three- or four-bedroom, single-family homes (7 beds) would be constructed. The 19 homes (1 bed each) constructed between 1995 and 1997 (Phase 2) would be retained. The existing Mission 66 houses (21 beds) and apartments (58 beds) would be retained. The two duplexes (4 beds) would be retained. The three historic National Lead Company residences would be retained and rehabilitated.

Village Center

The nine privately owned houses (four of which are historic) on federally leased land (9 beds) would be retained. The Motor Inn cabins (24 beds) would be removed. The El Portal Hotel (12 beds) would no longer be used for housing, but would be removed or adaptively reused.

Housing Support Facilities

This alternative includes general land-use designations for housing and housing support facilities to be located in the El Portal Administrative Site. The size and exact location of the support facilities, as well as the specific locations and size of employee housing units, are beyond the scope of this plan. These details would be formulated during the site design and development process. If necessary, additional environmental review would be completed as a part of the site design.

The Village Center has been designated for necessary support facilities and commercial services. These may include a community center, post office, medical clinic, enlarged grocery store/deli, laundry, recreational facilities, wellness center, hair care, office spaces, and a gas station. To the greatest extent possible, park and open space areas, such as a town square, would be provided.

A multi-use (pedestrian/bicycle) paved trail would be developed from Rancheria Flat through Hennessey's Ranch to the Village Center. This trail would also include two footbridges across the Merced River: one between the Village Center and Hennessey's Ranch, and another between Hennessey's Ranch and Rancheria Flat. If feasible, one link of the multi-use paved trail, between the Village Center and Hennessey's Ranch, could be via a modified Highway 140 bridge.

An employee dining and recreation facility with a swimming pool would be constructed at Hennessey's Ranch.

An employee child care facility would continue to be provided in El Portal, possibly adjacent to the elementary school in Rancheria Flat.

Utilities

Water would be obtained from additional wells in the El Portal area. All sewage would be treated at the El Portal Wastewater Treatment Plant. Electrical and phone service would be upgraded to accommodate the additional loads. The abandoned sewage treatment plant in Rancheria Flat would be removed.

Wawona Housing Actions

The Yosemite *General Management Plan* calls for 120 permanent and 320 seasonal employee beds in the Wawona area if housing is not available outside the park boundary. With regard to Section 35 in Wawona, it is the intent of the National Park Service that any development for administration or operations (including housing) would be compatible in character, density, and scale to existing residential and commercial development in Section 35. There are now 112 beds, of which six are for employees with a Yosemite Valley duty station (see table 2-24 and Vol.1c, plate 2-8).

There would be 174 apartment, studio, or dormitory bed spaces relocated from Yosemite Valley to Wawona for those employees who work in Yosemite Valley (see Vol. Ic, plate 2-8). Additionally, 24 apartment, studio, or dormitory bed spaces would be provided to meet current housing shortages for employees who work in Wawona.

Table 2-24
Wawona – Proposed Housing By Employer

Description	Existing Beds	Bed Allocation by Employer			Bed Change from Existing
		Primary Concessioner	NPS	Others[1]	
Beds for employees with a Yosemite Valley duty station	6	174	6		+174
Beds for employees with a Wawona duty station	106	86	44		+24
Wawona Totals	**112**	**260**	**50**	**0**	**+198**
Total Beds in Wawona		**310**			
Wanona Bed Summary		**Primary Concessioner**	**NPS**	**Others**	**Total**
Wawona beds and beds relocated from other locations within Wawona[2]		62	50	0	112
Wawona beds relocated from Yosemite Valley		174	0	0	174
Wawona beds to meet present unmet need for employees with a Wawona duty station		24	0	0	24
Wawona Total		**260**	**50**	**0**	**310**

Note: Numbers indicate beds dedicated to an employee. For example, a house dedicated to one employee is considered one bed. Spouses or partners employed by other Valley employers are not double-counted, as beds are assigned to the primary employee whose job requires their location in the Valley.

1. Other employers are Yosemite Institute, day care, dental, magistrate, and community service organizations.
2. Beds distributed as follows: 16 beds behind the Wawona Hotel, 46 beds retained in Section 35.

Housing Support Facilities

This alternative includes general land-use designations for housing and housing support facilities in the Wawona area. Support facilities could include a laundry, recreational facilities, wellness center, and office spaces. The size and exact location of the support facilities, as well as the specific locations and size of employee housing units, are beyond the scope of this plan. These details would be formulated during the site design and development process. If necessary, additional environmental review would be completed as a part of the site design.

Utilities

Water would be obtained from additional wells in the Wawona area or the spring at Biledo. All sewage would be treated at the Wawona Wastewater Treatment Plant, which would be upgraded. Electrical and phone service would be upgraded to accommodate the additional loads.

Foresta Housing Actions

A total of 14 houses were lost in the 1990 A-Rock Fire. The 14 houses would be reconstructed in Foresta; and would be used to replace beds removed from Yosemite Valley (see Vol. 1C, plate 2-7).

Cascades and Arch Rock Housing Actions

Four historic houses (4 beds) would be removed from the Cascades area (the beds relocated to El Portal). At Arch Rock, eight beds would be removed and relocated to El Portal; the historic structures at Arch Rock would be adaptively reused.

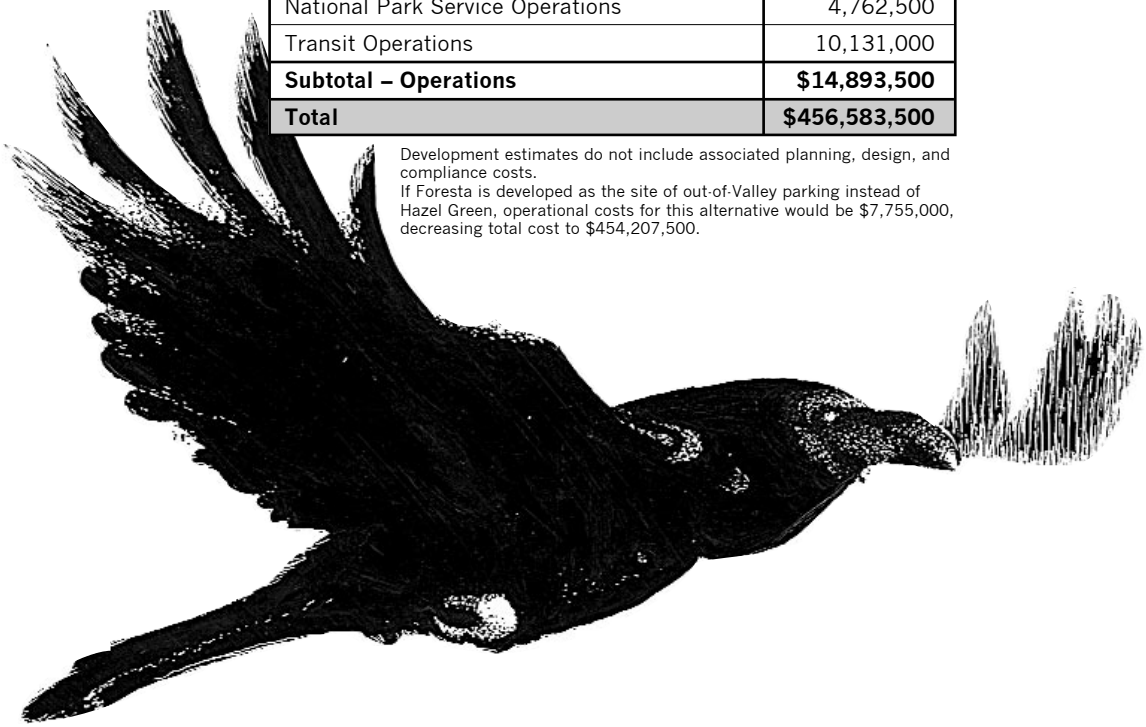
Development Costs

It is estimated that the development costs for this alternative would be $441,690,000 (see table 2-25). These costs would be in addition to the current park operations costs identified in Alternative 1. See Vol. II, Appendix M for the sequencing of development proposed for Alternative 2, the Preferred Alternative.

Table 2-25
Development and Operational Cost Estimates for Alternative 2

Development Costs	
Description	**Amount**
Resource Stewardship	28,449,000
Visitor Experience/Facilities	113,596,000
Transportation/Circulation	73,394,000
Administration/Infrastructure	51,103,000
Employee Housing	175,148,000
Subtotal – Development	**$441,690,000**
Operations Costs	
Description	**Amount**
National Park Service Operations	4,762,500
Transit Operations	10,131,000
Subtotal – Operations	**$14,893,500**
Total	**$456,583,500**

Development estimates do not include associated planning, design, and compliance costs.
If Foresta is developed as the site of out-of-Valley parking instead of Hazel Green, operational costs for this alternative would be $7,755,000, decreasing total cost to $454,207,500.



NPS Photo by Michael Floyd

California black oak in Cook's Meadow with Sentinel Rock in background, autumn 1991.

ALTERNATIVE 3
Taft Toe Parking
(No Out-of-Valley Parking)

This alternative would restore approximately 209 developed and disturbed acres in Yosemite Valley to natural conditions. In addition, 148 acres of developed land would be redeveloped and 99 acres of undeveloped land would be developed to accommodate visitor and employee services such as campgrounds, day-visitor parking, and employee housing. It would consolidate parking for day visitors in the Taft Toe area in mid-Yosemite Valley. A new Valley Visitor Center would also be constructed at Taft Toe. There would be fewer campsites and lodging units than there are now. The area of the former Upper and Lower River Campgrounds and the Camp 6 parking area near Yosemite Village would be restored to riparian habitat, roads would be removed from Ahwahnee and Stoneman Meadows, and parking and the historic fruit trees would be removed from Curry Orchard. Northside Drive would be converted to a trail for pedestrians and bicyclists, without the immediate presence of motor vehicles, from Yosemite Lodge to El Capitan Bridge. Southside Drive would be converted to two-way traffic from Taft Toe to Curry Village. The net effect of this alternative would be to reduce development in Yosemite Valley by 72 acres.

For more actions proposed for this alternative, see the Actions Common to All Action Alternatives section at the beginning of this chapter. For a discussion of the impacts associated with this alternative, see Vol. IB, Chapter 4, Environmental Consequences. For graphic representations of this alternative, see Vol. IC, plates 3-1 to 3-7.

Summary of Major Changes in Relation to Existing Conditions

Restore

- Large, contiguous tracts of meadow, riparian, and California black oak woodland communities along the river from Clark's Bridge downstream to Swinging Bridge

Remove

- Roads through Stoneman and Ahwahnee Meadows (including the road through the former Upper and Lower River Campgrounds)
- Four historic bridges affecting natural flow of the Merced River: Sugar Pine, Stoneman, Housekeeping, and Superintendent's
- Other historic structures: Superintendent's House (Residence 1), concessioner stable, Ahwahnee Row houses, Cascades Diversion Dam, and houses at Cascades
- Three historic orchards (Lamon, Hutchings, and Curry)
- The abandoned wastewater treatment plant in El Portal from a sensitive cultural resource area
- All day-visitor parking in east Valley
- NPS Operations Building (Fort Yosemite) and the Concessioner Headquarters Building
- Commercial trail rides and private stock use in Yosemite Valley
- Five motel buildings at Yosemite Lodge

Establish or Prescribe

- A Visitor Experience and Resource Protection (VERP) study to identify existing and desired conditions for natural resources, cultural resources, and visitor experience
- A traveler information and traffic management system to provide information to visitors, provide incentives for efficient use of available parking and transportation services, and manage access and parking
- Some utility hookups for recreational vehicles, and shower facilities in campgrounds
- Land management zoning throughout Yosemite Valley
- Design guidelines for rehabilitating the landscape in historic developed areas and for new construction

Implement

- A contiguous River Protection Overlay, as prescribed in the *Final Merced Wild and Scenic River Comprehensive Management Plan/Environmental Impact Statement (Merced River Plan/FEIS)*

Construct

- A visitor/transit center at Taft Toe with 1,622 day-visitor parking spaces
- Lodging at Yosemite Lodge and Curry Village
- Campsites at Camp 4 (Sunnyside Campground); east of Curry Village; in the Upper Pines area; and along Tenaya Creek
- Employee housing at Curry Village, Foresta, and El Portal
- A firehouse at the southern edge of the Yosemite Village Historic District

Convert

- The NPS Administration Building to a natural history museum, and administrative areas of the Yosemite Museum/Valley District Building to an expanded cultural history museum
- Most of current Valley Visitor Center complex to museum collection storage and research library
- Southside Drive from El Capitan crossover to Curry Village to two-way traffic (road widened where necessary)
- Northside Drive from El Capitan crossover to Yosemite Lodge from a vehicle road to a multi-use (bicycle and pedestrian) trail
- Trail to the base of Yosemite Falls to a route accessible by people with mobility impairments, and provide a larger viewing platform

Increase/Expand

- Shuttle bus service to Bridalveil Fall
- Interpretive and orientation services, including a new visitor center in Yosemite Valley and at or near principal park entrances
- Multi-use paved trails

Reduce

- Campsites by 26
- Lodging by 280 units (including 212 units at Housekeeping Camp)
- Traffic entering the east Valley in the summer by 67%

Relocate

- Principal employee housing to El Portal, leaving 689 beds in Yosemite Valley
- National Park Service and concessioner administrative stables operations to McCauley Ranch in Foresta
- National Park Service and concessioner headquarters out of Yosemite Valley

Natural Resources

This alternative would link highly valued natural resource areas that have been degraded or fragmented (such as the Merced River and its tributaries, wetlands, meadows, and California black oak woodlands) into one large, contiguous, and dynamic river-governed ecosystem (see Vol. Ic, plate D, Highly Valued Resources). Many facilities and infrastructure in highly valued resource areas would be removed, making the restoration of these areas possible in the east end of Yosemite Valley. The environmental cost would be the construction of a new visitor/transit center and parking at Taft Toe (approximately 54 acres), in a previously undeveloped, mixed conifer community in mid-Valley near El Capitan crossover.

Merced River Ecosystem (including tributaries, wetland, riparian, and meadow areas)

As described in Actions Common to All Action Alternatives at the beginning of this chapter, the River Protection Overlay prescribed in the *Merced River Plan* would be implemented in Yosemite Valley and El Portal. The River Protection Overlay would provide a buffer area for natural flood flows, channel formation, riparian vegetation, and wildlife habitat and would protect riverbanks from human-caused damage and associated erosion. Above 3,800 feet in elevation (including Yosemite Valley), the River Protection Overlay is 150 feet on either side of the river, measured from ordinary high water. Below 3,800 feet in elevation (including El Portal), where the river gradient and characteristics change, the overlay is 100 feet on each side of the river, measured from ordinary high water.

Meadows are an important part of the Yosemite Valley ecosystem and cultural landscape. Naturally high water tables in meadows protect them from conifer invasion. When water tables have been altered by existing development or encroachment, and restoration of natural water processes is unlikely, a program of prescribed fire and mechanical clearing would be employed to prevent conifer invasion into meadows.

The Merced River corridor, riparian vegetation, wetlands, and meadows are a central component of the Yosemite Valley cultural landscape. River restoration, riparian area revegetation, and meadow management would also rehabilitate these important landscape resources.

As described for Alternative 2, roads would be removed from Stoneman Meadow and the southern end of Ahwahnee Meadow. After the roads are removed, the natural topography of the meadows would be restored, and disturbed sites would be replanted (if necessary) with appropriate plants of the same local genetic makeup. The roads and utilities through Bridalveil, El Capitan, and Cook's Meadows would be evaluated and, if needed, realigned or reconstructed to restore critical surface water and shallow subsurface water flows that sustain the native meadow vegetation and wildlife and discourage conifer invasion. Parking lanes would be removed from Northside Drive through El Capitan and Cook's Meadows to reduce impacts associated with current levels of use in the meadows.

As described for Alternative 2, Yellow Pine, an informal campground for park volunteer groups, would be removed and the area restored to a riparian and conifer community.

At Housekeeping Camp, all accommodations would be removed from the River Protection Overlay and highly valued resource areas, including potential riparian and wetland areas, reducing the number of units from 264 to 52. The area would be restored to riparian communities.

Under this alternative, parking would be removed from the Camp 6 area near Yosemite Village and placed in an area outside the floodplain at Taft Toe, in the mid-Valley. Camp 6 would be restored to a mosaic of meadow, riparian, and California black oak woodland communities.

Southside Drive in the Bridalveil Fall area would be reconstructed to improve water movement through the braided stream system (the same as under Alternative 2).

Cascades Diversion Dam on the Merced River west of Pohono Bridge (near the intersection of the Big Oak Flat and El Portal Roads) would be removed to restore natural channel grades and hydrologic processes along this segment of the river (the same as under Alternative 2) (see Actions Common to All Action Alternatives at the beginning of this chapter).

Under this alternative, four historic bridges—Sugar Pine, Stoneman, Housekeeping, and Superintendent's—would be removed to allow for the unconstrained flow and meandering of the Merced River. The riverbanks adjacent to the bridges that would be removed would be restored to a more natural condition. As described for Alternative 2, all bridges west of Happy Isles to Swinging Bridge affect river dynamics, and each has been evaluated (under other provisions of this alternative) to determine the severity of these effects as well as the importance of access to and across the river. Ahwahnee Bridge would be retained to provide a nonvehicular connection between Yosemite Village, the campgrounds, and Curry Village. If necessary, a new bridge or bridges would be constructed over the cutoff channels southeast of Ahwahnee Bridge to facilitate a pedestrian trail and multi-use path connection to the Lower Pines area.

The recreational vehicle dump station at Upper Pines would be relocated outside of the River Protection Overlay, and the area would be restored to a riparian community (the same as under Alternative 2).

As described under Alternative 2, the areas that were formerly Upper River, Lower River, and the northwest end of Lower Pines Campgrounds would be restored to a mosaic of meadow, riparian, and California black oak woodland communities. Restoration would involve removing imported fill that was used to level the campgrounds, contouring the sites to match natural topography, and replanting the sites if necessary with appropriate plants of the same local genetic makeup as neighboring plant communities. Utilities in the former Upper and Lower River Campgrounds and the southern part of Ahwahnee Meadow would be removed and realigned along transportation corridors.

All of North Pines Campground would be removed, fill material removed if necessary, and the area restored to riparian/California black oak communities. The former Group Campground

and existing Backpackers Campground along Tenaya Creek would be removed, and the areas would be restored to riparian/upland communities.

The Swinging Bridge Picnic Area and associated parking would be removed and the area restored to riparian communities (the same as under Alternative 2).

Under this alternative, the fruit trees would be removed from Lamon's Orchard, a highly valued cultural resource, and the area would be restored to riparian/California black oak communities. The fruit trees and parking would be removed from the historic Curry Orchard, and the area would be restored to a mosaic of upland, California black oak, and meadow communities.

The human-built rock-rubble pile in Yosemite Creek, directly downstream from the bridge at the base of Yosemite Falls, would be removed to restore natural water flow in the western channels of Yosemite Creek (the same as under Alternative 2).

The area between the bike path at Yosemite Lodge (the proposed realignment of Northside Drive) and the Merced River (the site of former Yosemite Lodge cabins, Pine Cottage, and employee housing) would be restored to riparian communities (the same as under Alternative 2).

The concessioner stable and related employee housing would be removed and the area restored to riparian/California black oak communities (the same as under Alternative 2).

Under this alternative, the Art Activity Center function would be relocated; the former bank building would be removed, and the area would be restored to riparian communities. The Concessioner Headquarters Building would be removed, and the area would be restored to a mosaic of meadow/California black oak communities.

Radiating impacts from the Taft Toe Visitor/Transit Center and day-visitor parking area could affect adjacent riparian areas in Yosemite Valley. In El Portal, the sand pit would be removed from operational use and restored to riparian communities.

California Black Oak Woodland

As described for Alternative 2, the tennis courts at The Ahwahnee would be removed and the area restored to California black oak woodland. The Superintendent's House (Residence 1) adjacent to Cook's Meadow would be removed and the area restored to California black oak woodland.

Under this alternative, the fruit trees at the historic Hutchings Orchard would be removed, and the area restored to California black oak woodland.

California black oak habitats would be affected in Yosemite Valley by construction of employee housing west of Curry Village, development of campsites east of Curry Village, and the construction of a firehouse at Yosemite Village. Construction of new lodging units at Curry Village could result in the loss of some oaks. In El Portal, areas of black oaks would be affected by development of housing and administrative facilities.

Upland Community

Houses along the edge of Ahwahnee Meadow (Ahwahnee Row) would be removed and the area would be restored to a mixture of upland, California black oak, riparian, and meadow communities.

The administrative/utility area to the east of The Ahwahnee would be restored to upland/California black oak woodland (the same as under Alternative 2).

The area of the former service station at Yosemite Lodge would be restored to upland/California black oak woodland.

The development of a visitor/transit center and day-visitor parking at Taft Toe would affect upland habitats in Yosemite Valley. Other developments that would affect upland areas in Yosemite Valley include development of new campsites east of Curry Village, north of Tenaya Creek, and in the northern portion of Upper Pines; construction of employee housing west of Curry Village; construction of new lodging units at Yosemite Lodge and Curry Village; widening of Southside Drive; and the addition of a new multi-use trail along Southside Drive. Upland areas outside Yosemite Valley that would be affected include El Portal (construction of housing), Big Oak Flat and South Entrances (visitor centers), and Foresta (houses and stable operations at nearby McCauley Ranch).

Cultural Resources

This alternative would retain to the degree possible the historically significant sites, structures, and landscape features in Yosemite Valley, where such preservation does not conflict with natural resource restoration goals. Archeological sites and ethnographic resources would be protected wherever possible, and traditional uses by culturally associated Indian people would be encouraged. Large tracts of the Valley's meadows, California black oak woodlands, and the river's riparian corridor would be restored to a more natural condition, enhancing these important components of the cultural landscape of Yosemite Valley. To achieve these natural resource restoration goals, four historic bridges would be removed, and other individually significant structures and historic buildings that contribute to the Valley's cultural landscape would be removed. Some historic structures would be rehabilitated and adaptively reused. All three historic orchards would be removed. Although changes would occur in the vicinity of the three National Historic Landmark structures, they would be protected from actions that would affect their historic significance. The Yosemite Museum collection (including research library and archives) would be consolidated in Yosemite Valley.

Archeological Sites

Archeological sites would continue to be preserved in place as much as possible. The most highly valued sites (those with high research potential) would be avoided during new construction or development wherever possible. No new development would occur in areas where human burials are known to exist. Existing development that is causing ongoing site degradation would be removed or rehabilitated, wherever possible. The abandoned sewer plant in the Rancheria Flat area of El Portal would be removed from a prehistoric cemetery. A building and asphalt would be removed from a burial site in Yosemite Village.

Where special opportunities exist, prehistoric and historic archeological resources would be interpreted to visitors. In the Lower Yosemite Fall area, a large and important prehistoric village site would be protected. Surface prehistoric archeological features, local American Indian traditions, and important historic archeological features would be interpreted through wayside exhibits along the Lower Yosemite Fall loop trail.

Ethnographic Resources

Through existing agreements and ongoing consultation with culturally associated American Indian tribes, access to and use of special resources in Yosemite Valley would continue. The National Park Service and culturally associated American Indian groups would continue to develop a parkwide gathering plan for the tending and use of traditional plant resources. Access would continue to be provided for American Indian participants in traditional and ceremonial activities. American Indians conducting traditional activities in Yosemite Valley would not be restricted to day-visitor parking and shuttle transit. Special provisions would be implemented to allow parking in short-term turnouts. Known burial areas would continue to be protected. These areas (the last occupied American Indian village and all known burial areas) are considered among the valued resources of American Indian people, and they were so considered during this

planning effort. Where previously unknown burials were discovered, provisions outlined in the Native American Graves Protection and Repatriation Act and its implementing regulations would be followed. Other important areas, such as gathering locations, historic American Indian villages, and areas of spiritual or traditional importance, would be protected as much as possible.

The park's Programmatic Agreement for compliance with Section 106 of the National Historic Preservation Act also includes provisions for including culturally associated American Indian tribes in the park's planning process. This agreement stipulates that the park and associated American Indian tribes develop an agreement for government-to-government relations, protocols for official consultations regarding issues of concern and park actions that may affect traditional resources, and park-specific guidelines for implementing provisions of the Native American Graves Protection and Repatriation Act.

Cultural Landscape Resources (Including Individually Significant Historic Sites and Structures)

Yosemite Valley

Under this alternative, many of the historically significant natural characteristics of the proposed Yosemite Valley Cultural Landscape Historic District would be rehabilitated and enhanced. General landscape characteristics such as natural features, views, and vegetation would be retained and rehabilitated. However, historic patterns of land use, spatial organization, the Valley's circulation system, some individually significant historic structures, and many structures that contribute to the Valleywide cultural landscape would be altered or removed.

The overall character of Yosemite Valley's spatial organization would be perpetuated. Key natural resource restoration actions, such as implementation of the River Protection Overlay and restoration of the associated natural river processes and adjacent meadows, would enhance natural features and vegetation that are characteristic of the landscape in Yosemite Valley. However, physical historic structures that have modified the river and meadows (such as Sugar Pine, Stoneman, Housekeeping, and Superintendent's Bridges, riprap and other river revetment structures, meadow ditches, etc.) would be removed in order to achieve these restoration objectives. Although the majority of concentrated visitor development would remain in the east Valley, this historic spatial organization would be altered through development of the Taft Toe area for day-visitor parking and a visitor/transit center.

The historic circulation system that encircles the Valley floor would largely be retained. However, the use of this system would change with the closure of a portion of Northside Drive to motor vehicles, the conversion of Southside Drive to two-way traffic, and the relocation of visitor parking and orientation to the mid-Valley at Taft Toe. Portions of both Northside and Southside Drives (both contributing circulation structures in the Valleywide cultural landscape) would also be realigned, and a portion of Southside Drive would be widened. Some noncontributing circulation structures would be removed, such as the roads across Stoneman and Ahwahnee Meadows.

Valleywide land-use patterns would continue, although the location of some activities would change. Camping would continue in Yosemite Valley, but campgrounds themselves (which are not contributing resources) would be relocated away from the river. Stable operations would be relocated outside Yosemite Valley. Access to historically significant views would be retained and enhanced.

Of the many individually significant historic structures, three would be removed. Sugar Pine and Stoneman Bridges would be removed to restore a more natural river flow. The Superintendent's House (Residence 1) and its associated garage would be removed and the area restored to California black oak woodland community.

Changes would also occur in the Yosemite Village area. The historic NPS Operations Building (Fort Yosemite), other historic maintenance shops, and the Camp 1 complex (all of which are contributing elements in the Valleywide cultural landscape) would be removed and the areas redeveloped for district operations. The Camp 6 area would be restored to natural conditions. As part of this natural resource restoration, many contributing elements of the Valleywide cultural landscape would be removed. Structures to be removed include the Concessioner Headquarters Building, the Village Garage and its associated apartment, and the Ahwahnee Row houses and apartments.

The designed landscape in the Yosemite Village Historic District would be rehabilitated. All the historic structures, which are contributing elements of this historic district, would be retained. The Yosemite Museum/Valley District Building (the historic Museum Building) would be rehabilitated and converted to serve entirely as a cultural history museum. The historic NPS Administration Building would be rehabilitated for a new use as a natural history museum. No changes would occur at the National Historic Landmark Rangers' Club. Other central structures in Yosemite Village, including The Ansel Adams Gallery and associated structures, the Yosemite Village Post Office, and the historic Pohono Indian Studio (current Wilderness Center), would be retained. Historic views within Yosemite Village would be re-established, and the California black oak community would be stabilized and protected in the historic residential area. A new fire station would be constructed at the edge of the historic district housing area, designed to be compatible with the district. Hutchings Orchard would be removed and the area restored to natural conditions. Prior to the orchard's removal, a genetic conservation program would be initiated to salvage cuttings and establish representative plants at an appropriate facility outside Yosemite National Park.

The Ahwahnee is both a National Historic Landmark and a National Register historic property. No changes would occur to the National Historic Landmark hotel structure or its setting. The employee dormitory, a contributing element of the larger National Register property, would be rehabilitated. Three nonhistoric employee tent cabins would be removed. The tennis courts, which are also contributing elements of the larger National Register property, would be removed in order to restore a California black oak woodland community. The western portion of the parking area, which lacks historical integrity, would be reconfigured.

In the Curry Village area, all employee tent housing would be removed. The fruit trees would be removed from the historic Curry Orchard and the area restored to natural conditions. Prior

to removal, a genetic conservation program would be initiated to salvage cuttings and establish representative plants at an appropriate conservation facility outside Yosemite National Park.

At the Camp Curry Historic District, visitor services would remain concentrated in the central portion of the district, and significant historic buildings such as the Lounge (original registration building) and Registration Building (original post office) would remain. Of the existing 475 historic guest tent accommodations, 150 would remain (277 would be removed). The 48 architecturally significant historic bungalows and Cottage 819 would be retained in their original configuration for continued use as guest lodging. The Mother Curry Bungalow would be retained, but other significant historic structures (Huff House and Tresidder Residence) would be removed. New cabin rooms with bath (204 units) would be constructed within the historic district to the north and east sides of the bungalows. Guest parking would be relocated from the historic Curry Orchard area.

At Lower Yosemite Fall, the historic footbridge at the base of the fall would be rehabilitated, three footbridges would be removed, two would be relocated, and one would be rehabilitated or rebuilt (all are contributing elements in the Valleywide cultural landscape). The shuttle stop east of Yosemite Creek would be designed to be compatible to the adjacent Yosemite Village Historic District.

The historic concessioner stable and associated facilities would be removed. The Nature Center at Happy Isles (historic Happy Isles Fish Hatchery) would be used year-round.

At historic Camp 4 (Sunnyside Campground), the five westernmost campsites would be removed to provide a buffer for the proposed Indian Cultural Center. Important historic features would be retained, and 17 additional campsites would be established east of the existing core of the campground. These new sites would be designed to be compatible with the historic site.

No changes would occur at the National Historic Landmark LeConte Memorial Lodge. No changes would occur at the Bridalveil Meadow historic site.

Fruit trees would be removed from the individually significant Lamon Orchard historic site, Curry Orchard, and Hutchings Orchard and the areas restored to natural conditions. Prior to their removal, a genetic conservation program would be initiated to salvage cuttings and establish representative plants at an appropriate facility outside Yosemite National Park.

Merced River Gorge

The segment of the El Portal Road between the intersection of the Big Oak Flat/El Portal Roads and Pohono Bridge would be rebuilt. This reconstruction would be designed to be compatible with other segments of the road and would retain the important historic characteristics of this National Register property.

Six of the remaining seven components of the Yosemite Hydroelectric Power Plant, a property determined eligible for inclusion in the National Register of Historic Places, would be removed. The six to be removed are: (1) the diversion dam, (2) the screenhouse and associated features, and (3) the four Cascades residences.

El Portal

In El Portal, final decisions regarding the location of new facilities and retention or removal of some historic structures would be deferred until site-specific development planning. The three historic National Lead Company residences would be retained as housing and rehabilitated. The historic railroad residences and the old El Portal Store (all privately owned historic structures on leased National Park Service lots) would be retained as housing. The historic El Portal Chapel (the old El Portal School) and the Yosemite Research Center (Murchison House) would be retained. The El Portal Hotel would be studied for rehabilitation and possible adaptive reuse. If it would not be feasible to reuse this building and meet park needs for this area of El Portal, it would be removed. The current El Portal Market would either be retained or removed and the area redeveloped as part of the commercial core of El Portal.

Museum Collection (including Archives and Research Library)

Under this alternative, the Yosemite Museum collection would be housed in a new facility adjacent to the existing visitor center's West Auditorium. The West Auditorium would be adapted to house the park's archives, and the research library would be housed in the remodeled visitor center. These facilities would allow for increased visitor access to the museum collection by moving all parts of the collection into a facility remodeled or constructed to meet preservation needs and located next to the Yosemite Museum.

Visitor Experience

Key distinguishing visitor experience elements of this alternative include:

- A new visitor/transit center mid-Valley at Taft Toe, near El Capitan crossover along Southside Drive, and the removal of parking for day visitors elsewhere in Yosemite Valley
- Formalized parking at Taft Toe for 1,622 day-visitor vehicles and 50 short-term parking places for visitors with overnight accommodations in Yosemite Valley
- Reduced development, crowding, and automobile traffic (but increased shuttle bus traffic) in the east Valley
- Closure of Northside Drive to motor vehicles from Yosemite Lodge to El Capitan crossover
- New multi-use paved trails for pedestrians and bicyclists from the east Valley to El Capitan crossover, and existing trails for pedestrians from El Capitan Bridge to Bridalveil Fall and Valley View
- Rerouted hiking and bicycling trails due to removal of bridges
- Removal of the concessioner stable and the elimination of all private stock use in the Valley
- Visitor centers near park entrances
- 982 lodging units and 449 campsites

As described for the other action alternatives, management of the number of vehicles entering the east end of Yosemite Valley on any given day would be a substantial change from existing conditions. Traffic and congestion in the Valley would be reduced, and pedestrians and bicyclists would have expanded opportunities to access the length of the Valley. While access into Yosemite Valley for visitors with reservations for overnight accommodations in the Valley would not change significantly, access for day visitors (including visitors staying overnight elsewhere in the park) would change. Valley day visitors would drive to and park their cars at Taft Toe (capacity of 1,622 vehicles) or arrive at Taft Toe by buses. Visitors would travel by shuttle bus or by non-motorized means to the east Valley. Fifty short-term parking places would be provided at Taft Toe for visitors with overnight accommodations in Yosemite Valley. This would allow them to access the visitor center upon their arrival in the Valley. Once these visitors check into their overnight accommodations, they would be required to use the in-Valley shuttle bus service to access Valley destinations, including the Taft Toe Visitor/Transit Center.

In the Valley, a spectrum of recreational activities and experiences would continue to be available under all alternatives, and there would be new opportunities for experiencing portions of the Valley without vehicles. While extensive touring in personal vehicles would no longer be an option, park shuttle buses would serve the entire Valley rather than just the east end. Travel around the Valley would be by shuttle bus, bicycle, walking, and concessioner tours. Visitor use would be dispersed throughout the Valley, with an increased use of existing trails in the west Valley, and a new multi-use paved trail connecting the mid-Valley to the east Valley. As under the other action alternatives, the number of campsites and lodging units would decrease from

current levels, but they would continue to provide a diversity of experiences and prices. Orientation and interpretive services would be expanded.

Access for Visitors with Disabilities

The method of access by visitors with mobility impairments would temporarily remain similar to existing conditions, with controlled access available for personal vehicles to, and parking at, specially marked spaces at principal Valley features. As under Alternative 2, vehicular access to the sections of Northside Drive closed to automobile traffic would not be available. Eventually, as buses became fully accessible, visitors with disabilities could use them to access Valley destinations, and overnight users could drive directly to their lodging. As implementation of the *Yosemite Valley Plan* occurs, accessibility needs would be fully analyzed, and an accessibility plan would be developed to provide the best-feasible access for visitors with disabilities. Improvements in access to structures, features, and programs would continue, based on this new plan. New facilities would meet accessibility guidelines.

Visitor Use and Land Management Zoning

As described under Actions Common to All Action Alternatives, this alternative would accommodate visitation levels established in the 1980 *General Management Plan*. The National Park Service would conduct a Visitor Experience and Resource Protection (VERP) study within five years of a Record of Decision to identify existing and desired conditions for natural resources, cultural resources, and visitor experience. Based on the VERP, the National Park Service would (1) establish management zoning that complements the management zoning established in the *Merced River Plan*; (2) develop indicators to measure visitor experience and resource conditions; (3) develop standards that define acceptable measurements for each indicator; (4) develop an assessment program to monitor standards; (5) develop a decision-making process to be used in identifying management actions necessary to maintain or restore desired conditions; and (6) develop visitor-use level recommendations for each zone.

Traveler Information and Traffic Management

As described under Actions Common to All Action Alternatives, this alternative would include the design and implementation of a traveler information and traffic management system that would use a variety of techniques to assist visitors in planning their trips, to encourage efficient use of available transportation facilities and services, and to assure that vehicle volumes do not exceed the capacity of roads and parking.

Orientation and Interpretation

As described for the other action alternatives, orientation opportunities would remain decentralized, but would be expanded to include improved visitor centers at or near entrance stations. Orientation would be provided sequentially, starting with improved resources for

visitors to use before starting a visit, including the park's web site and pre-visit publications. Greater emphasis would be placed on supporting gateway joint-agency visitor centers, particularly to provide current information on access and reservation availability.

As under the other alternatives, once at the park, visitors would find expanded or new visitor centers near each entrance station, contributing to their sense of arrival and their ability to discover and take advantage of parkwide offerings. At these visitor centers, visitors would receive assistance in planning their visits; obtaining maps, publications, wilderness, and other permits; and making or confirming reservations for overnight accommodations. The park orientation film would be shown in these facilities.

When visitors arrived in the Valley, they would find a new full-service visitor center at Taft Toe. From there they could continue their tour of the rest of the Valley by shuttle bus, bicycle, or on foot (visitors with overnight accommodations would drive to their lodging or campsite). Visitors with overnight accommodations in Yosemite Valley would find new, small, unstaffed orientation facilities at their lodge or campground, and campground hosts near their campsites. These visitors could also take a shuttle bus to the visitor center at Taft Toe. All staffed orientation centers would sell orientation and interpretive publications by the park's cooperating association.

Information at shuttle bus stops would be improved, with clear and consistent signs posted throughout the Valley to help visitors use the system with ease and efficiency (the same as under the other action alternatives).

Interpretive services and facilities (e.g., ranger programs, tours, exhibits, school programs) offered by the National Park Service, concessioner, and other partners would be greatly increased above current levels, as proposed in the *General Management Plan*. This would enhance understanding of park themes, contribute to resource stewardship, and accommodate visitors touring park features. The variety and locations of interpretive programs would be increased to meet the needs of various visitors, including those with disabilities or those speaking languages other than English. Under this alternative, interpretive programming would be offered in both the east and west Valley. New programs at popular views and on trails would be emphasized, including talks, short walks, bicycle tours, and occasional half-day or all-day programs. The Valley Floor Tour would no longer have access to Northside Drive between Yosemite Lodge and El Capitan Bridge, but some turnouts on both sides of Southside Drive east of Taft Toe would be retained and could be used by these buses and trams. Ticketing and boarding areas for the Valley Floor Tour would be available at Taft Toe, as well as Valley lodging areas and Yosemite Village.

Yosemite Village would become a hub of interpretive activity. A small information desk in a museum lobby would replace visitor center functions for Yosemite Village. Theater productions and special programs would be presented in the current Visitor Center's upgraded East Auditorium. In-depth interpretation of parkwide themes and the museum collection would be found at two museums: a natural history museum in the majority of the present NPS Administration Building, and an expanded cultural history museum in the present Museum/Valley District Building. The Indian Village of Ahwahnee would continue to serve its present interpretive function. The Wilderness Center function would be transferred to the Taft

Toe Visitor/Transit Center, and the Art Activity Center would be relocated to its former location in the current Wilderness Center.

The present informal gathering and program area near the Visitor Center would be redesigned and relocated as described in Alternative 2. The park's research library and photo collection would be housed in the rehabilitated, existing visitor center, while the remainder of the extensive museum collection (including historical, archeological, archival, and natural objects) would be stored in the rehabilitated West Auditorium and a new collection storage facility adjacent to the West Auditorium. A research room and a teacher resource center or classroom could be included in this curatorial facility. Some space in the existing NPS Administration Building would serve as an information center and administrative facility for the Valley district interpretive operation in order to maintain a historic administrative use of this building.

As described for Alternative 2, interpretive amphitheaters at lodging areas would remain at their present locations. The Lower Pines amphitheater would be replaced by a new amphitheater in the vicinity of the current concessioner stable parking lot to reduce noise conflicts with adjacent campers. The Lower River amphitheater would be removed and the area restored. The Nature Center at Happy Isles would be operated as a year-round facility.

A Valleywide exhibit plan would be produced to evaluate the locations of existing outdoor exhibits, as described in Alternative 2. It would recommend new exhibits and interpretive trails, focusing on new pedestrian and bicycle trails. The plan would also include recommendations for view maintenance and for some exhibit shelters that could be used for cover during inclement weather.

A program of sociological studies would be implemented that would routinely examine the effectiveness of interpretive and orientation services and media offered by the National Park Service, concessioner, and other partners (the same as under Alternative 2).

Recreation

The mode of accessing parts of the Valley for recreational activities would change as a result of this alternative. As described for the other action alternatives, access to most recreation sites and activities in Yosemite Valley would be by shuttle bus, bicycle, or on foot rather than by private vehicle. Visitors riding shuttle buses would carry their recreational gear and supplies throughout the Valley, or store them in variably sized lockers (including bear-resistant lockers for food) that would be provided at Taft Toe and at major shuttle bus stops and destination areas. Shuttle buses would be outfitted to transport recreational equipment such as bicycles, backpacks, coolers, skis, and climbing gear.

The traveler information and traffic management system and consolidated parking would reduce opportunities for touring Valley features by private vehicles and would eliminate private vehicle use in the east Valley for day visitors. Similar to the other action alternatives, some turnouts would be removed; other turnouts would be retained for emergency use or to provide for short-term viewing of outstanding scenic features, particularly historic views. Auto touring would be replaced by guided tours (vehicular and walking), shuttle bus riding, bicycle touring, and walking. The Valley shuttle bus system would be expanded to include stops between the east Valley and Bridalveil Fall, and shuttle bus stops would be added to increase access to Valley destinations.

Trail Use

As described for the other action alternatives, development of interpretive trails and the interpretation of features more easily accessed by bicycles or on foot would be emphasized. Publications and exhibits to facilitate self-guided experiences would continue to be developed for pedestrians, bicyclists, and bus riders; these would be available at all visitor orientation facilities. Ranger-led programs would be scheduled for the convenience of visitors, with varying starting times, program lengths, and distances to be walked or bicycled.

Walking, Hiking, and Bicycling

Improved and additional trails for walking and bicycling would be available throughout Yosemite Valley, as described for the other action alternatives, and bicycle and pedestrian touring would be encouraged. Trails in some areas, including Yosemite Lodge, Curry Village, and the former Upper and Lower River Campground areas, would be realigned or converted to multi-use. In some cases, realignments would be adjusted during the final site design process. Trails would be clearly marked with directional and mileage signs. Under this alternative, conflicts between pedestrians and bicyclists would continue, but would be reduced by separating trails in some developed areas and eliminating guided and private stock trips.

Multi-use trails would be expanded west from Yosemite Lodge to El Capitan crossover and Taft Toe, utilizing the converted Northside Drive from Yosemite Lodge, and a new multi-use trail adjacent to Southside Drive from Swinging Bridge west to El Capitan Bridge and Taft Toe. A new multi-use trail would be constructed to connect Southside Drive across Sentinel Bridge to Yosemite Village along Sentinel crossover. East of Yosemite Lodge, the historic Yosemite Creek vehicle bridge would be converted to a multi-use trail after the new Yosemite Creek vehicle bridge is constructed and Northside Drive is rerouted to the south of Yosemite Lodge.

A realigned or new multi-use trail from Yosemite Village to Curry Village would pass through the area of the former Upper and Lower River Campgrounds, continuing across Ahwahnee Bridge, through Lower Pines Campground, and connecting with the existing bicycle path. As described for Alternative 2, a new multi-use trail would be developed from The Ahwahnee to the east to connect with the existing bicycle path in the Sugar Pine Bridge area. The informal trail from Ahwahnee Bridge along the north side of Stoneman Meadow to the Southside Drive/Curry Village Road intersection would be improved as a pedestrian trail.

Access to Bridalveil Fall would be via the existing Valley Loop Trail (the same as under Alternative 2). There would be no multi-use trail to Bridalveil Fall. New trails accessible to wheelchair users would be provided at Sentinel Beach, the new North American Wall picnic and viewing area at El Capitan, and other areas determined by the proposed accessibility study and plan. Seating would be provided along trails and at shuttle bus stops.

Bicycle rentals would be available at Taft Toe, Yosemite Lodge, and Curry Village. The extension of rental hours and periods (e.g., multi-day bicycle rentals) would be evaluated and implemented if feasible. Bicycle racks and lockers for gear and food would be located at major destinations throughout the Valley.

Off-pavement bicycle use, because of the damage it causes to the natural environment and conflicts with other users, would continue to be prohibited (the same as under the other action alternatives). To promote safe bicycle use, lane designations would be provided where appropriate and as necessary on multi-use trails to reduce pedestrian and bicycle conflicts and mishaps. Potential environmental damage caused by increased bicycling and pedestrian use would be minimized through trail design, messages in interpretive programs, and management action.

Lower Yosemite Fall

Access to the Lower Yosemite Fall area would be by shuttle bus, bicycle, or on foot (see Vol. IC, plate 3-3). As described in Alternative 2, the existing parking lot would be removed and the area restored. New shuttle bus stops would be located on the north side of Northside Drive east of the Yosemite Creek Bridge; under this alternative, a stop would also be provided on the south side. Access to the base of the fall would be by foot on either a rehabilitated Western Channel Trail (the present main access) or a better-defined and hardened Eastern Channel Trail; both trails could be combined into a loop trip. Access to the base of the fall for visitors with mobility impairments would be via the redesigned and hardened Eastern Channel Trail. At the base of the fall, the historic bridge across Yosemite Creek would be rehabilitated and the viewing area enlarged. The human-built rock-rubble pile downstream from this bridge would be removed from the western creek channel.

Under this alternative, restrooms would be replaced near the existing parking lot. Two of the historic bridges along the eastern trail would be rehabilitated or rebuilt. Bridge 1 would be relocated; bridge 2 would be relocated to provide a wheelchair-accessible trail to pass south of the historic Hutchings Sawmill site; bridge 3 would be rehabilitated or rebuilt to maintain access to the Muir plaque and Clark bench; and bridges 4, 5, and 6 would be removed. A seventh bridge would be constructed to replace a bridge that was once located east of bridge 3. The pedestrian/bicycle bridge north of and parallel to the historic Yosemite Creek Bridge would be replaced with a new bridge to provide access and disperse use in this heavily used area. The section of the historic Valley Loop Trail approaching the fall northwest of the existing restroom would be rehabilitated for continued pedestrian use. Interpretive exhibits and seating would be added to both the Western and Eastern Channel Trails. An informal viewing area would be provided east of the shuttle bus stop on the north side of the road, and an informal gathering and viewing area would be located on the Western Channel Trail.

Wilderness Access

Much wilderness hiking would continue to originate in the Valley. Wilderness permits and trip planning would be available for Valley trails at all park visitor centers, including new entrance station facilities and the Taft Toe Visitor/Transit Center. Pre- and post-trip walk-in campsites, as well as 150 parking spaces at the current Wilderness parking area east of Curry Village, would be available for overnight wilderness users holding permits for Valley trailheads.

Climbing

Climbing in Yosemite Valley would continue, and as described for Alternative 2, the number of climbers would not be limited under this planning process. Day climbers would access the Valley in the same manner as other day visitors. For overnight climbers with wilderness permits, parking would be available in the wilderness parking area, located east of Curry Village. Overnight climbers could also access the Valley by regional transportation. Once in the Valley, access to climbing routes would be by shuttle bus or on foot.

Stock Use

The National Park Service continues to support stock use in the park; however, under this alternative, both private stock and guided stock trips would be discontinued in Yosemite Valley. Due to unacceptable conflicts between commercial horse use and other trail users, the National Park Service proposes to eliminate commercial rides in the Valley based on safety and aesthetic reasons. There would be no facilities to allow day use of private stock or to keep private stock overnight in the Valley. Present-day National Park Service and concessioner administrative stables in the Valley would be relocated outside Yosemite Valley (see Park Operations).

As described for Alternative 2, the kennel operation associated with the concessioner stable would be removed from a highly valued natural resource area. The impacts the stable operation has on this area include water pollution, erosion, trail degradation, and attraction of non-native cowbirds. Visitors would be encouraged through pre-visit information sources to board their pets in facilities outside of the park.

Picnicking

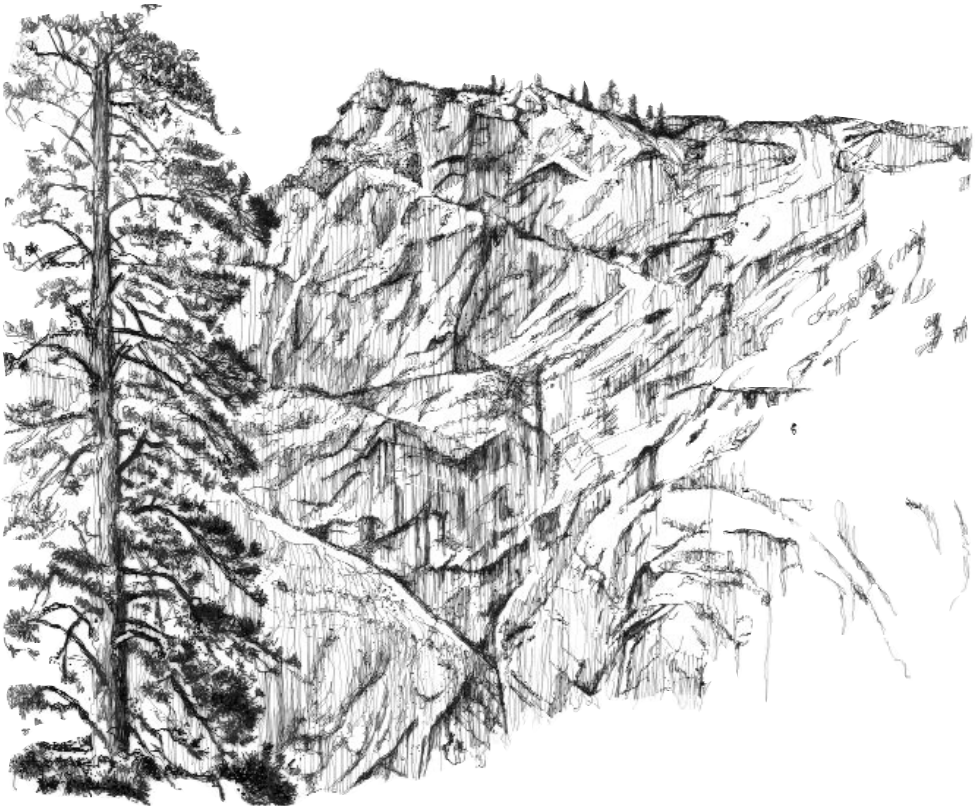
Picnic areas would continue to be available in the Valley (see Vol. Ic, plate 3-1), but picnicking would change from car-oriented (the use of large coolers and grills) to less equipment-intensive modes. Under this alternative, picnic areas at Cathedral Beach near the day-visitor parking area at Taft Toe and at Church Bowl near Yosemite Village would be improved. The Swinging Bridge Picnic Area would be removed and restored to natural conditions (the river in that area would still be accessible from the north side of the bridge). Picnic areas at Cathedral Beach and Sentinel Beach would be accessible by shuttle bus. The existing El Capitan Picnic Area would be available to bicyclists and pedestrians using Northside Drive. Since Northside Drive would be closed to vehicles, the parking area at El

Capitan Picnic Area would be removed. To accommodate users of the El Capitan area, a new picnicking and viewing area—the North American Wall Picnic Area—would follow the old road alignment at El Capitan. Picnickers could carry food and gear on the Valley shuttle bus, where bins and overhead racks would be available, or they could obtain picnic supplies in Yosemite Village or at other retail facilities in the Valley.

Other Activities

The historic tennis courts at The Ahwahnee would be removed and the area restored to natural conditions (the same as under Alternative 2). Ice skating would continue to be available at a new ice rink north of the Curry Village Pavilion adjacent to the area historically used for skating at Camp Curry, as described for Alternative 2. This facility would concentrate recreational activities (rental of ice skates and skis in the winter and bicycles and rafts in the summer) into one area. The sport/mountaineering shop would also be relocated to this facility.

As described for Alternative 2, no changes to rafting on the Merced River would take place under this planning process; rafting would continue to be managed by other park resource-based plans. Swimming would continue to be available in summer at existing lodging pools. Swimming and angling in the Merced River would continue, but they would be directed toward river areas most able to withstand heavy use, such as sand and gravel bars.



Visitor Services

Camping

Some campground locations would change (see Vol. Ic, plate 3-2), and the number of campsites would be reduced by 26, from 475 to 449 (see table 2-26). This would be done to avoid, to the greatest extent possible, replacing campsites in highly valued natural resource areas, Merced River floodplain, and rockfall zones, and to allow for the removal of campsites from the River Protection Overlay. Many campsites closest to the river would no longer have direct river access due to riverbank restoration and revegetation. River use would be directed toward access points in areas most able to withstand heavy use, such as sand and gravel bars. Relocated campsites would provide a range of camping experiences, from walk-in to recreational vehicles. Campground orientation, parking, and circulation would be improved.

As described for Alternative 2, visitors would arrive at all campgrounds except Camp 4 (Sunnyside Campground) by driving through Curry Village. The size of the camp store at Curry Village would be increased, and other camper services would be augmented. There would be one campground check station and office at the east end of Curry Village. The Upper Pines Campground recreational vehicle dump station would be moved away from the river and placed near this check station. The Lower Pines amphitheater would be relocated to the current site of the concessioner stable parking area (the stable would be removed). Showers would be added to campgrounds wherever feasible for convenience and to reduce crowding at other Valley shower facilities.

Table 2-26
Campsites in Yosemite Valley

Location	Number of Sites
Upper Pines (drive-in)	255
Upper Pines (new walk-in)	45
Lower Pines (drive-in)	40
North Pines	0
Backpackers	0
Camp 4 (Sunnyside Campground) (walk-in)	49
Upper and Lower River	0
Yellow Pine	0
Tenaya Creek (new walk-to)	20
South Camp (new group walk-in)	10
Backpackers at South Camp (new walk-in)	30
Total Campsites	**449**

Note: Locations that show zero sites are included to provide a comparison with tables in other alternatives. The number of campsites proposed is approximate. Exact numbers would be determined in the final design phase for each campground.

Campgrounds would be redesigned to better separate sites by using natural and design features (the same as under Alternative 2). Campsite density (number of sites per acre) would generally remain the same as at present. Some designated recreational vehicle sites in Upper Pines and possibly Lower Pines would have utility hookups to reduce generator use and associated noise. Walk-in sites would have parking available nearby, except for the new Tenaya Creek walk-to sites, which would have no associated parking and would be available only to campers entering Yosemite Valley by means other than private motor vehicle (e.g., bus, bicycle, hiking).

Campsites at the former Upper River and Lower River Campgrounds, as well as a portion of Lower Pines Campground, which were damaged by or removed following the 1997 flood, would not be reconstructed. These areas would be restored by re-establishing natural topography, hydrology, and native riparian or California black oak communities, as described

for Alternative 2. North Pines Campground, which was also affected by flooding in January 1997, would be removed to preserve and restore highly valued natural resource areas. New walk-in and walk-to campsites would be constructed in Upper Pines and along Tenaya Creek. New group sites and a backpackers campground would be established east of Curry Village.

At Camp 4 (Sunnyside Campground), 32 existing sites would be retained; as described for Alternative 2, the five sites west of the intermittent creek would be removed to provide a buffer for the new Indian Cultural Center (see Volume II, Appendix H, Considering Cumulative Effects). Under this alternative, 17 new sites would be constructed adjacent to the existing campground, including the area of the former gas station. Camp 4 (Sunnyside Campground) would continue to be managed as a first-come, first-served campground, but visitors would be able to secure a site at entrance station visitor centers as well as at the campground.

Yellow Pine Campground would no longer be used as an unimproved group campground for park-sponsored volunteer groups. The area would be restored to riparian and conifer communities. The campground would be relocated to a site previously used for this purpose at Foresta.

Lodging

A total of 982 overnight lodging units would be available in Yosemite Valley (see table 2-27, and Vol. Ic, plate 3-2). Accommodations would continue to be provided with a range of styles and prices, including 202 rustic, 360 economy, 297 mid-scale, and 123 deluxe units (see Vol. Ib, Glossary, for definitions of room types). The number of units available to commercial tour operators and conference/group meetings would continue to be capped to ensure availability of lodging to independent travelers.

Table 2-27
Accommodations In Yosemite Valley By Room Type

Location	Rustic Units	Economy Units	Mid-Scale Units	Deluxe Units	Total
Housekeeping Camp	52				**52**
Curry Village	150	270			**420**
Yosemite Lodge		117	270		**387**
The Ahwahnee				123	**123**
Total Rooms	**202**	**387**	**270**	**123**	**982**

Note: The number of lodging units is approximate. Exact numbers would be determined in the final design phase for each facility.

Housekeeping Camp

Housekeeping Camp provides visitors the opportunity to rent developed camping shelters adjacent to the Merced River. Beds and a picnic table are provided in each unit. Housekeeping Camp would be redesigned to accommodate 52 individual housekeeping units (all at the rustic level). All 212 units within the River Protection Overlay and highly valued resource areas would be removed (see Vol. Ic, plate 3-5).

Curry Village

Originally known as Camp Curry, this complex has been in operation since 1899 and has offered rustic lodging facilities to generations of Yosemite visitors. Curry Village would provide activities and services similar to those currently offered, although there would be changes in circulation, facility locations, and numbers of lodging units (see Vol. Ic, plate 3-5). Improvements would be made to some lodging facilities, while others would be relocated outside the rockfall zone. The total number of lodging units would be reduced from 628 to 420 (see table 2-28).

Table 2-28
Curry Village – Lodging Unit Summary

Description	Number of Units
Cabin rooms with bath (103 existing, 149 new)	252
Cabin rooms without bath	0
Tent cabins (existing)	150
Stoneman Lodge (existing)	18
Total Rooms	**420**

Note: Room types that show zero units are included to provide a comparison with tables in other alternatives.

Overnight guests would continue to have the option of staying in existing rustic tent cabins (150 units) in cabin-with-bath units (252 units–103 existing and 149 new), or in Stoneman Lodge rooms (18 units). In response to visitor demand, to provide for winter use, and as prescribed in the 1992 *Concession Services Plan*, cabin-with-bath units would replace all cabin-without-bath units. The registration building (historic Camp Curry Post Office) would remain, and the lounge (historic Camp Curry registration office) would be rehabilitated and used as an information center as well as a lounge. Of the 420 lodging units at Curry Village, 150 would be rustic and 270 would be economy units.

Yosemite Lodge

Yosemite Lodge would provide activities and services similar to those now offered, although there would be changes in circulation, facility locations, and numbers of lodging units (see Vol. Ic, plate 3-3). Existing and replacement lodging units would total 387 rooms, an increase of 142 rooms over existing levels (see table 2-29).

Table 2-29
Yosemite Lodge – Lodging Unit Summary

Description	Number of Units
Existing motel rooms with bath, in 3 buildings	59
Existing cottage rooms with bath, in 6 buildings	58
New motel rooms with bath, in 3 buildings	180
New cottage rooms with bath, in 5 buildings	90
New cabin rooms with bath	0
Total Rooms	**387**

Note: Room types that show zero units are included to provide a comparison with tables in other alternatives.

The January 1997 flood damaged four motel structures that were temporarily repaired and are still in use at Yosemite Lodge. These four motel buildings (Maple, Juniper, Alder, and Hemlock), along with Laurel and Birch, would be removed to accommodate rerouting of Southside Drive and redesign of the Yosemite Lodge. Motel units remaining would include Cedar, Elderberry, and Manzanita. Cottage units remaining would include Aspen, Azalea, Cottonwood, Dogwood, Tamarack, and Willow.

Three 3-story motel buildings and five 2-story cottages of similar architectural design and appearance to Pine and Oak Cottages would be constructed. A total of 117 lodging units at Yosemite Lodge would be economy units, and 270 units would be mid-scale.

The Ahwahnee

The opportunity to stay at The Ahwahnee, Yosemite Valley's grand National Historic Landmark hotel, would not change under this alternative. The Ahwahnee would provide activities and services similar to those now offered, but there would be some changes in circulation and parking configuration. Its existing 123 deluxe lodging rooms (99 hotel rooms and 24 cabin/cottage rooms) would be retained (the same as under Alternative 2). The one Ahwahnee cottage that is within the River Protection Overlay would be retained, as it is a contributing element to The Ahwahnee National Register historic property.

Food and Retail Services

Taft Toe

Limited food and retail facilities would be provided at the Taft Toe Visitor/Transit Center.

Yosemite Lodge

The interconnected buildings at the center of Yosemite Lodge would continue to be the location of food and retail services. The three restaurants and one gift shop would remain unchanged; the Mountain Room Bar would be redesigned as a public lobby and lounge. The main gift store would be permanently reduced in size, matching its present winter configuration.

The swimming pool, bicycle rental stand, and snack bar would also remain in their current locations. All facilities could be redesigned over time to improve guest services. The post office building would be removed (the same as under Alternative 2).

A new building would be constructed for lodge registration, and the existing registration building would be adaptively used for informal seating, administrative and interpretive functions, information, and Valley tour reservations, as described for Alternative 2. The Cliff Room and the outdoor amphitheater in the courtyard would be improved and would continue to be used primarily for evening interpretive programs, group meetings, seminars, and other special functions.

A new maintenance/housekeeping facility would be constructed behind the cafeteria and restaurant complex to replace housekeeping facilities damaged by flooding. All housekeeping, storage, maintenance, and associated management space would be consolidated in this new facility (the same as under Alternative 2).

The service station would not be replaced. A mobile repair truck, designed to deal with minor emergency services and provide gas on the road, would continue to be operated; this service would be expanded as needed. Service stations at other park locations would be retained.

Yosemite Village

The Village Store building would continue to be used for its present purposes (see Vol. Ic, plate 3-4), but gift sales and the grocery function would be reduced from the current level; the deli operation would be moved here from the Degnan's building. A short-term locker/storage facility, where visitors could check their belongings, would be designed into the building. Recycling, ATM, check cashing, and transportation kiosk functions would be retained. Under this alternative, the Village Grill would be expanded for more indoor seating. The sport shop function would be incorporated with the sport/mountaineering shop at Curry Village.

The Degnan's building, which currently houses a deli, restaurant, grill, and retail gift sales, would be redesigned for expanded food service. The present gift shop would be removed. Inside seating would be increased.

As described for Alternative 2, the historic Village Garage building would be removed; public garage functions would be relocated to El Portal.

The Art Activity Center would continue to provide artistic activities for the public, but it would be moved to its previous location at the current Wilderness Center. Under this alternative, the bank building (which currently houses the Art Activity Center) would be removed and the area restored.

The historic Ansel Adams Gallery photography and gift shop would remain. The historic post office in Yosemite Village, and the medical clinic would be retained (the same as under Alternative 2); under this alternative, the dental clinic would also be retained.

The Ahwahnee

The Ahwahnee dining room, gift shop, sweet shop, and bar would remain. Services offered at The Ahwahnee would remain much as they are and would not take on a more resort- or spa-type character.

Happy Isles

The ice cream and snack stand that was destroyed by rockfall in 1996 would not be replaced; no food service would be available at Happy Isles (the same as under Alternative 2).

Curry Village

The Curry Pavilion and Meadow Deck food service areas would be redesigned as proposed in the *Concession Services Plan*.

As described for Alternative 2, the grocery and gift functions in the Meadow Deck building would be separated to reduce congestion. The grocery would be substantially expanded to include deli operations and a camp store.

The outdoor amphitheater, lounge, and pool would be rehabilitated or replaced.

The Curry Ice Rink would be relocated north of the Curry Pavilion and Meadow Deck buildings, as described for Alternative 2. The Mountain Shop, along with bicycle and ski rental functions, would be relocated to the ice rink area to consolidate space and recreational uses. Raft rentals would occur seasonally at this location. A short-term locker/storage facility, where visitors could check their belongings, would also be designed into the building.

The seasonal post office would be removed; mailboxes would be provided in employee housing areas. Registration would remain in its current location (the historic Camp Curry Post Office).

Transportation

The major transportation actions that distinguish this alternative include:

- Provide parking for 1,622 day-visitor vehicles and 50 short-term spaces for overnight visitors at Taft Toe near El Capitan crossover
- Construct a new visitor/transit center at Taft Toe, adjacent to the day-visitor parking area
- Convert Southside Drive to two-way traffic (one lane in each direction) from El Capitan crossover to Curry Village, with wider lanes and shoulders where needed
- Close Northside Drive to vehicles from Yosemite Lodge to El Capitan crossover and convert to a multi-use paved trail (same as Alternative 2)
- Close Northside Drive from Yosemite Village east to Curry Village and restore to natural conditions (same as Alternative 2)
- Expand shuttle service throughout Yosemite Valley
- Reduce traffic entering the east Valley in the peak season by 67%

This alternative would result in a major reduction in vehicle travel in the eastern portion of Yosemite Valley. Day-visitor parking, a visitor center, and a transit center would be located near the south end of the El Capitan crossover. All day-visitor traffic, tour buses, and regional transit buses would stop at Taft Toe. Day visitors would only travel to the east Valley on shuttle buses. The number of vehicles passing the Yosemite Chapel on Southside Drive near Sentinel Bridge would be reduced from about 7,200 vehicles on a typically busy day (1998) to about 2,400 vehicles. There would be approximately 330 new shuttle bus trips per day from the Taft Toe Visitor/Transit Center into the east Valley.

Traveler Information and Traffic Management

The broad goals of Yosemite's *General Management Plan* include the reduction of traffic congestion and crowding in Yosemite Valley. Progress toward achieving these goals would be accomplished by developing a traveler information and traffic management system to provide visitors with information about where to park and whether overnight accommodations were available in the Valley well before they arrive in the Valley. The system would assist visitors in selecting the best means of travel for their specific needs. If required, to assure that the number of vehicles east of El Capitan crossover did not exceed available parking, a traffic check station would be developed at Taft Toe (see Actions Common to All Action Alternatives at the beginning of this chapter).

Day-Visitor Parking

Day-visitor parking facilities in the Valley would change. Under this alternative, a new parking area for 1,622 day-visitor vehicles and a new visitor and transit center would be constructed at Taft Toe near El Capitan crossover (see Vol. Ic, plate 3-1). No out-of-Valley parking would be needed. From the Taft Toe Visitor/Transit Center, shuttle buses would transport visitors to Valley destinations; no day-visitor traffic would travel east of the Taft Toe parking area. As part of the traveler information and traffic management system, all day visitors arriving in private vehicles would park their vehicles in the new facility. When the parking area was full, day visitors arriving at park entrance stations would be directed to other Yosemite National Park destinations, or they could be advised of alternative modes (regional transit or tour buses) to travel to the Valley.

Tour buses carrying day visitors and regional transit buses would travel directly to the visitor/transit center at Taft Toe and unload their passengers. Up to 16 bus bays would be provided for tour and regional transit buses. Visitors would then board shuttle buses to destinations in the Valley. Visitors could also travel by bicycle or on foot on paved and unpaved trails from the Taft Toe Visitor/Transit Center.

Overnight Parking

Overnight visitors with lodging or camping reservations or wilderness permits would drive directly to their lodging or campground, or to the Wilderness parking area (which would be located at its current location east of Curry Village). Locations for overnight visitor parking in the Valley are shown in table 2-30. To allow overnight guests the opportunity to stop at the visitor center as they enter the Valley, 50 short-term parking spaces would be provided at Taft Toe for visitors with overnight accommodations in the Valley. To reduce traffic and congestion, parking for overnight visitors would no longer be provided at other destinations or along Valley roads. Vehicles would remain parked in assigned areas unless they were needed for travel to out-of-Valley destinations. Travel within the Valley to trailheads, activity areas, and facilities would be by shuttle bus, bicycle, or on foot.

As described for Alternative 2, parking for new walk-in campsites and Camp 4 (Sunnyside Campground) would be provided within walking distance of the sites. No parking would be provided at the Tenaya Creek walk-to campsites, as they would be designated for overnight campers arriving in the Valley by means other than private vehicle. Some overnight visitors would arrive by commercial tour bus. These buses would drive visitors directly to their lodging or

Table 2-30
Overnight Parking Locations

Overnight Parking Location	Parking Spaces
Housekeeping Camp	52
Curry Village	420
Yosemite Lodge	387
The Ahwahnee	123
Campgrounds	527
Wilderness Parking	150
Total	**1,659**

Note: These numbers are based on one parking space per campsite, although up to two cars can be parked in individual campsites and up to three at group sites. No parking spaces are allotted for walk-to campsites. For Camp 4 (Sunnyside Campground), a ratio of three parking spaces per site was used.

campground areas. Buses would then park at one of 15 designated parking spaces at Yosemite Lodge (the same as under Alternative 2).

Employee Parking

Parking for National Park Service, concessioner, and other employees residing in the Valley would be located at or near each residence.

As described for Alternative 2, most employees commuting from outside the Valley would be required to use an employee transportation system. This system would be developed to meet the needs of employees with different schedules and could include regional transit options or car and vanpools. Approximately 1,200 workers would commute to work in the Valley in the summer.

Employees who live west of El Portal along the Highway 140 corridor and work in Yosemite Valley could drive to a parking area in El Portal and take employee shuttles into the park. Approximately 60 parking spaces would be provided at El Portal for this purpose. Some employees (e.g., late-night and early-morning shift workers) would still drive their private vehicles to the Valley and park in designated spaces as prescribed by the traveler information and traffic management system (the same as under Alternative 2).

Yosemite Valley Roads

Summary of road and circulation changes:

- Convert Southside Drive to two-way traffic east of El Capitan crossover (same as under Alternative 2)
- Realign approach to Sentinel Bridge (same as Alternative 2)
- Close Northside Drive to motor vehicle traffic from Yosemite Lodge to El Capitan crossover and convert to a multi-use paved (same as under Alternative 2)
- Reroute Northside Drive to the south of Yosemite Lodge (same as under Alternative 2)
- Remove Southside Drive through Stoneman Meadow (same as under Alternative 2)
- Remove Northside Drive through the former Upper and Lower River Campgrounds and Ahwahnee Meadow (same as under Alternative 2)
- Remove scattered parking lots and some roadside turnouts throughout the Valley; retain turnouts for emergency use and for short-term viewing of scenic features

Bridge summary:

- Sugar Pine – remove historic bridge
- Stoneman – remove historic bridge
- Housekeeping – remove historic bridge
- Superintendent's – remove historic bridge
- Yosemite Creek – construct a new vehicle bridge; convert existing vehicle bridge to use for bicycles and pedestrians; remove existing bicycle bridge
- Lower Yosemite Fall area – one historic footbridge rehabilitated or rebuilt, three removed, two relocated, one new footbridge constructed

Valley Access via the El Portal Road

As described in Actions Common to All Action Alternatives, the section of El Portal Road between the El Portal and Big Oak Flat Road intersection and Pohono Bridge would be improved. Road improvements would be designed to minimize the chance of road failure during flood events, to improve safety, and to minimize damage to riparian areas by focusing visitor use.

West Valley (El Capitan Bridge to Pohono Bridge)

Minimal changes to road circulation would occur in the western half of the Valley, as described in Alternative 2. Southside Drive from Pohono Bridge to El Capitan Bridge would continue to be a two-lane, one-way road eastbound, and Northside Drive would be a two-lane, one-way road westbound. El Capitan crossover would be one-way northbound across the Merced River at the El Capitan Bridge between Southside and Northside Drives. Turnouts would be retained for emergency use and short-term viewing of scenic features.

Under this alternative, as part of the traveler information and traffic management system, a new traffic check station may have to be constructed near Taft Toe, in the area of El Capitan crossover on Southside Drive (see Vol. Ic, plate 3-1, and Actions Common to All Action Alternatives). Day visitors with assigned parking and visitors with overnight reservations in the Valley would continue eastbound on Southside Drive. When the Valley day-visitor parking area was full, day visitors would proceed across El Capitan crossover to Northside Drive to continue out of the Valley to other park destinations.

East Valley (El Capitan Bridge to Curry Village and the Campgrounds)

Southside Drive from El Capitan Crossover to Curry Village and the Campgrounds

As described for Alternative 2, from the El Capitan crossover east through Curry Village, Southside Drive would be converted to two-way traffic with one lane in each direction (see Vol. Ic, plate 3-1). This section of roadway would be widened to no more than 26 feet, accommodating 11-foot lanes and a 2-foot paved shoulder on each side of the two-way road. From the Yosemite Chapel to Sentinel Bridge, the road would be realigned to improve the approach to Sentinel Bridge and facilitate traffic circulation. Near Curry Village, the portion of Southside Drive that crosses Stoneman Meadow would be removed, and all traffic would be rerouted along a realigned Curry Village Road. This would provide two-way access to Curry Village and the campgrounds. Curry Village Road would be realigned along the southern edge of the historic Curry Orchard, following an existing access road through Boys Town to the campgrounds and Wilderness parking. The access road to Southside Drive at the western edge of the Curry Orchard would be removed. The one-way loop road to Curry Village registration and parking would remain, although the parking area would be redesigned.

Southside Drive to Yosemite Village and Yosemite Lodge

Traffic from the west Valley or from Curry Village would cross Sentinel Bridge to reach Yosemite Village, The Ahwahnee, and Yosemite Lodge. This road, the Sentinel crossover, would be two-way with one lane in each direction (the same as under Alternative 2).

Yosemite Lodge Area

As described for Alternative 2, Northside Drive in the Yosemite Lodge and Camp 4 (Sunnyside Campground) area would be relocated south of the Lodge to reduce conflicts between vehicles and pedestrians and to provide safer pedestrian access between the Lodge and Yosemite Falls (see Vol. Ic, plate 3-3). Vehicular circulation to Yosemite Lodge would be routed across Yosemite Creek via a new motor vehicle bridge just south of the existing Yosemite Creek Bridge. Restricted vehicle access would also be provided to the proposed Indian Cultural Center. West of the cultural center site, Northside Drive would be closed to vehicles and converted to a multi-use paved trail for bicycles and hikers (it would also be available as an emergency route).

Transit

This alternative would provide 1,622 parking spaces for day-visitor vehicles at Taft Toe. No out-of-Valley parking locations would be required for this alternative. Shuttle buses would transport day and overnight visitors throughout the Valley.

Shuttles operating within Yosemite Valley would provide service year-round. Generally, the peak visitation season for Yosemite National Park occurs from mid-June through Labor Day weekend. April, May, September, and October are the shoulder season months, with intermediate levels of visitor use. Visitation is lowest from November through March. The operating hours of the shuttle routes and the frequency of service would be adjusted within each season as required to meet visitor needs, and visitation would be managed so as not to exceed the carrying capacity of visitor use areas.

Valley Shuttles

The Valley shuttle system would provide transportation for day visitors parking at Taft Toe, those who ride regional transit or tour buses, as well as for overnight visitors. The shuttle system provided under this alternative would consist of four separate shuttle routes, all of which would cycle through the new Taft Toe Visitor/Transit Center:

- Ahwahnee Connector – service between Taft Toe and The Ahwahnee
- Yosemite Lodge Connector – service between Taft Toe and Yosemite Lodge
- Happy Isles Connector – service among Taft Toe, Curry Village, and Happy Isles
- Bridalveil Circulator – service between Taft Toe and Bridalveil Fall

These routes would converge at the Taft Toe Visitor/Transit Center. This facility would provide interpretive/orientation and transfer opportunities. Valley shuttle buses would use a separate loading area adjacent to the bus bays provided for tour buses and regional transit buses.

Valley Shuttle Service

During the busiest times of day in the peak season, Valley shuttle buses would circulate the Taft Toe Visitor/Transit Center as follows: one bus approximately every 7.5 minutes for the Ahwahnee Connector, one bus approximately every 5 minutes for the Yosemite Lodge Connector, one bus approximately every 6 minutes for the Happy Isles Connector, and one

bus approximately every 15 minutes for the Bridalveil Circulator. It is estimated that these four routes combined would result in one bus departing every 1.8 minutes from Taft Toe. Peak-season shuttle service would be provided between early morning and late evening (hours could be expanded for special events). Table 2-31 presents estimated characteristics of the Valley shuttle system proposed for Alternative 3.

Valley Shuttle Vehicles

The shuttle buses used on routes operated within Yosemite Valley would be designed to operate over the gentle grades on Valley roads and to allow passengers to get on and off the bus easily at the many stops. Buses would use the best-available fuel and propulsion systems designed for the special characteristics of travel within Yosemite Valley. Buses would be selected to minimize

Table 2-31
Valley Shuttle Service in Peak Season

Characteristics	Ahwahnee Connector	Yosemite Lodge Connector	Happy Isles Connector	Bridalveil Circulator
Route Description	Taft Toe to Sentinel, Yosemite Village & The Ahwahnee	Taft Toe to Sentinel, Yosemite Lodge	Taft Toe to Sentinel, Curry Village & Campgrounds	Taft Toe to Bridalveil Fall
Route Length (round trip)	7.9 miles	8.8 miles	9.9 miles	5 miles
Travel Time (round trip)	34 minutes	41 minutes	45 minutes	27 minutes
Minimum Time between Buses	7.5 minutes	5 minutes	6 minutes	15 minutes
Type of Bus	High Capacity/ Low Floor Shuttle	High Capacity/ Low Floor Shuttle	High Capacity/ Low Floor Shuttle	High Capacity/ Low Floor Shuttle
Number of Buses Needed	**6**	**10**	**9**	**2**

Note: The three routes from Taft Toe to east Valley would all stop at Sentinel Bridge to provide visitors an opportunity to transfer between shuttle routes.

noise and air pollutant emissions, while providing sufficient capacity and cost-effective, reliable service. Buses would be replaced or modified to take advantage of advances in fuel propulsion technology as they became available.

Regional Transit

Day visitors who do not park in Yosemite Valley would have the option of traveling to the Valley via regional transit or other modes of transportation not requiring parking. These buses would deliver passengers directly to the Taft Toe Visitor/Transit Center.

Commercial Tour Buses

Commercial tour buses would continue to bring about 14% of day visitors and lodging guests to Yosemite Valley in the summer. Tour buses carrying day visitors would park at the Taft Toe Visitor/Transit Center. Overnight tour buses would park at Yosemite Lodge.

Summary

Combined Valley shuttle bus operations would equate to one bus at the Taft Toe Visitor/Transit Center every 1.8 minutes during the busiest times in the peak season.

Park Operations

National Park Service operations in Yosemite Valley would be scaled down to the level of district operations, similar to Tuolumne Meadows and Wawona. Both the National Park Service and concessioner headquarters functions would be removed from the Valley and relocated to El Portal (the same as under Alternative 2).

As described for Alternative 2, National Park Service and concessioner administrative stables operations, as well as the parkwide trails operation, would be relocated to McCauley Ranch in Foresta. Since McCauley Ranch was identified as a possible Wilderness addition in the 1984 California Wilderness Act, a Wilderness suitability assessment would be prepared. If the McCauley Ranch addition is determined to be suitable for designation as Wilderness, stable operations would be supported in the current National Park Service stable facility. If located at this site the consolidated stable operation would support only district stable and trails operations and not parkwide trails operations. The historic concessioner stable would be considered for adaptive reuse outside the Valley, perhaps at the new stable function at McCauley Ranch.

If the consolidated stable operation is moved to McCauley Ranch, then the access to the area would be improved by widening the road and possibly replacing the bridge over Crane Creek to allow for stock trailers and hay trucks. Access improvements would be identified during the site design process, which would allow for the participation of the National Park Service and concession employees, residents of Foresta, Mariposa County officials, and other interested parties. Under this alternative, a corral at the current NPS stable in Yosemite Village would provide a staging area for limited NPS and concessioner operations; the staging area would have parking for five trailers.

National Park Service

In Yosemite Valley, the NPS maintenance area would be redesigned to accommodate essential district offices and maintenance shops. The historic NPS Operations Building (Fort Yosemite) and associated shops would be removed. National Park Service administration and headquarters functions would be relocated to El Portal and located with existing National Park Service operations facilities at Railroad Flat in the western portion of El Portal. Depending on land development constraints in El Portal or other considerations, the relocated headquarters functions for both the National Park Service and concessioner could be relocated to neighboring communities. If the National Park Service pursued this opportunity, appropriate environmental review would be completed.

The following National Park Service functions and offices would be removed from Yosemite Valley:

- Park management, including the superintendent, deputy superintendent, and division chiefs, would be relocated from Yosemite Valley
- Parkwide supervision and administration of the Divisions of Interpretation, Resources Management, Concessions Management, Resource and Visitor Protection, and Administration would be relocated from Yosemite Valley

- Parkwide stock and trails maintenance operations would move to Foresta
- Parkwide wilderness utilities maintenance would move to El Portal
- Parkwide wildfire protection, search and rescue, law enforcement support, and wilderness management would move out of the Valley to El Portal
- The jail/detention facility would move to El Portal
- U.S. District Court Magistrate facility would move to El Portal
- Interpretive support workspace (e.g., exhibit shop) would move to El Portal

The following functions and offices would remain in Yosemite Valley (the same as under Alternative 2):

- Supervision of Valley District roads operations
- Valley District trails operations
- Stock, trails, and wilderness utilities operations, with Valley staging areas
- Valley District buildings and grounds maintenance and supervision, including district materials storage and shops
- Valley District utilities maintenance
- Valley District Resource and Visitor Protection, including emergency medical response and structural fire protection
- Bear management program
- Interpretive workspace, presentation of visitor services, and storage of district supplies and materials

The historic Superintendent's House (Residence 1), at the edge of Cook's Meadow, and its garage would be removed. A new fire station would be constructed at the south edge of the Yosemite Village Historic District to house the National Park Service and concessioner fire engines and emergency service operations. Yellow Pine Campground would no longer be used as an unimproved group campsite for park-sponsored volunteers; instead, the area would be restored to a conifer/riparian community. This campground would be relocated to a site previously used for this purpose at Foresta.

Taft Toe Visitor/Transit Center

Under this alternative, the Taft Toe Visitor/Transit Center would provide visitor orientation and limited visitor services. It would also provide parking for 1,622 day-visitor vehicles and serve as a transportation hub for shuttle, transit, and tour buses, requiring up to 16 bus bays plus a loading area for Valley shuttles. Shuttle bus support facilities, fueling, light maintenance, and associated vehicle storage for Valley shuttles would also be provided at the Taft Toe Visitor/Transit Center. Heavy vehicle maintenance and associated vehicle storage would be located at El Portal. For regional transit and tour buses, the National Park Service would provide layover areas for daytime use at the shuttle bus maintenance area, but overnight vehicle storage and maintenance would be the responsibility of the service provider.

Shuttle Employee Requirements

Under this alternative, a total of 112 additional employees would be required to operate the Valley shuttle system. Of these employees, 80 supervisors and drivers would be dedicated to the Valley shuttle; the remaining 32 personnel would support the shuttle system. Winter season operations would require 77 Valley shuttle drivers and supervisors and 32 other employees, for a total of 109 employees (see table 2-32).

Table 2-32
Shuttle Employee Requirements

Position	Number of Employees	
	Peak Season	Off-Season
Valley Shuttle Supervisors	12	12
Valley Shuttle Drivers	68	65
Out-of-Valley Shuttle Supervisors	0	0
Out-of-Valley Shuttle Drivers	0	0
Dispatch/Clerical	5	5
Mechanics	9	9
Hostlers	3	3
Administration	3	3
Parts/Inventory	3	3
Janitorial	1	1
Other	3	3
Total Employees	**112**	**109**

Concessioner and Other Entities

The administrative headquarters functions for the park's concessioner would be relocated to new facilities in Village Center in El Portal, or at the option of the concessioner, to another out-of-park location. Under this alternative, the historic Concessioner Headquarters Building would be removed and the area restored to natural conditions. The concessioner would retain the warehouse building in the Valley to support operations, including inventory and supply distribution, building maintenance shops, security, recycling, uniforms, personnel, payroll, housing, and computer support (the same as under Alternative 2). A new fire station would be constructed at the south edge of the Yosemite Village Historic District to house the National Park Service and concessioner fire engines. The historic Village Garage would be removed and shuttle bus servicing functions would be relocated to Taft Toe under this alternative. Heavy maintenance of concessioner vehicles would be relocated to a new garage facility in El Portal (the same as under Alternative 2). Site-specific locations for these facilities would be evaluated and determined during the site design and development process.

- The historic medical and dental clinics would remain as long as feasible and financially viable
- The historic U.S. Post Office in Yosemite Village would remain; limited postal facilities could be incorporated into new employee housing designs (the same as under Alternative 2)
- The Pacific Bell telephone operation would remain, although the location could be changed (the same as under Alternative 2)
- The historic Ansel Adams Gallery would remain

Employee Housing

Housing is necessary to accommodate employees who are responsible for natural and cultural resource protection, serving the needs of park visitors, and meeting the operational requirements of the park. During the summer, over 18,200 people per day may visit Yosemite Valley. Only by providing employee housing at or within a reasonable proximity to Yosemite Valley would resources be protected and the needs of these visitors be met.

Housing Program Overview

This alternative would provide up to 1,862 total employee to support Yosemite Valley district functions (National Park Service, primary concessioner and other partners). The housing would be distributed as follows:

- Retain 689 employee beds in Yosemite Valley
- Remove 588 employee beds from Yosemite Valley; of these relocate 574 to the El Portal Administrative Site and 14 to Foresta
- Provide up to an additional 171 employee beds in the El Portal Administrative Site to accommodate present unmet needs and potential demand

Housing Objectives

Yosemite National Park is committed to following the direction set by National Park Service policy that seeks to reduce the government's role in providing employee housing while reserving the ability to provide housing when appropriate and necessary. At Yosemite National Park, one way of reducing the government's role is to facilitate the private acquisition of housing by employees. To this end, under this alternative the National Park Service would actively pursue and facilitate policies, programs, and arrangements that would: (1) encourage National Park Service and park partner employees to find private housing in the region, and (2) work with county governments and, as appropriate, the private sector, to develop strategies to house National Park Service and park partner employees within the region.

Additionally, the National Park Service would develop housing policies and programs as allowed by the Omnibus Parks and Public Lands Management Act of 1996. The act states that the National Park Service shall consider actions to:

a) Develop where necessary an adequate supply of quality housing units for field employees for the National Park Service within a reasonable time frame;
b) Expand the alternatives available for construction and repair of essential government housing;
c) Rely on the private sector to finance or supply housing to the maximum extent possible, in order to reduce the need for federal appropriations;
d) Ensure that adequate funds are available to provide for long-term maintenance needs of field employee housing; and
e) Eliminate unnecessary government housing and locate such housing as is required in a manner such that primary resource values are not impaired.

This alternative identifies locations that can be used for employee housing within Yosemite National Park (Yosemite Valley and Foresta) and the El Portal Administrative Site. These locations have been identified in order to guide potential future land use. However, to the greatest degree possible the National Park Service would attempt to facilitate the private acquisition of housing in the region for a reasonable portion of the National Park Service and park partner workforce. Prior to the construction of housing, the National Park Service would encourage employees to find private housing in the region, and work with county governments and, as appropriate, the private sector, to develop strategies to house Yosemite National Park employees collectively.

Because the National Park Service does not have authority over the use of private lands in the region outside Yosemite National Park and the El Portal Administrative Site, and because an ample supply of housing is not guaranteed, the National Park Service would be prepared to meet housing needs within areas under its jurisdiction in Yosemite Valley, El Portal, Wawona, and Foresta. If an adequate supply of employee housing were not available in the local region, then the National Park Service would construct housing in these areas. Furthermore, the National Park Service recognizes that active involvement in the appropriate county and state government processes, and compliance with county ordinance and state government laws and regulations (such as the California Environmental Quality Act) would be required and essential when considering land use options outside the boundaries of Yosemite National Park.

Presently, during peak summer season, the combined total workforce serving Yosemite Valley is approximately 2,183[1] and housing is provided for a total of 1,620[2] employees Therefore, approximately 563[3] employees (or 26%) of the total workforce is housed privately within the region, including privately owned homes on National Park Service leased land in Old El Portal.[4]

This alternative would increase the Yosemite Valley related workforce by 171[5] employees for a total of 2,354[6] employees to accommodate increases in staffing levels associated with alternative actions. To meet the needs of this additional workforce this alternative would provide an additional 171 employee bed spaces. Again, it is expected that some employees would seek housing in the region. Therefore, this alternative has anticipated that a minimum of 12 of the 171 additional employees could seek housing in the region, potentially increasing the number of employees privately housed from 563 to 575 of the total workforce.

The related potential additional demand for 12 more employees to be housed in the region would likely occur over a broadly dispersed area and occur gradually throughout plan implementation (15 to 20 years), thereby allowing for a sufficient level of housing to become available over time in the local communities. Again, because the National Park Service does not

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1. Current staffing level: 1,750 park partners + 433 NPS = 2,183
2. Current beds under park jurisdiction: 1,691beds – 71 private beds (at Old El Portal) = 1,620 beds. There are 1,691 existing beds for Yosemite Valley employees (see Alternative 1 – Housing).
3. Employees privately housed: 2,183 current staff – 1,620 current beds = 563
4. Homes in Old El Portal are included in the calculation because they are privately owned and acquired, even though they are on National Park Service leased lands.
5. Growth in staffing and related bed spaces: 20 NPS operations + 112 transportation + 30 concessioner + 9 other concessioner = 171 beds.
6. Total number of employees necessary to serve Yosemite Valley under alternative 3 (2,183 existing + 171 growth = 2,354)

have the authority over the use of private lands in the region outside Yosemite National Park, the number of beds proposed in this alternative would meet housing needs within Yosemite Valley, El Portal, Wawona, and Foresta if housing were not available in the region.

Site Design and Development Process

Upon completion of this plan, site-specific studies would be prepared to evaluate design options for new housing and administrative facilities. These studies would include, if necessary, additional environmental review, evaluation and compliance, archeological surveys and data collection, ethnographic resource inventories and evaluation, historic resource studies, biological assessments, erosion control plans, geologic assessments, and the development of architectural guidelines. Housing types and densities, and support facility locations might change if site-specific constraints were identified, if National Park Service or concessioner staffing programs changed, or if housing program requirements change in response to changes in the demand for housing.

The site design and development process would allow for the participation of National Park Service and concession employees, residents of El Portal, Wawona, and Foresta, Mariposa County officials, and other interested parties in the preparation of site development studies for housing, administrative functions, and community or commercial facilities. These processes would consider appropriate county and/or town planning area specific plans and would prescribe development characteristics and criteria that would be compatible with the character, density, and scale of existing development. Site-specific environmental review, evaluation, and compliance would also be completed as appropriate during the site design process on a project-by-project basis.

Housing Program

A total of 689 National Park Service, primary concessioner, and other park employee beds would be located in Yosemite Valley. This represents an application of criteria proposed in the 1992 *Draft Yosemite Valley Housing Plan*.

A total of 1,047 employee beds would be located within the El Portal Administrative Site. Of these, 290 are existing, although 104 of these would be relocated from the Village Center and the Trailer Village (Hennessey's Ranch) to allow for redevelopment. Employee housing to replace those beds relocated from Yosemite Valley (574 beds) and from Cascades and Arch Rock (12 beds) would be constructed, as would facilities for up to an additional 171 beds to accommodate present unmet needs and potential future growth as a result of the operational changes associated with this alternative.

There would be a total of 1,862 beds in Yosemite Valley, El Portal, Foresta and Wawona. Of these 1,422 would be allocated for the primary concessioner, 346 for the National Park Service, and 94 for others (see table 2-33). The total number of beds was determined by evaluating the specific operational requirements of this alternative and then projecting the related staffing requirements.

Following the January 1997 flood, temporary concessioner housing (345 beds) was established at several locations in Yosemite Valley, including the Yosemite Village area (80 beds), Yosemite Lodge (82 beds), and Curry Village (183 beds). All of these temporary beds would be replaced.

Minor adjustments to the housing number, type, and/or density for each location may be needed in response to the site design process, or constraints or conditions not identified during this planning process. If significant adjustments are required, additional site-specific environmental review may be necessary.

Table 2-33
Location of Housing by Employer

Location	National Park Service	Primary Concessioner	Others[1]	Total
El Portal	212	778	57	**1,047**
Yosemite Valley	70	582	37	**689**
Foresta	14	0	0	**14**
Wawona	50	62	0	**112**
Cascades and Arch Rock	0	0	0	**0**
Total	**346**	**1,422**	**94**	**1,862**

Note: Numbers indicate beds dedicated to an employee, not total beds in a unit. For example, a three-bedroom house dedicated to one employee is considered to provide one bed. Spouses or partners employed by other Valley employers are not double-counted, as beds are assigned only to the primary employee whose job requires his/her residence in the Valley. Minor adjustments to distribution by employer and location could occur during the implementation of this plan.

1. Others includes park partners, other concessioners, and approved community service organizations.

Yosemite Valley Housing Actions

Three principal locations are identified for up to 689 employee beds in Yosemite Valley: Curry Village, Yosemite Village, and The Ahwahnee. A total of 588 employee beds would be removed from Yosemite Valley.

All temporary housing in Yosemite Valley would be removed and replaced with permanent structures, either in Yosemite Valley, El Portal or Foresta. Areas in Yosemite Valley to be used for employee housing are generally within existing developed or disturbed areas. This alternative would remove some housing from highly valued resource areas and the rockfall zone and relocate it (see Vol. 1C, plates D and E). Concentrating housing in multi-level (two- or three-story) buildings would minimize building footprints.

Yosemite Valley housing numbers (beds), locations, and distribution by employer under this alternative are summarized in table 2-34.

Yosemite Lodge

The temporary modular housing in the parking lot (82 beds), and cabins (8 beds) would be removed (the same as under Alternative 2).

Yosemite Village

Under this alternative, the historic Ahwahnee Row houses and apartments (22 beds) adjacent to Ahwahnee Meadow, plus the Indian Creek apartments (14 beds), would be removed and the areas restored to natural conditions. The Y Apartments (8 beds) would be removed, and the area would be restored to natural conditions. The historic apartment next to the Village Garage (1 bed) would be removed, and the area would be redeveloped. All 45 existing beds in this area would be removed.

Three dormitories—Lower Tecoya (234 beds), Hospital Row (12 beds), and Lost Arrow (36

Table 2-34 Yosemite Valley – Proposed Housing by Employer					
Location	Existing Beds	Bed Allocation by Employer			Bed Change from Existing
		Primary Concessioner	NPS	Others	
Ahwahnee Row houses and apartments	45				–45
Lower Tecoya dormitories and apartments	234	234			0
Hospital Row apartments	12	12			0
Middle Tecoya dormitory and houses (clinic area)	13		1	12	0
Upper Tecoya houses	26	14	7	5	0
Lost Arrow dormitory and apartments	39	39		0	0
Lost Arrow cabins	80				–80
Yosemite Village area	14			10	–4
Ahwahnee dormitory and tent cabins	49	30			–19
Yosemite Lodge cabins	8				–8
Yosemite Lodge modular units	82				–82
Concessioner stable houses and tent cabins	49				–49
Curry Village area	37				–37
Curry Village Huff House tent cabins	50				–50
Curry Village Huff House cabins	104				–104
Curry Village Huff House dormitories		253			+253
Curry Village Terrace	156				–156
Curry Village Boys Town tent cabins	178				–178
Curry Village Boys Town	29				–29
National Park Service housing – historic district (including Rangers' Club)	72		62	10	0
Valley Totals	**1,277**	**582**	**70**	**37**	**–588**
Total Beds to Remain in Valley		**689**			

beds)—would be retained. The Upper Tecoya houses (26 beds) and the Middle Tecoya houses and dormitories (13 beds near the medical clinic) would be retained. The apartments above the post office (4 beds), apartments adjacent to the Lost Arrow dormitory (3 beds), apartments behind The Ansel Adams Gallery (3 beds), and the Yosemite Elementary School Teacherage (3 beds) would be retained (the same as under Alternative 2).

The temporary Lost Arrow cabins (80 beds) would be removed from the Yosemite Village Historic District. The historic cabins at Camp 1 (3 beds) and the historic house (1 bed) behind the current visitor center would be removed (the same as under Alternative 2).

Housing in the Yosemite Village Historic District and at the Rangers' Club (72 beds combined) would be retained (the same as under Alternative 2).

The Ahwahnee

The historic Ahwahnee dormitory would be retained but remodeled; it would accommodate 13 fewer beds (reduced from 43 to 30 beds). The three non-historic tent cabins (6 beds) adjacent to the dorm would be removed, and the area would be restored (the same as under Alternative 2).

Curry Village

As described under Alternative 2, a total of 37 beds would be removed. These include Cooks' cabins (12 beds), Cooks' tents (eight beds), Huff House studios (4 beds), Huff House trailers (6 beds), Curry Village manager housing (Cabin 101 [1 bed]), Tresidder Residence studios (2 beds), and Mother Curry Bungalow studios (4 beds). Some historic structures could be adaptively reused. Temporary housing would be removed from within and adjacent to the Camp Curry Historic District: Huff House tent cabins (50 beds), Huff House cabins (104 beds), and Boys Town cabins (29 beds). The Boys Town tent cabins (178 beds) would be removed, and the area would be redeveloped. The Terrace (156 beds) would be removed. Two new dormitories (up to three stories and 253 beds) would be constructed in the Huff House area, adjacent to the Camp Curry Historic District.

Concessioner Stable

Two houses (2 beds), three apartments (3 beds), seven cabins (14 beds), and 10 tent cabins (30 beds) at the historic concessioner stable would be removed and the area restored to natural conditions (the same as under Alternative 2).

Housing Support Facilities

In Yosemite Village, areas have been set aside and designated for necessary community support facilities. These include the post office, fuel service, and a medical and dental clinic. The employee wellness center, housing management office, and housing-related storage space would be located at the new Huff House dormitories in Curry Village. As described for Alternative 2, a new employee cafeteria would be constructed in the Curry Village area to reduce seating and use conflicts with park visitors. If possible, the same kitchen would service both the guest and employee cafeterias. The employee cafeteria at Curry Village would also serve as a community center.

Utilities

Water would be obtained from existing wells in Yosemite Valley. All sewage would be treated at the El Portal Wastewater Treatment Plant. Electrical and phone service would be upgraded to accommodate the additional loads.

El Portal Housing Actions

Legislation in 1958 established the El Portal Administrative Site for the purpose of locating utilities, facilities, and services required for the operation of Yosemite National Park (see Vol. II, Appendix A). Much of the available land suitable for development within the El Portal Administrative Site would be used for housing. Housing needs in El Portal could change based on the potential for some employees to obtain private housing in the region, in which case the overall need for housing in El Portal could be reduced.

There would be 1,047 total beds within the El Portal Administrative Site, including 290 existing beds (104 of which would be relocated within El Portal), 574 beds relocated from

Yosemite Valley, 12 beds relocated from Cascades and Arch Rock, and up to 171 new beds to accommodate existing unmet needs and projected growth (see table 2-35). This alternative considers six locations in El Portal as suitable for employee housing or other facilities: Hillside East, Hillside West, Village Center, Old El Portal, Rancheria Flat, and Hennessey's Ranch (includes Trailer Village and Abbieville).

Hillside East

A total of 40 apartments or studio apartments (40 beds) would be constructed.

Hillside West

Thirty houses (30 beds) would be constructed.

Table 2-35
El Portal – Proposed Housing by Employer

Location	Existing Beds	Bed Allocation by Employer			Bed Change from Existing
		Primary Concessioner	NPS	Others	
Hillside West	0	17	13		+30
Hillside East	0	40			+40
Hennessey's Ranch[1]	68				−68
Abbieville houses	4				−4
Hennessey's Ranch apartments, studios, and dormitories	0	656			+656
Old El Portal houses[2]	71	35	30	23	+17
Rancheria Flat houses (Mission 66)	21		21		0
Rancheria Flat duplex	4			4	0
Rancheria Flat apartments	58		70		+12
Rancheria Flat houses	19		26		+7
Rancheria Flat studios/dormitories	0	17	48	3	+68
Village Center apartments	0	9		26	+35
Village Center houses	9	4	4	1	0
Village Center Motor Inn cabins	24				–24
Village Center, El Portal Hotel	12				–12
El Portal Totals	**290**	**778**	**212**	**57**	**+757**
Total Beds in El Portal		**1,047**			
El Portal Bed Summary		**Primary Concessioner**	**NPS**	**Others**	**Total**
El Portal existing beds and beds relocated within El Portal		65	177	48	290
El Portal beds relocated from Yosemite Valley		571	3	0	574
El Portal Beds relocated from Cascades and Arch Rock		0	12	0	12
El Portal new beds		142[3]	20	9	171[4]
El Portal Total		**778**	**212**	**57**	**1,047**

1. These units (68 beds) make up the El Portal Trailer Village. They represent a mixture of employees of the NPS, primary concessioner, and other Valley employees.
2. Homes in Old El Portal are privately owned and sold at the discretion of the owners with approval of the NPS Office of Special Park Uses.
3. A total of 112 beds would be necessary to accommodate potential staffing increases associated with the visitor transportation system. The remaining 30 beds would be in necessary to accommodate increases in operational related staffing of the primary concessioner.
4. It is expected that many employees would seek to find housing in the region. Therefore, this alternative has anticipated that a minimum of 12 of the 171 additional employees would seek housing in the region; potentially increasing the number of employees privately housed from 563 or 26% to 575 or 24% of the total workforce.

Hennessey's Ranch (Trailer Village and Abbieville)

All existing trailer and modular housing (59 units/68 beds) would be removed and the area redeveloped as employee housing and parking. Employees living in these housing units would either move to new housing constructed in El Portal or find other housing outside the El Portal Administrative Site (the same as under Alternative 2). Under this alternative, Hennessey's Ranch site would be redeveloped with 656 beds in apartments, studios, and/or dormitories. The four Abbieville houses would be removed. The redevelopment could be phased as the Trailer Village closes.

The area would be protected from flooding by extending and raising the existing dike. This would place the area out of the 100-year floodplain, as defined by the U.S. Army Corps of Engineers. Structures would be engineered and elevated to withstand flood inundation.

Old El Portal

A total of 17 one-, two-, and three-bedroom homes (1 bed each) would be built on available lots. The 71 existing (1 bed each) single-family homes are privately owned on federally leased land and would be retained (the same as under Alternative 2).

Rancheria Flat

As described for Alternative 2, a total of seven new two-, three-, or four-bedroom, single-family detached homes (1 bed each) would be constructed. The 19 homes (1 bed each) constructed between 1995 and 1997 (Phase 2) would be retained. The existing Mission 66 homes (21 beds) and apartments (58 beds) would be retained. The two duplexes (4 beds) would be retained. The three historic National Lead Company houses would be retained and rehabilitated. Under this alternative, 12 new one- and two-bedroom apartments (12 beds) would be constructed adjacent to the Phase 2 apartment complex. Also, 68 studio or dormitory units would be constructed in the Rancheria Flat area.

Village Center

A total of 35 one- and two-bedroom apartments, studios or dorm (35 beds) would be constructed under this alternative. The nine privately owned houses (9 beds) on federally leased land (four of which are historic) would be retained. The Motor Inn cabins (24 beds) would be removed. The historic El Portal Hotel (12 beds) would no longer be used for housing, but would be removed or adaptively reused.

Housing Support Facilities

This alternative includes general land-use designations for housing and housing support facilities to be located in the El Portal Administrative Site. The size and exact location of the support facilities, as well as the specific locations and size of employee housing units, are beyond the scope of this plan. These details would be formulated during the site design and development process. If necessary, additional environmental review would be completed as a part of the site design.

The Village Center has been designated for necessary support facilities and commercial services. These could include a community center, post office, medical clinic, enlarged grocery store/deli, laundry, recreational facilities, wellness center, hair care, office spaces, and gas station. Where feasible, park and open space areas, such as a town square, would be provided.

As described for Alternative 2, a multi-use paved (pedestrian/bicycle) trail would be developed from Rancheria Flat through Hennessey's Ranch, to the Village Center. This trail would also include two footbridges across the Merced River: one between Village Center and Hennessey's Ranch, and another between Hennessey's Ranch and Rancheria Flat. If feasible, one link of the multi-use-paved trail, between Village Center and Hennessey's Ranch, could be via a modified Highway 140 vehicle bridge.

An employee dining and recreation facility with a swimming pool would be constructed at Hennessey's Ranch (the same as under Alternative 2).

An employee childcare facility would be provided in El Portal, possibly adjacent to the elementary school in Rancheria Flat (the same as under Alternative 2).

Utilities

Water would be obtained from additional wells in the El Portal area. All sewage would be treated at the El Portal Wastewater Treatment Plant. Electrical and phone service would be upgraded to accommodate the additional loads. The abandoned sewage treatment plant in Rancheria Flat would be removed.

Wawona Housing Actions

No new housing would be built in Wawona. Government-owned housing would continue to be used for park and concession employees. Future land-use planning in Wawona would be in accordance with the Wawona Town Plan.

Foresta Housing Actions

A total of 14 houses were lost in the 1990 A-Rock Fire. The 14 houses would be reconstructed in Foresta; and would be used to replace beds removed from Yosemite Valley.

Cascades and Arch Rock Housing Actions

Four historic houses (4 beds) would be removed from the Cascades area and the beds relocated to El Portal. At Arch Rock, 8 beds would be removed and relocated to El Portal; the historic structures would be adaptively reused (the same as under Alternative 2).

Development Costs

It is estimated that the development costs for Alternative 3 would be $413,451,408 (see table 2-36). These costs would be in addition to the current park operations costs identified in Alternative 1. See Vol. II, Appendix M for the sequencing of development proposed for the Preferred Alternative.

Table 2-36
Development and Operational Cost Estimates for Alternative 3

Development Costs	
Description	**Amount**
Resource Stewardship	30,411,529
Visitor Experience/Facilities	103,716,636
Transportation/Circulation	35,226,172
Administration/Infrastructure	52,040,118
Employee Housing	192,056,954
Subtotal – Development	**$413,451,408**
Operations Costs	
Description	**Amount**
National Park Service Operations	4,312,500
Transit Operations	2,739,000
Subtotal – Operations	**$7,051,500**
Total	**$420,502,908**

Development estimates do not include associated planning, design, and compliance costs.

Photo by Ralph Anderson, courtesy of Yosemite Museum

There have been 11 winter floods on the Merced River in Yosemite Valley since 1916 that have caused substantial damage to property. However, floodwaters recharge meadows as they spread over the broad floodplain in the east Valley. This was the case in Cook's Meadow in November 1950.

ALTERNATIVE 4

Taft Toe and Out-of-Valley Parking

(El Portal, Badger Pass, and South Landing)

This alternative would restore approximately 194 developed and disturbed acres to natural conditions within Yosemite Valley. In addition, 154 acres of developed land would be redeveloped and 99 acres of undeveloped land would be developed to accommodate visitor and employee services such as campgrounds, day-visitor parking, and employee housing. It would consolidate parking for day visitors in the Taft Toe area in mid-Yosemite Valley and in three parking areas outside the Valley. A new Valley Visitor Center would also be constructed at Taft Toe. There would be fewer campsites and lodging units than there are now. The area of the former Upper and Lower River Campgrounds and the Camp 6 parking area near Yosemite Village would be restored to riparian communities, roads would be removed from Ahwahnee and Stoneman Meadows, and parking would be removed from Curry Orchard. Northside Drive would be converted to a multi-use paved trail for hikers and bicyclists, without the immediate presence of motor vehicles, from Yosemite Lodge to El Capitan crossover. Southside Drive would be converted to two-way traffic from Taft Toe to Curry Village. The net effect of this alternative would be to reduce development in Yosemite Valley by 66 acres.

For more actions proposed for this alternative, see the Actions Common to All Action Alternatives at the beginning of this chapter. For a discussion of the impacts associated with this alternative, see Vol. IB, Chapter 4, Environmental Consequences. For graphic representations of this alternative, see Vol. IC, plates 4-1 to 4-8.

Summary of Major Changes in Relation to Existing Conditions

Restore

- Large, contiguous tracts of meadow, riparian, and oak woodland communities along Merced River from Clark's Bridge downstream to Swinging Bridge

Remove

- Roads through Stoneman and Ahwahnee Meadows (including the road through the former Upper and Lower River Campgrounds)
- Four historic bridges affecting natural flow of the Merced River: Sugar Pine, Stoneman, Housekeeping, and Superintendent's
- Other historic structures: concessioner stable, Ahwahnee Row houses, Cascades Diversion Dam, houses at Cascades, and the Superintendent's House (Residence 1)
- The abandoned wastewater treatment plant in El Portal from a sensitive cultural resource area
- All day-visitor parking in the east Valley
- Five motel buildings at Yosemite Lodge
- The Concessioner Headquarters Building
- Commercial trail rides in Yosemite Valley

Establish or Prescribe

- A Visitor Experience and Resource Protection (VERP) study to identify existing and desired conditions for natural resources, cultural resources, and visitor experience
- A traveler information and traffic management system to provide information to visitors, provide incentives for efficient use of available parking and transportation services, and manage access and parking
- Out-of-Valley day-visitor parking areas at Badger Pass, South Landing, and El Portal
- Some utility hookups for recreational vehicles, and shower facilities in campgrounds
- Land management zoning throughout Yosemite Valley
- Design guidelines for rehabilitating the landscape in historic developed areas and for new construction

Implement

- The River Protection Overlay as prescribed in the *Final Merced Wild and Scenic River Comprehensive Management Plan/Environmental Impact Statement (Merced River Plan/FEIS)*

Construct

- A new visitor/transit center at Taft Toe with 550 day-visitor parking spaces
- Lodging at Yosemite Lodge and Curry Village
- Campsites east of Curry Village, in the Upper Pines area, and along Tenaya Creek
- Employee housing at Curry Village, El Portal, and Foresta
- A fire station at the southern edge of the Yosemite Village Historic District

Convert

- The NPS Administration Building to a natural history museum, and administrative areas of the Yosemite Museum/Valley District Building to an expanded cultural history museum
- Most of current Valley Visitor Center complex to museum collection storage and research library
- Southside Drive from El Capitan crossover to Curry Village to two-way traffic (road widened where necessary)
- Northside Drive from El Capitan crossover to Yosemite Lodge from a vehicle road to a multi-use (bicycle and pedestrian) paved trail
- The trail to the base of Yosemite Falls to route accessible by people with mobility impairments, and provide a larger viewing platform

Increase/Expand

- Shuttle bus service to Bridalveil Fall and to out-of-Valley parking areas
- Interpretive and orientation services, including a new visitor center in Yosemite Valley and at or near principal park entrances
- Multi-use trails

Reduce

- Campsites by 34
- Lodging by 278 units (including 212 units at Housekeeping Camp)
- Traffic entering the east Valley on a typically busy day by more than 66%

Relocate

- Principal employee housing to El Portal, leaving 689 beds in Yosemite Valley
- National Park Service and concessioner administrative stables operations to McCauley Ranch in Foresta
- National Park Service and concessioner headquarters out of Yosemite Valley

Natural Resources

This alternative would link highly valued natural resource areas that have been degraded or fragmented (such as the Merced River and its tributaries, wetlands, meadows, and California black oak woodlands) into one large, contiguous, and dynamic river-governed ecosystem (see Vol. Ic, plate D, Highly Valued Resources). Most facilities and infrastructure in highly valued natural resource areas would be removed, making the restoration of these areas possible in the east end of Yosemite Valley. The environmental cost would be the construction of a new visitor/transit center and parking at Taft Toe (approximately 54 acres), in a previously undeveloped, mixed conifer community in the mid-Valley near El Capitan crossover, and the development of out-of-Valley parking areas.

Merced River Ecosystem (including tributaries, wetland, riparian, and meadow areas)

As described in Actions Common to All Action Alternatives at the beginning of this chapter, the River Protection Overlay prescribed in the *Merced River Plan* would be implemented for Yosemite Valley and El Portal. The River Protection Overlay would provide a buffer area for natural flood flows, channel formation, riparian vegetation, and wildlife habitat and would protect riverbanks from human-caused damage and associated erosion. Above 3,800 feet in elevation (including Yosemite Valley), the River Protection Overlay is 150 feet on either side of the river, measured from ordinary high water. Below 3,800 feet in elevation (including El Portal), where the river gradient and characteristics change, the overlay is 100 feet on each side of the river, measured from ordinary high water.

Meadows are an important part of the Yosemite Valley ecosystem and cultural landscape. Naturally high water tables in meadows protect them from conifer invasion. When development or encroachment has altered water tables, and restoration of natural water processes is unlikely, a program of prescribed fire and mechanical clearing would be employed to prevent conifer invasion into meadows.

The Merced River corridor, riparian vegetation, wetlands, and meadows are a central component of the Yosemite Valley cultural landscape. River restoration, riparian area revegetation, and meadow management would also rehabilitate these important landscape resources.

As described for Alternatives 2 and 3, roads would be removed from Stoneman Meadow and the southern end of Ahwahnee Meadow. After the roads are removed, the natural topography of the meadows would be restored, and disturbed sites would be replanted (if necessary) with appropriate plants of the same local genetic makeup. The roads and utilities through Bridalveil, El Capitan, and Cook's Meadows would be evaluated and, if needed, realigned or reconstructed to restore critical surface water and shallow subsurface water flows that sustain the native meadow vegetation and wildlife and discourage conifer invasion. Parking lanes would be removed from Northside Drive through El Capitan and Cook's Meadows to reduce impacts associated with current levels of use in the meadows.

As described for Alternative 3, at Housekeeping Camp all accommodations would be removed from the River Protection Overlay and highly valued resource areas, including potential riparian and wetland areas, reducing the number of units from 264 to 52. The area would be restored to riparian communities.

As described for Alternative 3, parking would be removed from the Camp 6 area near Yosemite Village and placed in an area outside the floodplain at Taft Toe, in the mid-Valley. Camp 6 would be restored to a mosaic of meadow, riparian, and California black oak woodland communities.

Southside Drive in the Bridalveil Fall area would be reconstructed to improve water movement through the braided stream system (the same as under Alternatives 2 and 3).

The historic Cascades Diversion Dam on the Merced River west of Pohono Bridge (near the intersection of the Big Oak Flat and El Portal Roads) would be removed to restore natural channel grades and hydrologic processes along this segment of the river (the same as under Alternatives 2 and 3) (see Actions Common to All Action Alternatives at the beginning of this chapter).

As described for Alternative 3, four historic bridges—Sugar Pine, Stoneman, Housekeeping, and Superintendent's—would be removed to allow for the unconstrained flow and meandering of the Merced River at these locations. Adjacent riverbanks would be restored. As described for Alternatives 2 and 3, all bridges west of Happy Isles to Swinging Bridge affect river dynamics, and each has been evaluated to determine the severity of these effects as well as the importance of access to and across the river (under other provisions of this alternative). Ahwahnee Bridge would be retained to provide a nonvehicular connection between Yosemite Village, the campgrounds, and Curry Village. The multi-use trail between the Ahwahnee Bridge and Sugar Pine Bridge would be removed and the area re-contoured. If necessary, a new bridge or bridges would be constructed over the cutoff channels southeast of Ahwahnee Bridge to facilitate a pedestrian trail and multi-use paved trail connection to the Lower Pines area.

The recreational vehicle dump station at Upper Pines would be relocated outside of the River Protection Overlay, and the area would be restored to a riparian community (the same as under Alternatives 2 and 3).

As described for Alternatives 2 and 3, the areas that were formerly the Upper River, Lower River, and the northwest end of Lower Pines Campgrounds would be restored to a mosaic of meadow, riparian, and California black oak communities. Restoration would involve removing tons of imported fill that was used to level the campgrounds, contouring the sites to match natural topography, and replanting the sites, if necessary, with appropriate plants of the same local genetic makeup as neighboring plant communities. The road and utilities in the Upper and Lower River Campgrounds, plus the southern part of Ahwahnee Meadow, would be removed and realigned along transportation corridors. All of North Pines Campground would be removed, fill material would be removed if necessary, and the area would be restored to riparian/California black oak communities. The former Group Campground and existing Backpackers Campground along Tenaya Creek would be removed, and the areas would be restored to riparian/upland communities.

The Swinging Bridge Picnic Area and associated parking would be removed and the area restored to riparian communities (same as under Alternatives 2 and 3).

Also as described for Alternatives 2 and 3, the human-built rock-rubble pile in Yosemite Creek, directly downstream from the bridge at the base of Yosemite Falls, would be removed. This would restore natural water flow in the western channels of Yosemite Creek.

The area between the bike path at Yosemite Lodge (the proposed realignment of Northside Drive) and the Merced River, the site of former Yosemite Lodge cabins, Pine Cottage, and employee housing, would be restored to riparian communities.

The historic concessioner stable and related employee housing would be removed and the area restored to riparian/California black oak communities (same as under Alternatives 2 and 3).

As described for Alternative 3, the Art Activity Center (former bank building) would be removed, and the area would be restored to riparian communities. The historic Concessioner Headquarters Building would be removed and the area restored to a mosaic of meadow/California black oak communities.

Radiating use from the Taft Toe Visitor/Transit Center and day-visitor parking could affect adjacent riparian areas. In El Portal, the establishment of housing and administrative facilities would affect riparian areas.

The sand pit in El Portal would be removed from operational use and restored to riparian communities.

California Black Oak Woodland

The historic tennis court at The Ahwahnee would be removed and the area restored to California black oak woodland (the same as under Alternatives 2 and 3).

California black oak habitats would be affected in Yosemite Valley by construction of employee housing west of Curry Village, development of campsites east of Curry Village, and the construction of a fire station at Yosemite Village. Construction of new lodging units at Curry Village could result in the loss of some oaks. In El Portal, areas of black oaks would be affected by development of housing and administrative facilities.

Upland Community

As described for Alternative 3, houses along the edge of Ahwahnee Meadow (the historic Ahwahnee Row houses) would be removed, and the area would be restored to a mixture of upland, California black oak, riparian, and meadow communities.

The administrative/utility area to the east of The Ahwahnee would be restored to upland/California black oak woodland (the same as under Alternatives 2 and 3).

The area of the former service station at Yosemite Lodge would be restored to upland/California black oak woodland.

The development of a visitor/transit center and day-visitor parking at Taft Toe would have an effect on upland habitats. Other developments that would affect this habitat type in Yosemite Valley include new campsites east of Curry Village, north of Tenaya Creek, and north of Upper Pines Campground; construction of employee housing west of Curry Village; construction of new lodging units at Yosemite Lodge and Curry Village; and widening of Southside Drive and the addition of an adjacent multi-use path. Upland areas outside of Yosemite Valley would be affected by construction of housing in El Portal; expansion of facilities at South Entrance and Big Oak Flat Entrance; construction of houses at Foresta; and moving of stable operations to McCauley Ranch.

Cultural Resources

This alternative would retain to the degree possible the historically significant sites, structures, and landscape features in Yosemite Valley, where such preservation does not conflict with natural resource restoration goals. Archeological sites and ethnographic resources would be protected wherever possible, and traditional uses by culturally associated Indian people would be encouraged. Large tracts of the Valley's meadows, California black oak woodlands, and the river's riparian corridor would be restored to a more natural condition, enhancing these important components of the cultural landscape of Yosemite Valley. To achieve these natural resource restoration goals, four historic bridges would be removed, and other individually significant structures and historic buildings that contribute to the Valley's cultural landscape would be removed. Some historic structures would be rehabilitated and adaptively reused. The three historic orchards would neither be removed nor cultivated. Although changes would occur in the vicinity of the three National Historic Landmark structures, they would be protected from actions that would affect their historic significance. The Yosemite Museum collection (including research library and archives) would be consolidated in Yosemite Valley.

Archeological Sites

Archeological sites would continue to be preserved in place as much as possible. The most highly valued sites (those with high research potential) would be avoided during new construction or development wherever possible. No new development would occur in areas where human burials are known to exist. Existing development that is causing ongoing site degradation would be removed or rehabilitated, wherever possible. The abandoned wastewater treatment plant in the Rancheria Flat area of El Portal would be removed from a prehistoric cemetery. A building and asphalt would be removed from a burial site in Yosemite Village.

Where special opportunities exist, prehistoric and historic archeological resources would be interpreted to visitors. In the Lower Yosemite Fall area, a large and important prehistoric village site would be protected. Surface prehistoric and historic archeological features, along with local American Indian traditions, would be interpreted through wayside exhibits along the Lower Yosemite Fall loop trail.

Ethnographic Resources

Through existing agreements and ongoing consultation with culturally associated American Indian tribes, access to and use of special resources in Yosemite Valley would continue. The National Park Service and culturally associated American Indian groups would continue to develop a parkwide gathering plan for the tending and use of traditional plant resources. Access would continue to be provided for American Indian participants in traditional and ceremonial activities. American Indians conducting traditional activities in Yosemite Valley would not be restricted to day-visitor parking and shuttle transit. Special provisions would be implemented to allow parking in short-term turnouts. Burial areas, where previously identified, would continue to be protected. These areas (the last American Indian village and all known burial areas) are considered among the valued resources of American Indian people, and they were so considered during this planning effort. Where previously unknown burials were discovered, provisions outlined in the Native American Graves Protection and Repatriation Act and its implementing regulations would be followed. Other important areas, such as gathering locations, historic American Indian villages, and areas of spiritual or traditional importance, would be protected as much as possible.

The park's Programmatic Agreement for compliance with Section 106 of the National Historic Preservation Act also includes provisions for including culturally associated American Indian tribes in the park's planning process. This agreement stipulates that the park and associated American Indian tribes develop an agreement for government-to-government relations, protocols for official consultations regarding issues of concern and park actions that may affect traditional resources, and park-specific guidelines for implementing provisions of the Native American Graves Protection and Repatriation Act.

Cultural Landscape Resources (including Individually Significant Historic Sites and Structures)

Yosemite Valley

Under this alternative, many of the historically significant natural characteristics of the proposed Yosemite Valley Cultural Landscape Historic District would be rehabilitated and enhanced. General landscape characteristics such as natural features, views, and vegetation would be retained and rehabilitated. However, historic patterns of land use, spatial organization, the Valley's circulation system, some individually significant historic structures, and many structures that contribute to the Valleywide cultural landscape would be altered or removed.

The overall character of Yosemite Valley's spatial organization would be perpetuated. Key natural resource restoration actions, such as implementation of the River Protection Overlay and restoration of the associated natural river processes and adjacent meadows, would enhance natural features and vegetation that are characteristic of the landscape in Yosemite Valley. However, physical historic structures that have modified the river and meadows (such as Sugar Pine, Stoneman, Housekeeping, and Superintendent's Bridges, riprap and other river

revetment structures, meadow ditches, etc.) would be removed in order to achieve these restoration objectives. Although the majority of concentrated visitor development would remain in the east Valley, this historic spatial organization would be altered through development of the Taft Toe area for day-visitor parking and a visitor/transit center.

The historic circulation system that encircles the Valley floor would largely be retained. However, the use of this system would change with the closure of a portion of Northside Drive to motor vehicles, the conversion of Southside Drive to two-way traffic, and the relocation of visitor parking and orientation to the mid-Valley at Taft Toe. Portions of both Northside and Southside Drives (both contributing circulation structures in the Valleywide cultural landscape) would also be realigned, and a portion of Southside Drive would be widened. Some noncontributing circulation structures would be removed, such as the roads across Stoneman and Ahwahnee Meadows.

Valleywide land-use patterns would continue, although the location of some activities would change. Camping would continue in Yosemite Valley, but campgrounds themselves (which are not contributing resources) would be relocated away from the river. Stable operations would be relocated outside Yosemite Valley. Access to historically significant views would be retained and enhanced.

Of the many individually significant historic structures, three would be removed. Sugar Pine and Stoneman Bridges would be removed to restore a more natural river flow. The Superintendent's House (Residence 1) and its associated garage would be removed and the area restored to California black oak woodland community.

Changes would occur in the Yosemite Village area. The historic NPS Operations Building (Fort Yosemite) would be retained, although other historic maintenance shops and the Camp 1 complex (all contributing elements in the Valleywide cultural landscape) would be removed and the areas redeveloped for district operations. The Camp 6 area of Yosemite Village and the area of the Ahwahnee Row houses and apartments would be restored to natural conditions. As part of the redevelopment in the Yosemite Village area, some contributing elements of the Valleywide cultural landscape would be removed. These include the Concessioner Headquarters Building and the Village Garage and its associated apartment.

The designed landscape in the Yosemite Village Historic District would be rehabilitated. All the historic structures, which are contributing elements of this historic district, would be retained. The Yosemite Museum/Valley District Building (the historic Museum Building) would be rehabilitated and converted to serve entirely as a cultural history museum. The historic NPS Administration Building would be rehabilitated for a new use as a natural history museum. No changes would occur at the National Historic Landmark Rangers' Club. Other central structures in Yosemite Village, including The Ansel Adams Gallery and associated structures, the Yosemite Village Post Office, and the historic Pohono Indian Studio (current Wilderness Center), would be retained. Historic views within Yosemite Village would be re-established, and the California black oak community would be stabilized and protected in the historic residential area. A new fire station would be constructed at the edge of the historic district housing area, designed to be compatible with the district. Hutchings

Orchard would be retained, although the trees would not be maintained. A genetic conservation program would be initiated to salvage cuttings and establish representative plants at an appropriate facility outside Yosemite National Park. Once the trees have died, the area would be restored to natural conditions.

The Ahwahnee is both a National Historic Landmark and a National Register historic property. No changes would occur to the National Historic Landmark hotel structure or its setting. The employee dormitory, a contributing element of the larger National Register property, would be rehabilitated. Three nonhistoric employee tent cabins would be removed. The tennis courts, which are also contributing elements of the larger National Register property, would be removed in order to restore a California black oak woodland community. The western portion of the parking area, which lacks historical integrity, would be reconfigured.

In the Curry Village area, all employee tent housing would be removed. The fruit trees at the historic Curry Orchard would be neither removed nor cultivated. A genetic conservation program would be initiated to salvage cuttings and establish representative plants at an appropriate conservation facility outside Yosemite National Park.

At the Camp Curry Historic District, visitor services would remain concentrated in the central portion of the district, and significant historic buildings such as the Lounge (original registration building) and Registration Building (original post office) would remain. Of the existing 427 historic guest tent accommodations, 150 would remain (277 would be removed). The 48 architecturally significant historic bungalows, as well as Cottage 819, would be retained in their original configuration for continued use as guest lodging. The Mother Curry Bungalow would be retained, but other significant historic structures (Huff House and Tresidder Residence) would be removed. New cabins-with-bath (204 units) would be constructed within the historic district to the north and east sides of the bungalows. Guest parking would be relocated from the historic Curry Orchard area.

At Lower Yosemite Fall, the historic footbridge at the base of the fall would be rehabilitated, three footbridges would be removed, two would be relocated, and one would be rehabilitated or rebuilt (all are contributing elements to the Valleywide cultural landscape). New facilities (a restroom and a shuttle stop) east of Yosemite Creek would be designed to be compatible with the adjacent Yosemite Village Historic District.

The historic concessioner stable and associated facilities would be removed. The Nature Center at Happy Isles (historic Happy Isles Fish Hatchery) would be used year round.

At historic Camp 4 (Sunnyside Campground), the five westernmost campsites would be removed to

provide a buffer for the proposed Indian Cultural Center. Thirty-two existing campsites and other important historic features would be retained.

No changes would occur at the National Historic Landmark LeConte Memorial Lodge. No changes would occur at the Bridalveil Meadow historic site.

Fruit trees would neither be removed nor cultivated at the Lamon, Curry, or Hutchings Orchards (all of which contribute to the Valleywide cultural landscape). A genetic conservation program would be initiated to salvage cuttings and establish representative plants at an appropriate facility outside Yosemite National Park.

Merced River Gorge

The segment of the El Portal Road between the intersection of the Big Oak Flat/El Portal Roads and Pohono Bridge would be rebuilt. This reconstruction would be designed to be compatible with other segments of the road and would retain the important historic characteristics of this National Register property.

Six of the remaining seven components of the Yosemite Hydroelectric Power Plant, a property determined eligible for inclusion in the National Register of Historic Places, would be removed. The six to be removed are: (1) the diversion dam, (2) the screenhouse and associated features, and (3) the four Cascades residences.

El Portal

In El Portal, final decisions regarding the location of new facilities and retention or removal of some historic structures would be deferred until site-specific development planning. The three historic National Lead Company residences would be retained as housing and rehabilitated. The historic railroad residences and the old El Portal Store (all privately owned historic structures on leased National Park Service lots) would be retained as housing. The historic El Portal Chapel (the old El Portal School) and the Yosemite Research Center (Murchison House) would be retained. The El Portal Hotel would be studied for rehabilitation and possible adaptive reuse. If it would not be feasible to reuse this building and meet park needs for this area of El Portal, it would be removed. The current El Portal Market would either be retained or removed and the area redeveloped as part of the commercial core of El Portal.

Museum Collection (including Archives and Research Library)

As described for Alternative 3, the Yosemite Museum collection would be housed in a new facility adjacent to the existing visitor center's West Auditorium. The West Auditorium would be adapted to house the park's archives, and the research library would be housed in the remodeled existing visitor center. These facilities would allow for increased visitor access to the museum collection by moving all parts of the collection into a facility remodeled or constructed to meet preservation needs and located next to the Yosemite Museum.

Visitor Experience

Key distinguishing visitor experience elements of this alternative include:

- A new visitor/transit center mid-Valley at Taft Toe, near El Capitan crossover along Southside Drive, and the removal of parking for day visitors elsewhere in Yosemite Valley (the same as under Alternative 3)
- Formalized parking at Taft Toe for 550 day-visitor vehicles, and 50 short-term parking places for visitors with overnight accommodations in Yosemite Valley
- Out-of-Valley parking areas at Badger Pass, South Landing, and El Portal (total of about 1,590 spaces)
- Reduced development, crowding, and automobile traffic (but increased shuttle bus traffic) in the east Valley (the same as under Alternative 3)
- Closure of Northside Drive to motor vehicles from Yosemite Lodge to El Capitan crossover (the same as under Alternatives 2 and 3)
- New multi-use paved trails for pedestrians and bicyclists from the east Valley to El Capitan crossover, and existing trails for pedestrians from El Capitan Bridge to Bridalveil Fall and Valley View
- Removal of the concessioner stable and elimination of guided horseback rides in the Valley
- 982 lodging units and 441 campsites

As described for the other action alternatives, management of the number of vehicles entering the east end of Yosemite Valley on any given day would be a substantial change from existing conditions. Traffic in the Valley would be reduced, and pedestrians and bicyclists would be better dispersed from mid- to east Valley. While access into Yosemite Valley for visitors with reservations for overnight accommodations in the Valley would not change significantly, access for day visitors (including visitors staying overnight elsewhere in the park) would change. Valley day visitors would drive to and park their cars at Taft Toe (capacity of 550 vehicles) or at out-of-Valley parking areas and arrive in the Valley on an out-of-Valley shuttle bus. Other visitors would arrive by tour and transit buses. Visitors would then travel by shuttle buses or other means to destinations within the east Valley. Fifty short-term parking places would be provided at Taft Toe for visitors with overnight accommodations in Yosemite Valley. This would allow them to access the visitor center upon their arrival in the Valley. Once these visitors check into their overnight accommodations, they would be required to use the in-Valley shuttle bus service to access Valley destinations, including the Taft Toe Visitor/Transit Center.

In the Valley, a spectrum of recreational activities and experiences would continue to be available under all alternatives, and new opportunities for experiencing portions of the Valley without vehicles would be found. Under this alternative, as visitors arrived at Taft Toe, they would find themselves centrally located at the new Taft Toe Visitor/Transit Center. From there, visitors could become oriented and choose their mode of travel (hiking, bicycling, concessioner tours, or in-Valley shuttle buses). While extensive touring in personal vehicles would no longer be an

option under any of the action alternatives, park shuttle buses would serve the entire Valley rather than just the east end. Visitor use would be dispersed throughout the Valley, with increased use of existing trails in the west Valley and a new multi-use paved trail connecting mid-Valley to east Valley. There would be fewer campsites and lodging units than at present, but they would continue to provide a range of prices and opportunities for a diversity of experiences. Orientation and interpretive services would be expanded.

Access for Visitors with Disabilities

The method of access by visitors with mobility impairments would temporarily remain similar to existing conditions, with controlled access available for personal vehicles to, and parking at, specially marked spaces at principal Valley features. As described for Alternative 3, vehicular access to the sections of Northside Drive closed to automobile traffic would not be available. Eventually, as buses became fully accessible, visitors with disabilities could use them to access Valley destinations. Overnight users could drive directly to their lodging or campsite. As implementation of the *Yosemite Valley Plan* occurs, accessibility needs would be analyzed, and an accessibility plan would be developed to provide the best-feasible access for visitors with disabilities. Improvements in access to structures, features, and programs would continue, based on this new plan. New facilities would meet accessibility guidelines.

Visitor Use and Land Management Zoning

As described under Actions Common to All Action Alternatives, this alternative would accommodate visitation levels established in the 1980 *General Management Plan*. The National Park Service would conduct a Visitor Experience and Resource Protection Study (VERP) within five years of a Record of Decision to identify existing and desired conditions for natural resources, cultural resources, and visitor experience. Based on VERP, the National Park Service would (1) establish management zoning that complements the management zoning established in the *Merced River Plan*; (2) develop indicators to measure visitor experience and resource conditions; (3) develop standards that define acceptable measurements for each indicator; (4) develop an assessment program to monitor standards; (5) develop a decision-making process to be used in identifying management actions necessary to maintain or restore desired conditions; and (6) develop visitor-use level recommendations for each zone.

Traveler Information and Traffic Management

As described under Actions Common to All Action Alternatives, this alternative would include the design and implementation of a traveler information and traffic management system that would use a variety of techniques to assist visitors in planning their trips, to encourage efficient use of available transportation facilities and services, and to assure that vehicle volumes do not exceed the capacity of roads and parking.

Orientation and Interpretation

As described for the other action alternatives, orientation opportunities would remain decentralized, but they would be expanded to include improved visitor centers at or near entrance stations. Orientation would be provided sequentially, starting with improved resources for use before starting a visit, including the park's web site and pre-visit publications. Greater emphasis would be placed on supporting gateway joint-agency visitor centers, particularly to provide current information on access and reservation availability.

Once at the park, visitors would find expanded or new visitor centers near each entrance station, contributing to their sense of arrival and their ability to discover and take advantage of parkwide offerings. At these visitor centers, visitors would receive assistance in planning their visits; obtaining maps, publications, wilderness, and other permits; and making or confirming reservations for overnight accommodations. The park orientation film would be shown in these facilities. Similar to Alternative 2, visitors parking in the out-of-Valley parking areas would find orientation to the shuttle bus operations at these parking areas.

Similar to Alternative 3, once visitors arrived in the Valley, they would find a new full-service visitor center at Taft Toe. Visitors with overnight accommodations in Yosemite Valley would find new, small, unstaffed orientation facilities at their lodge or campground, and campground hosts in each campground. These visitors could also take a shuttle bus to the visitor center at Taft Toe. All staffed orientation centers sell orientation and interpretive publications by the park's cooperating association.

As under the other action alternatives, information at shuttle bus stops would be improved, with clear and consistent signs posted throughout the Valley to enable visitors to use the system with ease and efficiency.

Interpretive services and facilities (e.g., ranger programs, tours, exhibits, school programs) offered by the National Park Service, concessioner, and other partners would be increased above current levels, as proposed in the *General Management Plan*. This would enhance understanding of park themes, contribute to resource stewardship, and would accommodate visitors touring park features. The variety and locations of interpretive programs would be increased to meet the needs of various visitors, including those with disabilities or those speaking languages other than English. As described for Alternative 3, interpretive programming would be offered in both the east and west Valley. New programs at popular views and on trails would be emphasized, including talks, short walks, bicycle tours, and occasional half-day or all-day programs. The Valley Floor Tour would no longer have access to Northside Drive between Yosemite Lodge and El Capitan Bridge, but turnouts on both sides of Southside Drive east of Taft Toe would be retained and reserved for use by these buses and trams. Ticketing and boarding areas for the Valley Floor Tour would be available at Taft Toe, as well as Valley lodging areas and Yosemite Village.

Yosemite Village would become a hub of interpretive activity. As described for Alternative 3, a small information desk in a museum lobby would replace visitor center functions for Yosemite Village. Theater productions and special programs would be presented in the current visitor center's upgraded East Auditorium. In-depth interpretation of parkwide themes and the museum collection would be found at two museums: a natural history museum in the majority

of the present NPS Administration Building, and an expanded cultural history museum in the present Museum/Valley District Building. The Indian Village of Ahwahnee would continue to serve its present interpretive function. The Wilderness Center function would be transferred to the Taft Toe Visitor/Transit Center, and the Art Activity Center would be relocated to its former location in the current Wilderness Center.

As described for Alternatives 2 and 3, the present informal gathering and program area near the Visitor Center would be redesigned and relocated. The park's research library and photo collection would be housed in the rehabilitated existing visitor center, while the remainder of the extensive museum collection (including historical, archeological, archival, and natural objects) would be stored in the rehabilitated West Auditorium and a new collection storage facility adjacent to the West Auditorium. A research room and a teacher resource center or classroom would be included in this curatorial facility. Some space in the existing NPS Administration Building would serve as an information center and administrative facility for the Valley district interpretive operation in order to maintain a historic administrative use of this building.

As described for Alternatives 2 and 3, interpretive amphitheaters at lodging areas would remain at their present locations. The Lower Pines amphitheater would be replaced by a new amphitheater in the vicinity of the current concessioner stable parking lot to reduce noise conflicts with adjacent campsites. The existing Lower River amphitheater would be removed and the area restored to natural conditions. The Nature Center at Happy Isles would be operated as a year-round facility.

A Valleywide exhibit plan would be produced to evaluate the locations of existing outdoor exhibits, as described for Alternatives 2 and 3. It would recommend new exhibits and interpretive trails, focusing on new pedestrian and bicycle trails. The plan would also include recommendations for view maintenance and for some exhibit shelters that could be used for cover during inclement weather.

A program of sociological studies would be implemented that would routinely examine the effectiveness of interpretive and orientation services and media offered by the National Park Service, concessioner, and other partners (the same as under Alternatives 2 and 3).

Recreation

The mode of accessing parts of the Valley in order to conduct many recreational activities would be altered as a result of changes proposed in this alternative. As described for the other action alternatives, access all year to most recreation sites and activities in Yosemite Valley would be by shuttle bus, bicycle, or on foot rather than by private vehicle. Visitors riding shuttle buses would carry their recreational gear and supplies throughout the Valley or store them in variably sized lockers (including bear-resistant lockers for food) that would be provided at Taft Toe and at major shuttle bus stops and destination areas. Shuttle buses would be outfitted to transport recreational equipment, such as bicycles, backpacks, coolers, skis, and climbing gear.

As described for Alternative 3, the traveler information and traffic management system and the consolidation of parking would reduce opportunities for touring Valley features by private vehicles and would eliminate private vehicle use in the east Valley for day visitors. While some

turnouts would be removed, other turnouts would be retained for emergency use and to provide for short-term viewing of outstanding scenic features, particularly historic views. Auto touring would be replaced by guided tours (vehicular and walking), shuttle bus riding, bicycle touring, and walking. The in-Valley shuttle bus system would be expanded to include stops between the east Valley and Bridalveil Fall, and shuttle bus stops would be added to increase access to Valley destinations.

Trail Use

As described for the other action alternatives, the development of interpretive trails and the interpretation of features more easily accessed by bicycles or on foot would be emphasized. Publications and exhibits to facilitate self-guided experiences would continue to be developed for hikers, bicyclists, and bus riders; these would be available at all visitor centers. Ranger-led programs would be scheduled for the convenience of visitors, with varying starting times, program lengths, and distances walked or bicycled.

Walking, Hiking, and Bicycling

As under the other action alternatives, improved and additional trails for walking and bicycling would be available throughout Yosemite Valley, and bicycle touring and hiking would be encouraged. Trails in some areas, including Yosemite Lodge, Curry Village, and the former Upper and Lower River Campground areas, would be realigned or converted to multi-use. In some cases, realignments would be adjusted during the final site design process. Most multi-use trails would be 12 feet in width to accommodate hikers and bicyclist. However, along segments of trails such as the segment between Yosemite Village and Yosemite Falls, trail width may be up to 16 feet to accommodate higher use. Trails would be clearly marked with directional and mileage signs. Conflicts between pedestrians and bicyclists would continue, but would be reduced by separating trails in some developed areas and eliminating guided stock trips. As described for Alternative 2, trails previously shared by hikers and stock between Yosemite Village and Lower Yosemite Fall would be reserved for pedestrian use only.

Multi-use trails would be expanded west from Yosemite Lodge to El Capitan crossover and Taft Toe. On the north side of the Valley, similar to Alternatives 2 and 3, this paved trail would use the converted Northside Drive (which would be closed to vehicles) from Yosemite Lodge to El Capitan crossover. On the south side of the Valley, a new multi-use paved trail would be constructed adjacent to Southside Drive from Swinging Bridge west to El Capitan crossover and Taft Toe. A new multi-use trail would be constructed to connect Southside Drive across Sentinel Bridge to Yosemite Village along Sentinel crossover. East of Yosemite Lodge, the historic Yosemite Creek vehicle bridge would be converted to a multi-use trail after the new Yosemite Creek vehicle bridge is constructed and Northside Drive is rerouted to the south of Yosemite Lodge.

As described for Alternative 3, for access among Yosemite Village, the campgrounds, and Curry Village, a realigned or new multi-use paved trail would be provided through the area of the former Upper and Lower River Campgrounds, continuing across Ahwahnee Bridge,

through Lower Pines Campground, and connecting with the existing bicycle path (see Vol. IC, plate 4-5). There would be another new multi-use paved trail from The Ahwahnee to the east connecting with the existing paved bicycle path in the Sugar Pine Bridge area. The informal trail from Ahwahnee Bridge along the north side of Stoneman Meadow to the Southside Drive/Curry Village Road intersection would be improved as a hiking trail.

As under Alternatives 2 and 3, access to Bridalveil Fall would be via the existing Valley Loop Trail (for pedestrians and stock). There would be no multi-use trail to Bridalveil Fall. New trails accessible to wheelchair users would be provided at Sentinel Beach, the new North American Wall Picnic Area at El Capitan, and other areas determined by the proposed accessibility study and plan. Seating would be provided along trails and at shuttle bus stops.

Bicycle rentals would be available at Taft Toe, Yosemite Lodge, and Curry Village, as described for Alternative 3. The extension of rental hours and periods (e.g., multi-day bicycle rentals) would be evaluated and implemented if feasible. Bicycle racks and lockers for gear and food would be located at major destinations throughout the Valley.

Off-pavement bicycle use, because of the damage it causes to the natural environment and conflicts with other users, would continue to be prohibited (the same as under the other action alternatives). To promote safe bicycle use, lane designations would be provided where appropriate and as necessary on multi-use paved trails to reduce pedestrian and bicycle conflicts and mishaps. Potential environmental damage caused by increased bicycling and pedestrian use would be minimized through trail design, messages in interpretive programs, and management action.

Lower Yosemite Fall

Access to the Lower Yosemite Fall area would be by shuttle bus, bicycle, or on foot (see Vol. IC, plate 4-3). As described for Alternative 3, the existing parking lot would be removed and the area restored, and new shuttle bus stops would be located on both the north and south sides of Northside Drive east of the Yosemite Creek Bridge.

As described for Alternatives 2 and 3, access to the base of the fall would be by foot on either a rehabilitated Western Channel Trail (the present main access) or a better-defined and hardened Eastern Channel Trail; both trails could be combined into a loop trip. Access to the base of the fall for visitors with mobility impairments would be by the redesigned and hardened eastern trail. At the base of the fall, the historic bridge across Yosemite Creek would be rehabilitated and the viewing area enlarged. The human-built rock-rubble pile downstream from this bridge would be removed from the western creek channel.

As described for Alternative 3, restrooms would be replaced near the existing parking lot. Two of the historic bridges along the eastern trail would be rehabilitated or rebuilt.

Bridge 1 would be relocated; bridge 2 would be relocated to provide a wheelchair-accessible trail to pass south of the historic Hutchings Sawmill site; bridge 3 would be rehabilitated or rebuilt to maintain access to the Muir plaque and Clark bench; and bridges 4, 5, and 6 would be removed. A seventh bridge would be constructed to replace a bridge that was once located east of bridge 3. The pedestrian/bicycle bridge north of and parallel to the current Yosemite Creek Bridge would be replaced with a new bridge to provide access and disperse use in this heavily used area. The section of the historic Valley Loop Trail approaching the fall northwest of the existing restroom would be rehabilitated for continued pedestrian use. Interpretive exhibits and seating would be added to both the Western and Eastern Channel Trails. An informal viewing area would be provided east of the shuttle bus stop on the north side of the road, and an informal gathering and viewing area would be would be located on the Western Channel Trail.

Wilderness Access

Much wilderness hiking would continue to originate in the Valley. Wilderness permits and trip planning would be available for Valley trails at all park visitor centers, including new entrance station visitor centers and the Taft Toe Visitor/Transit Center. Pre- and post-trip walk-in campsites, as well as 150 parking spaces in a lot east of Curry Village, would be available for overnight wilderness users holding permits for Valley trailheads.

Climbing

Climbing in Yosemite Valley would continue and, as described for Alternatives 2 and 3, the number of climbers would not be limited under this planning process. Day climbers would access the Valley in the same manner as other day visitors. For overnight climbers with wilderness permits, parking spaces would be available in the wilderness parking area, located east of Curry Village. Overnight climbers could also access the Valley by regional transportation. Once in the Valley, access to climbing routes would be by shuttle bus or on foot.

Stock Use

As described for Alternative 2, although the National Park Service continues to support stock use in the park, commercial trail rides in the Valley would be eliminated and the concessioner stable would be removed from a highly valued natural resource area. The impacts it has on this area include water pollution, erosion, trail degradation, and attraction of non-native cowbirds.

Due to unacceptable conflicts between commercial horse use and other trail users, the National Park Service proposes to eliminate commercial rides in the Valley based on safety and aesthetic reasons. However, private stock (e.g., horse) use would continue in Yosemite Valley. A new, unstaffed corral for day-use staging of stock would be located east of Curry Village. Parking for private stock trailers would be available at the day-use corral. There would be no facilities for keeping private stock overnight in Yosemite Valley. Horse trails would be maintained in the Valley, but the segment of the Valley Loop Trail between Mirror Lake Road and Yosemite Lodge would be closed to stock use to reduce pedestrian/stock conflicts in busy areas. Swinging Bridge would become a new connector between the

Northside and Southside stock trails; if necessary, Swinging Bridge would be widened or reconstructed to accommodate hikers, bicyclists, and stock. In addition, National Park Service and concessioner administrative stables in the Valley would be relocated outside Yosemite Valley (see Park Operations).

As described for Alternatives 2 and 3, the kennel operation currently associated with the concessioner stable would be discontinued. Visitors would be encouraged through pre-visit information sources to board their pets in facilities outside of the park.

Picnicking

Picnic areas would continue to be available in the Valley (see Vol. IC, plate 4-1), but picnicking would change from car-oriented (the use of large coolers and grills) to less equipment-intensive modes. Under this alternative, the picnic area at Cathedral Beach would be improved, and it would be accessible by foot from the day-visitor parking area at Taft Toe. The Swinging Bridge Picnic Area and its associated parking would be removed and restored to natural conditions (the river at that location would still be accessible from the north side of the bridge). Picnicking facilities would remain at the Church Bowl area east of Yosemite Village, and a restroom facility would be constructed there under this alternative. A new picnic area would be constructed in a portion of the Curry Orchard. The historic Superintendent's House (Residence 1) would be removed, and the area within the River Protection Overlay would be restored to natural conditions; a picnic area would be developed at that site adjacent to Cook's Meadow. The picnic area at Sentinel Beach would be retained and made accessible by shuttle bus. The existing El Capitan Picnic Area would be available to bicyclists and hikers using Northside Drive. The parking area located at the El Capitan Picnic area would be removed. To accommodate users of the El Capitan area, a new picnicking and viewing area—the North American Wall Picnic Area—would follow the old road alignment at El Capitan (the same as under Alternatives 2 and 3). Picnickers could carry food and gear on the Valley shuttle bus, where bins and overhead racks would be available, or could obtain picnic supplies in Yosemite Village or other retail facilities in the Valley.

Other Activities

The historic tennis courts at The Ahwahnee would be removed (the same as under Alternatives 2 and 3) and the area restored to natural conditions. As described for Alternatives 2 and 3, ice skating would continue to be available at a new ice rink north of the Curry Village Pavilion. A new facility that concentrated recreational activities (rental of ice skates and skis in the winter and bicycles and rafts in the summer) into one area would be developed at the ice rink. The sport/mountaineering shop would also be relocated to this facility.

No changes to rafting on the Merced River would take place under this planning process; rafting would continue to be managed by other park resource-based plans. Swimming would continue to be available in summer at lodging pools. Swimming and angling in the Merced River would continue, but they would be directed toward river areas most able to withstand heavy use, such as sand and gravel bars.

CAMPING

Some campground locations would change (see Vol. IC, plate 4-2), and the number of campsites would be reduced by 34, from 475 to 441 (see table 2-37). As explained for Alternative 3, this would be done to avoid, to the greatest extent possible, replacing campsites in highly valued natural resource areas, the Merced River floodplain, and rockfall zones, and to allow for the removal of campsites from the 150-foot-wide River Protection Overlay (see Vol. IC, plates D and E). Many campsites closest to the river would no longer have direct river access due to riverbank restoration and revegetation. River use would be directed toward access points in areas most able to withstand heavy use, such as sand and gravel bars. Relocated campsites would provide a range of camping experiences, from walk-in to those that would accommodate recreational vehicles. Campground orientation, parking, and circulation would be improved.

Table 2-37
Campsites in Yosemite Valley

Location	Number of Sites
Upper Pines (drive-in)	255
Upper Pines (new walk-in)	45
Lower Pines (drive-in)	40
North Pines	0
Backpackers	0
Camp 4 (Sunnyside Campground) (walk-in)	37
Upper and Lower River	0
Yellow Pine (volunteer group walk-in)	4
Tenaya Creek (new walk-to)	20
South Camp (new group walk-in)	10
Backpackers at South Camp (new walk-in)	30
Total Campsites	**441**

Note: Locations that show zero sites are included to provide a comparison with tables in other alternatives. The number of campsites proposed is approximate. Exact numbers would be determined in the final design phase for each campground.

Visitors would arrive at all campgrounds except Camp 4 (Sunnyside Campground) by driving through Curry Village (the same as under Alternatives 2 and 3). The size of the camp store at Curry Village would be increased, and other camper services would be augmented. One campground check station and office would be at the east end of Curry Village. The Upper Pines Campground recreational vehicle dump station would be moved away from the river and placed near this check station. The Lower Pines amphitheater would be relocated to the current site of the concessioner stable parking area (the stable would be removed). Showers would be added to campgrounds wherever feasible for convenience and to reduce crowding at other Valley shower facilities.

Campgrounds would be redesigned to better separate sites by using natural and design features as described for Alternatives 2 and 3. Campsite density (the number of sites per acre) would generally remain the same as at present. Some designated recreational vehicle sites in Upper Pines and possibly Lower Pines would have utility hookups to reduce generator use and associated noise. Walk-in sites would have parking available nearby, except for the new Tenaya Creek walk-to sites, which would have no associated parking and would be available only to campers entering Yosemite Valley by means other than a private motor vehicle (e.g., bus, bicycle, hiking).

As described for Alternatives 2 and 3, campsites at the former Upper River and Lower River Campgrounds, as well as a portion of Lower Pines Campground, which were damaged by and removed following the 1997 flood, would not be reconstructed. These areas would be restored by re-establishing natural topography, hydrology, and riparian or California black oak communities, as described for Alternatives 2 and 3. North Pines Campground, which was also affected by flooding in January 1997, would be removed to preserve and restore highly valued natural resource areas. New walk-in and walk-to campsites would be constructed in Upper Pines and along Tenaya Creek. New group sites and a backpackers' campground would be established east of Curry Village.

At Camp 4 (Sunnyside Campground) under this alternative, 32 existing sites would be retained, and the five sites west of the intermittent creek would be relocated to provide a buffer for the proposed new Indian Cultural Center (see Volume II, Appendix H, Considering Cumulative Effects). The area of the former service station would be restored to an upland/California black oak woodland community. Camp 4 (Sunnyside Campground) would continue to be managed as a first-come, first-served campground, but visitors would be able to secure a site at entrance station visitor centers as well as at the campground.

Yellow Pine Campground would continue to be used as an unimproved group campground for park-sponsored volunteer groups.

Lodging

A total of 982 overnight lodging units would be available in Yosemite Valley (see table 2-38, and Vol. Ic, plate 4-2). Accommodations would continue to be provided with a range of styles and prices, including 202 rustic, 387 economy, 270 mid-scale, and 123 deluxe units (see Vol. Ib, Glossary, for definitions of room types). The number of units available to commercial tour operators and conference/group meetings would continue to be capped to ensure the availability of lodging to independent travelers.

Housekeeping Camp

Housekeeping Camp provides visitors the opportunity to rent developed camping shelters adjacent to the Merced River. Beds and a picnic table are provided in each unit. As described in Alternative 3, Housekeeping Camp would be redesigned to accommodate 52 individual housekeeping units, all at the rustic level. All 212 units within the River Protection Overlay and highly valued resource areas would be removed (see Vol. Ic, plate 4-5).

Table 2-38
Accommodations In Yosemite Valley By Room Type

Location	Rustic Units	Economy Units	Mid-Scale Units	Deluxe Units	Total
Housekeeping Camp	52				**52**
Curry Village	150	270			**420**
Yosemite Lodge		117	270		**387**
The Ahwahnee				123	**123**
Total Rooms	**202**	**387**	**270**	**123**	**982**

Note: The number of lodging units is approximate. Exact numbers would be determined in the final design phase for each facility.

Curry Village

Originally known as Camp Curry, this complex has been in operation since 1899 and has offered rustic lodging facilities to generations of Yosemite visitors. Curry Village would provide activities and services similar to those currently offered, although there would be changes in circulation, facility locations, and number of lodging units (see Vol. IC, plate 4-5). Some lodging facilities would be improved, while others would be relocated outside the rockfall zone. As with Alternative 3, the total number of lodging units would be reduced from 628 to 420 (see table 2-39).

Table 2-39
Curry Village – Lodging Unit Summary

Description	Number of Units
Cabin rooms with bath	252
Cabin rooms without bath	0
Tent cabins	150
Stoneman Lodge	18
Total Rooms	**420**

Note: Room types that show zero units are included to provide a comparison with tables in other alternatives.

Overnight guests would continue to have the option of staying in rustic tent cabins (150 units), cabin-with-bath units (252 units), or in Stoneman Lodge rooms (18 units). In response to visitor demand, to provide for winter use, and as prescribed in the 1992 *Concession Services Plan*, cabin-with-bath units would replace all cabin-without-bath units. The registration building (historic Camp Curry Post Office) would remain, and the lounge (historic Camp Curry registration office) would be used as an information center as well as a lounge. Of the 420 lodging units at Curry Village, 150 would be rustic and 270 would be economy units.

Yosemite Lodge

Yosemite Lodge would provide activities and services similar to those currently offered, although circulation, facility locations, and numbers of lodging units would change (see Vol. IC, plate 4-3). As with Alternative 3, existing and replacement lodging units would total 387 rooms, an increase of 142 rooms over existing levels (see table 2-40).

As previously described, the January 1997 flood damaged four motel structures that were temporarily repaired and are still in use at Yosemite Lodge. These four motel buildings (Maple, Juniper, Alder, and Hemlock) would be removed, along with Laurel and Birch, to accommodate rerouting of Southside Drive and redesign of the Yosemite Lodge. Motel buildings remaining would include Cedar, Elderberry, and Manzanita. Cottage units remaining would include Aspen, Azalea, Cottonwood, Dogwood, Tamarack, and Willow.

Table 2-40
Yosemite Lodge – Lodging Unit Summary

Description	Number of Units
Existing motel rooms with bath, in 3 buildings	59
Existing cottage rooms with bath, in 6 buildings	58
New motel rooms with bath, in 3 buildings	180
New cottage rooms with bath, in 5 buildings	90
New cabin rooms with bath	0
Total Rooms	**387**

Note: Room types that show zero units are included to provide a comparison with tables in other alternatives.

Three 3-story motel buildings and five 2-story cottages of similar architectural design and appearance to Pine and Oak Cottages would be constructed. A total of 117 lodging units at Yosemite Lodge would be economy units, and 270 units would be mid-scale.

The Ahwahnee

The opportunity to stay at The Ahwahnee, Yosemite Valley's grand National Historic Landmark hotel, would not be changed under this alternative. The Ahwahnee would provide activities and services similar to those now offered, but there would be some changes in circulation and parking configuration. Its existing 123 deluxe lodging rooms (99 hotel rooms and 24 cabin/cottage rooms) would be retained (the same as under Alternatives 2 and 3). The one Ahwahnee cottage that is within the River Protection Overlay would be retained, as it is a contributing element to The Ahwahnee National Register historic property.

Food and Retail Services

Taft Toe

Limited food and retail services would be provided at the Taft Toe Visitor/Transit Center.

Yosemite Lodge

The interconnected buildings at the center of Yosemite Lodge would continue to be the location of food and retail services (see Vol. Ic, plate 4-3). The three restaurants and one gift shop would remain unchanged; the Mountain Room Bar would be redesigned as a public lobby and lounge. The main gift store would be permanently reduced in size, matching its present winter configuration.

The swimming pool, bicycle rental stand, and snack bar would also remain in their current locations. All facilities could be redesigned over time to improve guest services. The post office building would be removed (the same as under Alternatives 2 and 3).

As described for Alternatives 2 and 3, a new building would be constructed for lodge registration, and the existing registration building would be adaptively used for informal seating, administrative and interpretive functions, information, and Valley tour reservations. The Cliff Room and the outdoor amphitheater in the courtyard would be improved and would continue to be used primarily for evening interpretive programs, group meetings, seminars, and other special functions.

A new maintenance and housekeeping facility would be constructed behind the cafeteria and restaurant complex to replace the facilities damaged by flooding. All housekeeping, storage, maintenance, and associated management space would be consolidated in this new facility, as described for Alternatives 2 and 3.

The service station would not be replaced. A mobile repair truck, designed to deal with minor emergency services and to provide gas on the road, would continue to be operated; this service would be expanded as needed. Service stations at other park locations would be retained.

Yosemite Village

The Village Store building would continue to be used for its present purposes (see Vol. IC, plate 4-4), but gift sales and the grocery function would be reduced; the deli operation would be moved here from Degnan's. A short-term locker/storage facility where visitors could check their belongings would be designed into the building. Recycling, ATM, check cashing, and transportation kiosk functions would be retained. As described for Alternative 3, the Village Grill would be expanded for more indoor seating. The sport shop function would be incorporated with the sport/mountaineering shop at Curry Village.

As described for Alternative 3, the Degnan's building, which currently houses a deli, restaurant, grill, and retail gift sales, would be redesigned for expanded food service. The present gift shop would be removed. Inside seating would be increased.

The historic Village Garage building would be removed; public garage functions would be relocated to El Portal (the same as under Alternatives 2 and 3).

The Art Activity Center would continue to provide artistic activities for the public, but it would be moved back to its previous location at the existing Wilderness Center. The former bank building, which currently houses the Art Activity Center, would be torn down and the area restored to natural conditions (the same as under Alternative 3).

The historic Ansel Adams Gallery photography and gift shop, the medical and dental clinics, and the historic Yosemite Post Office in Yosemite Village would be retained (the same as Alternative 3).

The Ahwahnee

The Ahwahnee dining room, gift shop, sweet shop, and bar would remain. Services offered at The Ahwahnee would remain much as they are and would not take on a more resort- or spa-type character.

Happy Isles

The ice cream/snack stand (destroyed by rockfall in 1996) would not be replaced; no food service would be available at Happy Isles (the same as under Alternatives 2 and 3).

Curry Village

The Curry Pavilion and Meadow Deck food service areas would be redesigned as proposed in the *Concession Services Plan*. As under Alternatives 2 and 3, the grocery and gift functions in the Meadow Deck building would be separated to reduce congestion. The grocery would be substantially expanded to include deli operations and a camp store.

The outdoor amphitheater, lounge, and pool would be rehabilitated or replaced. The lounge (historic Camp Curry registration office) would be rehabilitated and remain in use; it would be used for information and interpretive functions (the same as under Alternative 2) as well as a lounge.

As described for Alternatives 2 and 3, the Curry Ice Rink would be relocated north of the Curry Pavilion and Meadow Deck buildings. The Mountain Shop, along with bicycle and ski rentals, would be relocated to the ice rink area to consolidate space and recreational uses. Raft rentals would occur seasonally at this location. A short-term locker/storage facility where visitors could check their belongings would also be designed into the building.

The seasonal post office would be removed; mailboxes would be provided at employee housing, the same as under Alternatives 2 and 3. Registration would remain in the present registration building (the historic Camp Curry Post Office).

Transportation

The major transportation actions that distinguish this alternative include:

- Provide parking for 550 day-visitor vehicles at Taft Toe near El Capitan crossover
- Construct a new visitor/transit center at Taft Toe, adjacent to the day-visitor parking area
- Provide out-of-Valley day-visitor parking (about 1,590 total spaces) at Badger Pass, South Landing, and El Portal
- Convert Southside Drive to two-way traffic (one lane in each direction) from El Capitan crossover to Curry Village, with wider lanes and shoulders where needed (the same as under Alternative 3)
- Expand shuttle service throughout Yosemite Valley (the same as under Alternatives 2 and 3)
- Close Northside Drive to vehicles from Yosemite Lodge to the El Capitan crossover area and convert to a multi-use paved trail (the same as under Alternatives 2 and 3)
- Reduce traffic entering the east Valley on a typically busy day by more than two-thirds

This alternative would result in a major reduction in vehicle travel in the eastern portion of Yosemite Valley. Day-visitor parking would be located near the El Capitan crossover. All day-visitor traffic, tour buses, regional transit buses, and shuttles from parking areas outside the Valley would stop at Taft Toe. Only tour buses carrying overnight visitors would travel to the east Valley. Day visitors would only travel to the east Valley on shuttle buses. The number of vehicles passing the Yosemite Chapel on Southside Drive near Sentinel Bridge would be reduced from about 7,200 vehicles on a typically busy day (1998) to about 2,360 vehicles. About 330 of these would be new shuttle bus trips from the Taft Toe Visitor/Transit Center.

Traveler Information and Traffic Management

The broad goals of Yosemite's *General Management Plan* include the reduction of traffic congestion and crowding in Yosemite Valley. Progress toward achieving these goals would be accomplished by developing a traveler information and traffic management system to provide visitors with information about where to park and whether overnight accommodations were available in the Valley well before they arrive in the Valley. The system would use incentives

to encourage visitors to use out-of-Valley parking, and it would assist visitors in selecting the best means of travel for their specific needs. If required, to assure that the number of vehicles east of El Capitan crossover did not exceed available parking, a traffic check station would be developed at Taft Toe (see Actions Common to All Action Alternatives at the beginning of this chapter).

Yosemite Valley and Out-of-Valley Parking

Day-Visitor Parking

Day-visitor parking facilities in the Valley would change. Under this alternative, a new parking area for 550 day-visitor vehicles and a new visitor and transit center would be constructed at Taft Toe near the El Capitan crossover (see Vol. Ic, plate 4-1). From the Taft Toe Visitor/Transit Center, shuttle buses would transport visitors to Valley destinations; no day-visitor traffic would travel east of the Taft Toe parking area. All day visitors arriving in private vehicles would park their vehicles in the new facility, as under Alternative 3. However, under this alternative, when parking was not available in the Valley, day visitors arriving at park entrance stations would have the option of parking in out-of-Valley parking areas, where shuttle service to the Valley and other park destinations would be provided.

The out-of-Valley day-visitor parking areas would be at Badger Pass (about 415 spaces for visitors using the South Entrance), South Landing (about 805 spaces for visitors using the Big Oak Flat or Tioga Pass Entrances), and El Portal (about 370 spaces for visitors using the Arch Rock Entrance) (see Vol. Ic, plate 4-8). Each area would be equipped with small transit facilities that would incorporate restrooms and visitor information. The out-of-Valley parking areas would not be used during periods of lower visitation, normally, November through March.

Regional transit buses and tour buses carrying day visitors would travel directly to the visitor/transit center at Taft Toe and unload their passengers. Up to 16 bus bays would be provided at Taft Toe for tour buses, regional transit buses, and out-of-Valley shuttles. Visitors would then board shuttles to travel to destinations in the east Valley. Visitors could also travel by bicycle or on foot on paved and unpaved trails from the Taft Toe Visitor/Transit Center.

Overnight Parking

As described for Alternative 3, overnight visitors with lodging or camping reservations or wilderness permits would drive directly to their lodging or campground, or to the Wilderness parking area east of Curry Village (see table 2-41). To allow overnight guests the opportunity to stop at the visitor center as they enter the Valley, 50 short-term parking spaces

Table 2-41
Overnight Parking Locations

Overnight Parking Location	Parking Spaces
Housekeeping Camp	52
Curry Village	420
Yosemite Lodge	387
The Ahwahnee	123
Campgrounds	495
Wilderness Parking	150
Total	**1,627**

Note: These numbers are based on one parking space per campsite, although up to two cars can be parked in individual campsites and up to three at group sites. No parking spaces are allotted for walk-to campsites. For Camp 4 (Sunnyside Campground), a ratio of three parking spaces per site was used.

would be provided at Taft Toe for visitors with overnight accommodations in the Valley. To reduce traffic congestion, parking for overnight visitors would no longer be provided at other destinations or along Valley roads. Vehicles would remain parked in assigned areas unless they were needed for travel to out-of-Valley destinations. Travel within the Valley to trailheads, activity areas, and facilities would be by shuttle bus, bicycle, or on foot. As described for Alternatives 2 and 3, parking for new walk-in campsites and Camp 4 (Sunnyside Campground) would be provided within walking distance of the sites. No parking would be provided at the Tenaya Creek walk-to campsites, as they would be designated for overnight campers arriving in the Valley by means other than private vehicle.

Some overnight visitors would arrive by commercial tour bus. These buses would drive visitors directly to their lodging or campground areas and would then park at one of 15 designated parking spaces at Yosemite Lodge (the same as Alternatives 2 and 3).

Employee Parking

Parking for National Park Service, concessioner, and other employees residing in the Valley would be located at or near each residence.

As described for Alternatives 2 and 3, most employees commuting from outside the Valley would be required to use an employee transportation system. Employee shuttle service could be provided with the same buses that would serve as out-of-Valley shuttles at other times of the day. Alternatively, buses could be dedicated to employee transportation services, if desired. This system would be developed to meet the needs of employees with different schedules and could include regional transit options or car and vanpools. Approximately 1,300 workers would commute to work in the Valley in the summer.

Employees who live west of El Portal along the Highway 140 corridor and work in Yosemite Valley could drive to a parking area in El Portal and take employee shuttles into the park. Approximately 60 parking spaces would be provided at El Portal for this purpose. Some employees (e.g., late-night and early-morning shift workers) would still drive their private vehicles to the Valley and park in designated spaces as prescribed in the traveler information and traffic management system. (These actions are the same as under Alternatives 2 and 3.)

Yosemite Valley Roads

Summary of road and circulation changes:

- Convert Southside Drive to two-way traffic east of El Capitan crossover (the same as under Alternatives 2 and 3)
- Realign approach to Sentinel Bridge (the same as under Alternatives 2 and 3)
- Close Northside Drive to vehicles from Yosemite Lodge to El Capitan crossover and convert to a multi-use paved trail (the same as under Alternatives 2 and 3)
- Reroute Northside Drive to the south of Yosemite Lodge (same as under Alternatives 2 and 3)
- Remove Southside Drive through Stoneman Meadow (the same as under Alternatives 2 and 3)

- Remove Northside Drive through the former Upper River and Lower River Campgrounds and Ahwahnee Meadow (the same as under Alternatives 2 and 3)
- Remove scattered parking areas and some roadside turnouts throughout the Valley; retain some turnouts for emergency use and for short-term viewing of scenic features (the same as under Alternatives 2 and 3)

Bridge summary:

- Sugar Pine – remove historic bridge
- Stoneman – remove historic bridge
- Housekeeping – remove historic bridge
- Superintendent's – remove historic bridge
- Yosemite Creek – construct new vehicle bridge; convert existing vehicle bridge to use for bicycles and pedestrians; remove existing bicycle bridge
- Lower Yosemite Fall area – one historic footbridge rehabilitated or rebuilt, three removed, two relocated

Valley Access via El Portal Road

As described in Actions Common to All Action Alternatives at the beginning of this chapter, the section of El Portal Road between the El Portal and Big Oak Flat Road intersection and Pohono Bridge would be improved. Road improvements would be designed to minimize the chance of road failure during flood events, to improve safety, and to minimize damage to riparian areas by focusing visitor use.

West Valley (El Capitan Bridge to Pohono Bridge)

As under Alternatives 2 and 3, minimal changes to road circulation would occur in the western half of the Valley. Southside Drive from Pohono Bridge to El Capitan crossover would continue to be a two-lane, one-way road eastbound, and Northside Drive would be a two-lane, one-way road westbound. El Capitan crossover would be one-way northbound across the Merced River at El Capitan Bridge between Southside and Northside Drives. Turnouts would be retained for emergency use and short-term viewing of scenic features.

Under this alternative, as part of the traveler information and traffic management system, a traffic check station may have to be constructed on Southside Drive in the area of El Capitan crossover (see Vol. IC, plate 4-1, and Actions Common to All Action Alternatives). Day visitors or visitors with overnight reservations in the Valley would continue eastbound on Southside Drive. When the Valley day-visitor parking area was full, day visitors would proceed across El Capitan crossover to Northside Drive to continue out of the Valley to other park destinations or to out-of-Valley parking facilities.

East Valley (El Capitan Bridge to Curry Village and the Campgrounds)

Southside Drive from El Capitan Crossover to Curry Village and the Campgrounds

As described for Alternatives 2 and 3, Southside Drive from El Capitan crossover east through Curry Village would be converted to two-way traffic, with one lane in each direction (see Vol. IC, plate 4-1). This section of roadway would be widened to no more than 26 feet, accommodating 11-foot lanes and 2-foot paved shoulders on each side of the two-way road. From the Yosemite Chapel to Sentinel Bridge, the road would be realigned to improve the approach to Sentinel Bridge and facilitate traffic circulation. Near Curry Village, the portion of Southside Drive that crosses Stoneman Meadow would be removed, and all traffic would be rerouted along a realigned Curry Village Road. This would provide two-way access to Curry Village and the campgrounds. Curry Village Road would be realigned along the south edge of the historic Curry Orchard, following an existing access road through Boys Town to the campgrounds and Wilderness parking. The access road to Southside Drive at the west edge of the Curry Orchard would be removed. The one-way loop road to Curry Village registration and parking would remain, although the parking area would be redesigned.

Southside Drive to Yosemite Village and Yosemite Lodge

As described for Alternatives 2 and 3, traffic from the west Valley or from Curry Village would cross Sentinel Bridge to reach Yosemite Village, The Ahwahnee, and Yosemite Lodge (see Vol. IC, plate 4-2). This road, the Sentinel crossover, would be two-way, with one lane in each direction.

Yosemite Lodge Area

Northside Drive in the Yosemite Lodge and Camp 4 (Sunnyside Campground) area would be relocated south of the Lodge, as described for Alternatives 2 and 3, to reduce conflicts between vehicles and pedestrians and to provide safer pedestrian access between the Lodge and Yosemite Falls (see Vol. IC, plate 4-3). Vehicular circulation to Yosemite Lodge would be routed across Yosemite Creek via a new motor vehicle bridge just south of the Yosemite Creek Bridge. West of the site of the proposed Indian Cultural Center, Northside Drive would be closed to vehicles and converted to a multi-use paved trail for bicycles and hikers (it would also be available as an emergency route).

Transit

This alternative would provide 550 parking spaces for day-visitor vehicles at Taft Toe. Additional day-visitor parking would be provided at three out-of-Valley locations in the park: Badger Pass, El Portal, and South Landing. Out-of-Valley shuttle buses would transport day visitors to and from the Valley, and in-Valley shuttles would transport day and overnight visitors throughout the Valley. The out-of-Valley parking areas and shuttles would not operate from November through March or on other days when visitor use was low.

Shuttles operating within Yosemite Valley would provide service year-round. Generally, the peak visitation season for Yosemite National Park occurs from mid-June through Labor Day

weekend. April, May, September, and October are the shoulder season months, with intermediate levels of visitor use. Visitation is lowest from November through March. The operating hours of the shuttle routes and the frequency of service would be adjusted within each season as required to meet visitor needs, and visitation would be managed so as not to exceed the carrying capacity of visitor use areas.

Shuttles from out-of-Valley parking sites to the Valley would not operate from November through March, when parking in Yosemite Valley would be sufficient to serve day visitors. Service on out-of-Valley shuttle routes would start in April, beginning with the weekends. As visitation increased, the amount of service would be expanded, reaching a maximum level on weekends in the summer. Service would be reduced in the fall as the need decreased, with shuttles to out-of-Valley parking areas operating only on weekends in the last weeks of the season in October.

In-Valley Shuttles

The in-Valley shuttle system would provide transportation for day visitors parking at Taft Toe; those who ride regional transit buses, tour buses, or out-of-Valley shuttles; and for overnight visitors. As described for Alternative 3, the shuttle system provided for this alternative would consist of four separate shuttle routes, all of which would cycle through the new Taft Toe Visitor/Transit Center:

- Ahwahnee Connector – service between Taft Toe and The Ahwahnee
- Yosemite Lodge Connector – service between Taft Toe and Yosemite Lodge
- Happy Isles Connector – service among Taft Toe, Curry Village, and Happy Isles
- Bridalveil Circulator – service between Taft Toe and Bridalveil Fall

These four routes would converge at the Taft Toe Visitor/Transit Center. In-Valley shuttle buses would use a separate loading area adjacent to the 16 bus bays provided for tour buses, regional transit buses, and out-of-Valley shuttles. This facility would provide transfer and interpretive/orientation opportunities.

In-Valley Shuttle Services

During the busiest times of the day in the peak season, in-Valley shuttle buses would circulate through the Taft Toe Visitor/Transit Center as follows: one bus approximately every 7.5 minutes for the Ahwahnee Connector, approximately every 5 minutes for the Yosemite Lodge Connector, approximately every 6 minutes for the Happy Isles Connector, and approximately every 15 minutes for the Bridalveil Circulator. Peak-season shuttle service would be provided between early morning and late evening (hours could be expanded during special events). Table 2-42 presents estimated characteristics for the proposed in-Valley shuttle system under this alternative.

In-Valley Shuttle Vehicles

The shuttle buses used on routes operated within Yosemite Valley would be designed to operate over the gentle grades on Valley roads and to allow passengers to get on and off the bus

Table 2-42 In-Valley Shuttle Service in Peak Season				
Characteristics	**Ahwahnee Connector**	**Yosemite Lodge Connector**	**Happy Isles Connector**	**Bridalveil Circulator**
Route Description	Taft Toe to Sentinel, Yosemite Village & The Ahwahnee	Taft Toe to Sentinel, Yosemite Lodge	Taft Toe to Sentinel, Curry Village & Campgrounds	Taft Toe to Bridalveil Fall
Route Length (round trip)	7.9 miles	8.8 miles	9.9 miles	5 miles
Travel Time (round trip)	34 minutes	41 minutes	45 minutes	27 minutes
Minimum Time between Buses	7.5 minutes	5 minutes	6 minutes	15 minutes
Type of Bus	High Capacity/ Low Floor Shuttle	High Capacity/ Low Floor Shuttle	High Capacity/ Low Floor Shuttle	High Capacity/ Low Floor Shuttle
Number of Buses Needed	**6**	**10**	**9**	**2**

Note: The three routes from Taft Toe to east Valley would all stop at Sentinel Bridge to provide visitors an opportunity to transfer between shuttle routes.

easily at the many stops. Buses would use the best-available fuel and propulsion systems designed for the special characteristics of travel within Yosemite Valley. Buses would be selected to minimize noise and air pollutant emissions, while providing sufficient capacity and cost-effective, reliable service. Buses would be replaced or modified to take advantage of advances in fuel propulsion technology as they became available.

Out-of-Valley Shuttles

While out-of-Valley shuttle buses would not be ordered for several years, the National Park Service would evaluate new technology and alternative fuels when selecting and purchasing buses. Out-of-Valley shuttles under this alternative would provide service between the new Taft Toe Visitor/Transit Center and parking facilities at Badger Pass, El Portal, and South Landing. Once in the Valley, the out-of-Valley shuttles would go to Taft Toe, where passengers could transfer to in-Valley shuttles to access Valley destinations. From the visitor center, passengers could walk or bicycle to destinations within the Valley.

Out-of-Valley Shuttle Services

During the peak season, out-of-Valley shuttle buses would serve the out-of-Valley parking areas as follows: one bus approximately every 12 minutes for the Badger Pass route, approximately every 12 minutes for the El Portal route, and approximately every 6 minutes for the South Landing route. These three routes combined would result in one bus arriving at the Taft Toe Visitor/Transit Center approximately every 3 minutes. Peak-season shuttle service would be provided between the hours of 5:00 A.M. and 11:00 P.M. (hours could be expanded during special events). Table 2-43 presents estimated characteristics for the proposed out-of-Valley shuttle system.

Out-of-Valley Shuttle Vehicles

Buses used on out-of-Valley shuttle routes would be designed to provide relatively high-speed service over roads with steep grades and sharp curves. These buses would provide storage areas for recreational equipment (such as bicycles) carried by visitors, including under-floor storage if needed. Out-of-Valley shuttle buses would use the best-available fuel and propulsion system

Table 2-43 Out-of-Valley Shuttle Services in Peak Season			
Characteristics	**Badger Pass**	**El Portal**	**South Landing**
Valley Access Route	Glacier Point Road via Wawona Road	El Portal Road/ Highway 140	Big Oak Flat Road
Route Length (round trip)	31.0 miles	21.7 miles	25.5 miles
Travel Time (round trip)	108 minutes	80 minutes	91 minutes (78)
Minimum Time between Buses	12 minutes	12 minutes	6 minutes
Type of Bus	Over-the-Road Coach	Over-the-Road Coach	Over-the-Road Coach
Number of Buses Needed	**12**	**8**	**18**

technology to minimize noise and air pollutant emissions, while providing sufficient capacity and cost-effective, reliable service to visitors. Because the operating conditions for out-of-Valley shuttles would be different than those required for in-Valley shuttles, these buses could use a different fuel and propulsion technology than the in-Valley shuttle buses.

Regional Transit

Day visitors who do not park in the Valley or in one of the out-of-Valley parking areas may have the option of traveling to the Valley on regional transit or other modes of transportation not requiring parking. These modes would deliver passengers directly to the Taft Toe Visitor/Transit Center.

Commercial Tour Buses

Commercial tour buses would continue to bring about 14% of day visitors and lodging guests to Yosemite Valley in the summer. Tour buses carrying day visitors would load and unload at the Taft Toe Visitor/Transit Center, and park at Taft Toe. Overnight tour buses would park at Yosemite Lodge.

Summary

Combined in-Valley shuttle and out-of-Valley shuttle operations would equate to one bus at the Taft Toe Visitor/Transit Center every 1.1 minutes during the busiest times in the peak season.

Park Operations

National Park Service operations in Yosemite Valley would be scaled down to the level of district operations, similar to Tuolumne Meadows and Wawona. Both the National Park Service and concessioner headquarters would be removed from the Valley and relocated to El Portal (the same as under Alternatives 2 and 3).

As described for Alternatives 2 and 3, National Park Service and concessioner administrative stables operations, as well as the parkwide trails operation, would be relocated to McCauley Ranch in Foresta. Since McCauley Ranch was identified as a possible Wilderness addition in the 1984 California Wilderness Act, a Wilderness suitability assessment would be prepared. If the McCauley Ranch addition is determined to be suitable for designation as Wilderness, stable

operations would be supported in the current National Park Service stable facility. If located at this site the consolidated stable operation would support only district stable and trails operations and not parkwide trails operations. If the consolidated stable operation is moved to McCauley Ranch, then the access to the area would be improved by widening the road and possibly replacing the bridge over Crane Creek to allow for stock trailers and hay trucks. Access improvements would be identified during the site design process, which would allow for the participation of National Park Service and concessioner employees, residents of Foresta, Mariposa County officials, and other interested parties. A corral at the current National Park Service stable would provide a staging area for limited National Park Service and concessioner operations; the staging area would have parking for five trailers.

National Park Service

In Yosemite Valley, the NPS maintenance area would be redesigned to accommodate essential district offices and maintenance shops (see Vol. Ic, plate 4-4). Under this alternative, the historic NPS Operations Building (Fort Yosemite) would be retained, but the associated shops would be removed. NPS administration and headquarters functions would be relocated to El Portal within the existing NPS operations area at Railroad Flat in the western portion of El Portal. Depending on land development constraints in El Portal or other considerations, the relocated headquarters functions for both the National Park Service and concessioner could be relocated to neighboring communities. If the National Park Service pursued this opportunity, appropriate environmental review would be completed.

The following functions and offices would be removed from Yosemite Valley (the same as under Alternative 3):

- Park management, including the superintendent, deputy superintendent, and division chiefs, would move out of Yosemite Valley
- Parkwide supervision and administration of the Divisions of Interpretation, Resources Management, Concessions Management, Resource and Visitor Protection, and Administration would move out of Yosemite Valley
- Parkwide stock and trails maintenance operations would move to Foresta
- Parkwide wilderness utilities maintenance would move to El Portal
- Parkwide wildfire protection, search and rescue, law enforcement support, and wilderness management would move to El Portal
- The jail/detention facility would move to El Portal
- U.S. District Court Magistrate facility would move to El Portal
- Interpretive support workspace (e.g., exhibit shop) would move to El Portal

The following functions and offices and would remain in Yosemite Valley (the same as under Alternatives 2 and 3):

- Supervision of Valley District roads operations
- Valley District trails operations
- Stock, trails, and wilderness utilities operations with Valley staging areas

- Valley District buildings and grounds maintenance and supervision, including district materials storage and shops
- Valley District utilities maintenance
- Valley District Resource and Visitor Protection, including emergency medical response and structural fire protection
- Bear management program
- Interpretive workspace, presentation of visitor services, and storage of district supplies and materials

The historic Superintendent's House (Residence 1) and its garage, at the edge of Cook's Meadow, would be removed under Alternative 4, the area within the River Protection Overlay restored to natural conditions, and a picnic area developed at the current site. As described for Alternative 3, a new fire station would be constructed at the south edge of the Yosemite Village Historic District to house the National Park Service and concessioner fire engines and emergency service operations. Yellow Pine Campground would continue to be used as an unimproved group campsite for park-sponsored volunteers.

Taft Toe Visitor/Transit Center

As described for Alternative 3, the Taft Toe Visitor/Transit Center would provide visitor orientation and limited visitor services, but under this alternative it would only provide parking for 550 day-visitor vehicles, as well as a transportation hub for shuttle, transit, and tour buses, which would require up to 16 bus bays. Fueling, light maintenance, and associated vehicle storage for Valley shuttles would also be provided at the Taft Toe Visitor/Transit Center. Shuttle bus heavy maintenance and associated vehicle storage would be provided in El Portal. For regional transit and tour buses, the National Park Service would provide layover areas for daytime use at designated locations, but overnight vehicle storage and maintenance would be the responsibility of the service provider.

Shuttle Employee Requirements

Under this alternative, a total of 242 additional employees would be required to operate the in-Valley and out-of-Valley shuttle systems (see table 2-44). Of these employees, 80 supervisors and drivers would be dedicated to the in-Valley shuttle, 102 supervisors and drivers would be dedicated to the out-of-Valley shuttle, and the remaining 60 personnel would support both shuttle systems. Off-season operations (October,

Table 2-44
Shuttle Employee Requirements

Position	Number of Employees	
	Peak Season	Off-Season
Valley Shuttle Supervisors	12	12
Valley Shuttle Drivers	68	65
Out-of-Valley Shuttle Supervisors	10	10
Out-of-Valley Shuttle Drivers	92	84
Dispatch/Clerical	10	10
Mechanics	22	21
Hostlers	7	7
Administration	6	5
Parts/Inventory	6	5
Janitorial	2	2
Other	7	7
Total Employees	**242**	**228**

April, May) would require 77 Valley shuttle drivers and supervisors, 94 out-of-Valley shuttle drivers and supervisors, and 57 shared employees between the two systems, for a total of 228 employees.

Concessioner and Other Entities

The administrative headquarters for the park's concessioner would be relocated to new facilities in El Portal, or at the option of the concessioner, to another out-of-park location, as in Alternatives 2 and 3. The Concessioner Headquarters Building would be removed, and the area would be restored to natural conditions (see Vol. Ic, plate 4-4; compare to plate 1-4, No Action Alternative). The concessioner would retain the warehouse building in the Valley to support operations, including inventory and supply distribution, building maintenance shops, security, recycling, uniforms, personnel, payroll, housing, and computer support. A new fire station would be constructed at the south edge of the Yosemite Village Historic District to house the National Park Service and concessioner fire engines. With the removal of the historic Village Garage facility, shuttle bus servicing functions would be relocated to Taft Toe (the same as Alternative 3). Heavy maintenance of concessioner vehicles would be relocated to a new garage facility in El Portal; site-specific locations for these facilities would be evaluated and determined during the site design and development process (the same as under Alternatives 2 and 3).

- The medical and dental clinics would remain as long as feasible and financially viable (the same as under Alternative 3)
- The historic U.S. Post Office in Yosemite Village would remain; limited postal facilities may be incorporated into new employee housing designs (the same as under Alternatives 2 and 3)
- The Pacific Bell telephone operation would remain, although the location could be changed (the same as under Alternatives 2 and 3)
- The historic Ansel Adams Gallery would remain (same as under Alternatives 2 and 3)

Employee Housing

Housing is necessary to accommodate employees who are responsible for natural and cultural resource protection, serving the needs of park visitors, and meeting the operational requirements of the park. During the summer, over 18,200 people per day may visit Yosemite Valley. Only by providing employee housing at or within a reasonable proximity to Yosemite Valley would resources be protected and the needs of these visitors be met.

Housing Program Overview

This alternative would provide up to 1,964 total employee beds to support Yosemite Valley district functions (National Park Service, primary concessioner, and other partners). The housing would be distributed as follows:

- Retain up to 689 employee beds in Yosemite Valley
- Remove at least 588 employee beds from Yosemite Valley; of these, relocate 574 to the El Portal Administrative Site and 14 to Foresta
- Provide up to an additional 273 employee beds in the El Portal Administrative Site to accommodate present unmet needs and potential demand

Housing Objectives

Yosemite National Park is committed to following the direction set by National Park Service policy that seeks to reduce the government's role in providing employee housing while reserving the ability to provide housing when appropriate and necessary. At Yosemite National Park, one way of reducing the government's role is to facilitate the private acquisition of housing by employees. To this end, under this alternative the National Park Service would actively pursue and facilitate policies, programs, and arrangements that would: (1) encourage National Park Service and park partner employees to find private housing in the region, and (2) work with county governments and, as appropriate, the private sector, to develop strategies to house National Park Service and park partner employees in the region.

Additionally, the National Park Service would develop housing policies and programs as allowed by the Omnibus Parks and Public Lands Management Act of 1996. The act states that the National Park Service shall consider actions to:

a) Develop where necessary an adequate supply of quality housing units for field employees for the National Park Service within a reasonable time frame;
b) Expand the alternatives available for construction and repair of essential government housing;
c) Rely on the private sector to finance or supply housing to the maximum extent possible, in order to reduce the need for federal appropriations;
d) Ensure that adequate funds are available to provide for long-term maintenance needs of field employee housing; and
e) Eliminate unnecessary government housing and locate such housing as is required in a manner such that primary resource values are not impaired.

This alternative identifies locations that can be used for employee housing within Yosemite National Park (Yosemite Valley and Foresta) and the El Portal Administrative Site. These locations have been identified in order to guide potential future land use. However, to the greatest degree possible the National Park Service would attempt to facilitate the private acquisition of housing in the region for a reasonable portion of the National Park Service and park partner workforce. Prior to the construction of housing, the National Park Service would encourage employees to find private housing in the region, and work with county governments and, as appropriate, the private sector, to develop strategies to house Yosemite National Park employees collectively.

Because the National Park Service does not have authority over the use of private lands in the region outside Yosemite National Park and the El Portal Administrative Site, and because an ample supply of housing is not guaranteed, the National Park Service would be prepared to meet housing needs within areas under its jurisdiction in Yosemite Valley, El Portal, Wawona, and Foresta. If an adequate supply of employee housing were not available in the local region, then the National Park Service would construct housing in these areas. Furthermore, the National Park Service recognizes that active involvement in the appropriate county and state government processes, and compliance with county ordinance and state government laws and regulations (such as the California Environmental Quality Act) would be required and essential when considering land use options outside the boundaries of Yosemite National Park.

Presently, during the peak season, the combined total workforce serving Yosemite Valley is approximately 2,183[1] and housing is provided for a total of 1,620[2] employees Therefore, approximately 563[3] employees (or 26%) of the total workforce is housed privately within the region, including privately owned homes on National Park Service leased land in Old El Portal.[4]

This alternative could increase the Yosemite Valley related workforce by 273[5] employees up to 2,456[6] employees to accommodate increases in staffing levels associated with alternative actions. To meet the needs of this additional workforce this alternative would provide an additional 273 employee bed spaces.

Again, because the National Park Service does not have the authority over the use of private lands in the region outside Yosemite National Park, the number of beds proposed in this alternative would meet housing needs within Yosemite Valley, El Portal, Wawona, and Foresta if housing were not available in the region.

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1. Current staffing level: 1,750 concessioner + 433 NPS = 2,183
2. Current beds on under park jurisdiction: 1,691 beds – 71 private beds (at Old El Portal) = 1,620 beds. There are 1,691 existing beds for Yosemite Valley employees (see Alternative 1 – Housing).
3. Employees privately housed: 2,183 current staff – 1,620 current beds = 563
4. Homes in Old El Portal are included in the calculation because they are privately owned and acquired, even though they are on National Park Service leased lands.
5. Growth in staffing and related bed spaces: 10 NPS operations + 242 transportation + 15 concessioner + 6 other concessioner = 273 beds.
6. Total number of employees necessary to serve Yosemite Valley under Alternative 4 (2,183 existing + 273 growth = 2,456)

Site Design and Development Process

Upon completion of this plan, site-specific design studies would be prepared to evaluate design options for new housing and administrative facilities. These studies would include, if necessary, additional environmental review, evaluation and compliance, archeological surveys and data collection, ethnographic resource inventories and evaluation, historic resource studies, biological assessments, erosion control plans, geologic assessments, and the development of architectural guidelines. Housing types and densities, and support facility locations might change if site-specific constraints were identified, if National Park Service or concessioner staffing programs changed, or if housing program requirements change in response to changes in the demand for housing.

The site design and development process would allow for the participation of National Park Service and concession employees, residents of El Portal, Wawona, and Foresta, Mariposa County officials, and other interested parties in the preparation of site development studies for housing, administrative functions, and community or commercial facilities. These processes would consider appropriate county and/or town planning area specific plans and would prescribe development characteristics and criteria that would be compatible with the character, density, and scale of existing development. Site-specific environmental review, evaluation, and compliance would also be completed as appropriate during the site design process on a project-by-project basis.

Housing Program

A total of 689 National Park Service, concessioner, and other park employee beds would be located in Yosemite Valley. This represents an application of criteria proposed in the 1992 *Draft Yosemite Valley Housing Plan*.

Under this alternative, 1,149 employee beds would be located at the El Portal Administrative Site. Of these, 290 are existing, although 104 would be relocated from the Village Center and the Trailer Village (Hennessey's Ranch) to allow for redevelopment. Employee housing to replace those beds relocated from Yosemite Valley (574 beds) and from Cascades and Arch Rock (12 beds) would be constructed, as would facilities for an additional 273 beds to accommodate present unmet needs and potential future growth as a result of the operational changes associated with this alternative.

Of the 1,964 beds in Yosemite Valley, El Portal, Foresta, and Wawona, 1,537 would be allocated for the primary concessioner, 336 for the National Park Service, and 91 for others (see table 2-45). The total number of beds was determined by evaluating the specific operational requirements of this alternative and then projecting the related staffing requirements.

Following the January 1997 flood, temporary concessioner housing (345 beds) was established at several locations in Yosemite Valley, including the Yosemite Village area (80 beds), Yosemite Lodge (82 beds), and Curry Village (183 beds). All of these temporary beds would be replaced.

Minor adjustments to the housing number, type, and density for each location may be needed in response to the site design process, or constraints or conditions not identified during this planning process. If significant adjustments are required, additional site-specific environmental review may be necessary.

Table 2-45 Location of Housing by Employer				
Location	**National Park Service**	**Primary Concessioner**	**Others[1]**	**Total**
El Portal	202	893	54	**1,149**
Yosemite Valley	70	582	37	**689**
Foresta	14	0	0	**14**
Wawona	50	62	0	**112**
Cascades and Arch Rock	0	0	0	**0**
Total	**336**	**1,537**	**91**	**1,964**

Note: Numbers indicate beds dedicated to an employee, not total beds in a unit. For example, a three-bedroom house dedicated to one employee is considered to provide one bed. Spouses or partners employed by other Valley employers are not double-counted, as beds are assigned only to the primary employee whose job requires his/her residence in the Valley. Minor adjustments to distribution by employer and location could occur during the implementation of this plan.

1. Others includes park partners, other concessioners, and approved community service organizations.

Yosemite Valley Housing Actions

Three principal locations are identified for 689 employee beds in Yosemite Valley: Curry Village, Yosemite Village, and The Ahwahnee. A total of 588 employee beds would be removed from Yosemite Valley (see table 2-46). Yosemite Valley housing numbers (beds), locations, and distribution by employer are summarized in table 2-46 for this alternative.

Table 2-46 Yosemite Valley – Proposed Housing by Employer					
Location	**Existing Beds**	**Bed Allocation by Employer**			**Bed Change from Existing**
		Primary Concessioner	**NPS**	**Others**	
Ahwahnee Row houses and apartments	45				–45
Lower Tecoya dormitories and apartments	234	234			0
Hospital Row apartments	12	12			0
Middle Tecoya dormitory and houses (clinic area)	13		1	12	0
Upper Tecoya houses	26	14	7	5	0
Lost Arrow dormitory and apartments	39	39			0
Lost Arrow cabins	80				–80
Yosemite Village area	14			10	–4
Ahwahnee dormitory and tent cabins	49	30			–19
Yosemite Lodge cabins	8				–8
Yosemite Lodge modular units	82				–82
Concessioner stable houses and tent cabins	49				–49
Curry Village area	37				–37
Curry Village Huff House tent cabins	50				–50
Curry Village Huff House cabins	104				–104
Curry Village Huff House dormitories	0	253			+253
Curry Village Terrace	156				–156
Curry Village Boys Town tent cabins	178				–178
Curry Village Boys Town	29				–29
National Park Service housing – historic district (including Rangers' Club)	72		62	10	0
Valley Totals	**1,277**	**582**	**70**	**37**	**–588**
Total Beds to Remain in Valley		**689**			

All temporary housing in Yosemite Valley would be removed and replaced with permanent structures, either in Yosemite Valley or El Portal (the same as under Alternative 3). Areas in Yosemite Valley to be used for employee housing are generally within existing developed or disturbed areas. This alternative would remove some housing from highly valued resource areas and the rockfall zone and relocate it. Concentrating housing in multi-level (two- or three-story) buildings would minimize building footprints.

Yosemite Lodge

The temporary modular housing in the parking lot (82 beds), and cabin beds (8 beds) would be removed (the same as under Alternatives 2 and 3).

Yosemite Village

As described for Alternative 3, the historic Ahwahnee Row houses and apartments (22 beds) adjacent to Ahwahnee Meadow, plus the Indian Creek apartments (14 beds), would be removed and the areas restored to natural conditions. The Y Apartments (8 beds) would be removed, and the area would be restored. The historic apartment next to the Village Garage (1 bed) would be removed, and the area would be redeveloped (see Vol. IC, plate 4-4).

Three historic dormitories—Lower Tecoya (234 beds), Hospital Row (12 beds), and Lost Arrow (36 beds)—would be retained, as would the Upper Tecoya houses (26 beds) and the Middle Tecoya houses and dormitories (13 beds near the medical clinic). The apartments above the post office (4 beds), apartments adjacent to the Lost Arrow dormitory (3 beds), apartments behind The Ansel Adams Gallery (3 beds), and the Yosemite Elementary School Teacherage (3 beds) would also be retained. These actions are the same as under Alternatives 2 and 3.

The temporary Lost Arrow cabins (80 beds) would be removed from the Yosemite Village Historic District (the same as under Alternatives 2 and 3). The historic cabins at Camp 1 (3 beds) and the historic house (1 bed) behind the current visitor center would be removed (the same as under Alternatives 2 and 3).

Housing in the Yosemite Village Historic District and at the Rangers' Club (72 beds combined) would be retained (the same as under Alternatives 2 and 3).

The Ahwahnee

The historic Ahwahnee dormitory would be retained but remodeled; it would accommodate 13 fewer beds (reduced from 43 to 30 beds). The three tent cabins (6 beds), which do not contribute to The Ahwahnee National Register complex, would be removed, and the area would be restored to natural conditions (the same as under Alternatives 2 and 3).

Curry Village

Two new dormitories (up to three stories and 253 beds) would be constructed adjacent to the Camp Curry Historic District in the Huff House area. A total of 37 beds would be removed (see Vol. IC, plate 4-5). As described for Alternatives 2 and 3, these include

Cooks' cabins (12 beds), Cooks' tents (8 beds), Huff House studios (4 beds), Huff House trailers (6 beds), Curry Village manager housing (Cabin 101 [1 bed]), Tresidder Residence studios (2 beds), and Mother Curry Bungalow studios (4 beds). Some historic structures could be adaptively reused. Temporary housing in the historic district would be removed: Huff House tent cabins (50 beds), Huff House cabins (104 beds), and Boys Town cabins (29 beds). The historic Boys Town tent cabins (178 beds) would be removed and the area redeveloped. The historic Terrace (156 beds) would be removed.

Concessioner Stable

Two houses (2 beds), three apartments (3 beds), seven cabins (14 beds), and 10 tent cabins (30 beds) at the historic concessioner stable would be removed and the area restored to natural conditions (see Vol. Ic, plate, 4-5; the same as under Alternatives 2 and 3).

Housing Support Facilities

In Yosemite Village, areas have been set aside and designated for necessary community support facilities. These include the post office, fuel service, and a medical and dental clinic. As described for Alternatives 2 and 3, the employee wellness center, housing management office, and housing-related storage space would be located at the new Huff House dormitories in Curry Village. A new employee cafeteria would be constructed in the Curry Village area to reduce seating and use conflicts with park visitors. If possible, the same kitchen would service both the guest and employee cafeterias. The employee cafeteria at Curry Village would also serve as a community center.

Utilities

Water would be obtained from existing wells in Yosemite Valley. All sewage would be treated at the El Portal Wastewater Treatment Plant. Electrical and phone service would be upgraded to accommodate the additional loads.

El Portal Housing Actions

Legislation in 1958 established the El Portal Administrative Site for the purpose of locating utilities, facilities, and services required for the operation of Yosemite National Park. Much of the available land suitable for development within the El Portal Administrative Site would be used for housing (see Vol. Ic, plate 4-6). Housing needs in El Portal could change based on the potential for some employees to obtain private housing in the region, in which case the overall need for housing in El Portal might be reduced.

Under this alternative, there would be 1,149 total beds within the El Portal Administrative Site, including 290 existing beds (104 of which would be relocated within El Portal), 574 beds relocated from Yosemite Valley, 12 beds relocated from Cascades and Arch Rock, and 273 new beds to accommodate present unmet needs and projected growth.

As described for Alternatives 2 and 3, this alternative considers six locations in El Portal as suitable for employee housing or other facilities: Hillside East, Hillside West, Village Center, Old El Portal, Rancheria Flat, and Hennessey's Ranch (includes Trailer Village and Abbieville; see table 2-47).

Hillside East

A total of 40 apartments or studio apartments (40 beds) would be constructed (the same as under Alternative 3).

Hillside West

Thirty single occupancy houses (30 beds) would be constructed.

Hennessey's Ranch (Trailer Village and Abbieville)

As described for Alternatives 2 and 3, all existing trailer and modular housing (59 units/68 beds) would be removed, and the area would be redeveloped as employee housing and parking. Employees living in these housing units would either move to new housing constructed in El Portal or find other housing outside the El Portal Administrative Site. As described for Alternative 3, Hennessey's Ranch would be redeveloped with 656 beds in apartments, studios, and/or dormitories. The Abbieville houses would be removed. The redevelopment could be phased as the Trailer Village closes.

The area would be protected from flooding by extending and raising the existing dike. This would place the area out of the 100-year floodplain, as defined by the U.S. Army Corps of Engineers. Structures would be engineered and elevated to withstand flood inundation.

Old El Portal

A total of 17 one-, two-, and three-bedroom homes (1 bed each) would be built on available lots. The 71 existing single-family homes (1 bed each) are privately owned on federally leased property (the same as under Alternatives 2 and 3).

Rancheria Flat

As described for Alternatives 2 and 3, a total of seven new two-, three-, or four-bedroom, single-family detached homes (7 beds) would be constructed. The 19 homes (1 bed each) constructed between 1995 and 1997 (Phase 2) would be retained. The existing Mission 66 homes (21 beds) and apartments (58 beds) would be retained. The two duplexes (4 beds) would be retained. The three historic National Lead Company houses would be retained and rehabilitated. Twelve new one- and two-bedroom apartments (12 beds) would be constructed adjacent to the Phase 2 apartment complex. Under this alternative, 63 studio units and 29 dormitory units would be constructed in the Rancheria Flat area.

Table 2-47 El Portal – Proposed Housing by Employer					
Location	Existing Beds	Bed Allocation by Employer			Bed Change from Existing
		Primary Concessioner	NPS	Others	
Hillside East	0	40			+40
Hillside West	0	17	13		+30
Hennessey's Ranch[1]	68				–68
Abbieville houses	4				–4
Hennessey's Ranch apartments, studios, and dormitories	0	656			+656
Old El Portal houses[2]	71	35	30	23	+17
Rancheria Flat houses (Mission 66)	21		21		0
Rancheria Flat duplex	4			4	0
Rancheria Flat apartments	58		70		+12
Rancheria Flat houses	19		26		+7
Rancheria Flat studios	0	25	38		+63
Rancheria Flat dormitory	0	29			+29
Village Center apartments, studios, and dormitories	0	87		26	+113
Village Center houses	9	4	4	1	0
Village Center Motor Inn cabins	24				–24
Village Center, El Portal Hotel	12				–12
El Portal Totals	**290**	**893**	**202**	**54**	**+859**
Total Beds in El Portal		**1,149**			
El Portal Bed Summary		**Primary Concessioner**	**NPS**	**Others**	**Total**
El Portal existing beds and beds relocated within El Portal		65	177	48	290
El Portal beds relocated from Yosemite Valley		571	3	0	574
El Portal Beds relocated from Cascades and Arch Rock		0	12	0	12
El Portal new beds		257	10	6	273
El Portal Total		**893**	**202**	**54**	**1,149**

1. These units (68 beds) make up the El Portal Trailer Village. They represent a mixture of employees of the NPS, primary concessioner, and other Valley employees.
2. Homes in Old El Portal are privately owned and may be sold at the discretion of the owners with approval of the National Park Service's Office of Special Park Uses. The distribution by employer is estimated based on current occupancy.

Village Center

Under this alternative, a total of 113 one- and two-bedroom apartments, studios, or dormitories (138 beds) would be constructed. The nine privately owned houses (four of which are historic) on federally owned land (9 beds) would be retained, and the Motor Inn cabins (24 beds) would be removed. The historic El Portal Hotel (12 beds) would no longer be used for housing, but would be removed or adaptively reused.

Housing Support Facilities

As described for Alternatives 2 and 3, general land-use designations are included for housing and housing support facilities to be located in the El Portal Administrative Site. The size and exact location of the support facilities, as well as the specific locations and size of employee housing units, are beyond the scope of this plan. These details would be formulated during

the site design and development process. If necessary, additional environmental review would be completed as a part of the site design.

The Village Center has been designated for necessary support facilities and commercial services. These could include a community center, post office, medical clinic, enlarged grocery store/deli, laundry, recreational facilities, wellness center, hair care, office spaces, and gas station. Where feasible, park and open space areas, such as a town square, would be provided.

A multi-use (pedestrian/bicycle) paved trail would be developed from Rancheria Flat through Hennessey's Ranch, to the Village Center (the same as under Alternatives 2 and 3). This trail would also include two footbridges across the Merced River, one between Village Center and Hennessey's Ranch and another between Hennessey's Ranch and Rancheria Flat. If feasible, one link of the multi-use paved trail, between the Village Center and Hennessey's Ranch, could be via a modified Highway 140 vehicle bridge (see Vol. IC, plate 4-6).

An employee dining and recreation facility with a swimming pool would be constructed at Hennessey's Ranch (the same as under Alternatives 2 and 3).

An employee child care facility would be provided in El Portal, possibly adjacent to the elementary school in Rancheria Flat (the same as under Alternatives 2 and 3).

Utilities

As described for Alternatives 2 and 3, water would be obtained from additional wells in the El Portal area. All sewage would be treated at the El Portal Wastewater Treatment Plant. Electrical and phone service would be upgraded to accommodate the additional loads. The abandoned wastewater treatment plant in Rancheria Flat would be removed.

Wawona Housing Actions

No new housing would be built in Wawona. Government-owned housing would continue to be used for park and concession employees. Future land-use planning in Wawona would be in accordance with the Wawona Town Plan.

Foresta Housing Actions

A total of 14 houses were lost in the 1990 A-Rock Fire. As described for Alternatives 2 and 3, 14 houses would be reconstructed in Foresta and be used to replace beds removed from Yosemite Valley (see Vol. IC, plate 4-7).

Cascades and Arch Rock Housing Actions

Four historic houses (four beds) would be removed from the Cascades area and the beds relocated to El Portal. Eight beds in two buildings would be removed from Arch Rock and relocated to El Portal; the historic structures at Arch Rock would be adaptively reused (the same as Alternatives 2 and 3).

Development Costs

It is estimated that the development costs for Alternative 4 would be $441,690,000 (see table 2-48). These costs would be in addition to the current park operations costs identified in Alternative 1. See Vol. II, Appendix M for the sequencing of development proposed for Alternative 2, the Preferred Alternative.

Table 2-48
Development and Operational Cost Estimates for Alternative 4

Development Costs	
Description	**Amount**
Resource Stewardship	28,449,000
Visitor Experience/Facilities	113,596,000
Transportation/Circulation	73,394,000
Administration/Infrastructure	51,103,000
Employee Housing	175,148,000
Subtotal – Development	**$441,690,000**
Operations Costs	
Description	**Amount**
National Park Service Operations	4,875,500
Transit Operations	7,366,000
Subtotal – Operations	**$12,241,500**
Total	**$453,931,000**

Development estimates do not include associated planning, design, and compliance costs.

Photo by Ralph Anderson, courtesy of Yosemite Museum

Opportunities for bicyclists to explore the Valley would be expanded under all the action alternatives, which propose new multi-use paved trails separated from roads.

ALTERNATIVE 5

Yosemite Village and Out-of-Valley Parking

(El Portal, Henness Ridge, and Foresta)

This alternative would restore approximately 157 developed and disturbed acres to natural conditions within Yosemite Valley. In addition, 181 acres of developed land would be redeveloped and 54 acres of undeveloped land would be developed to accommodate visitor and employee services such as campgrounds, day-visitor parking, and employee housing. It would consolidate parking for day visitors at Yosemite Village, where a new transit center would be located, and in parking areas outside of Yosemite Valley. There would be more campsites and fewer lodging units than there are now. The area of the former Upper River and Lower River Campgrounds would be restored to a mosaic of meadow, riparian, and oak woodland communities. Traffic circulation would remain the same as at present; however, one lane of Northside and Southside Drives would be converted to a multi-use paved trail between El Capitan crossover and Yosemite Lodge. There would be minimal new development in the mid-Valley and west Yosemite Valley. The net effect of this alternative would be to reduce development in Yosemite Valley by 63 acres.

For more actions proposed under this alternative, see the Actions Common to All Action Alternatives section at the beginning of this chapter. For a discussion of the impacts associated with this alternative, see Vol. IB, Chapter 4, Environmental Consequences. For graphic representations of this alternative, see Vol. IC, plates 5-1 to 5-9.

Summary of Major Changes in Relation to Existing Conditions

Restore

- Substantial tracts of meadow, riparian, and California black oak woodland communities along the river from Clark's Bridge downstream to Swinging Bridge

Remove

- Two historic bridges affecting natural flow of the Merced River: Sugar Pine and Ahwahnee
- Other historic structures: Superintendent's House (Residence 1), concessioner stable, Ahwahnee Row houses, Cascades Diversion Dam, and Cascades houses
- The abandoned wastewater treatment plant in El Portal from a sensitive cultural resource area
- Most parking in east Valley other than at lodgings, campgrounds, and Camp 6 near Yosemite Village
- Five motel buildings at Yosemite Lodge
- The Concessioner Headquarters Building

Establish or Prescribe

- A Visitor Experience and Resource Protection (VERP) study to identify existing and desired conditions for natural resources, cultural resources, and visitor experience
- A traveler information and traffic management system to provide information to visitors, provide incentives for efficient use of available parking and transportation services, and manage access and parking
- Out-of-Valley day-visitor parking areas at Henness Ridge, Foresta, and El Portal
- Some utility hookups for recreational vehicles, and shower facilities in campgrounds
- Land management zoning throughout Yosemite Valley
- Design guidelines for new construction and for rehabilitating the landscape in historic developed areas

Implement

- A contiguous River Protection Overlay, as prescribed in the *Merced Wild and Scenic River Comprehensive Management Plan/Final Environmental Impact Statement (Merced River Plan/FEIS)*

Construct

- Consolidated day-visitor parking area at Yosemite Village for 550 vehicles
- A transit center at Yosemite Village near the day-visitor parking
- A vehicle bridge across Yosemite Creek near Yosemite Lodge
- Lodging at Yosemite Lodge and Curry Village
- Campsites east of Curry Village; in the Upper Pines area; at Yellow Pine; and along Tenaya Creek
- Employee housing at Yosemite Lodge, El Portal, Foresta, and Wawona
- A fire station in the Yosemite Village area
- A service station in Yosemite Village

Convert

- The NPS Administration Building to a natural history museum, and administrative areas of the Yosemite Museum/Valley District Building to an expanded cultural history museum
- Trail to the base of Yosemite Falls to a route accessible by people with mobility impairments, and provide a larger viewing platform
- One lane of Northside and Southside Drives between El Capitan crossover and the east end of Yosemite Valley to a multi-use (bicycle and pedestrian) paved trail

Increase/Expand

- Shuttle bus service to Bridalveil Fall and to out-of-Valley parking areas
- Number of campsites by 110
- Interpretive and orientation services, including new visitor centers at principal park entrances
- Multi-use paved trails

Reduce

- Stock trails by approximately 0.5 mile
- Lodging by 248 units
- Traffic entering the east Valley on a typically busy day by approximately 41%

Relocate

- Principal employee housing to El Portal and Wawona, leaving 752 beds in Yosemite Valley
- Concessioner stable to east of Curry Village
- Museum collection storage and research library from Yosemite Valley to a new facility in El Portal
- National Park Service and concessioner headquarters out of Yosemite Valley

Natural Resources

Some highly valued natural resource areas in Yosemite Valley that have been degraded or fragmented (such as the Merced River and its tributaries, wetlands, meadows, and California black oak woodlands) would be restored through actions proposed in this alternative (see Vol. Ic, plate D, Highly Valued Resources). Some facilities within other highly valued resource areas would be retained or rebuilt. Some high-priority ecological restoration would take place; proposed projects would not be comprehensive, nor would they provide contiguous habitat. Parking would be consolidated in the east end of Yosemite Valley at Yosemite Village. There would be minimal new construction in the mid- to west Yosemite Valley (including a new picnic area near El Capitan).

Merced River Ecosystem (including tributaries, wetland, riparian, and meadow areas)

As described in Actions Common to All Action Alternatives at the beginning of this chapter, the River Protection Overlay prescribed in the *Merced River Plan* would be implemented in Yosemite Valley and El Portal. The River Protection Overlay would provide a buffer area for natural flood flows, channel formation, riparian vegetation, and wildlife habitat and would protect riverbanks from human-caused damage and associated erosion. Above 3,800 feet in elevation (including Yosemite Valley), the River Protection Overlay is 150 feet on either side of the river, measured from ordinary high water. Below 3,800 feet in elevation (including El Portal), where the river gradient and characteristics change, the overlay is 100 feet on each side of the river, measured from ordinary high water.

Meadows are an important part of the Merced River ecosystem and the Valley's cultural landscape. Naturally high water tables in meadows protect them from conifer invasion. When development or encroachment has altered water tables, and restoration of natural water levels is unlikely, a program of prescribed fire and mechanical clearing would be employed to prevent conifer invasion into meadows.

The Merced River corridor, riparian vegetation, wetlands, and meadows are central components of the Yosemite Valley cultural landscape. River restoration, riparian area revegetation, and meadow management would also rehabilitate these important landscape resources.

As described for the other action alternatives, the roads and utilities through Bridalveil, El Capitan, and Cook's Meadows would be evaluated and, if needed, realigned or reconstructed to restore critical surface water and shallow subsurface water flows that sustain the native meadow vegetation and wildlife and discourage conifer invasion.

Under this alternative, accommodations at Housekeeping Camp would be removed from the River Protection Overlay, leaving a total of 100 units. The areas where units are removed would be restored to riparian communities.

Southside Drive in the Bridalveil Fall area would be reconstructed to improve water movement through the braided stream system (the same as under Alternatives 2, 3, and 4).

The historic Cascades Diversion Dam on the Merced River west of Pohono Bridge (near the intersection of the Big Oak Flat and El Portal Roads) would be removed to restore natural channel grades and hydrologic processes along this segment of the river (the same as under Alternatives 2, 3, and 4) (see Actions Common to All Action Alternatives in this chapter).

The Sugar Pine and Ahwahnee Bridges and the old road segment (existing multi-use trail) would be removed to allow for the unconstrained flow and meandering of the Merced River at these locations, and adjacent riverbanks would be restored. While all bridges west of Happy Isles to Swinging Bridge affect river dynamics, each was evaluated to determine the severity of these effects as well as the importance of access to and across the river (under other provisions of this alternative).

The recreational vehicle dump station at Upper Pines would be relocated out of the River Protection Overlay, and the area would be restored to a riparian community (the same as under Alternatives 2, 3, and 4).

Houses along the edge of Ahwahnee Meadow (the historic Ahwahnee Row houses) would be removed, and the area would be restored to mixed conifer/riparian communities.

The areas that were formerly Upper and Lower River Campgrounds (and the amphitheater at Lower River) and the northwest end of Lower Pines Campground would be restored to a mosaic of meadow, riparian, and oak woodland communities. Restoration would involve contouring the sites to match natural topography, and replanting if necessary with appropriate plants of the same local genetic makeup as neighboring plant communities. As described for the other action alternatives, the former Group Campground and existing Backpackers Campground along Tenaya Creek would be removed and the areas restored to riparian/upland communities.

The Swinging Bridge Picnic Area and its associated parking area would be removed and the area restored to riparian communities.

The parking lot and the fruit trees at the historic Curry Orchard would be removed and a portion of the area would be restored to natural conditions (the southern portion would be redeveloped as a picnic area).

The human-built rock-rubble pile in Yosemite Creek, directly downstream from the bridge at the base of Yosemite Falls, would be removed. This would restore natural water flow in the west channels of Yosemite Creek.

The area between the existing bicycle path at Yosemite Lodge (the proposed realignment of Northside Drive) and the Merced River (the site of the former Yosemite Lodge cabins, Pine Cottage, and employee housing) would be restored to riparian communities.

Establishment of day-visitor parking and a picnic area in Yosemite Village at the Camp 6 area could affect small, remnant areas of riparian and meadow habitats that are already affected by existing development. The sand pit in El Portal would be removed from operational use and restored to a riparian community.

California Black Oak Woodland

The historic tennis courts at The Ahwahnee would be removed and the area restored to California black oak woodland (the same as under Alternatives 2, 3, and 4).

The historic Superintendent's House (Residence 1) and its associated garage, adjacent to Cook's Meadow, would be removed and the area restored to California black oak woodland.

California black oak habitats would be affected in Yosemite Valley by development of campsites east of Curry Village and the construction of a fire station at Yosemite Village. Construction of new lodging units at Curry Village could result in the loss of some oaks. In El Portal, areas of black oaks would be affected by development of housing and administrative facilities.

Upland Community

The Church Bowl Picnic Area and associated parking would be removed and the area restored to upland/California black oak woodland.

The administrative/utility area to the east of The Ahwahnee would be restored to upland/California black oak woodland (the same as under Alternatives 2, 3, and 4).

Development in Yosemite Valley that would have would affect upland habitats include new campsites east of Curry Village, north of Tenaya Creek, and in the northern portion of Upper Pines; development of day-visitor parking in the Yosemite Village area; construction of new lodging units at Yosemite Lodge and Curry Village; widening of Southside Drive; and the addition of a new multi-use trail along Southside Drive. Upland areas outside Yosemite Valley that would be affected include El Portal (construction of housing), Wawona (construction of housing), Big Oak Flat and South Entrances (visitor centers); Henness Ridge and Foresta (day-visitor parking); and Foresta (houses and stable operations at nearby McCauley Ranch).

Cultural Resources

This alternative would retain to a large degree the historically significant sites, structures, and landscape features in Yosemite Valley. Archeological sites and ethnographic resources would be protected wherever possible, and traditional uses by culturally associated Indian people would be encouraged. Some components of the Valley's meadows, California black oak woodlands, and the river's riparian corridor (all important components of the cultural landscape) would be restored to a more natural condition. To achieve these restoration goals, two historic bridges would be removed, and the Superintendent's House (Residence 1) and other structures that contribute to the Valley's cultural landscape would be removed. Some historic structures would be rehabilitated and adaptively reused. Although changes would occur in the vicinity of the three National Historic Landmark structures, they would be protected from actions that would affect their historic significance. The three historic orchards would be retained and managed. The Yosemite Museum collection (including the research library) would be relocated to El Portal and consolidated with the archive collection currently housed there.

Archeological Sites

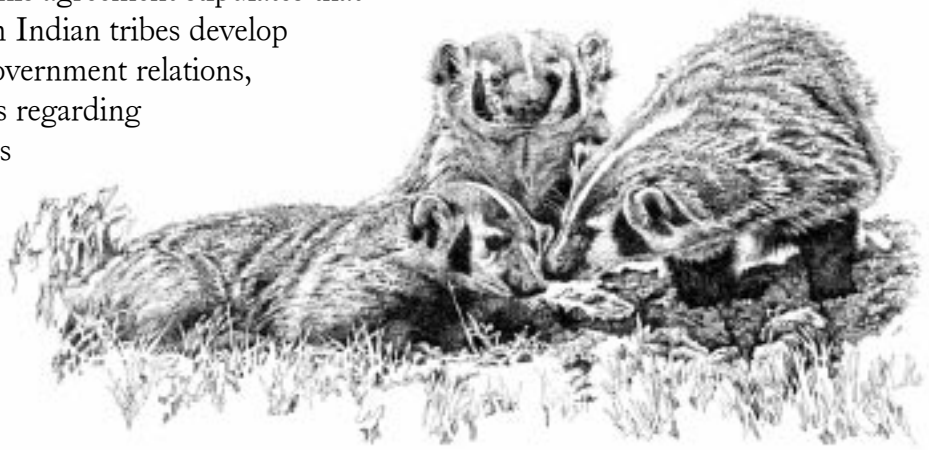
Archeological sites would continue to be preserved in place as much as possible. The most highly valued sites (those with a high level of research potential) would be avoided during new construction or development wherever possible. No new development would occur in areas where human burials are known to exist. Existing development that is causing ongoing site degradation would be removed or rehabilitated, wherever possible. The abandoned wastewater treatment plant in the Rancheria Flat area of El Portal would be removed from a prehistoric cemetery. A building and asphalt would be removed from a burial site in Yosemite Village.

Where special opportunities exist, prehistoric and historic archeological resources would be interpreted to visitors. In the Lower Yosemite Fall area, a large, important prehistoric village site would be protected. Surface prehistoric archeological features, local American Indian traditions, and important historic archeological features would be interpreted through wayside exhibits along the Lower Yosemite Fall loop trail.

Ethnographic Resources

Through existing agreements and ongoing consultation with culturally associated American Indian tribes, access to and use of special resources in Yosemite Valley would continue. The National Park Service and culturally associated American Indian groups would continue to develop a parkwide gathering plan for the tending and use of traditional plants. Access would continue to be provided for American Indian participants in traditional and ceremonial activities. American Indians conducting traditional activities in Yosemite Valley would not be restricted to day-visitor parking and shuttle transit. Special provisions would be implemented to allow parking in short-term turnouts. Known burial areas would continue to be protected. These areas (the last American Indian village and all known burial areas) are considered among the valued resources of American Indian people, and they were so considered during this planning effort. Where previously unknown burials were discovered, provisions outlined in the Native American Graves Protection and Repatriation Act and its implementing regulations would be followed. Other important areas, such as gathering locations, historic American Indian villages, and areas of spiritual or traditional importance, would be protected as much as possible.

The park's Programmatic Agreement for compliance with Section 106 of the National Historic Preservation Act also provides for the inclusion of culturally associated American Indian tribes in the park's planning process. This agreement stipulates that the park and associated American Indian tribes develop agreements for government-to-government relations, protocols for official consultations regarding issues of concern and park actions that may affect traditional resources, and park-specific guidelines for implementing provisions of the Native American Graves Protection and Repatriation Act.



Yosemite Valley

Under this alternative, many of the historically significant characteristics of the proposed Yosemite Valley Cultural Landscape Historic District would be rehabilitated and enhanced. To a large degree, general landscape characteristics such as spatial organization, natural features, land use, circulation systems, views, and vegetation would be retained and rehabilitated. However, some individually significant historic structures and structures that contribute to the Valleywide cultural landscape would be removed.

The overall character of the Valley's spatial organization and the concentration of development in east Valley would be perpetuated. Key natural resource restoration actions, such as implementation of the River Protection Overlay and restoration of the associated natural river processes and adjacent meadows, would enhance some natural features and vegetation that are characteristic of the landscape in Yosemite Valley. However, physical historic structures that have modified the river and meadows (such as Sugar Pine and Ahwahnee Bridges, riprap and other river-revetment structures, meadow ditches, etc.) would be removed in order to achieve these restoration objectives. The historic circulation system that encircles the Valley floor would be retained. Portions of both Northside and Southside Drives (both contributing circulation structures in the Valleywide cultural landscape) would be realigned, and a segment of Southside Drive would be widened.

Valleywide land-use patterns would continue, although the location of some activities would change. Camping would continue in Yosemite Valley, but campgrounds (which are not contributing resources) would be relocated away from the river. Stable operations would be relocated to a site east of Curry Village. Access to historically significant views would be retained and enhanced.

Of the many individually significant historic structures, three would be removed. Sugar Pine and Ahwahnee Bridges would be removed to restore a more natural river flow. The Superintendent's House (Residence 1) and its associated garage would be removed and the area restored to California black oak woodland community. Changes would occur in the Yosemite Village area. The historic NPS Operations Building (Fort Yosemite), other historic maintenance shops, and the Camp 1 complex (all contributing elements in the Valleywide cultural landscape) would be removed. Day-visitor and wilderness parking would be consolidated at Camp 6, and a transit center would be constructed in the eastern portion of the historic developed area. All new development would be designed to be compatible with the adjacent historic district. In order to accommodate these facilities, other historic structures, which are also contributing elements in the Valleywide cultural landscape, would be removed. These include the Concessioner Headquarters Building, the Village Garage and its associated apartment, and the Ahwahnee Row houses and apartments.

The designed landscape in the Yosemite Village Historic District would be rehabilitated. All the historic structures, which are contributing elements of this historic district, would be retained.

The Yosemite Museum/Valley District Building (the historic Museum Building) would be rehabilitated and converted to serve entirely as a cultural history museum. The historic NPS Administration Building would be rehabilitated for a new use as a natural history museum. No changes would occur at the National Historic Landmark Rangers' Club. Other central structures in Yosemite Village, including The Ansel Adams Gallery and associated structures, the Yosemite Village Post Office, and the historic Pohono Indian Studio (current Wilderness Center), would be retained. Historic views within Yosemite Village would be re-established, and the California black oak community would be stabilized and protected in the historic residential area. A fire station would be constructed at the edge of the historic district residential area, designed to be compatible with the historic district. At the Hutchings Orchard, fruit trees would be retained and managed, and a genetic conservation program would be initiated to salvage cuttings and establish representative plants at an appropriate facility outside Yosemite National Park. The trees would not be replaced as they die, and thus, over the long term, the orchard would cease to exist and the area would be restored to natural conditions.

The Ahwahnee is both a National Historic Landmark and a National Register historic property. No changes would occur to the National Historic Landmark hotel structure or its setting. The employee dormitory, a contributing element of the larger National Register property, would be rehabilitated. Three nonhistoric employee tent cabins would be removed. The tennis courts, which are also contributing elements of the larger National Register property, would be removed in order to restore a California black oak woodland community. The western portion of the parking area, which lacks historical integrity, would be reconfigured.

In the Curry Village area, all employee tent housing would be removed. The fruit trees would be removed from the historic Curry Orchard and the area restored to natural conditions. Prior to removal of the trees, a genetic conservation program would be initiated to salvage cuttings and establish representative plants at an appropriate conservation facility outside Yosemite National Park.

At the Camp Curry Historic District, visitor services would remain concentrated in the central portion of the district, and significant historic buildings such as the Lounge (original registration building) and Registration Building (original post office) would be retained. Of the 427 existing historic guest tent accommodations, 150 would be retained and 277 would be removed. The 48 architecturally significant historic bungalows, as well as Cottage 819, would be retained and rehabilitated for continued use as guest lodging. The Mother Curry Bungalow would be retained, but other significant historic structures (Huff House and Tresidder Residence) would be removed. New cabins-with-bath (204 units) would be constructed within the historic district to the north and east sides of the bungalows. Guest parking would be relocated from the historic Curry Orchard area.

At Lower Yosemite Fall, the eastern trail to the base of the fall would be rehabilitated to make it accessible for people with mobility impairments. Of the historic footbridges in this area (all contributing elements in the Valleywide cultural landscape), three would be rehabilitated or rebuilt and three would be removed. New facilities (a restroom and shuttle stop) east of Yosemite Creek would be designed to be compatible with the adjacent Yosemite Village Historic District.

The historic concessioner stable structure and associated facilities would be removed. The Nature Center at Happy Isles (historic Happy Isles Fish Hatchery) would be used year round.

At historic Camp 4 (Sunnyside Campground), the five westernmost campsites would be relocated to provide a buffer for the proposed Indian Cultural Center.

No changes would occur at the National Historic Landmark LeConte Memorial Lodge. No changes would occur at the Bridalveil Meadow historic site.

Two of the three historic orchards , the Lamon and Hutchings Orchards, would be managed and maintained. Although trees would not be replaced as they die, they would be pruned and maintained to prolong their life and maintain the historic setting. Over the long term, the sites would be restored to natural conditions once all the trees have died. Fruit trees would be removed from the historic Curry Orchard and much of the area restored to natural conditions. A genetic conservation program would be initiated at all the orchards to salvage cuttings and establish representative plants at an appropriate facility outside Yosemite National Park.

Merced River Gorge

The segment of the El Portal Road between the intersection of the Big Oak Flat/El Portal Roads and Pohono Bridge would be rebuilt. This reconstruction would be designed to be compatible with other segments of the road and would retain the important historic characteristics of this National Register property.

Six of the remaining seven components of the Yosemite Hydroelectric Power Plant, a property determined eligible for inclusion in the National Register of Historic Places, would be removed. The six to be removed are: (1) the diversion dam,(2) the screenhouse and associated features, and (3) the four Cascades residences.

El Portal

In El Portal, final decisions regarding the location of new facilities and retention or removal of some historic structures would be deferred until site-specific development planning. The three historic National Lead Company residences would be retained as housing and rehabilitated. The historic railroad residences and the old El Portal Store (all privately owned historic structures on leased National Park Service lots) would be retained as housing. The historic El Portal Chapel (the old El Portal School) and the Yosemite Research Center (Murchison House) would be retained. The El Portal Hotel would be studied for rehabilitation and possible adaptive reuse. If it would not be feasible to reuse this building and meet park needs for this area of El Portal, it would be removed. The current El Portal Market would either be retained or removed and the area redeveloped as part of the commercial core of El Portal.

Museum Collection (including Archives and Research Library)

The Yosemite Museum collection, including archives, research library, and museum storage, would be consolidated and moved to El Portal.

Visitor Experience

Key distinguishing visitor experience elements of this alternative include:

- Formalized parking for 550 day-visitors' vehicles near Yosemite Village and the removal of parking for day visitors elsewhere in Yosemite Valley (same as under Alternative 2)
- Parking (about 1,365 total spaces) outside Yosemite Valley at Henness Ridge (for visitors using the South Entrance), Foresta (for visitors using the Big Oak Flat or Tioga Pass Entrances), and El Portal (for visitors using the Arch Rock Entrance)
- A new transit center constructed in Yosemite Village adjacent to day-visitor parking
- Increased development and decreased automobile traffic (but increased bus traffic) in the east Valley
- Conversion of one lane of Northside Drive (between Camp 4 [Sunnyside Campground] and El Capitan crossover) and one lane of Southside Drive (from Swinging Bridge to El Capitan crossover) to use as a multi-use paved trail
- Rerouted hiking and bicycling access due to the removal of two bridges
- 1,012 lodging units and 585 campsites
- Minimal new development in the west end of the Valley

As described for the other action alternatives, management of the number of vehicles entering the east end of Yosemite Valley on any given day would be a substantial change from existing conditions. Traffic and congestion in the Valley would be reduced, and pedestrians and bicyclists would have expanded opportunities to access more of the Valley. While access into Yosemite Valley for visitors with reservations for overnight accommodations in the Valley would not change dramatically, access for day users (including visitors staying overnight elsewhere in the park) would change. Valley day visitors would use out-of-Valley parking areas and arrive by shuttle bus, drive to and park their cars at Yosemite Village (capacity 550 vehicles), or arrive on tour buses or regional transit.

In the Valley, a spectrum of recreational activities and experiences would continue to be available under all alternatives. Upon arrival in the east Valley, visitors would go to the parking area at Yosemite Village (about one-third mile from the visitor center). While extensive touring using personal vehicles would no longer be an option under any of the action alternatives, park shuttle bus routes would be expanded to serve the entire length of the Valley. Travel around the Valley would be by shuttle bus, on foot, bicycle, stock, and concessioner tours. Visitor use would continue to be focused in the east end of the Valley under this alternative, but conversion of traffic lanes for use as multi-use paved trails on Northside and Southside Drives would increase use in the mid-Valley. There would be more campsites and fewer lodging units than at present; they would continue to provide a diversity of experiences and prices. Orientation and interpretive services would be expanded.

Access for Visitors with Disabilities

The method of access by visitors with mobility impairments would temporarily remain similar to present conditions, with controlled access available for personal vehicles to, and parking at, specially marked spaces at principal Valley features. Eventually, as buses became fully accessible, visitors with disabilities would use them to access Valley destinations, as described for the other action alternatives. Overnight users could drive directly to their lodging or campsite. As implementation of the *Yosemite Valley Plan* occurs, accessibility needs would be analyzed and an accessibility plan developed to provide the best-feasible access for visitors with disabilities. Improvements in access to structures, features, and programs would continue, based on this new plan. New facilities would meet accessibility guidelines.

Visitor Use and Land Management Zoning

As described in Actions Common to All Action Alternatives this alternative would accommodate visitation levels established in the 1980 *General Management Plan*. The National Park Service would conduct a Visitor Experience and Resource Protection Study (VERP) within five years of a Record of Decision to identify existing and desired conditions for natural resources, cultural resources, and visitor experience. Based on VERP, the National Park Service would (1) establish management zoning that complements the management zoning established in the *Merced River Plan*; (2) develop indicators to measure visitor experience and resource conditions; (3) develop standards that define acceptable measurements for each indicator; (4) develop an assessment program to monitor standards; (5) develop a decision-making process to be used in identifying management actions necessary to maintain or restore desired conditions; and (6) develop visitor-use level recommendations for each zone.

Traveler Information and Traffic Management

As described under Actions Common to All Action Alternatives, this alternative would include the design and implementation of a traveler information and traffic management system that would use a variety of techniques to assist visitors in planning their trips, encourage efficient use of available transportation facilities and services, and assure that vehicle volumes do not exceed the capacity of roads and parking.

Orientation and Interpretation

As described for the other action alternatives, orientation opportunities would remain decentralized, but they would be expanded to include improved visitor centers at or near entrance stations. Orientation would be provided sequentially, starting with improved resources for use before starting a visit, including the park's web site and pre-visit publications. Greater emphasis would be placed on supporting gateway joint-agency visitor centers, particularly to provide current information on access and reservation availability.

New visitor centers would be provided near each entrance station, contributing to visitors' sense of arrival and their ability to discover and take advantage of parkwide offerings. At these visitor

centers, visitors would receive assistance in planning their visits; obtaining maps, publications, wilderness, and other permits; and making or confirming overnight reservations. The park orientation film would be shown in these visitor centers. Visitors parking in the out-of-Valley parking areas would find orientation to the shuttle bus operations at the parking areas.

Under this alternative, day visitors would arrive in the east Valley near the existing (possibly redesigned) Valley Visitor Center. Visitors with overnight accommodations in Yosemite Valley would find new, small, unstaffed orientation facilities at their lodge or campground, and campground hosts in each campground. These visitors could also take a shuttle bus to the Valley Visitor Center. All staffed orientation centers, as well as the Valley Visitor Center, would sell orientation and interpretive publications by the park's cooperating association.

Like the other action alternatives, information at shuttle bus stops would be improved, with clear and consistent signs posted throughout the Valley to enable visitors to use the system with ease and efficiency.

Interpretive services and facilities (e.g., ranger programs, tours, exhibits, school programs) offered by the National Park Service, concessioner, and other partners would be increased above current levels, as prescribed in the *General Management Plan*. This would enhance understanding of park themes, contribute to resource stewardship, and accommodate visitors who would be touring Valley features by means other than private vehicles. The variety and location of interpretive programs would be increased above current levels to meet the needs of various visitors, including those with disabilities and those speaking languages other than English. New programs at popular views and on trails would be emphasized, including talks, short walks, bicycle tours, and occasional half-day or all-day programs. The Valley Floor Tour would continue as at present; some turnouts on Northside and Southside Drives would be retained and available for the use of these buses and trams. Ticketing and boarding areas for the Valley Floor Tour would remain at Valley lodging areas and Yosemite Village.

Yosemite Village would become a hub of interpretive activity. Under this alternative, the visitor center, including theater productions and the orientation film, would remain in its present location. In-depth interpretation of parkwide themes and the museum collection would be found at two museums: a natural history museum in the present NPS Administration Building, and an expanded cultural history museum in the present Museum/Valley District Building. The Indian Village of Ahwahnee would continue to serve its present interpretive function (the same as under Alternatives 2, 3, and 4). Under this alternative, the Wilderness Center would remain in its present location, as would the Art Activity Center. The present informal gathering and program area near the visitor center would be redesigned and relocated. The park's museum collection, including archives, research library, and photo collection, would be relocated from Yosemite Valley and housed in a new curatorial facility in El Portal.

As described for the other action alternatives, interpretive amphitheaters at lodging areas would remain in their existing locations. In campgrounds, to reduce noise conflicts with adjacent campsites, the Lower Pines amphitheater would be replaced by a new amphitheater at North Pines, in the vicinity of the current concessioner stable parking lot. The amphitheater at the former Lower River Campground would be removed and the area restored to natural

conditions. Under this alternative, the smaller, less-developed campfire circles at LeConte Memorial Lodge and the Junior Ranger area west of Happy Isles would be moderately enhanced. The Nature Center at Happy Isles would be operated as a year-round facility.

A Valleywide exhibit plan would be produced to evaluate the locations of existing outdoor exhibits and to recommend new exhibits and interpretive opportunities (the same as under the other action alternatives). The plan would also include recommendations for view maintenance and for some exhibit shelters that could be used for cover during inclement weather.

A program of sociological studies would be implemented that would routinely examine the effectiveness of interpretive and orientation media and services offered by the National Park Service, concessioner, and other partners (the same as under Alternatives 2, 3, and 4).

Recreation

The modes of accessing parts of the Valley in order to conduct many recreational activities would be altered as a result of changes proposed in this alternative. As described for the other action alternatives, year-round access to most recreation sites and activities in Yosemite Valley would be by shuttle bus, bicycle, or foot rather than by private vehicle. Visitors would carry their recreational gear and supplies throughout the Valley, or store them in variably sized lockers (including bear-resistant lockers for food) that would be provided at parking areas and at major shuttle bus stops and destination areas. Shuttle buses would be outfitted to transport recreational equipment, such as bicycles, backpacks, coolers, skis, and climbing gear.

As described for Alternative 2, the traveler information and traffic management system and consolidated parking would reduce opportunities for touring Valley features by private vehicles. While some turnouts would be removed, other turnouts would be retained for emergency use and to provide for short-term viewing of outstanding scenic features, particularly historic views. Auto touring would be replaced by guided tours (vehicular and walking), shuttle bus riding, bicycle touring, and walking. The in-Valley shuttle bus system would be expanded to include stops between east Valley and Bridalveil Fall, and shuttle bus stops would be added to increase access to Valley destinations.

Trail Use

As described for the other action alternatives, the development of interpretive trails and the interpretation of features more easily accessed by bicycle or on foot would be emphasized. Publications and exhibits to facilitate self-guided experiences would continue to be developed for hikers, bicyclists, and bus riders; these would be available at all visitor centers. Ranger-led programs would be scheduled for the convenience of visitors, with varying starting times, program lengths, and distances to be walked or bicycled.

Walking, Hiking, and Bicycling

Improved and additional trails for walking and bicycling would be available throughout Yosemite Valley, and bicycle touring and hiking would be encouraged (the same as under Alternatives 2, 3, and 4). Trails in some areas, including Yosemite Lodge, Curry Village, and

the Upper and Lower River Campground areas, would be realigned or converted to multi-use. In some cases, realignments would be adjusted during the final site design process. Trails would be clearly marked with directional and mileage signs. Conflicts between hikers, bicyclists, and horseback riders would continue, but would be reduced by separating trails in some developed areas, and by developing new multi-use paved trails. The trail previously shared by hikers and stock between Mirror Lake and Lower Yosemite Fall would be reserved for hikers only.

Under this alternative, a multi-use paved trail would be developed from the east Valley to El Capitan crossover. This trail would use one lane of Northside and Southside Drives (the other lane would be for vehicle traffic) from Yosemite Lodge west (on Northside Drive) and Swinging Bridge west (on Southside Drive). Landscaping and potentially realigning the lanes would achieve separation between the traffic lane and the multi-use trail. A new multi-use paved trail would be constructed along Sentinel crossover to connect the Southside Drive multi-use trail, across Sentinel Bridge, to the Yosemite Village area. East of Yosemite Lodge, the historic Yosemite Creek vehicle bridge would be converted to a multi-use trail after the new Yosemite Creek vehicle bridge is constructed and Northside Drive is rerouted to the south of Yosemite Lodge. New trails accessible to wheelchair users would be provided at Sentinel Beach, the new El Capitan picnic and viewing area (North American Wall Picnic Area), and other areas determined by the proposed accessibility study and plan. Seating would be provided along trails and at shuttle bus stops. A new multi-use trail would be constructed south of the Ahwahnee to connect the trail from the Ahwahnee Meadow east to the trail leading to Mirror Lake. Most multi-use trails would be 12 feet in width to accommodate hikers and bicyclists. However, along segments of trails such as the segment between Yosemite Village and Yosemite Falls, trail width may be up to 16 feet to accommodate higher use.

Bicycle rentals would be available at Yosemite Lodge, Curry Village, and Yosemite Village. The extension of rental hours and periods (e.g., multi-day bicycle rentals) would be evaluated and implemented if feasible. Bicycle racks and lockers for gear and food would be located at major destinations throughout the Valley.

Off-pavement bicycle use, because of the damage it causes to the natural environment and conflicts with other visitors, would continue to be prohibited (the same as under the other action alternatives). To promote safe bicycle use, lane designations would be provided where appropriate and as necessary on multi-use trails to reduce pedestrian and bicycle conflicts and mishaps. Potential environmental damage caused by increased bicycling and pedestrian use would be minimized through trail design, messages in interpretive programs, and management action.

Lower Yosemite Fall

Access to the Lower Yosemite Fall area would be by shuttle bus, bicycle, or foot. The parking lot would be removed, the area restored, and a new shuttle bus stop would be located on both the north and south sides of Northside Drive east of the Yosemite Creek Bridge (see Vol. Ic, plate 5-3). Access to the base of the fall for visitors with mobility impairments would be via either the rehabilitated Western Channel Trail (the existing main access) or the redesigned

and hardened Eastern Channel Trail; both trails could be combined into an accessible loop trip. At the base of the fall, the historic bridge across Yosemite Creek would be rehabilitated and the viewing area enlarged. The human-built rock-rubble pile downstream from this bridge would be removed from the western creek channel.

Restrooms would be relocated on the north side of the road adjacent to the new Yosemite Falls shuttle stop (the same as under Alternative 2). The shuttle stop would be available to eastbound and westbound buses. Under this alternative, three of the historic bridges along the eastern trail would be rehabilitated or rebuilt. Bridges 1 and 2 would be rehabilitated to provide a wheelchair-accessible trail to pass north of the historic Hutchings Sawmill site; bridge 3 would be rehabilitated to maintain access to the Muir plaque and Clark bench; bridges 4, 5, and 6 would be removed. A seventh bridge would be constructed to replace a bridge that was once located east of bridge 3. The pedestrian/bicycle bridge north of and parallel to the current Yosemite Creek Bridge would be removed. The section of the Valley Loop Trail (for pedestrians and stock) west of the western trail would be rehabilitated for pedestrian use only. Interpretive exhibits and seating would be added to both the western and eastern trails. An informal gathering and viewing area would be developed at the beginning of the western trail; an informal viewing area would be provided east of the shuttle bus stop; and informal seating would be added in the vicinity of the existing parking area.

Wilderness Access

Much wilderness hiking would continue to originate in the Valley. Wilderness permits and trip planning for Valley trails would be available at all entrance station visitor centers and the Wilderness Center in the Valley. Pre- and post-trip walk-in campsites, as well as 150 parking spaces at Yosemite Village, would be available for overnight wilderness users holding permits for Valley trailheads.

Climbing

Climbing in Yosemite Valley would continue; the number of climbers would not be limited under this planning process. Day climbers would access the Valley in the same manner as other day visitors. For overnight climbers with wilderness permits, parking spaces under this alternative would be available in the Wilderness parking area in Yosemite Village. Overnight climbers could also access the Valley on regional transportation. Once in the Valley, access to climbing routes would be by shuttle bus or on foot.

Stock Use

Guided horseback rides and private stock use would continue in Yosemite Valley. The concessioner stable would be relocated east of Curry Village. Private stock users staying overnight in accommodations in Yosemite Valley could use the new concessioner stable to stage and board their stock. Horse trails would be maintained in the Valley, but the segment of the Valley Loop Trail on the north side of the Valley between Mirror Lake and Yosemite Lodge would be closed to stock to reduce hiker and stock conflicts in these busy areas. Swinging Bridge would become a new connector between the north side and south side of the

Valley stock trails; if necessary, Swinging Bridge would be widened or reconstructed to accommodate hikers, bicyclists, and stock.

The NPS administrative stable would be removed from Yosemite Valley and relocated to Foresta. Valley staging for NPS administrative stock use would be at the concessioner stable. The kennel operation currently associated with the concessioner stable would continue, but it would be relocated.

Picnicking

Picnic areas would continue to be available in the Valley, but as described for the other action alternatives, it is expected that picnicking would change from car-oriented (the use of large coolers and grills) to less equipment-intensive modes (see Vol. IC, plate 5-1). Under this alternative, three new picnic areas would be constructed in the east Valley: one at the site of the existing Curry Orchard; one near day-visitor parking in Yosemite Village; and a third at the site of the former campground at Lower River. As described for Alternative 2, the picnic area would be removed from the Church Bowl, and the Swinging Bridge Picnic Area would be removed and restored to natural conditions (the river at that site would still be accessible from the north side of the bridge). The El Capitan, Sentinel Beach, and Cathedral Beach Picnic Areas would be accessible to shuttle bus riders, as well as to hikers, horseback riders, and bicyclists using new multi-use trails. To accommodate users of the El Capitan area, as described for the other action alternatives, a new picnicking and viewing area—the North American Wall Picnic Area—would follow the old road alignment at the base of El Capitan. Picnickers could carry food and gear on the Valley shuttle bus, where bins and over-head racks would be available, or could obtain picnic supplies in Yosemite Village and other retail facilities in the Valley.

Other Activities

The historic tennis courts at The Ahwahnee would be removed and the area restored to natural conditions (the same as under Alternatives 2, 3, and 4). Ice-skating would continue to be available at its existing location in Curry Village. A new facility that concentrates recreational activities (winter skate and ski rentals, and summer bicycle and raft rentals) into one area would be developed at the ice rink, and the sport/mountaineering shop would be relocated to this facility.

No changes to rafting on the Merced River would take place under this planning process; rafting would continue to be managed by other park resource-based plans. Swimming would continue to be available in summer at lodging pools. Swimming and angling in the Merced River would continue, but would be directed toward river areas most able to withstand heavy use, such as sand and gravel bars.

Camping

Under this alternative, there would be 585 campsites, an increase of 110 from the existing 475 (see table 2-49). Campsites would be developed within highly valued natural resource areas in North Pines and a portion of Lower Pines, but campsites would be removed from the 150-foot River Protection Overlay, and rockfall zones would be avoided to the greatest extent possible (see Vol. Ic, plates D, E, and 5-2). River use would be directed toward access points in areas most able to withstand heavy use, such as sand and gravel bars. The campsites would provide a range of camping experiences, from walk-in sites to those that would accommodate recreational vehicles. Campground orientation, parking, and circulation would be improved.

As described for the other action alternatives, a campground check station and office would be located at the east end of Curry Village, and the Upper Pines Campground recreational vehicle dump station would be moved away from the river and placed near this check station. The Lower Pines amphitheater would be relocated to the site of the removed concessioner stable parking area at North Pines. Showers would be added to campgrounds wherever feasible for convenience and to reduce crowding at other Valley shower facilities. The Curry Village camp store and other camper services would be expanded.

Table 2-49
Campsites in Yosemite Valley

Location	Number of Sites
Upper Pines (drive-in)	255
Upper Pines (new walk-in)	82
Lower Pines (drive-in)	60
North Pines (drive-in)	70
Backpackers (walk-in)	0
Camp 4 (Sunnyside Campground) (walk-in)	37
Upper and Lower River	0
Yellow Pine (group walk-in)	10
Tenaya Creek (new walk-to)	20
South Camp (new walk-in)	21
Backpackers at South Camp (new walk-in)	30
Total Campsites	**585**

Note: Locations that show zero sites are included to provide a comparison with tables in other alternatives. The number of campsites proposed is approximate. Exact numbers would be determined in the final design phase for each campground.

Campgrounds would be designed to better separate sites by using natural and design features, as described for the other action alternatives. Campsite density (number of sites per acre) would generally remain the same as at present, although new walk-to sites at Tenaya Creek would be designed with fewer sites per acre. Some designated recreational vehicle sites in Upper Pines and possibly Lower Pines would have utility hookups; electrical hookups would reduce generator use and associated noise. Walk-in sites would have parking available nearby, except for the Tenaya Creek walk-to sites, which would have no associated parking and would be available only to campers entering Yosemite Valley by means other than private motor vehicle (e.g., bus, bicycle, hiking). Under this alternative, some new campsites would be constructed in North Pines, Tenaya Creek, and Upper Pines; a backpacker's campground would be established east of Curry Village; and a group campground would be established at Yellow Pine along with additional sites for park-sponsored volunteer groups.

Campsites at Upper River and Lower River Campgrounds, plus a portion of Lower Pines

Campground, which were damaged by or removed following the 1997 flood, would not be reconstructed. These areas would be restored by re-establishing natural topography, hydrology, and riparian or California black oak communities. A small picnic area would be provided in the former Lower River Campground area.

At Camp 4 (Sunnyside Campground), 32 existing sites would be retained, as described for Alternatives 2 and 4, and the five sites west of the intermittent creek would be relocated to provide a buffer for the proposed Indian Cultural Center (see Volume II, Appendix H, Considering Cumulative Effects). The five sites would be rebuilt to the south, adjacent to the existing Camp 4 (Sunnyside Campground). The campground would continue to be managed as a first-come, first-served campground, but visitors would be able to secure a site at entrance station visitor centers as well as at the campground.

Lodging

A total of 1,012 overnight lodging units would be available in Yosemite Valley under this alternative, a decrease of 248 units from the existing number (see table 2-50 and Vol. Ic, plate 5-2). Accommodations would continue to be provided with a range of styles and prices, including 250 rustic, 447 economy, 192 mid-scale, and 123 deluxe units (see Vol. Ib, Glossary, for definition of room types).The number of units available to commercial tour operators would continue to be capped to ensure access to lodging by independent travelers.

Table 2-50
Accommodations In Yosemite Valley By Room Type

Location	Rustic Units	Economy Units	Mid-Scale Units	Deluxe Units	Total
Housekeeping Camp	100				**100**
Curry Village	150	270			**420**
Yosemite Lodge		177	192		**369**
The Ahwahnee				123	**123**
Total Rooms	**250**	**447**	**192**	**123**	**1,012**

Note: The number of lodging units is approximate. Exact numbers would be determined in the final design phase for each facility.

Housekeeping Camp

Housekeeping Camp provides visitors the opportunity to rent developed camping shelters adjacent to the Merced River. Beds and a picnic table are provided in each unit. At Housekeeping Camp, 100 units would be retained (all at the rustic level). All 164 units within the River Protection Overlay would be removed and the area restored to natural conditions (see Vol. Ic, plate 5-5).

Curry Village

Originally known as Camp Curry, this complex has been in operation since 1899 and has offered rustic lodging facilities to generations of Yosemite visitors. Curry Village would provide activities and services similar to those currently offered, although some changes in circulation, facility locations, and numbers of lodging units would take place (see Vol. Ic,

plate 5-5). Improvements would be made to some lodging facilities, while others would be relocated outside the rockfall zone. The total number of lodging units would be reduced from 628 to 420 (see table 2-51).

Table 2-51
Curry Village – Lodging Unit Summary

Description	Number of Units
Cabin rooms with bath (103 existing, 149 new)	252
Cabin rooms without bath	0
Tent cabins (existing)	150
Stoneman Lodge (existing)	18
Total Rooms	**420**

Note: Room types that show zero units are included to provide a comparison with tables in other alternatives.

Overnight guests would continue to have the option of staying in rustic tent cabins (150 units), cabins-with-bath (252 units), or in rooms at Stoneman Lodge (18 units). In response to visitor demand, to provide for winter use, and as prescribed in the 1992 *Concession Services Plan*, all cabin-without-bath units would be replaced by cabin-with-bath units. Of the 420 lodging units at Curry Village, 150 would be rustic and 270 would be economy units.

Yosemite Lodge

Yosemite Lodge would provide activities and services similar to those currently offered, although changes in circulation, facility locations, and number of lodging units would take place (see Vol. IC, plate 5-3). Traffic circulation would be shifted to the south of Yosemite Lodge to reduce congestion at the Yosemite Falls/Yosemite Lodge intersection. Under this alternative, existing and replacement lodging units would total 369 rooms, an increase of 124 rooms over existing levels (see table 2-52).

Table 2-52
Yosemite Lodge – Lodging Unit Summary

Description	Number of Units
Existing motel rooms with bath, in 3 buildings	59
Existing cottage rooms with bath, in 6 buildings	58
New motel rooms with bath, in 2 buildings	120
New cottage rooms with bath, in 4 buildings	72
New cabin rooms with bath, in 15 buildings	60
Total Rooms	**369**

The January 1997 flood damaged four motel structures that were temporarily repaired and are still in use at Yosemite Lodge. These four motel buildings (Maple, Juniper, Alder, and Hemlock) would be removed, along with Laurel, to accommodate rerouting of Southside Drive and redesign of the Yosemite Lodge. Birch Cottage would also be removed to allow a more efficient lodge design. Motel buildings remaining would include Cedar, Elderberry, and Manzanita. Cottage units remaining would include Aspen, Azalea, Cottonwood, Dogwood, Tamarack, and Willow.

Two 3-story motel buildings, four 2-story cottages of similar architectural design and appearance to Pine and Oak Cottages, and 15 four-plex cabin buildings would be constructed. The cabins would be placed east of the Camp 4 (Sunnyside Campground) parking area. At Yosemite Lodge, 177 lodging units, including cabins, would be economy units, while 192 would be mid-scale.

The Ahwahnee

The opportunity to stay at The Ahwahnee, Yosemite Valley's grand National Historic Landmark hotel, would not be changed under this alternative. The Ahwahnee would provide activities and services similar to those offered currently, although some changes in circulation and parking configuration would take place. Its existing 123 deluxe lodging rooms (99 hotel rooms and 24 cabin/cottage rooms) would be retained (the same as under the other action alternatives). The one Ahwahnee cottage that is within the River Protection Overlay would be retained, as it is a contributing element to The Ahwahnee National Register historic property.

Food and Retail Services

Yosemite Lodge

The interconnected buildings at the center of Yosemite Lodge would continue to be the location of food and retail services. The three restaurants and one gift shop would remain unchanged; the Mountain Room Bar would be redesigned as a public lobby and lounge. The main gift store would be permanently reduced in size, matching its present winter configuration, as described for the other action alternatives.

The swimming pool, bicycle rental stand, and snack bar would remain in their current locations. All facilities may be redesigned over time to improve guest service. The post office building would be removed (the same as under Alternatives 2, 3, and 4).

As described for the other action alternatives, a new building would be constructed for lodge registration, and the existing registration building would be adaptively used for informal seating, administrative and interpretive functions, information, and Valley tour reservations. The Cliff Room and the outdoor amphitheater in the courtyard would be improved and would continue to be used primarily for evening interpretive programs, group meetings, seminars, and other special functions.

A new maintenance/housekeeping facility would be constructed behind the cafeteria/restaurant complex to replace facilities damaged by flooding (the same as the other action alternatives). All housekeeping, storage, maintenance, and associated management space would be consolidated in this new facility.

The service station would not be replaced in the Yosemite Lodge area in this alternative; it would be relocated to the Yosemite Village area.

Yosemite Village

As described for Alternatives 3 and 4, the Village Store building would continue to be used for its present purposes, but gift sales and the grocery function would be reduced, and the deli function would be moved here from Degnan's (see Vol. Ic, plate 5-4). The Village Grill would be expanded for more indoor seating. The sport shop function would be incorporated with the sport/mountaineering shop at Curry Village. A short-term locker/storage facility

where day visitors could check their belongings would be designed into the Village Store building. Recycling, ATM, check cashing, and transportation kiosk functions would be retained. Outdoor tables and seating would be provided in the Yosemite Village area.

As described for Alternatives 3 and 4, the Degnan's building would be redesigned for expanded food service; the deli would be relocated to the Village Store, and the gift shop would be removed. Under this alternative, the restaurant on the second floor may be retained.

Under this alternative, the historic Village Garage building would be removed and a small public service station would be constructed in the area. Public garage functions would be relocated to El Portal (as in Alternatives 2, 3, and 4).

The Art Activity Center would continue to provide artistic activities for the public at its present location in the former bank building. A small studio apartment would be added in the existing building for short-term use by guest artists.

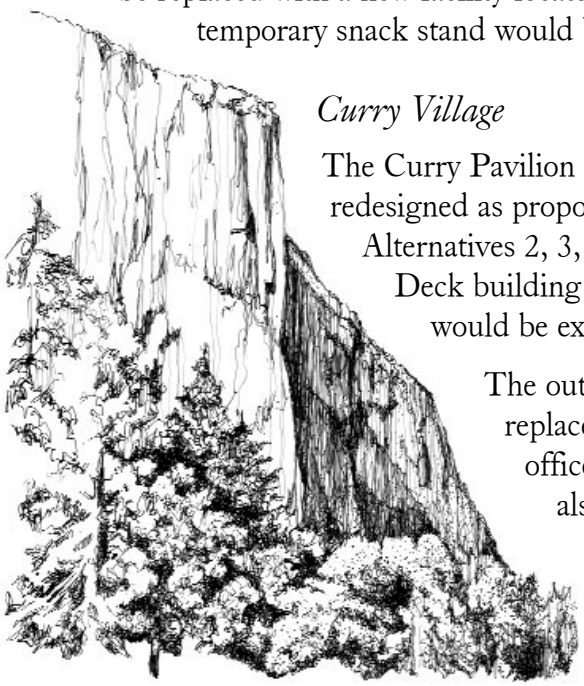
The medical and dental clinics, The Ansel Adams Gallery photography and gift shop, and the main Yosemite Post Office would be retained.

The Ahwahnee

The Ahwahnee dining room, gift shop, sweet shop, and bar would remain in their current locations. The services offered at The Ahwahnee would remain much as they are and would not take on a more resort- or spa-type character.

Happy Isles

Under this alternative, the ice cream/snack stand that was destroyed by rockfall in 1996 would be replaced with a new facility located near the restrooms and shuttle stop. The existing temporary snack stand would be removed.



Curry Village

The Curry Pavilion and Meadow Deck food service areas would be redesigned as proposed in the *Concession Services Plan*. As described for Alternatives 2, 3, and 4, the grocery and gift functions in the Meadow Deck building would be separated to reduce congestion. The grocery would be expanded to include deli operations and a camp store.

The outdoor amphitheater and pool would be rehabilitated or replaced. The lounge (historic Camp Curry registration office) would be rehabilitated and remain in use, and would also be used for information and interpretive functions (the same as under Alternatives 2, 3, and 4).

Under Alternative 5, the Curry Ice Rink would remain in its existing location. The Mountain Shop,

along with bicycle and ski rentals, would be relocated to a new facility in the ice rink area to consolidate space and recreational uses. Raft rentals would also occur seasonally at this location. A short-term locker/storage facility where day visitors could check their belongings would also be designed into the building.

The seasonal post office would be removed; mailboxes would be provided in the employee housing area. Registration would take place in the present registration building (historic Camp Curry Post Office).

Transportation

The major transportation actions that distinguish this alternative include:

- Provide for 550 day-visitor parking spaces at Yosemite Village in the east Valley
- Construct a new transit center in Yosemite Village adjacent to day-visitor parking
- Expand shuttle bus service throughout Yosemite Valley
- Convert Northside and Southside Drives to one-lane vehicle traffic and one-lane multi-use paved trail from Yosemite Lodge and Swinging Bridge west to El Capitan crossover
- Provide out-of-Valley day parking (about 1,365 total spaces) at Henness Ridge, Foresta, and El Portal
- Reduce daily vehicle trips to east Valley on a typically busy summer day by about 41%

This alternative would result in a reduction in vehicle travel in the eastern portion of Yosemite Valley. By limiting day-visitor parking in Yosemite Valley to 550 spaces and providing additional day-visitor parking at sites outside Yosemite Valley, many vehicular trips by visitors would be eliminated and replaced with a much smaller number of bus trips. The number of vehicles passing the Yosemite Chapel on Southside Drive near Sentinel Bridge would be reduced from about 7,200 vehicles on a typically busy day (1998) to about 4,270 vehicles. About 213 of these would be new daily bus trips by shuttles from out-of-Valley parking areas, and 44 would be by in-Valley shuttles.

Traveler Information and Traffic Management

The broad goals of Yosemite's *General Management Plan* include the reduction of traffic congestion and crowding in Yosemite Valley. Progress toward achieving these goals would be accomplished by developing a traveler information and traffic management system to provide visitors with information about where to park and whether overnight accommodations were available in the Valley well before they arrive in the Valley. The system would rely on incentives to encourage visitors to use out-of-Valley parking, and it would assist visitors in selecting the best means of travel for their specific needs. If required, to assure that the number of vehicles east of El Capitan crossover did not exceed available parking, a traffic management facility would be developed near El Capitan crossover (see Actions Common to All Action Alternatives at the beginning of this chapter).

Day-Visitor Parking

Day-visitor parking facilities in the Valley would change. Under this alternative, a new day-visitor parking area for 550 cars would be constructed in the Yosemite Village area of Yosemite Valley (see Vol. IC, plate 5-2). The parking area would encompass a portion of the former Camp 6; however, all development would be kept out of the River Protection Overlay. Day visitors arriving in private vehicles would park their vehicles in the new facility. When parking was not available in the Valley, day visitors arriving at park entrance stations would have the option of parking in out-of-Valley lots, where shuttle service to the Valley and other park destinations would be provided.

The out-of-Valley day-visitor parking areas would be at Henness Ridge (about 370 spaces for visitors using the South Entrance), Foresta (about 660 spaces for visitors using the Big Oak Flat or Tioga Pass Entrances), and El Portal (about 335 spaces for visitors using the Arch Rock Entrance). Each area would be equipped with small transit facilities that would incorporate restrooms and visitor information. The out-of-Valley parking areas would not be used during periods of low visitation, normally November through March.

Tour buses and regional transit buses would travel to the new Yosemite Village Transit Center. As described for Alternative 2, up to 16 bus bays would be constructed in the Yosemite Village area for loading and unloading passengers arriving on tour buses, regional transit, and out-of-Valley shuttle buses. Parking for day-visitor tour buses, as well as night parking for Valley shuttle buses, would be in an area north of Yosemite Village.

Overnight Visitor Parking

As described for the other action alternatives, overnight visitors with lodging or camping reservations or wilderness permits would drive directly to their lodging or campground, or to the wilderness parking area at Yosemite Village. Parking for overnight visitors would no longer be provided at other destinations or along Valley roads. Vehicles would remain parked in assigned areas unless they were needed for travel to out-of-Valley destinations. Travel within the Valley to trailheads, activity areas, and facilities would be by shuttle bus, bicycle, or on foot. Valley locations for overnight visitor parking are shown in table 2-53.

As described for the other action alternatives, parking for new walk-in campsites and Camp 4 (Sunnyside Campground) would be provided within walking distance of the sites.

Table 2-53
Overnight Parking Locations

Overnight Parking Location	Parking Spaces
Housekeeping Camp	100
Curry Village	420
Yosemite Lodge	369
The Ahwahnee	123
Campgrounds	639
Wilderness Parking	150
Total	**1,801**

Note: These numbers are based on one parking space per campsite, although up to two cars can be parked in individual campsites and up to three at group sites. No parking spaces are allotted for walk-to campsites. For Camp 4 (Sunnyside Campground), a ratio of three parking spaces per site was used.

No parking would be provided for the Tenaya Creek walk-to campsites, as they would be designated for overnight campers arriving in the Valley by means other than private vehicle.

Some overnight visitors would arrive by commercial tour bus. These buses would deliver visitors directly to their lodging or campground areas and would then park at one of 15 designated parking spaces at Yosemite Lodge (the same as under Alternatives 2, 3, and 4).

Employee Parking

Parking for National Park Service and concessioner employees residing in the Valley would be located at or near each residence.

Most employees commuting from outside the Valley would be required to use an employee transportation system, as described for the other action alternatives. Employee shuttle service could be provided with the same buses that would be operated as out-of-Valley shuttles at other times of the day. Alternatively, buses could be dedicated to employee transportation services, if required. This system would be developed to meet the needs of employees with different schedules and could include regional transit options or car and vanpools. Approximately 1,400 workers would commute to work in the Valley in the summer.

Employees who live west of El Portal along the Highway 140 corridor and work in Yosemite Valley could drive to a parking area in El Portal and take employee shuttles into the park. Approximately 60 parking spaces would be provided at El Portal for this purpose. Some employees (e.g., late-night and early-morning shift workers) would still drive their private vehicles to the Valley and park in designated spaces as prescribed by the traveler information and traffic management system. (These actions are the same as under Alternatives 2, 3, and 4.)

Yosemite Valley Roads

Summary of road and circulation changes:

- Convert one lane of Northside and Southside Drives, from Yosemite Lodge and Swinging Bridge west to El Capital crossover, to multi-use paved trail. Maintain the other lane for vehicles. Separate lanes through landscaping and possible lane realignment.
- Remove scattered parking lots throughout the Valley and some roadside turnouts. Retain turnouts for emergency use and for short-term viewing of scenic features.

Bridge summary:

- Sugar Pine – remove historic bridge
- Ahwahnee – remove historic bridge
- Swinging – widen or rebuild
- Yosemite Creek – construct a new vehicle bridge; convert existing vehicle bridge to use for bicycles and pedestrians; remove existing bicycle bridge
- Lower Yosemite Fall area – rehabilitate or rebuild three historic footbridges, remove three, construct one new footbridge

Valley Access via the El Portal Road

As described in the Actions Common to All Action Alternatives, the section of El Portal Road between the intersection of El Portal and Big Oak Flat Roads and Pohono Bridge would be improved. Road improvements would be designed to minimize the chance of road failure during flood events, to improve safety, and to minimize damage to riparian areas by focusing visitor use.

West Valley (El Capitan Bridge to Pohono Bridge)

Minimal changes to road circulation would occur in the western half of the Valley. Southside Drive from Pohono Bridge to El Capitan Bridge would continue to be a two-lane, one-way road eastbound, and Northside Drive would be a two-lane, one-way road westbound. El Capitan crossover would remain two-way across the Merced River at El Capitan Bridge between Southside and Northside Drives. Turnouts would be retained for emergency use and short-term viewing of scenic features.

As part of the traveler information and traffic management system, a traffic check station may have to be constructed near Taft Toe in the area of El Capitan crossover on Southside Drive (see Vol. IC, plate 3-1, and Actions Common to All Action Alternatives). Day visitors or visitors with overnight reservations in the Valley would continue eastbound on Southside Drive. When the Valley day-visitor parking area was full, day visitors would proceed across El Capitan crossover to Northside Drive to continue out of the Valley to other park destinations or to out-of-Valley parking areas.

East Valley (El Capitan Bridge to Curry Village and the Campgrounds)

Southside Drive from El Capitan Crossover to Curry Village and the Campgrounds

Southside Drive from El Capitan crossover would remain one-way eastbound under Alternative 5; however, one lane would be converted to a multi-use trail east of Swinging Bridge. Traffic would be restricted to the other lane (see Vol. IC, plate 5-1). From the Yosemite Chapel to Sentinel Bridge, the road would be realigned to improve the approach to Sentinel Bridge and facilitate traffic circulation. At Stoneman Bridge, all eastbound traffic would be routed to the south on Curry Village Road, which would be converted to one-way. Campers would proceed to the campground check station and office and then on to their campsites. Southside Drive through Stoneman Meadow would be one-way westbound to Stoneman Bridge. The one-way loop road to Curry Village registration and parking would remain, although the parking area would be redesigned.

Southside Drive to Yosemite Village and Yosemite Lodge

Traffic from the west Valley could cross Sentinel Bridge to reach Yosemite Village, The Ahwahnee, and Yosemite Lodge or could continue east to Stoneman Bridge and then turn onto Northside Drive. The Sentinel crossover would be two-way, with one lane in each direction. To reduce traffic congestion in the area of the Yosemite Village visitor and transit center, as described for Alternative 2, the final design could include turning lanes and

realignment of the road. Access to Yosemite Village from Curry Village and the campgrounds would remain unchanged; it would be on the one-way Northside Drive.

Yosemite Lodge Area

Northside Drive in the Yosemite Lodge and Camp 4 (Sunnyside Campground) area would be relocated south of the Lodge, as described for the other action alternatives, to reduce conflicts between vehicles and pedestrians and to provide safer pedestrian access between the Lodge and Yosemite Falls (see Vol. 1C, plate 5-3). Vehicle circulation to Yosemite Lodge would be routed across historic Yosemite Creek via a new motor vehicle bridge that would be constructed just south of the historic Yosemite Creek Bridge. One lane of Northside Drive would be converted to a multi-use paved trail west of Camp 4 (Sunnyside Campground) to El Capitan crossover.

Transit

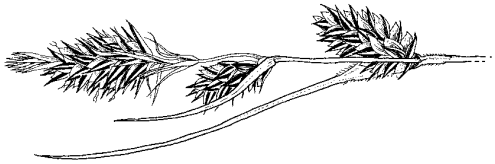
This alternative would provide 550 parking spaces for day-visitor vehicles at Yosemite Village. Additional in-park, day-visitor parking would be provided at three out-of-Valley locations (see Vol. IC, plate 5-9): Henness Ridge, El Portal, and Foresta. Out-of-Valley shuttle buses would transport day visitors to and from the Valley, and in-Valley shuttles would transport day and overnight visitors throughout the Valley.

Shuttles operating within Yosemite Valley would provide service year-round. Generally, the peak visitation season for Yosemite National Park occurs from mid-June through Labor Day weekend. April, May, September, and October are the shoulder season months, with intermediate levels of visitor use. Visitation is lowest from November through March. The operating hours of the shuttle routes and the frequency of service would be adjusted within each season as required to meet visitor needs, and visitation would be managed so as not to exceed the carrying capacity of visitor use areas.

Shuttles from out-of-Valley parking sites to the Valley would not operate from November through March, when parking in Yosemite Valley would be sufficient to serve day visitors. Service on out-of-Valley shuttle routes would start in April, beginning with the weekends. As visitation increased, the amount of service would be expanded, reaching a maximum level on weekends in the summer. Service would be reduced in the fall as the need decreased, with shuttles to out-of-Valley parking areas operating only on weekends in the last weeks of the season in October.

Yosemite Village Transit Center

This alternative would provide a transit center adjacent to a parking area for 550 day-visitors' vehicles. The transit center would serve as a transit hub for shuttle and tour buses, and would require up to 16 bus bays, as well as a loading area for in-Valley shuttle buses (6 bus bays).



In-Valley Shuttles

The in-Valley shuttle system proposed for this alternative would provide transportation for day visitors parking at Yosemite Village, day visitors parking at out-of-Valley parking areas, those who ride regional transit or tour buses, as well as overnight visitors. The in-Valley shuttle system would consist of two separate shuttle routes, both of which would cycle through the Yosemite Village Transit Center:

- East Valley Shuttle – transportation among Yosemite Lodge/Camp 4 (Sunnyside Campground), The Ahwahnee, Curry Village, campgrounds, and Happy Isles, with additional stops en route
- West Valley Shuttle – transportation between the east Valley and west Valley along Northside and Southside Drives, with additional stops en route

These two routes would converge at the Yosemite Village Transit Center, which would afford visitors a convenient way to transfer between routes. In-Valley shuttle buses would use a loading area (six bus bays) adjacent to the 16 bus bays provided for tour buses, regional transit, and out-of-Valley shuttles.

In-Valley Shuttle Service

During the busiest times of day in the peak season, in-Valley shuttle buses would circulate through the Yosemite Village Transit Center every 3 minutes for the east Valley shuttle and every 20 minutes for the west Valley shuttle. It is estimated that these two routes combined would result in one bus at the transit center every 2.6 minutes. Peak-season shuttle service would be provided between early morning and late evening (service could be expanded during special events). Service during the off-season would be adjusted to meet lower visitation levels and could be expanded for special events. Table 2-54 presents estimated characteristics for the proposed in-Valley shuttle system.

In-Valley Shuttle Vehicles

The shuttle buses used on routes operated within Yosemite Valley would be designed to operate over the gentle grades on Valley roads and to allow passengers to get on and off the bus easily at the many stops. Buses would use the best-available fuel and propulsion systems designed for the special characteristics of travel within Yosemite Valley. Buses would be selected to minimize noise and air pollutant emissions, while providing sufficient capacity and

Table 2-54
In-Valley Shuttle Service in Peak Season

Characteristics	East Valley Shuttle	West Valley Shuttle
Route Description	Yosemite Lodge to Curry Village and the campgrounds	Yosemite Village to Pohono Bridge
Route Length (round trip)	10.5 miles	7.6 miles
Travel Time (round trip)	77 minutes	38 minutes
Minimum Time between Buses	3 minutes	20 minutes
Type of Bus	High Capacity/Low Floor Shuttle	High Capacity/Low Floor Shuttle
Number of Buses Needed	**31**	**2**

reliable service. Buses would be replaced or modified to take advantage of advances in fuel propulsion technology as they became available.

Out-of-Valley Shuttles

While out-of-Valley shuttle buses would not be ordered for several years, the National Park Service would evaluate new technology and alternative fuels when selecting and purchasing buses. Out-of-Valley shuttles would provide service between the parking facilities at Henness Ridge, El Portal, and Foresta and the Yosemite Village Transit Center (see Vol. Ic, plate 5-9). Once in the Valley, the out-of-Valley shuttles would stop at locations along the Valley floor to enable passengers to transfer to in-Valley shuttle routes or to access Valley destinations. From the transit center, visitors would walk, bicycle, or transfer to the in-Valley shuttle system to get to destinations within the Valley.

Out-of-Valley Shuttle Service

During peak season, out-of-Valley shuttle buses would serve the out-of-Valley parking areas as follows: one bus approximately every 12 minutes for the Henness Ridge route, approximately every 12 minutes for the El Portal route, and approximately every 7.5 minutes for the Foresta route. These three routes combined would result in one bus arriving at the Yosemite Village Transit Center every 3.3 minutes. Peak-season shuttle service would be provided between early morning and late evening (service could be expanded for special events).

During November, April, and May, these buses would serve the out-of-Valley parking areas as follows: one bus approximately every 15 minutes for the Henness Ridge route, approximately every 15 minutes for the El Portal route, and approximately every 7.5 minutes for the Foresta route. These three routes combined would result in one bus arriving at the transit center every 3.8 minutes. Off-season shuttle service would be provided between morning and evening (service could be expanded for special events). Table 2-55 presents estimated characteristics for the proposed out-of-Valley shuttle system.

Out-of-Valley Shuttle Vehicles

Buses used on out-of-Valley shuttle routes would be designed to provide relatively high-speed service over roads with steep grades and sharp curves. The buses would provide storage areas for recreational equipment carried by visitors, including under-floor storage if needed. Out-of-Valley shuttle buses would use the best-available fuel and propulsion system technology to mini-

Table 2-55
Out-of-Valley Shuttle Service in Peak Season

Characteristics	Henness Ridge	El Portal	Foresta
Valley Access Route	Wawona Road	El Portal Road/ Highway 140	Big Oak Flat Road and Tioga Road
Route Length (round trip)	29.0 miles	28.1 miles	20.9 miles
Travel Time (round trip)	102 minutes	98 minutes	78 minutes
Minimum Time between Buses	12 minutes	12 minutes	7.5 minutes
Type of Bus	Over-the-Road Coach	Over-the-Road Coach	Over-the-Road Coach
Number of Buses Needed	**8**	**8**	**13**

mize noise and air pollutant emissions, while providing sufficient capacity and cost effective, reliable service to visitors. Because the operating conditions for out-of-Valley shuttles would be different than those required for in-Valley shuttles, these buses could use a different fuel and propulsion technology than the in-Valley shuttle buses.

Regional Transit

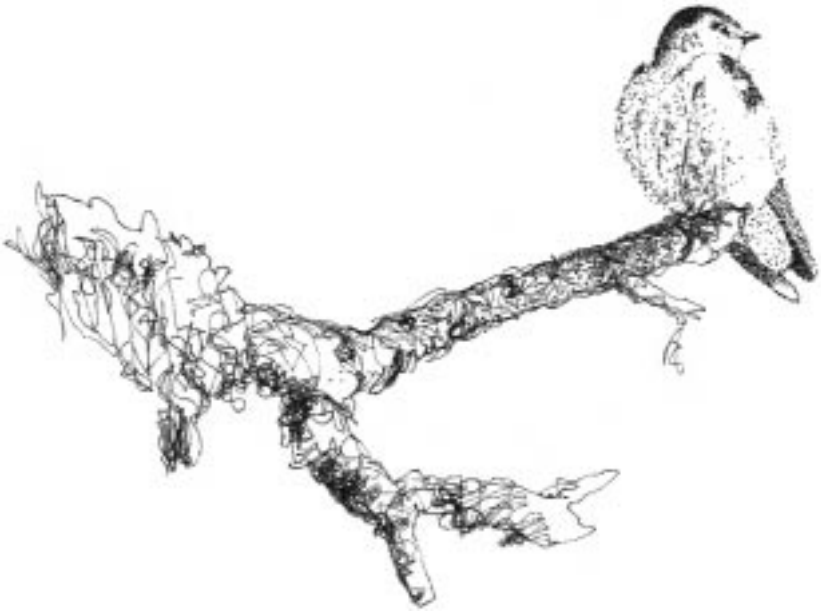
Day visitors who do not park in the Valley or in one of the out-of-Valley parking areas would have the option of traveling to the Valley on regional transit or other modes of transportation. These buses would deliver passengers directly to the Yosemite Village Transit Center.

Commercial Tour Buses

Commercial tour buses would continue to bring about 14% of day visitors and lodging guests to Yosemite Valley in the summer. Tour buses carrying day visitors would load and unload at the Yosemite Village Transit Center, and park in an area north of Yosemite Village. Overnight tour buses would park at Yosemite Lodge.

Summary

Combined in-Valley and out-of-Valley shuttle buses would equate to one bus at the Yosemite Village Transit Center every 1.5 minutes during the busiest times in the peak-season.



Park Operations

National Park Service operations in Yosemite Valley would be scaled down to the level of district operations, similar to Tuolumne Meadows and Wawona. Both the National Park Service and concessioner headquarters functions would be removed from the Valley and relocated to El Portal or an out-of-park location.

The National Park Service stable and the concessioner administrative stable operations, as well as the parkwide trails operation, would be relocated to the McCauley Ranch in Foresta. Access to McCauley Ranch would be improved by widening the road and possibly by replacing the bridge over Crane Creek to allow for stock trailers and hay trucks. Access improvements would be identified during the site design process, which would allow for the participation of National Park Service and concession employees, residents of Foresta, Mariposa County officials, and other interested parties. Under this alternative, the concessioner would retain a commercial stable operation in Yosemite Valley (relocated from its existing location to east of Curry Village) for public trail rides. This stable would also serve as the Valley staging area for limited National Park Service and concessioner administrative stock operations, and would have parking for five trailers. The National Park Service would evaluate the historic structures at the existing concessioner stable facility for relocation and adaptive reuse either at the location of the new stable in Yosemite Valley or McCauley Ranch.

National Park Service

In Yosemite Valley, the NPS maintenance area would be redesigned to accommodate essential district offices, maintenance shops, and emergency service facilities. The existing NPS Operations Building (Fort Yosemite) and associated shops would be removed. The detention facility and the U.S. Magistrate's office would be relocated. National Park Service administration and headquarters would be relocated to the existing National Park Service operations area in El Portal. Depending on land development constraints in El Portal or other considerations, the relocated headquarters functions for both the National Park Service and concessioner could be relocated to neighboring communities. If the National Park Service wished to pursue this opportunity, appropriate environmental review would be completed.

The following National Park Service functions and offices would be removed from Yosemite Valley (similar to Alternatives 2, 3, and 4):

- Park management, including the superintendent, deputy superintendent, and division chiefs would move to El Portal
- Parkwide supervision and administration of the Divisions of Interpretation, Resources Management, Concessions Management, Resource and Visitor Protection, and Administration would move to El Portal
- Parkwide stock and trails maintenance operations would move to Foresta
- Parkwide wilderness utilities maintenance would move to El Portal

- Parkwide wildfire protection, search and rescue, law enforcement support, and wilderness management would move to El Portal
- Interpretive support workspace (e.g., exhibit shop) would move to El Portal

The following functions and offices would remain in Yosemite Valley (similar to Alternatives 2, 3, and 4):

- Valley District roads operations
- Valley District trails operations
- Stock, trails, and wilderness utilities operations with Valley staging areas
- Valley District buildings and grounds maintenance and supervision, including materials storage and shops
- Valley District utilities maintenance
- Valley District Resource and Visitor Protection, including emergency medical response and structural fire protection
- The jail/detention facility (this alternative only)
- U.S. District Court Magistrate (as under Alternative 2)
- Bear management program
- Interpretive workspace, presentation of visitor services, and storage of interpretive supplies and materials

The historic Superintendent's House (Residence 1) and its garage, at the edge of Cook's Meadow, would be removed (the same as under Alternatives 2, 3, and 4). A new fire station would be constructed in Yosemite Village, in the area of the removed concessioner garage, to accommodate the National Park Service and concessioner fire engines. Yellow Pine Campground would be developed as a formalized group campground. It would have 10 group sites available to the public, and additional sites for park-sponsored volunteer groups.

Shuttle Bus Support Facilities

The NPS maintenance area in Yosemite Village would be redesigned to accommodate fueling, light maintenance, and overnight vehicle storage for in-Valley and out-of-Valley shuttles (the same as under Alternative 2). Heavy maintenance and associated vehicle storage would be provided in El Portal. For regional transit and tour buses, the National Park Service would provide layover areas for daytime use at the shuttle bus maintenance area, but overnight vehicle storage and maintenance would be the responsibility of the service provider.

Shuttle Service Employee Requirements

Under this alternative, a total of 288 additional employees would be required to operate the in-Valley and out-of-Valley shuttle bus systems. Of these employees, 127 supervisors and drivers

would be dedicated to the in-Valley shuttle, 91 supervisors and drivers would be dedicated to the out-of-Valley shuttle, and the remaining 70 personnel would support both shuttle systems. Off-peak season operations (October, April, and May) would require 94 Valley shuttle drivers and supervisors, 80 out-of-Valley shuttle drivers and supervisors, and 57 shared employees between the two systems, for a total of 231 employees (see table 2-56).

Table 2-56
Shuttle Employee Requirements

Position	Number of Employees	
	Peak Season	Off-Season[1]
Valley Shuttle Supervisors	12	12
Valley Shuttle Drivers	115	82
Out-of-Valley Shuttle Supervisors	10	10
Out-of-Valley Shuttle Drivers	81	70
Dispatch/Clerical	10	10
Mechanics	27	22
Hostlers	8	7
Administration	7	5
Parts/Inventory	7	5
Janitorial	3	2
Other	8	7
Subtotal – Valley Shuttle Drivers and Supervisors	127	94
Subtotal – Out-of-Valley Shuttle Drivers and Supervisors	91	80
Subtotal – Shared Positions	70	57
Total Employees	**288**	**231**

1. November, April, and May

Concessioner and Other Entities

The administrative headquarters function for the park's concessioner would be relocated to new facilities in El Portal, or at the option of the concessioner, to another out-of-park location. Under this alternative, the historic Concessioner Headquarters Building would be demolished (see Vol. Ic, plate 5-4; compare to plate 1-4, No Action Alternative). The concessioner would retain the warehouse building in the Valley to support operations, including inventory and supply distribution, building maintenance shops, security, recycling, uniforms, personnel, payroll, housing, and computer support.

A new fire station would be constructed in the Yosemite Village area to house the concessioner's fire engine and the National Park Service fire equipment. The Village Garage facility would be removed, and shuttle bus servicing functions would be relocated to the NPS maintenance area. Heavy maintenance of concessioner vehicles would be relocated to a new garage facility in El Portal. Site-specific locations for these facilities would be evaluated and determined during the site design and development process.

The historic U.S. Post Office in Yosemite Village would remain; limited postal facilities may be incorporated into new employee housing designs. The medical and dental clinics would remain for as long as feasible and financially viable, as would the Pacific Bell telephone operation, although it may be relocated. The historic Ansel Adams Gallery and associated structures would remain.

Administrative offices for the Yosemite Institute would be relocated to El Portal, although the Institute would retain an office in the Valley to facilitate the coordination of its educational programs, many of which take place in Yosemite Valley.

Employee Housing

Housing is necessary to accommodate employees who are responsible for natural and cultural resource protection, serving the needs of park visitors, and meeting the operational requirements of the park. During the summer, over 18,200 people per day may visit Yosemite Valley. Only by providing employee housing at or within a reasonable proximity to Yosemite Valley would resources be protected and the needs of these visitors be met.

Housing Program Overview

This alternative would provide up to 2,118 total employee beds in Yosemite Valley, El Portal, Foresta and Wawona to support Yosemite Valley district functions (National Park Service, primary concessioner and other partners). The housing would be distributed as follows:

- Retain up to 752 employee beds in Yosemite Valley
- Remove 525 employee beds from Yosemite Valley, and relocate 337 beds to the El Portal Administrative Site, 174 to Wawona, and 14 to Foresta
- Provide up to an additional 403 employee beds in the El Portal Administrative Site, and 24 beds in Wawona to accommodate present unmet needs and potential demand

Housing Objectives

Yosemite National Park is committed to following the direction set by National Park Service policy that seeks to reduce the government's role in providing employee housing while reserving the ability to provide housing when appropriate and necessary. At Yosemite National Park, one way of reducing the government's role is to facilitate the private acquisition of housing by employees. To this end, under this alternative the National Park Service would actively pursue and facilitate policies, programs, and arrangements that would: (1) encourage National Park Service and park partner employees to find private housing in the region, and (2) work with county governments and, as appropriate, the private sector, to develop strategies to house National Park Service and park partner employees within the region.

Additionally, the National Park Service would develop housing policies and programs as allowed by the Omnibus Parks and Public Lands Management Act of 1996. The act states that the National Park Service shall consider actions to:

a) Develop where necessary an adequate supply of quality housing units for field employees for the National Park Service within a reasonable time frame;
b) Expand the alternatives available for construction and repair of essential government housing;
c) Rely on the private sector to finance or supply housing to the maximum extent possible, in order to reduce the need for federal appropriations;
d) Ensure that adequate funds are available to provide for long-term maintenance needs of field employee housing; and
e) Eliminate unnecessary government housing and locate such housing as is required in a manner such that primary resource values are not impaired.

This alternative identifies locations that can be used for employee housing within Yosemite National Park (Yosemite Valley, Wawona, and Foresta) and the El Portal Administrative Site. These locations have been identified in order to guide potential future land use. However, to the greatest degree possible the National Park Service would attempt to facilitate the private acquisition of housing in the region for a reasonable portion of the National Park Service and park partner workforce. Prior to the construction of housing, the National Park Service would encourage employees to find private housing in the region, and work with county governments and, as appropriate, the private sector, to develop strategies to house Yosemite National Park employees collectively.

Because the National Park Service does not have authority over the use of private lands in the region outside Yosemite National Park and the El Portal Administrative Site, and because an ample supply of housing is not guaranteed, the National Park Service would be prepared to meet housing needs within areas under its jurisdiction in Yosemite Valley, El Portal, Wawona, and Foresta. If an adequate supply of employee housing were not available in the local region, then the National Park Service would construct housing in these areas. Furthermore, the National Park Service recognizes that active involvement in the appropriate county and state government processes, and compliance with county ordinance and state government laws and regulations (such as the California Environmental Quality Act) would be required and essential when considering land-use options outside the boundaries of Yosemite National Park.

Presently, during the peak season, the combined total workforce serving Yosemite Valley is approximately 2,183[1] and housing is provided for a total of 1,620[2] employees Therefore, approximately 563[3] employees (or 26%) of the total workforce is housed privately within the region, including privately owned homes on National Park Service leased land in Old El Portal[4].

This alternative could increase the Yosemite Valley related workforce by 403[5] employees for a total of 2,586[6] employees to accommodate increases in staffing levels associated with alternative actions. To meet the needs of this additional workforce this alternative would provide an additional 403 employee bed spaces. Again, it is expected that many employees would seek housing in the region. Therefore, this alternative has anticipated that a minimum of 49 of the 403 additional employees could seek housing in the region, potentially increasing the number of employees privately housed from 563 to 612 of the total workforce.

The related potential additional demand for 49 more employees to be housed in the region would likely be broadly dispersed over a wide area and occur gradually throughout plan implementation (15 to 20 years), thereby allowing for a sufficient level of housing to become available over time in the local communities. Because the National Park Service does not have the authority over the use of private lands in the region outside Yosemite National Park, the

1. Current staffing level: 1,750 park partner + 433 NPS = 2,183
2. Current beds under park jurisdiction: 1,691 beds – 71 private beds (at Old El Portal) = 1,620 beds. There are 1,691 existing beds for Yosemite Valley employees (see Alternative 1 – Housing).
3. Employees privately housed: 2,183 current staff – 1,620 current beds = 563
4. Homes in Old El Portal are included in the calculation because they are privately owned and acquired, even though they are on National Park Service leased lands.
5. Growth in staffing and related bed spaces: 40 NPS operations + 288 transportation + 60 concessioner + 15 other partner = 403 beds
6. Total number of employees necessary to serve Yosemite Valley under Alternative 5 (2,183 existing + 403 growth = 2,586)

number of beds proposed in this alternative could meet housing needs within Yosemite Valley, El Portal, Wawona, and Foresta if housing were not available within the region.

Site Design and Development Process

Upon completion of this plan, site-specific studies would be prepared to evaluate design options for new housing and administrative facilities. These studies would include, if necessary, additional environmental review, evaluation and compliance, archeological surveys and data collection, ethnographic resource inventories and evaluation, historic resource studies, biological assessments, erosion control plans, geologic assessments, and the development of architectural guidelines. Housing types and densities, and support facility locations might change if site-specific constraints were identified, if National Park Service or concessioner staffing programs changed, or if housing program requirements change in response to changes in the demand for housing.

The site design and development process would allow for the participation of National Park Service and concession employees, residents of El Portal, Wawona, and Foresta, Mariposa County officials, and other interested parties in the preparation of site development studies for housing, administrative functions, and community or commercial facilities. These processes would consider appropriate county and/or town planning area specific plans and would prescribe development characteristics and criteria that would be compatible with the character, density, and scale of existing development. Site-specific environmental review, evaluation, and compliance would also be completed as appropriate during the site design process on a project-by-project basis.

Housing Program

Under this alternative, a total of 752 National Park Service, concessioner, and other park employee beds would be located in Yosemite Valley. This represents an application of criteria proposed in the 1992 *Draft Yosemite Valley Housing Plan*.

There would be 1,042 employee beds within the El Portal Administrative Site; 290 of these are existing, though 104 would be relocated from the Village Center (Hennessey's Ranch) and the Trailer Village to allow for redevelopment. Facilities for employee housing to replace those beds relocated from Yosemite Valley (337 beds) and Cascades and Arch Rock (12 beds) would be constructed, as would facilities for an additional 403 beds to accommodate current unmet needs and potential future growth as a result of operational changes associated with this alternative.

There would be 310 employee beds located within Wawona, including 112 existing beds. Of the remaining 198 employee beds, 174 would be relocated from Yosemite Valley. A total of 24 additional employee beds would be constructed to accommodate unmet Wawona district operational needs.

There would be a total of 2,118 beds in Yosemite Valley, Wawona, Foresta, and El Portal. Of these, 1,652 would be allocated for the concessioner, 366 for the National Park Service, and 100 for others (see table 2-57). The total number of beds was determined by evaluating the specific operational requirements of this alternative and then projecting the related staffing requirements.

Table 2-57 Location for All Proposed Housing by Employer				
Location	**National Park Service**	**Primary Concessioner**	**Others[1]**	**Total**
El Portal	232	747	63	**1,042**
Yosemite Valley	70	645	37	**752**
Foresta	14	0	0	**14**
Wawona	50	260	0	**310**
Cascades and Arch Rock	0	0	0	**0**
Total	**366**	**1,652**	**100**	**2,118**

Note: Numbers indicate beds dedicated to an employee, not total beds in a unit. For example, a three-bedroom house dedicated to one employee is considered to provide one bed. Spouses or partners employed by other Valley employers are not double-counted, as beds are assigned only to the primary employee whose job requires his/her location in the Valley. Minor adjustments to distribution by employer and location could occur during the implementation of this plan.

1. Others includes park partners, other concessioners, and approved community service organizations.

Following the January 1997 flood, temporary concessioner housing (345 beds) was established at several locations in Yosemite Valley, including the Yosemite Village area (80 beds), Yosemite Lodge (82 beds), and Curry Village (183 beds). All of these temporary beds would be removed.

Minor adjustments to the housing number, type, and density for each location may be needed in response to the site design process, or constraints or conditions not identified during this planning process. If significant adjustments are required, additional site-specific environmental review could be necessary.

Yosemite Valley Housing Actions

Three principal locations are identified for the provision of 752 employee beds in Yosemite Valley in this alternative: Yosemite Village, The Ahwahnee, and Yosemite Lodge. A total of 525 employee beds would be removed from Yosemite Valley.

All temporary housing in Yosemite Valley would be removed and replaced with permanent structures in Yosemite Valley, El Portal, Wawona, or Foresta (the same as under Alternative 2). Areas in Yosemite Valley to be used for employee housing are generally within existing developed or disturbed areas. This alternative would remove some housing from highly valued resource areas and the rockfall zone (see Vol. Ic, plates D and E) and would relocate it. Concentrating housing in multi-level (two- or three-story) buildings would minimize building footprints. Yosemite Valley housing numbers (beds), locations, and distribution by employer are summarized in table 2-58.

Yosemite Lodge

Under this alternative, new employee housing would be provided at Yosemite Lodge in two- or three-story buildings that would comprise studio units or dormitory rooms (262 beds). The temporary modular housing in the parking lot (82 beds) and cabins (eight beds) would be removed, as described for Alternatives 2, 3, and 4.

Yosemite Village

As described for Alternatives 3 and 4, the historic Ahwahnee Row houses and apartments (22 beds) adjacent to Ahwahnee Meadow, plus the Indian Creek apartments (14 beds) and the Y

Table 2-58 Yosemite Valley – Proposed Housing by Employer					
Location	Existing Beds	Bed Allocation by Employer			Bed Change from Existing
		Primary Concessioner	NPS	Others	
Ahwahnee Row houses and apartments	45				–45
Lower Tecoya dormitories and apartments	234	234			0
Hospital Row apartments	12	66			+54
Middle Tecoya dormitory and houses (clinic area)	13		1	12	0
Upper Tecoya houses	26	14	7	5	0
Lost Arrow dormitory and apartments	39	39			0
Lost Arrow cabins	80				–80
Yosemite Village area	14			10	–4
Ahwahnee dormitory and tent cabins	49	30			–19
Yosemite Lodge cabins	8				–8
Yosemite Lodge modular units	82				–82
Yosemite Lodge studios or dormitories	0	262			+262
Concessioner stable houses and tent cabins	49				–49
Curry Village area	37				–37
Curry Village Huff House tent cabins	50				–50
Curry Village Huff House cabins	104				–104
Curry Village Huff House dormitories	0				0
Curry Village Terrace	156				–156
Curry Village Boys Town tent cabins	178				–178
Curry Village Boys Town	29				–29
National Park Service housing – historic district (including Rangers' Club)	72		62	10	0
Valley Totals	**1,277**	**645**	**70**	**37**	**–525**
Total Beds to Remain in Valley		**752**			

Apartments (8 beds), would be removed. The historic apartment next to the Village Garage (1 bed) would be removed and the area redeveloped (see Vol. IC, plate 5-4).

The historic Lower Tecoya (234 beds) and Lost Arrow dormitories (36 beds) and apartments (3 beds) would be retained, as in Alternatives 2, 3, and 4, but under this alternative new apartments, studios, or dormitories would be constructed at Hospital Row (66 beds). The Upper Tecoya houses (26 beds), the historic Middle Tecoya houses and dormitory (13 beds near the medical clinic), the apartments above the post office (4 beds), historic apartments behind The Ansel Adams Gallery (3 beds), and the Yosemite Elementary School Teacherage (3 beds) would also be retained (the same as under Alternatives 2, 3, and 4).

The temporary Lost Arrow cabins (80 beds) in the Yosemite Village Historic District, the historic cabins at Camp 1 (3 beds), and the historic house (1 bed) behind the current visitor center would be removed (the same as the other action alternatives).

Housing in the Yosemite Village Historic District and at the Rangers' Club (72 beds combined) would be retained (the same as under the other action alternatives).

The Ahwahnee

The historic Ahwahnee dormitory would be retained but remodeled; it would accommodate 13 fewer beds (reduced from 43 to 30 beds). The three tent cabins (6 beds) adjacent to the dormitory, which do not contribute to the historic complex, would be removed and the area restored (the same as under the other action alternatives).

Curry Village

All housing (554 beds) would be removed from Curry Village in this alternative (see Vol. IC, plate 5-5). These include Cooks' cabins (12 beds), Cooks' tents (eight beds), Huff House studios (4 beds), Huff House trailers (6 beds), Curry Village manager housing (Cabin 101 [1 bed]), Tresidder Residence studios (2 beds), and Mother Curry Bungalow studios (4 beds). Some of the historic structures could be adaptively reused. Temporary housing would be removed: Huff House tent cabins (50 beds), Huff House cabins (104 beds), and Boys Town cabins (29 beds). The Terrace (156 beds) would be removed. The Boys Town tent cabins (178 beds) would be removed and the area redeveloped. Under this alternative, no new dormitories or other housing would be built in the Huff House area.

Concessioner Stable

Two houses (2 beds), three apartments (3 beds), seven cabins (14 beds), and 10 tent cabins (30 beds) at the historic concessioner stable would be removed (see Vol. IC, plate 5-5).

Housing Support Facilities

In Yosemite Village, areas have been set aside and designated for necessary community support facilities. These include the post office, grocery, and a service station. Under this alternative, the employee wellness center, concessioner housing management office, and housing-related storage space would be located at the new Yosemite Lodge dormitories. A new employee cafeteria would be constructed in the Yosemite Lodge area to reduce seating and use conflicts with park visitors. If possible, the same kitchen would service both the guest and employee cafeterias.

Utilities

Water would be obtained from existing wells in Yosemite Valley. All sewage would be treated at the El Portal Wastewater Treatment Plant. Electrical and phone service would be upgraded to accommodate the additional loads.

El Portal Housing Actions

Legislation in 1958 established the El Portal Administrative Site for the purpose of locating utilities, facilities, and services required for the operation of Yosemite National Park (see Vol. II, Appendix A). Much of the available land suitable for development within the El Portal Administrative Site would be used for housing. Housing needs in El Portal could change based on the potential for some employees to obtain private housing in the region, which would reduce the overall need for housing in El Portal.

Under this alternative, there would be 1,042 total beds within the El Portal Administrative Site, including 290 existing beds (104 of which would be relocated within El Portal), 337 beds relocated from Yosemite Valley, 12 beds relocated from Cascades and Arch Rock, and 403 new beds to accommodate present unmet needs and projected growth (see table 2-59).

Like the other action alternatives, this alternative considers six locations in El Portal as suitable for employee housing or other facilities (see Vol. Ic, plate 5-6): Hillside East, Hillside West, Village Center, Old El Portal, Rancheria Flat, and Hennessey's Ranch (includes Trailer Village and Abbieville).

Table 2-59
El Portal – Proposed Housing by Employer

Location	Existing Beds	Bed Allocation by Employer			Bed Change from Existing
		Primary Concessioner	NPS	Others[1]	
Hillside West	0	65	43	22	+130
Hillside East	0	40			+40
Hennessey's Ranch[2]	68				–68
Abbieville houses	4			4	0
Hennessey's Ranch apartments, studios, and dormitories	0	597	50	9	+656
Old El Portal houses	71	35	30	23	+17
Rancheria Flat houses (Mission 66)	21		21		0
Rancheria Flat duplex	4			4	0
Rancheria Flat apartments	58	6	58		+6
Rancheria Flat houses	19		26		+7
Rancheria Flat dormitory	0				0
Village Center apartments, studios, and dormitories	0				0
Village Center houses	9	4	4	1	0
Village Center Motor Inn cabins	24				–24
Village Center, El Portal Hotel	12				–12
El Portal Totals	**290**	**747**	**232**	**63**	**+752**
Total Beds in El Portal		**1,042**			
El Portal Bed Summary		**Primary Concessioner**	**NPS**	**Others**	**Total**
El Portal existing beds and beds relocated within El Portal		65	177	48	290
El Portal beds relocated from Yosemite Valley		334	3	0	337
El Portal Beds relocated from Cascades and Arch Rock		0	12	0	12
El Portal new beds		348	40	15	403[3]
El Portal Total		**747**	**232**	**63**	**1,042**

Note: Numbers indicate beds dedicated to an employee, not total beds in a unit. For example, a three-bedroom house dedicated to one employee is considered to provide one bed. Spouses or partners employed by other Valley employers are not double-counted, as beds are assigned only to the primary employee whose job requires his/her location in the Valley. Minor adjustments to distribution by employer and location could occur during the implementation of this plan.

1. Other employers are: Yosemite Institute, Yosemite Association, day care, dental and medical clinics, El Portal service station, Mariposa County Unified School District, and community service organizations.
2. These units (68 beds) make up the El Portal Trailer Village. They represent a mixture of employees of the National Park Service, primary concessioner, and other park employees and would be accommodated with replacement housing in Hillside East and Hillside West.
3. It is expected that many employees would seek to find housing in the region. Therefore, this alternative has anticipated that a minimum of 49 of the 403 additional employees would seek housing in the region; potentially increasing the number of employees privately housed from 563 to 612 of the total workforce.

Hillside East

A total of 40 apartments or studio apartments (40 beds) would be constructed (the same as under Alternatives 3 and 4).

Hillside West

A total of 130 studio apartments or dormitories (130 beds) would be constructed.

Hennessey's Ranch (Trailer Village and Abbieville)

As described for the other action alternatives, all existing trailer and modular housing (59 units/68 beds) would be removed and the area redeveloped as employee housing and parking. Employees living in these housing units would either move to new housing constructed in El Portal or find other housing outside the El Portal Administrative Site. Under this alternative, the site would be redeveloped with 656 beds in apartments, studios, and/or dormitories. The Abbieville houses would be retained. The redevelopment could be phased as the Trailer Village closes.

The area would be protected from flooding by extending and raising the existing dike. This would place the area out of the 100-year floodplain, as defined by the U.S. Army Corps of Engineers. Additionally, flood hazards would be mitigated by designating an open space area along the river's edge (to promote riverbank stability), and by engineering and elevating structures to withstand flood inundation.

Old El Portal

A total of 17 one-, two-, and three-bedroom homes (1 bed each) would be built on available lots. The 71 existing single-family homes (1 bed each) are privately owned on federally leased land, and they would be retained (the same as under all action alternatives).

Rancheria Flat

As described for the other action alternatives, a total of seven new two-, three-, or four-bedroom, single-family detached homes (1 bed each) would be constructed. The 19 homes (1 bed each) constructed between 1995 and 1997 (Phase 2) would be retained. The existing Mission 66 homes (21 beds) and apartments (58 beds) would be retained. The two duplexes (4 beds) would be retained. The three historic National Lead Company residences would be retained and rehabilitated. A total of six apartments (six beds) would be constructed.

Village Center

Under this alternative, the nine privately owned houses (9 beds) on federally leased land (4 of which are historic) would be retained; the Motor Inn cabins (24 beds) would be removed; the historic El Portal Hotel (12 beds) would no longer be used for housing (it would be removed or adaptively reused).

Housing Support Facilities

As described for the other action alternatives, this alternative includes general land-use designations for housing and support facilities to be located in the El Portal Administrative Site.

The size and exact location of the support facilities, as well as the specific locations and size of employee housing units, are beyond the scope of this plan. These details would be formulated during the site design and development process. If necessary, additional environmental review would be completed as a part of the site design.

The Village Center area has been designated for necessary support facilities and commercial services. These could include a community center, post office, medical clinic, enlarged grocery store and deli, laundry, recreational facilities, wellness center, hair care, office spaces, and service station. To the greatest extent possible, park and open space areas, such as a town square, would be provided.

A multi-use paved trail would be developed from Rancheria Flat, through Hennessey's Ranch, to the Village Center (the same as under Alternatives 2, 3, and 4). This trail would also include two footbridges across the Merced River: one between the Village Center and Hennessey's Ranch, and another between Hennessey's Ranch and Rancheria Flat. If feasible, one link of the multi-use paved trail, between the Village Center and Hennessey's Ranch, could be via a modified Highway 140 vehicle bridge (see Vol. IC, plate 5-6).

An employee dining and recreation facility with a swimming pool would be constructed at Hennessey's Ranch (the same as under Alternatives 2, 3, and 4).

An employee child care facility would be provided in El Portal, possibly adjacent to the elementary school in Rancheria Flat (the same as under Alternatives 2, 3, and 4).

Table 2-60
Wawona – Proposed Housing By Employer

Description	Existing Beds	Bed Allocation by Employer			Bed Change from Existing
		Primary Concessioner	NPS	Others	
Beds for employees with a Yosemite Valley duty station	6	174	6		+174
Beds for employees with a Wawona duty station	106	86[2]	44		+24
Wawona Totals	**112**	**260**	**50**	**0**	**+198**
Total Beds in Wawona		**310**			
Wanona Bed Summary		**Primary Concessioner**	**NPS**	**Others[1]**	**Total**
Wawona beds and beds relocated from other locations within Wawona[2]		62	50	0	112
Wawona beds relocated from Yosemite Valley		174	0	0	174
Wawona beds to meet present unmet need for employees with a Wawona duty station		24	0	0	24
Wawona Total		**260**	**50**	**0**	**310**

Note: Numbers indicate beds dedicated to an employee. For example, a house dedicated to one employee is considered one bed. Spouses or partners employed by other Valley employers are not double-counted, as beds are assigned to the primary employee whose job requires his/her location in the Valley.

1. Other employers are Yosemite Institute, day care, dental, magistrate, and community service organizations.
2. Beds distributed as follows: 16 beds located behind the Wawona Hotel, 46 beds retained in Section 35, and 24 new beds to meet unmet demand.

Utilities

As under the other action alternatives, water would be obtained from additional wells in the El Portal area. All sewage would be treated at the El Portal Wastewater Treatment Plant. Electrical and phone service would be upgraded to accommodate the additional loads. The abandoned sewage treatment plant in Rancheria Flat would be removed.

Wawona Housing Actions

The *General Management Plan* calls for 120 permanent and 320 seasonal employee beds in the Wawona area (see table 2-60). With regard to Section 35 in Wawona, it is the intent of the National Park Service that any development for administration or operations (including housing) would be compatible in character, density, and scale to existing residential and commercial development in Section 35. There are currently 112 beds, of which six are for employees with a Yosemite Valley duty station. The Wawona Town Plan anticipates additional employee housing to be constructed in the Wawona area.

As described for Alternative 2, a total of 174 apartment, studio, or dormitory bed spaces would be relocated from Yosemite Valley to Wawona for employees who work in Yosemite Valley (see Vol. IC, plate 5-8). Additionally, 24 apartment, studio, or dormitory bed spaces would be provided to meet current housing shortages for employees who work in Wawona. Future land use would be in accordance with the Wawona Town Plan.

Housing Support Facilities

As described for Alternative 2, this alternative includes general land-use designations for housing and support facilities to be located in the Wawona area. The size and exact location of the support facilities, as well as the specific locations and size of employee housing units, are beyond the scope of this plan. These details would be formulated during the site design and development process. If necessary, additional environmental review would be completed as a part of the site design.

Support facilities would be developed in accordance with the Wawona Town Plan. These could include a laundry, recreational facilities, wellness center, hair care, and office spaces.

Utilities

As described for Alternative 2, water would be obtained from additional wells or springs in the Wawona or Biledo areas. All sewage would be treated at the Wawona Watewater Treatment Plant, which would be upgraded. Electrical and phone service would be upgraded to accommodate the additional loads.

Foresta Housing Actions

A total of 14 houses were lost in the 1990 A-Rock Fire. The 14 houses would be reconstructed in Foresta; and would be used to replace beds removed from Yosemite Valley (see Vol. IC, plate 5-7).

Cascades and Arch Rock Housing Actions

Four historic houses (4 beds) would be removed from the Cascades area and relocated to El Portal. Eight beds in two buildings would be removed at Arch Rock and relocated to El Portal; the historic structures at Arch Rock would be adaptively reused (same as Alternatives 2, 3, and 4).

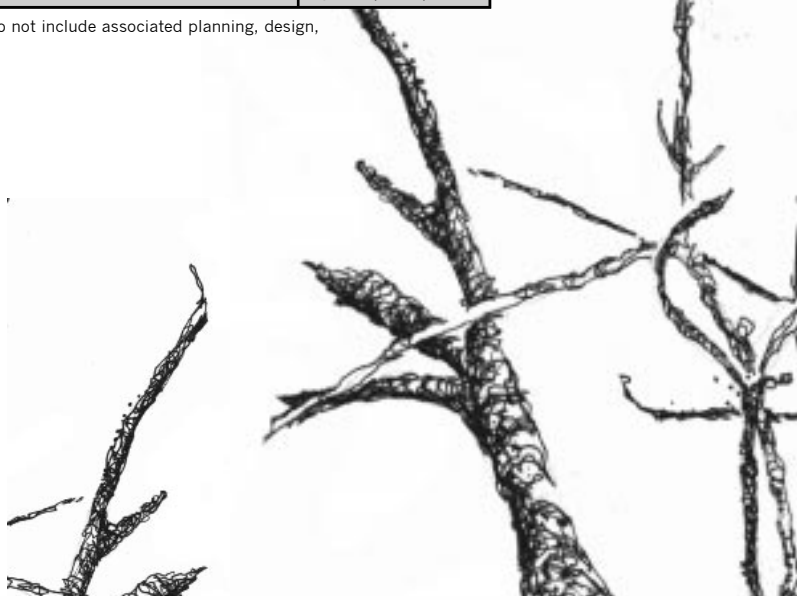
Development Costs

It is estimated that the one-time development costs for this alternative would be $482,012,433 (see table 2-61). These costs would be in addition to the current park operations costs identified in Alternative 1. See Vol. II, Appendix M for the sequencing of development proposed for Alternative 2, the Preferred Alternative.

Table 2-61
Development and Operational Cost Estimates for Alternative 5

Development Costs	
Description	**Amount**
Resource Stewardship	13,638,810
Visitor Experience/Facilities	123,590,095
Transportation/Circulation	70,891,917
Administration/Infrastructure	51,103,000
Employee Housing	222,788,611
Subtotal – Development	**$482,012,433**
Operations Costs	
Description	**Amount**
National Park Service Operations	4,912,500
Transit Operations	8,448,000
Subtotal – Operations	**$13,360,500**
Total	**$495,372,933**

Development estimates do not include associated planning, design, and compliance costs.



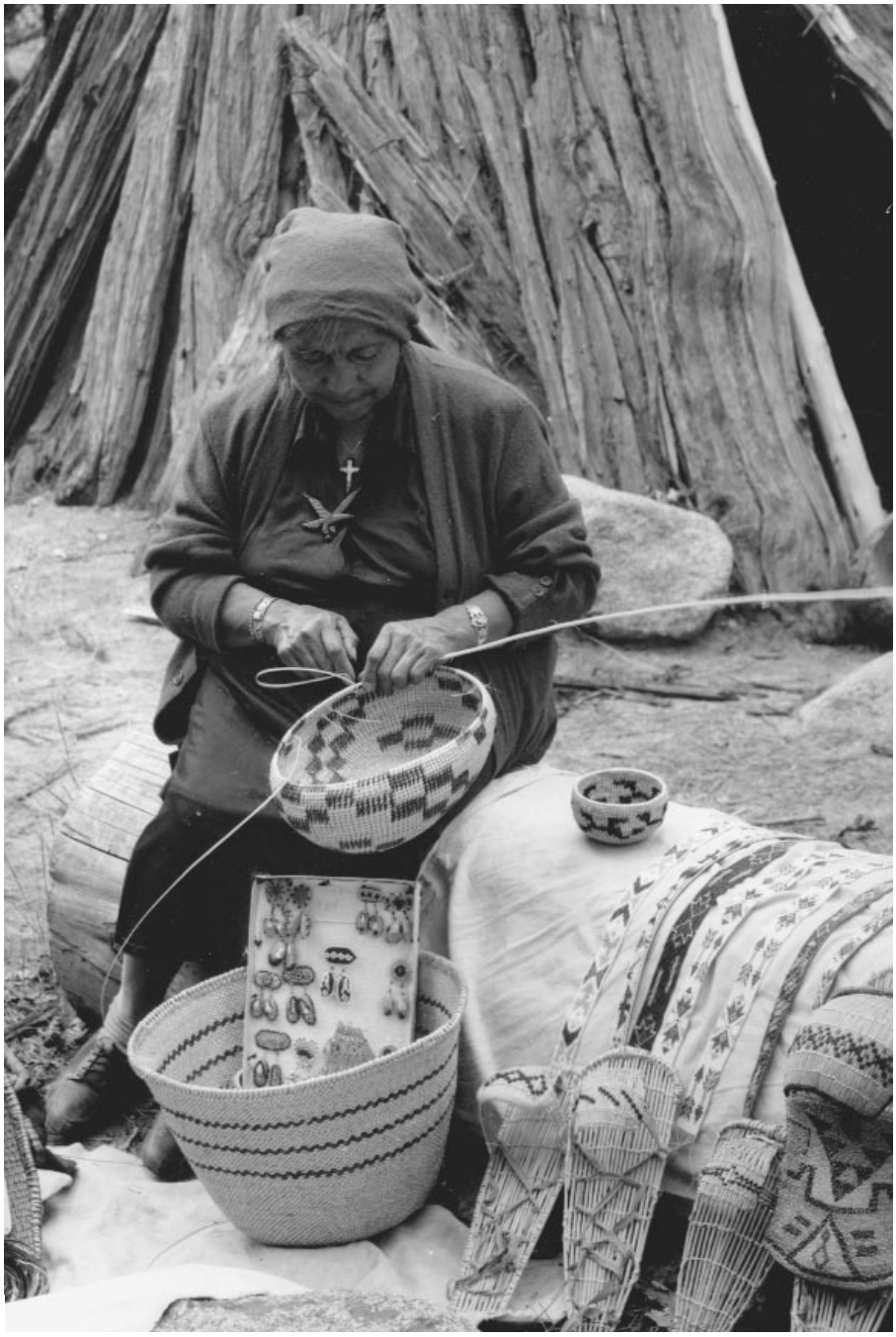


Photo courtesy of Yosemite Museum

Lucy Telles (Miwok/Paiute) weaving in the re-created Indian Village behind the Yosemite Museum, circa 1950. She sold an array of baskets and beaded items to Yosemite visitors when she worked as a demonstrator.

Mitigation Measures Common To All Action Alternatives

To ensure that implementation of the action alternatives protects natural and cultural resources and the quality of the visitor experience, a consistent set of mitigation measures would be applied to actions that result from this plan. These mitigation measures would also be applied to future actions that are guided by this plan. The National Park Service would prepare appropriate environmental review (i.e., those required by the National Environmental Policy Act, National Historic Preservation Act, and other relevant legislation) for these future actions. As part of the environmental review, the National Park Service would avoid, minimize, and mitigate adverse impacts when practicable.

Best Management Practices During Construction

The following Best Management Practices would be implemented, as appropriate, prior to, during, and/or after specific construction (for the purposes of this discussion, construction includes major repair and/or rehabilitation, demolition, deconstruction, reconstruction, restoration, etc.). Specific tasks would include, but are not limited to, the following:

- Implement a compliance-monitoring program in order to stay within the parameters of National Environmental Policy Act and National Historic Preservation Act compliance documents, U.S. Army Corps of Engineers Section 404 permits, etc. The compliance-monitoring program would oversee these mitigation measures and would include reporting protocols.
- Implement a natural resource protection program. Standard measures could include construction scheduling, biological monitoring, erosion and sediment control, use of fencing or other means to protect sensitive resources adjacent to construction, removal of all food-related items or rubbish to bear-proof containers, topsoil salvage, and revegetation. The program could include specific construction monitoring by resource specialists as well as treatment and reporting procedures.
- Implement a cultural resource protection program. Standard measures could include consideration of adaptive reuse, relocation, and salvage of historic building materials; archeological monitoring during ground-disturbing activities (in

keeping with the 1999 Programmatic Agreement); use of fencing or other means to protect sensitive resources adjacent to construction; and preparation of a discovery plan to handle unanticipated exposure of buried human remains. The program could include specific construction monitoring by resource specialists and culturally associated Indian people, as well as treatment and reporting procedures.

- Implement a traffic control plan, as warranted. Standard measures include strategies to maintain safe and efficient traffic flow during the construction period.
- Implement a dust abatement program. Standard dust abatement measures could include the following elements: water or otherwise stabilize soils, cover haul trucks, employ speed limits on unpaved roads, minimize vegetation clearing, and revegetate post-construction.
- Implement standard noise abatement measures during construction. Standard noise abatement measures could include the following elements: a schedule that minimizes impacts to adjacent noise-sensitive uses, use of the best-available noise control techniques wherever feasible, use of hydraulically or electrically powered impact tools when feasible, and location of stationary noise sources as far from sensitive uses as possible.
- Implement a noxious weed abatement program. Standard measures could include the following elements: ensure construction-related equipment arrives on site free of mud or seed-bearing material, certify all seeds and straw material as weed-free, identify areas of noxious weeds pre-construction, treat noxious weeds or noxious weed topsoil prior to construction (e.g., topsoil segregation, storage, herbicide treatment), and revegetate with appropriate native species.
- Implement a spill prevention and pollution control program for hazardous materials. Standard measures could 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.
- Implement measures to reduce adverse effects of construction on visitor safety and experience.
- Implement a notification program. Standard measures could include notification of sensitive receptors, utilities, and emergency response units prior to construction activities.
- Implement an interpretation and education program. Continue directional signs and education programs to promote understanding among park visitors.
- Use silt fences, sedimentation basins, etc. in construction areas to reduce erosion, surface scouring, and discharge to water bodies.
- Develop revegetation plans for the disturbed area and require the use of native species. Revegetation plans should specify seed/plant source, seed/plant mixes, soil preparation, etc. Salvage vegetation should be used to the extent possible.
- Delineate wetlands and apply protection measures during construction. Wetlands would be delineated by qualified National Park Service staff or certified wetland specialists and clearly marked prior to construction work. Construction activities should be performed in a cautious manner to prevent damage caused by equipment, erosion, siltation, etc.
- Develop architectural character guidelines for new construction in or near historic districts. All new development would be designed to be compatible with historic resources in terms of scale, massing, materials, architectural elements, and orientation with designated historic sites, structures, or districts.

Resource-Specific Measures

Hydrology, Water Quality, and Floodplains

Mitigation measures would be applied to protect water resources (also see Soils, below). These shall include the following:

- Take measures to control erosion, sedimentation, and compaction and thereby reduce water pollution.
- Immediately remove hazardous waste materials from project sites.
- Place construction debris in refuse containers at least daily.
- Dispose of refuse at least weekly. No refuse would be burned or buried inside the park.
- To the extent possible, schedule construction activities during periods of low precipitation and low groundwater to reduce the risk of accidental hydrocarbon leaks or spills reaching surface and/or groundwater, and to reduce the potential for soil contamination and compaction.
- Dispose of volatile wastes and oils in approved containers for removal from construction sites to avoid contamination of soils, drainages, and watercourses.
- 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 utilize heavy equipment, to contain oil, hydraulic fluid, solvents, and hazardous material spills.
- Integrate stormwater pollution controls into design, construction, and operation of new facilities, parking areas, and other paved surfaces that concentrate runoff.

Floodplains

Actions occurring within the floodplain would be subject to the provisions of the NPS *Floodplain Management Guideline* 1993 (Special Directive 93-4; Director's Order NPS 77) and Executive Order 11988 (Protection of Floodplains). The following mitigation measures would be applied to protect facilities within the floodplain:

- An emergency preparedness plan would be developed for any facilities within the floodplain. The National Park Service will continue to maintain and update a flood evacuation plan. The plan details responsibilities of individual park employees for advanced preparedness measures, removing or securing park property, records and utility systems, monitoring communication, and conducting salvage operations.
- Design or modifications to minimize harm to floodplain values or risks to life and property. The design of all new structures will incorporate methods for minimizing flood damage as contained in the National Flood Insurance Program *Floodplain Management Criteria for Flood-Prone Areas* (CFR 44:60.3) and in accordance with any local, county, or state requirements for flood-prone areas.

- Impacts on site resources will be minimized and mitigated. The design for the impermeable areas would provide for appropriate drainage to ensure that the natural resources are not further degraded.
- Levees may be constructed to divert water flow and remove areas from the 100-year floodplain.
- Design of parking would allow minimal resistance to flood waters, therefore minimizing impacts on the river, the road, and associated parking.
- Prepare site-specific mitigation and subsequent Floodplain Statement of Findings during future compliance, as necessary.

Site-Specific Mitigation for Hennessey's Ranch, El Portal

- As many structures as possible would be built on the high island in the center of the area that is outside the 100-year floodplain.
- All dwellings would have permanent foundations and finished floor elevations above the present 100-year flood high-water line, and be engineered to withstand inundation.
- The levee would be rebuilt to withstand a 100-year flood.
- A community open space or riparian buffer zone would be left adjacent to the river. This would give the Merced River more space to spread out horizontally and the levee would not need to be as high.

Wetlands

All facilities would be sited to avoid wetlands, or if that were not feasible, to otherwise comply with Executive Order 11990 (Protection of Wetlands), the Clean Water Act, and Director's Order 77-1 (Wetland Protection).

Increased caution would be exercised to protect these resources from damage caused by construction equipment, erosion, siltation, and other activities with the potential to affect wetlands. Measures would be taken to keep construction materials from escaping work areas, especially near streams or natural drainages.

Wetlands would be delineated by qualified National Park Service staff or certified wetland specialists, and marked prior to construction work.

Soils

Soil erosion and contamination result in impacts to air and water quality as well as to habitats for plant and wildlife species. Mitigation efforts would focus on minimizing or eliminating these impacts. They would include the following:

- Use silt fences in construction areas to reduce erosion and surface scouring.
- Use sedimentation basins and silt fences in grading areas to capture soil erosion before discharge to rivers and other water channels.
- Use water bars in temporary access roads to control and reduce surface scouring.
- Use semipermeable materials on temporary access routes to allow for water infiltration through the soil column and aeration of any compacted soils at the completion of construction.

- Use dust abatement measures to reduce airborne soil erosion, including setting speed limits for construction vehicles in unpaved areas, and cover dirt and debris to be hauled away in trucks.

Vegetation (including Special-Status Species)

Mitigation actions would occur prior to, during, and/or after construction to minimize immediate and long-term impacts to vegetation. These actions would vary by specific project, depending upon the extent of construction and the types of species and habitat affected. Mitigation would include the following:

- Develop revegetation plans for the disturbed area, requiring the use of native species, preferably from the same gene pool. Specify soil preparation, native seed/plant mixes, and mulching for all areas disturbed by construction activities.
- Develop and implement a monitoring plan to ensure successful revegetation, maintain plantings, and replace unsuccessful plant materials.
- Salvage vegetation to the extent possible for use in revegetating disturbed areas.
- Enforce construction specifications regarding soil salvage and reuse, trenching, plant protection, and finished grading.
- Site buildings and trails to minimize impacts to vegetation and avoid large trees, where possible.
- Select base course and fill materials for compatibility with native granitic soils to minimize risk of introducing non-native plant seeds. Monitor areas where fill is imported from outside the park, and eradicate non-native plants. Apply standard techniques to prevent non-native plant encroachment.
- Develop monitoring and mitigation plans for managing non-native plants within and immediately surrounding construction and developed areas.
- Confine all construction operations to specified project work limits. Install temporary barriers to protect natural surroundings (including trees, plants, and root zones) from damage. Repair or replace damaged trees and plants, and avoid fastening ropes, cables, or fences to trees.
- Install fencing to minimize use of highly sensitive sites such as river edges and wetlands, and install signs as needed to direct use to more appropriate areas. Placement of fencing and signs would be developed in consultation with cultural resource staff.
- Use native or seed-free mulch to minimize surface erosion and introduction of non-native plants.
- Comply with the *Vegetation Management Plan* (1997) for landscaping and yard care within and around developed areas, including minimization of irrigation systems, planting with native species appropriate to the site, or landscaping (if appropriate) with approved nonspreading, non-native plants. Treatment within historic districts would be in accordance with the *Secretary of the Interior's Standards for the Treatment of Cultural Landscapes*.
- Define trails, pathways, and boundaries of development to reduce radiating impacts.
- Protect meadows and other sensitive resource areas by defining parking areas.

Special-Status Species

The U.S. Fish and Wildlife Service is responsible for administering conservation and recovery measures to protect federally listed species, as directed in the Endangered Species Act of 1973. The U.S. Fish and Wildlife Service has prescribed conservation measures specific to the *Final Yosemite Valley Plan/SEIS* as part of the Biological Opinion (see Vol. II, Appendix L). The Biological Opinion contains Terms and Conditions that are non-discretionary. In addition, the National Park Service has developed mitigation measures for all special-status species. These mitigation measures can be found in the Biological Assessment (see Vol. II, Appendix K).

Wildlife (including Special-Status Species)

General Wildlife

Mitigation actions would occur prior to, during, and after construction to minimize immediate and long-term impacts to wildlife. These actions would vary by specific project, depending upon the extent of construction, its location, and the types of species and habitat that could be affected. Many of the measures listed above for vegetation would also benefit wildlife by helping to preserve habitat. Mitigation actions specific to wildlife would include the following:

- Prior to construction, evaluate habitat for species likely to occur and take steps to minimize impact on those species determined to be especially vulnerable.
- In site design, define trails, pathways, and boundaries of developed areas to confine human use and limit radiating impacts.
- Limit the effects of light and noise on adjacent habitat through control of sources during construction, and through site design of facilities, to limit long-term effects of resulting development. Limit noise from transit vehicles through application of best-available low-noise technologies and use of operating strategies.
- Install fencing and signs to direct visitor use away from sensitive habitats.
- Provide adequate education and enforcement to limit visitor activities that are destructive to wildlife and habitats.
- When possible, schedule disruptive activities of construction to occur when effects on wildlife would be less (e.g., after nesting season of birds, and when bats are neither hibernating nor have young).
- Preserve, where possible, natural features with obvious high value to wildlife, such as tree snags.
- Maintain routes of escape from excavated pits and trenches for animals that might fall in. Cover post holes and other narrow pits with boards. During construction, maintain vigilance for animals caught in excavations and take appropriate actions to free them.
- Provide structures and procedures to limit the chance of pollution spills, both during construction and during subsequent use of completed facilities. This is especially important where activities are near aquatic or wetland habitats.

Human Wildlife Conflicts

- Take measures to reduce the potential for human-bear conflicts. Educate visitors on appropriate behavior when recreating in bear habitat. Provide bear-proof garbage containers in all developed areas. Install bear-proof food lockers at all campsites and overnight parking areas. Require construction personnel to adhere to park regulations concerning food storage and refuse management.
- Provide adequate cleaning of areas and garbage pick-up to limit wildlife access to human food.
- Develop and implement methods to prevent the fruiting of apple trees that remain, or annually remove fruit from orchards.
- Prohibit the use of picnic areas after dark, when bears are most active.
- Enforce regulations that prohibit feeding of wildlife and that require proper food storage.

Non-Native Species

- Take action to eradicate non-native bullfrogs from meadow and riparian habitats before restoration occurs, and continue monitoring and eradication, if necessary, after restoration (meadow restoration would increase potential habitat for bullfrogs).
- Require the use of processed feeds for stock at National Park Service, concessioner, and public stables and corrals. Such feeds provide less food in droppings for brown-headed cowbirds. Implement trapping programs for cowbirds at corrals and stables to reduce populations.

Special-Status Wildlife Species

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Air Quality

- The National Park Service will seek to perpetuate the best possible air quality by aggressively promoting and pursuing measures to preserve, protect, and enhance air resources. Moreover, actions are subject to the provisions of the Clean Air Act and the forthcoming State of California, State Implementation Plan.
- Apply best-available clean fuel technology to minimize air quality emissions, considering the need for reliable, cost-effective transit service with adequate vehicle capacity.
- Dispose of refuse at least weekly. No refuse would be burned inside the park.
- Employ dust abatement measures.

Geologic Hazards

Mitigation measures are designed to reduce the level of risk associated with rockfall events. These include:

- Change the function of existing facilities and buildings to a lesser occupancy category, as prescribed in the *Yosemite Valley Geologic Hazard Guidelines* (see Vol. II, Appendix C).
- Remove facilities and buildings from geologic hazard zones whenever practical.
- Avoid placing new facilities and buildings within geologic hazard areas whenever practical.

Scenic Resources

Mitigation measures are designed to minimize visual intrusions. Many of the mitigation measures identified in the Vegetation section would assist in mitigating potential scenic impacts (see Vegetation section in this chapter). These include:

- Minimize development footprints.
- Choose building materials that are visually compatible or do not compete with the landscape.
- Provide vegetative screening, where applicable.

Cultural Resources

The National Park Service would preserve and protect, to the greatest extent possible, resources that reflect human occupation of Yosemite. Specific mitigation measures include:

- The National Park Service has developed a Programmatic Agreement in consultation with the California State Historic Preservation Officer, the Advisory Council on Historic Preservation, culturally associated American Indian tribes, and the public. This agreement stipulates a process for the treatment of historic properties, including identification, evaluation, and, if necessary, mitigation of adverse effects. Standard mitigation measures may be used in situations where an undertaking would adversely affect a historic property. These include documentation, interpretation, materials salvage, and National Register re-evaluation.
- Conduct additional background research, resource inventory, and National Register evaluation where information about the location and significance of cultural resources is lacking. Incorporate the results of these efforts into site-specific planning and compliance documents.
- Incorporate mitigation measures into site-specific planning and design, including protecting archeological deposits from disturbance, designing new construction in historic settings using compatible architectural style, and screening modern facilities from historic districts and ethnographic use areas. Develop specific design guidelines for all areas.
- Protect known human burials from disturbance, and prepare emergency discovery plans to deal with any unanticipated discoveries.
- Mitigate impacts to archeological resources through data recovery excavations and

construction monitoring in keeping with the *Archeological Synthesis and Research Design, Yosemite National Park* (Hull and Moratto 1999), and as specified in the Programmatic Agreement.

- The park will consult with tribes throughout site-specific design planning and project implementation to avoid or mitigate damage to ethnographic resources.
- Mitigate impacts to ethnographic resources through actions developed in consultation with culturally associated American Indian tribes. Develop a parkwide gathering plan and continue to consult with Indian people, as specified in the Programmatic Agreement. Mitigation measures could include designating alternative gathering areas, continuing to provide access to traditional and spiritual locations, and screening new development from traditional use areas.
- In cases where historic structures are proposed for removal, first consider options for rehabilitation and adaptive reuse or for relocation to another area of the park. Prior to any removal, document structure in accordance with stipulations of the Programmatic Agreement and salvage historic building materials for reuse within the park.
- Design all new construction within historic districts or adjacent to historic structures or sites to be compatible in terms of architectural elements, scale, massing, materials, and orientation.
- Undertake all treatments to historic structures or within cultural landscapes in keeping with the *Secretary of Interior's Standards for the Treatment of Historic Properties*.

Visitor Experience

Accessibility

- Conduct an accessibility study to understand barriers to park programs and facilities. Based on this study, implement a strategy to provide the maximum level of accessibility.

Orientation and Interpretation

- Provide visitor centers at or near each park entrance station to improve orientation.
- Develop an exhibit plan to redirect exhibits from roadside to trailside interpretation.
- Increase ranger programs to provide more interpretive opportunities.
- Initiate a study to develop standards and indicators to improve resource protection and visitor experience.

Night Sky

A draft Yosemite National Park lighting guideline has been developed to prescribe such standards as:

- Use lighting that is 50% to 100% lower than the lowest lighting standards of the Illuminating Engineering Society of North America.
- Design interior and exterior lighting to prevent escaped light. Luminaire lamps would not exceed 100 watts.
- Use more intense and uniform light to promote security where human activity is high. Use lower light levels to provide wayfinding within developed areas, as needed.

- Provide lights in developed areas for safety where pedestrians cross busy intersections.
- Provide no light outside developed areas, with the exception of active bus stops and public telephones.

Transportation

- Define parking area boundaries to prevent damage to meadows and other sensitive resource areas.
- For the shuttle bus fleet prescribed by the *Yosemite Valley Plan*, use the best-available fuel and propulsion system technology to minimize noise and air pollution emissions while providing sufficient capacity and cost-effective, reliable service.
- Limit noise from transit vehicles through application of best-available, low-noise technologies and use of operating strategies.
- Apply best-available clean fuel technology to minimize air quality emissions, considering the need for reliable, cost-effective transit service with adequate vehicle capacity.
- Design parking areas to allow minimal resistance for flood waters, thereby minimizing impacts on the river, the road, and associated parking.
- Integrate stormwater pollution control measures into parking lot design and construction.
- Require shuttle bus maintenance operations to comply with the Yosemite National Park Pollution Prevention Control Program and the Hazardous Waste Minimization Plan, upon completion of the shuttle bus maintenance facilities prescribed in the *Yosemite Valley Plan*.
- Construct shuttle bus maintenance facilities to ensure the use of sustainable maintenance practices, including complying with all applicable executive orders.
- Implement an employee transportation program to offset the number of commuter employee parking spaces removed from Yosemite Valley, as prescribed by the *Yosemite Valley Plan*.
- Conduct a Visitor Experience and Resource Protection (VERP) study and implement a VERP program to ensure that transportation infrastructure and services prescribed by the *Yosemite Valley Plan* effectively meet visitor experience and resource protection goals.
- Complete the study of the Bridalveil Fall area to analyze parking, traffic flow, pedestrian access, visitor use, and visitor experience to ensure transportation-related actions meet visitor experience and resource protection goals.
- Continue the traffic management program until the function of this program to actively manage traffic congestion is replaced by *Yosemite Valley Plan* implementation, including the traveler information and traffic management system.

Noise

- Implement standard noise abatement measures during park operations. Standard noise abatement measures could include the following elements: a schedule that minimizes impacts to adjacent noise-sensitive uses, use of best-available noise control techniques wherever feasible, use of hydraulically or electrically powered impact tools when feasible, and location of stationary noise sources as far from sensitive uses as possible.
- Site and design facilities to minimize objectionable noise.

Social and Economic Environments

During the future planning and implementation of the *Yosemite Valley Plan*, the National Park Service would work with local communities and county governments to further identify potential impacts and mitigation measures that would best serve the interests and concerns of both the National Park Service and the local communities. Furthermore, the National Park Service would strive to provide mitigation solutions for identifiable adverse impacts to the local communities resulting from the proposed *Yosemite Valley Plan* development.

- Employee housing would be provided in accordance with the provisions of the NPS *Management Policies*.
- Administrative and employee housing needs and functions would be more clearly defined to better allow public-private sector partnerships.
- Partnerships would be pursued to improve the quality and diversity of community amenities and services.
- To provide employee housing, the National Park Service is committed to participating in processes that would encourage and potentially develop joint development authorities, joint housing agreements, and joint public-private sector housing programs.

Sustainable Design and Aesthetics

Projects should avoid or minimize adverse impacts to natural and cultural resources. Development projects (e.g., buildings, facilities, utilities, roads, bridges, trails, etc.) or reconstruction projects (e.g., road reconstruction, building rehabilitation, utility upgrade, etc.) should be designed to work in harmony with the surroundings, particularly in historic districts. Design guidelines would provide for consistency of themes within each district of the Valley. Building styles and detailing should be compatible with their surroundings, both natural and cultural.

Projects should be sustainable whenever practicable by recycling and reusing recycled materials; by using local materials and technologies; by minimizing materials; through minimizing the use of nonrenewable resources; by reducing energy consumption during the project; and by minimizing energy consumption throughout the lifespan of the project. Projects should reduce, minimize, or eliminate air and water non-point source pollution. Wherever possible, these strategies would be interpreted for park visitors to encourage responsible stewardship of the environment.

Energy Consumption

Energy consumption associated with new employee housing in El Portal and Wawona can be minimized through the selection of energy-efficient building materials and components, and energy-efficient appliances. In April 1999, the United States Department of the Interior entered into a formal Memorandum of Understanding with the United States Department of Energy to promote the use of energy-efficient and renewable energy technologies and practices in national parks. While the Memorandum of Understanding does not mandate specific energy-efficient and renewable energy technologies for specific projects, it does provide a framework to promote their implementation and use in projects, such as new employee housing.

Additional Information Needs

As needed, studies on natural and cultural resources and additional environmental compliance (National Environmental Policy Act, National Historic Preservation Act, and other relevant legislation), including public involvement, would be conducted in advance of constructing in-Valley and out-of-Valley parking areas, proposed road realignments, and other new development in Yosemite Valley, El Portal, Wawona, and Foresta. The objectives of these studies would be to provide site-specific information for design and to augment existing information, particularly as it relates to sensitive species, cultural resources, and ecosystem elements. Specific tasks would likely include, but not be limited to, the following:

- Soil surveys
- Wetland delineation
- Wildlife surveys
- Vegetation surveys
- Archeological, ethnographic, and historic resource surveys
- Social science surveys of visitor use patterns and visitor expectations
- Air quality analyses and inventories

Alternatives Considered But Dismissed

For any project or activity within Yosemite Valley, a diverse range of actions could be considered. While many of these actions are reasonable, others have been eliminated from detailed study. Reasons for dismissing individual actions include:

- Technical or economic infeasibility
- Inability to satisfy guidance criteria, meet project goals, or resolve park-planning needs in Yosemite Valley (see Volume IA, Chapter 1, Purpose and Need)
- Less environmentally damaging or less expensive options are available
- Unacceptable environmental, cultural, or scenic impacts would be caused
- Conflicts with the guidance and direction provided in the *Merced River Plan/FEIS* for protecting the Merced River's Outstandingly Remarkable Values

Alternatives that were considered but dismissed are described below.

Remove All Private Vehicles from Yosemite Valley

This alternative was dismissed because it is economically infeasible and impractical at this time. Removing all private vehicles from Yosemite Valley was considered, but is infeasible at this time due to: (1) the high cost of providing year-round shuttle service from out-of-Valley parking areas for all day and overnight visitors, and (2) the constraints of winter weather on access to parking areas along the Big Oak Flat and Wawona Roads. This alternative was considered because it is the ultimate goal of the 1980 *General Management Plan*. However, the *General Management Plan* also recognized that the goal was infeasible at the time of its initial approval and that a phased, collaborative approach would be required to achieve this goal. Collaboration is ongoing to develop a regional transportation system. It is not possible at this time to project when it would be feasible to remove all private vehicles from Yosemite Valley.

Provide Day-Visitor Parking at Pohono Quarry

This alternative was dismissed because of unacceptable environmental impacts resulting from habitat fragmentation, and unacceptable impacts on the cultural landscape and scenery of Yosemite Valley.

The Pohono Quarry site is located at the west end of Yosemite Valley, where the Valley walls create a corridor bottleneck through which wildlife moving to and from lower-elevation areas must pass. This is the only wildlife travel corridor in Yosemite Valley that allows direct access to lower elevations; wildlife using all other routes must climb to at least 6,000 feet elevation before they can descend to lower elevations. Development at Pohono Quarry would affect wildlife movements through this area, thus affecting the abundance and diversity of wildlife in Yosemite Valley.

This action was considered in the *Draft Yosemite Valley Implementation Plan* and was recommended by some advocacy groups as an appropriate location for transit facilities. However, a transit facility with parking and shuttle bus operations would be visible from Tunnel View, one of the principal scenic vantage points in the park and a contributing element of the Valleywide cultural landscape (which is potentially eligible for the National Register of Historic Places). Currently, none of the existing development within the Valley can be seen from this vantage point. A transit facility at Pohono Quarry would have unacceptable scenic impacts on the cultural landscape.

Provide Day-Visitor Parking in the Bridalveil Fall Area

This alternative was dismissed because of unacceptable scenic impacts on the cultural landscape from two significant vantage points—Tunnel View and Valley View—and because the *Merced River Plan* did not zone the Bridalveil Fall area for a day-visitor parking and transit facility.

The Bridalveil Fall site is at the southwest end of Yosemite Valley, west of the Wawona Road and Southside Drive intersection, and east of the Bridalveil moraine. This location for the primary day-visitor parking facility (a parking garage), in the far west end of Yosemite Valley, was considered in the 1980 *General Management Plan* as an appropriate site for transit facilities and day-visitor parking. However, a transit facility with day-visitor parking and shuttle bus operations would likely be visible from Tunnel View along the Wawona Road, one of the principal scenic vantage points in the park and a culturally significant view. Although the existing dense forest canopy would screen the facility, it cannot be guaranteed that a catastrophic event (e.g., wildfire, insect infestation) would not adversely impact the tree canopy in the future, resulting in the facility being visible from Tunnel View.

The Bridalveil Fall site also would be visible from Valley View, another culturally significant vantage point. Valley View is on Northside Drive and provides visitors with an excellent view up-Valley of Bridalveil Fall, El Capitan, and the Merced River. Currently, only intermittent traffic along Southside Drive is visible from this vantage point when viewing Bridalveil Fall.

Provide Parking and Transit Facilities at the Wood Lot

This site, which is in the west end of the Valley along Northside Drive just west of El Capitan Meadow, was considered as a potential site for parking and transit facilities. However, on further examination of the site, it was determined that there would not be enough space to accommodate a transit facility and day-visitor parking without going into El Capitan Meadow. The facility would have been visible from Tunnel View and resulted in unacceptable scenic impacts to one of the principal scenic vantage points in the park and a culturally significant view.

Provide Day-Visitor Parking at the Former Upper River and Lower River Campgrounds

This alternative was dismissed because the management zoning prescribed in the *Merced River Plan* does not allow for day-visitor parking in the former Upper River and Lower River

Campgrounds. These areas are zoned Category 2 (Diverse Visitor Experience Zones), and the zone category is 2C (Day-Use). Areas zoned as Category 3 (Developed Zones) in the *Merced River Plan* are those areas better able to withstand heavy use, such as day-visitor parking. Due to this *Merced River Plan* zoning, it would be inappropriate to develop a day-visitor parking facility within the Upper River and Lower River Campgrounds area.

Develop Other In-Valley Sites for Parking

The public has provided many suggestions for developing other in-Valley sites for parking. The *Alternative Transportation Modes Feasibility Study* (NPS 1994a) also evaluated many potential parking sites in Yosemite Valley. In addition, reconnaissance of resource conditions has been performed at numerous locations, including Yellow Pine, Valley View, and the old Curry dump site.

These in-Valley parking sites were considered but dismissed because of impacts to scenic views and the cultural landscape, incompatibility with *Merced River Plan* zoning, or inability to resolve park-planning needs in Yosemite Valley, such as:

- Lack of adequate land area to accommodate surface or structured parking
- Requirements for additional visitor services
- Lack of convenient access to the Yosemite Valley road network
- Difficulty of managing visitor access
- Rockfall/debris-flow area

Provide Parking in Above-Grade or Below-Grade Parking Structures

The use of multi-story parking structures was considered in each of the action alternatives as a means to reduce the land area that would be affected by day-visitor parking. Some alternatives that were considered and dismissed (e.g., Bridalveil Fall) included multi-story parking structures for day-visitor parking. Multi-story parking structures were dismissed as part of the alternatives for the following reasons:

- Multi-story structures would cost more than surface parking, ranging from three times as expensive for simple above-ground parking ramps to more than ten times as expensive for underground parking structures.
- Parking structures would be difficult to convert to other uses or restore to natural conditions should the need for parking be reduced in the future.
- Above-ground structures could be visually obtrusive and affect the scenic quality of the Valley and the cultural landscape.
- Below-ground parking structures could have major impacts to soils and groundwater, depending on the site.

Develop Out-of-Valley Parking at Wawona, the Rostrum, and Hodgdon Meadow

These alternatives were dismissed because they did not resolve park-planning needs. Potential development of out-of-Valley parking areas was evaluated using transportation, visitor

experience, and resource criteria. A geographic information system (GIS) analysis of land areas outside the Valley examined slope conditions and access. Sites were eliminated if they did not provide an adequate area of level land or if they were located more than one mile from a park road. Other factors considered in the evaluation of out-of-Valley parking areas included the suitability for development in the area, the effect of development on park features, and the ability of the area to accommodate forecasted private vehicle and bus traffic. Wawona, the Rostrum, and Hodgdon Meadow did not meet the guidance criteria. Additional factors for dismissing Wawona include: (1) the existing parking areas are fully utilized by visitors to Wawona and users of the shuttle service from Wawona to the Mariposa Grove of Giant Sequoias; (2) the proximity to designated Wilderness in this area constrains development; and (3) there is not an adequate amount of flat and available land outside of meadow communities and other highly valued natural resource areas to accommodate the expected parking demand.

Require All Overnight Visitors to Use Out-of-Valley Parking Areas

Requiring overnight visitors to Yosemite Valley to park at remote sites and travel to the Valley on buses was considered and dismissed for the following reasons:

- The high cost of providing year-round shuttle service from out-of Valley parking for overnight visitors made this infeasible at the time.
- Travel to and from the Valley by overnight visitors is a small portion of total traffic.
- All lodging and camping units currently have sufficient parking associated with them; thus, it would be difficult to accommodate day-visitor parking among overnight accommodations – especially campgrounds.
- Many campers, including those in recreational vehicles, require their vehicles at their campsites.

Provide No Parking for Day Visitors in Yosemite Valley

This alternative was dismissed because it was economically infeasible at this time. Providing no parking for day visitors in Yosemite Valley would require all day visitors to park at out-of-Valley locations and take transit to the Valley. The size and cost of the required fleet of transit vehicles and parking facilities was considered infeasible. If no parking areas were located in Yosemite Valley, shuttle service along each of the roads to the Valley would have to be provided year-round. This would further increase annual operating costs. Also, winter weather could disrupt access on the Big Oak Flat and Wawona Roads.

Use of Light Rail, Monorail, and Other Rail Transit Modes

These alternatives were dismissed because of their technical or economic infeasibility and/or unacceptable environmental impacts. These alternatives have been recommended by several members of the public as a means of reducing visitors' dependence on private vehicles in Yosemite National Park and Yosemite Valley. In April 1996, the National Park Service hosted a

three-day symposium to discuss current transportation technologies and their applicability to Yosemite National Park. A panel of transportation professionals, as well as regional partners and other interested parties participated. A summary of the proceedings was published (NPS 1996c). In evaluating the various modes of transit, the panel concluded that:

- Light rail, monorail, and other rail transit modes would be infeasible as regional modes, and the required large capital investment would be economically infeasible.
- Passenger trains might be appropriate within the region, operating to the park boundary, but rail construction may not be feasible, and the impacts of rail construction within the park would not be appropriate considering the steep grades and winding routes that would be involved.
- Light rail may be feasible in Yosemite Valley; however, the required overhead lines (for electric power) would create an impact on scenic resources and could affect wildlife.
- Monorail would create an impact on the scenery and the cultural landscape.

Operate a Passenger Train between Merced and El Portal

This alternative was dismissed because it was outside the jurisdiction of the National Park Service and the scope of this planning process. The Yosemite Valley Railroad was a single-track rail line that ran up the Merced Canyon, ending at El Portal. The railroad right-of-way has been abandoned, and the railbed would require extensive reconstruction; all these transportation improvements are outside the boundary of Yosemite National Park. That reconstruction would affect the Merced Wild and Scenic River and have other environmental impacts. In addition, the former rail right-of-way is proposed as a recreational trail, and a portion of the historic rail route is now under Lake McClure Reservoir.

Develop an Auto Touring Alternative

An alternative emphasizing auto touring in areas east of El Capitan crossover was considered but dismissed. Traffic congestion and crowding in the east end of Yosemite Valley would not be markedly reduced merely by implementation of modern traffic management measures. Beginning during the summer of 1999, the National Park Service implemented its Traffic Management Program to help relieve traffic congestion during the peak summer season. Although this program has resulted in substantial improvements to traffic conditions, the parking facilities in the east Valley remain unable to accommodate visitor demand. Comparisons between peak summer season traffic counts and parking inventories (which include turnouts) indicate a shortage of up to 775 parking spaces in the east Valley.

To realize the goals of the 1980 *General Management Plan* the National Park Service needs to implement transportation systems that meet visitor needs throughout the year. In order to accommodate auto touring based upon existing peak season visitor demand, the National Park Service would have to construct extensive new parking lots, turnouts, and roads so that vehicles could tour and park without creating traffic congestion. The resource impacts of constructing these new facilities would be unacceptable and inconsistent with the purpose and goals of the

Yosemite Valley Plan, including the five broad goals of the 1980 *General Management Plan*. The National Park Service is proposing to restore natural conditions rather than develop extensive new facilities for automobiles. Consequently, an auto touring alternative would not adequately achieve other *General Management Plan* goals, such as reclaiming priceless natural beauty and allowing natural processes to prevail.

Establish a Mandatory Parkwide Visitor Transportation System

This alternative was dismissed because it was outside the scope of this planning process; however, a traveler information and traffic management system is proposed in this *Final Yosemite Valley Plan/SEIS*. In the future, the traveler information and traffic management system could be expanded parkwide.

Relocate Northside Drive from Cook's Meadow to the Location of the Shuttle Bus Road between the NPS Administration Building and the Rangers' Club

This alternative was dismissed because of its inability to meet project goals or to resolve park-planning needs for Yosemite Valley. This alternative was proposed as a means of restoring surface and groundwater flow into Cook's Meadow. It is not a practical alternative because putting all vehicle traffic onto the road adjacent to the Yosemite Village pedestrian area would not necessarily restore surface and groundwater flow.

Remove All East Valley Bridges

This alternative was proposed as a means of restoring the Merced River hydrologic processes. It was dismissed because of its inability to satisfy guidance criteria, meet project goals, or resolve park-planning needs in Yosemite Valley. Specifically, it was determined that access across the Merced River in the east Valley was needed to facilitate traffic and visitor flow between developed areas. It was further determined that as river crossings are necessary, historic bridges would be used to the greatest extent possible to provide that access.

Restore the El Capitan Moraine

This alternative was dismissed because of its inability to meet project goals. A portion of the El Capitan moraine was blasted out of the Merced River channel in the mid-19th century, causing major changes in river and meadow dynamics, primarily in the west end of the Valley. Restoration of the moraine was suggested as a way to restore the river and floodplain processes. Hydrologists continue to study this option. Further studies are needed to ascertain whether restoring the moraine would restore the pre-disturbance system.

Reasons for blasting the moraine included lowering the water table in the meadows of Yosemite Valley to make them less marshy and less likely to support mosquito populations. Since then, the river has become more channelized and meadows have become drier immediately up-river of the moraine, allowing the invasion of upland plant species.

Restore Campgrounds to Pre-flood Conditions and Possibly Add More Sites

This alternative was dismissed because it did not meet project goals and conflicts with the guidance and direction provided in the *Merced River Plan*. Some members of the public have recommended restoring campsite numbers in Yosemite Valley to pre-flood levels or increasing them above pre-flood levels. However, prior to the 1997 flood, biologists and hydrologists attributed deleterious effects along the Merced River to the proximity of campsites, and they recommended establishing a river protection zone. The 1997 flood refined knowledge of hydrologic activity around these campgrounds, and it gave technical specialists a better understanding of the relationships between floodplains and highly valued natural resource areas (see Vol. Ic, plate D). The flood also initiated the process of recovery in many areas. Rebuilding all campgrounds to their pre-flood conditions would continue deleterious effects and prevent the restoration of highly valued natural and cultural resource areas.

Reduce Campsite Numbers by Relocating All Sites from Highly Valued Resource Areas and the 100-Year Floodplain

This alternative was dismissed because of the need to meet and provide for visitor experience goals and criteria. This alternative was considered as a means of restoring highly valued resources and floodplains; however, not all areas within the 100-year floodplain contain highly valued natural resources or have the same hydrologic functions (see Vol. Ic, plates D and E). Some areas contain riparian communities that are sustained and maintained by the annual cycles of high and low water, with periodic scouring events; some areas are meadows that are benefited by periodic inundation; other areas are naturally upland in character and are infrequently flooded. Removing campsites from upland areas would yield minimal resource benefits and would further limit the number of facilities available to visitors. Plates C and D, viewed together, demonstrate that there is minimal land available for development of campsites that is outside floodplain, rockfall, and highly valued resource areas.

Remove Camp 4 (Sunnyside Campground)

This alternative was dismissed because of its impacts on a unique visitor experience. This alternative was recommended by members of the public to reduce conflicts between campers/climbers and Yosemite Lodge guests. However, this action would impact campers and climbers by reducing camping opportunity. Camp 4 (Sunnyside Campground) is also eligible for listing on the National Register of Historic Places. Yosemite Lodge and Camp 4 (Sunnyside Campground) have coexisted for more than 50 years; thus, this action was not considered necessary.

Implement a Reservation System and Take No Other Actions

This alternative was dismissed because of its inability to meet project goals and resolve park-planning needs in Yosemite Valley. Members of the public recommended implementing a reservation system as a means of reducing traffic congestion and protecting natural resources (both of which are *General Management Plan* goals) without making other major changes in

Yosemite Valley. However, most natural resource impacts have resulted from the placement of certain facilities, such as vehicle-related infrastructure (e.g., parking lots and road segments), as well as the locations and effects of certain visitor activities. While a reservation system may decrease traffic congestion, it does not solve other resource and infrastructure needs associated with this planning effort.

Remove All Housing from Yosemite Valley

This alternative was dismissed because of its infeasibility and, at this time, inability to meet an agency need and to provide for effective park operations. Removal of all housing from Yosemite Valley was recommended as a means of reducing land use and increasing restoration. However, because of frequent rockslides, snowstorms, high winds, and other access-restriction-causing events, it is not feasible to house all employees outside Yosemite Valley. There are visitors in Yosemite Valley at all times, and during times of emergency operations (e.g., road closures) visitors in the Valley still depend on services. The National Park Service and its concessioners must have an employee presence in the Valley to provide timely response and coverage for emergencies, health and safety, resource protection, and visitor and concession services.

Reconstruct Housing to Pre-flood Numbers and Locations

The reconstruction of housing to pre-flood numbers and locations was recommended as a means of limiting new disturbance and development in Yosemite Valley. This action would require the National Park Service to place housing back within the 100-year floodplain and in an area not zoned for housing under the provisions of the *Merced River Plan*. The 1980 *General Management Plan* called for the reduction of housing in Yosemite Valley, as did the 1992 and 1996 *Draft Yosemite Valley Housing Plan* processes. Therefore, this alternative was dismissed.

Relocate Principal Housing to Foresta

This alternative was dismissed because it conflicts with project goals. In the first draft of the *Yosemite Valley Housing Plan* (1992), Foresta was proposed as the site for National Park Service and concessioner housing. Foresta was thought to be close enough to Yosemite Valley to support the goal of reducing employee housing in Yosemite Valley, while ensuring that road closures, traffic, and other influences would have a limited effect on visitor service levels.

The 1980 *General Management Plan* provided direction regarding housing for the Foresta area. It stated that housing in Foresta would be provided for essential employees. The *General Management Plan* further stated that "based on the determination of a housing study, housing would be retained for a limited number of employees." Given this guidance, the National Park Service focused on placing principal housing within established communities in Wawona and El Portal (within the El Portal Administrative Site).

Convert the El Portal Trailer Village (Hennessey's Ranch) to Open Space

This alternative was dismissed because it is inconsistent with the goals and objectives of the *Yosemite Valley Plan* to remove nonessential buildings, services, and facilities from Yosemite Valley. It was proposed to convert the Trailer Village to open space in the 1980 *General Management Plan*; however, a housing study was also called for in that plan to determine the amount of housing required to support park operations and to identify locations for that housing. El Portal was acquired by the National Park Service in 1958 as an administrative site to support park operations and administration. The Trailer Village and Abbieville (Hennessey's Ranch) area was identified in the housing study and in the subsequent *Draft Yosemite Valley Housing Plan/SEIS* as a suitable location for housing.

Remove the Ice Skating Rink

This alternative was dismissed because it was in conflict with park-planning needs in Yosemite Valley. Removing the skating rink was considered as a means of reducing the amount of development in the Curry Village area and removing an unnatural attraction from Yosemite Valley. However, removing the ice rink would yield minimal benefit toward restoring natural processes, but would adversely affect visitor and community recreational opportunities. Removal of the ice skating rink was proposed in the *Draft Concession Services Plan* (1992), but was retained in the final plan due to public comment during that planning process.

Remove The Ansel Adams Gallery (Best Studio) and Post Office

This alternative was dismissed because of impacts on historic buildings and uses, and because these services were not in conflict with park-planning needs. Removing these facilities was considered as a means of reducing the number of facilities in Yosemite Village. However, these structures are historic, their uses are considered appropriate, and the services they offer benefit visitors and the community.

Remove All Camping, Lodging, and other Commercial Services from Yosemite Valley

This alternative was dismissed because it would be in conflict with the goals of this planning effort, and because it would not resolve park-planning needs for Yosemite Valley. This alternative was recommended as a means of reducing impacts of commercial and overnight facilities in Yosemite Valley. While it is true that some of these facilities are located in floodplains and highly valued natural resource areas, most are located in upland areas where the impacts are more easily managed. Removing all camping, lodging, and commercial services would yield increased benefits to natural resources and processes, beyond the benefits of removing and relocating selected facilities to restore floodplains and highly valued natural resources. However, their complete removal would eliminate services, many historic structures, and visitor opportunities in the Valley, thus impacting the visitor experience and the park's highly valued cultural resources.

Remove Yosemite Lodge

The removal of Yosemite Lodge as an alternative was dismissed because it was in conflict with the goals of this planning effort. This alternative was recommended as a means to reduce commercialization and development in Yosemite Valley. However, the National Park Service is committed to providing a reasonable range of overnight accommodations for visitors in the Valley. The Yosemite Lodge experience provides a range of economy to mid-scale priced units and a mix of lodging types.

Establish a Horse Camp in Yosemite Valley

This alternative was dismissed due to its inability to meet the project goals. Outfitting some sites within the proposed Yosemite Valley campgrounds to accommodate people who want to bring horses to Yosemite Valley was considered but dismissed due to concerns that could not be resolved. These include safety issues, potential conflicts between pets, wildlife, and stock, and resource considerations. Sites away from other campgrounds were found to be incompatible with adjacent uses, or were recognized as potentially causing adverse effects on the natural environment. Yosemite Valley is the area of the park with the highest concentration of visitors, and horse camps are currently available in other parts of the park, including Wawona, Bridalveil Creek, Tuolumne Meadows, and Hetch Hetchy.

Operate Shuttle Buses and the Valley Floor Tour on Sections of Northside Drive Closed to Motor Vehicles

This alternative was dismissed due to its inability to meet the project goals of providing diverse recreational experiences in Yosemite Valley. In three alternatives considered in the *Final Yosemite Valley Plan/SEIS*, part of Northside Drive is closed to all motor vehicles except for emergency and service use, and converted to a multi-use (hiking/biking) trail. It was considered that these sections be opened to shuttle buses and Valley Floor Tours. While this would provide an opportunity for visitors to experience that portion of Northside Drive with ease, it would take away the opportunity for walkers and bicyclists to enjoy a portion of the Valley without the immediate presence of motor vehicles. Allowing shuttle bus and tour traffic on the closed portion of Northside Drive would reduce the potential for diversity of recreational experiences.

Remove the School from Yosemite Valley and Use the Building for other Purposes

This alternative was dismissed due to its inability to meet project goals to support Yosemite Valley residents and provide for the educational needs of children in lower grades (kindergarten through eighth grade). The current school facility is operating under a permit to the Mariposa County Unified School District.

Close the Entire Length of Northside Drive to Vehicle Traffic

Closing the entire length of Northside Drive to vehicle traffic, from Yosemite Lodge to Pohono Bridge, was considered but dismissed because Northside Drive between El Capitan crossover and Pohono Bridge serves as part of the route for travelers accessing the Wawona Road from the Big Oak Flat Road (and vice versa) to reach other areas of Yosemite National Park. This portion of Northside Drive also would afford the opportunity for auto touring to continue as a recreational activity in Yosemite Valley, as far east as the El Capitan crossover, under all action alternatives. If the portion of Northside Drive west of El Capitan crossover were closed to vehicle traffic, the portion of Southside Drive from Pohono Bridge to Wawona Road would need to carry two-way traffic. The volume of traffic on that section of Southside Drive would be high, because it would carry through traffic as well as traffic entering and leaving Yosemite Valley. Major improvements on Southside Drive would be required, and Pohono Bridge would need to be replaced. Also, if Northside Drive was closed to motor vehicles west of El Capitan crossover, only visitors with assigned parking spaces or overnight accommodations would be able to drive their vehicles into Yosemite Valley east of the Wawona Road intersection.

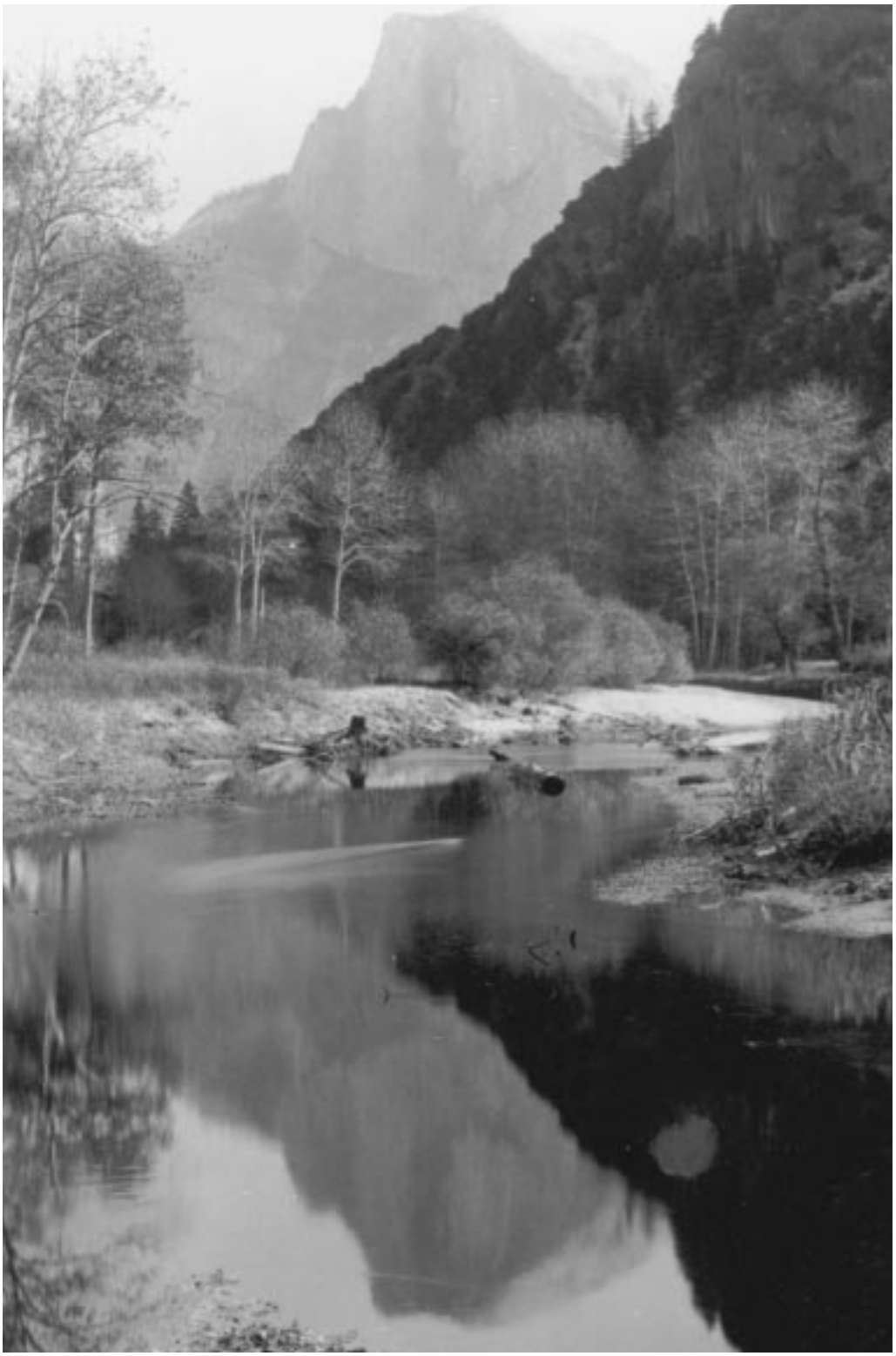
Comparison of Alternatives and Environmental Consequences

The following pages present Table A, Summary of Alternatives, and Table B, Summary and Comparison of Environmental Consequences.

Photo courtesy of Yosemite Museum

The Merced River and Half Dome, early 1900s.

TABLE A
SUMMARY OF ALTERNATIVES



Note: sections or words that are **bolded** indicate a change from the *Draft Yosemite Valley Plan/SEIS*

Table A
Summary of Alternatives

	Alternative 1	Alternative 2
RESOURCE STEWARDSHIP		
NATURAL RESOURCES	**Maintains the status quo**	**Restores 176 acres** **Redevelops 173 acres** **Newly develops 73 acres** **Reduces development by 71 acres**
Ecological restoration of Merced River communities (e.g., meadow and riparian communities)		
River Protection Overlay	Implement the River Protection Overlay without initiating removal actions	Implement the River Protection Overlay
Campground Areas	Neither restore nor rebuild Upper and Lower River and portion of Lower Pines Campgrounds; North Pines Campground is retained	Remove Upper and Lower River, North Pines, and portion of Lower Pines Campgrounds, and restore areas to natural conditions
Housekeeping Camp	Retain Housekeeping Camp units in River Protection Overlay	Remove all Housekeeping Camp units from River Protection Overlay and restore overlay area to natural conditions
Yosemite Village Parking	Retain parking at Yosemite Village (Camp 6 area)	Consolidate day–visitor parking at Yosemite Village (Camp 6 area); remove parking from River Protection Overlay and restore to natural conditions
Yosemite Lodge	Neither restore nor rebuild area where Yosemite Lodge cabins were removed	Restore Yosemite Lodge cabin area, **Hemlock motel unit area**, and site of employee tent cabins to natural conditions
Concessioner Stable	Retain concessioner stable	Restore concessioner stable area to natural conditions
Meadows	Stoneman, Ahwahnee, Sentinel, Cook's, El Capitan, and Bridalveil Meadows remain bisected by roads and utilities	Remove roads and utilities through Stoneman and south Ahwahnee Meadows and restore to natural conditions
Historic Bridges	All bridges remain	Remove bridges and restore adjacent riverbanks to natural conditions: • Sugar Pine • Stoneman, **if necessary upon further evaluation**
Yellow Pine	Yellow Pine remains as NPS volunteer group campground	Restore Yellow Pine area to natural conditions
Backpackers and Group Campgrounds	Campsites remain at Backpackers; neither restore nor rebuild Group Campground	Relocate Backpackers and Group Campgrounds and restore areas to natural conditions
Swinging Bridge Picnic Area and Associated Parking	Swinging Bridge Picnic Area remains	Remove Swinging Bridge Picnic Area and restore area to natural conditions
Historic Cascades Diversion Dam	Dam remains	Remove dam and restore hydrologic processes
Historic Curry Orchard	Parking and historic fruit trees remain in Curry Orchard	**Remove historic fruit trees; remove all but 2 acres of parking and restore to natural conditions**

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Table A Summary of Alternatives		
Alternative 3	**Alternative 4**	**Alternative 5**
RESOURCE STEWARDSHIP		
Restores 204 acres **Redevelops 148 acres** **Newly develops 99 acres** **Reduces development by 72 acres**	**Restores 194 acres** **Redevelops 154 acres** **Newly develops 99 acres** **Reduces development by 66 acres**	**Restores 157 acres** **Redevelops 181 acres** **Newly develops 54 acres** **Reduces development by 63 acres**
Ecological restoration of Merced River communities (e.g., meadow and riparian communities)		
Implement the River Protection Overlay	Implement the River Protection Overlay	Implement the River Protection Overlay
Remove Upper and Lower River, North Pines, and portion of Lower Pines Campgrounds, and restore to natural conditions	Remove Upper and Lower River, North Pines, and portion of Lower Pines Campgrounds, and restore to natural conditions	Remove **Upper and Lower River,** and a portion of Lower Pines Campgrounds, and restore to natural conditions
Remove all Housekeeping Camp units from River Protection Overlay and highly valued resources and restore these areas to natural conditions	Remove all Housekeeping Camp units from River Protection Overlay and highly valued resources and restore these areas to natural conditions	Remove Housekeeping Camp units from the River Protection Overlay and restore overlay area to natural conditions
Remove Yosemite Village (Camp 6) parking area and restore to natural conditions	Remove Yosemite Village (Camp 6) parking area and restore to natural conditions	**Consolidate day–visitor parking at Yosemite Village (Camp 6 area);** remove parking from River Protection Overlay and restore to natural conditions
Restore Yosemite Lodge cabin area, **site where one motel unit is removed,** and site of employee tent cabins to natural conditions	Restore Yosemite Lodge cabin area, **site where one motel unit is removed,** and site of employee tent cabins to natural conditions	Restore Yosemite Lodge cabin area, **site where one motel unit is removed,** and site of employee tent cabins to natural conditions
Restore concessioner stable area to natural conditions	Restore concessioner stable area to to natural conditions	Relocate concessioner stable; redevelop area
Remove roads and utilities through Stoneman and south Ahwahnee Meadows and restore to natural conditions	Remove roads and utilities through Stoneman and south Ahwahnee Meadows and restore to natural conditions	Stoneman and Ahwahnee Meadows remain bisected by roads and utilities
Remove bridges and restore adjacent riverbanks to natural conditions: • Sugar Pine • Housekeeping • Stoneman • Superintendent's	Remove bridges and restore adjacent riverbanks to natural conditions: • Sugar Pine • Housekeeping • Stoneman • Superintendent's	Remove bridges and restore adjacent riverbanks to natural conditions: • Sugar Pine • Ahwahnee
Restore Yellow Pine area to natural conditions	Yellow Pine remains as NPS volunteer group campground	Develop Yellow Pine as group and volunteer campground
Relocate Backpackers and Group Campgrounds and restore areas to natural conditions	Relocate Backpackers and Group Campgrounds and restore areas to natural conditions	Relocate Backpackers and Group Campgrounds and restore areas to natural conditions
Remove Swinging Bridge Picnic Area and restore to natural conditions	Remove Swinging Bridge Picnic Area and restore to natural conditions	Remove Swinging Bridge Picnic Area and restore area to natural conditions
Remove dam and restore hydrologic processes	Remove dam and restore hydrologic processes	Remove dam and restore hydrologic processes
Remove parking and historic fruit trees; restore area to natural conditions	Remove parking from Curry Orchard; neither remove nor cultivate fruit trees. Develop part as picnic area; long–term natural resource restoration of remainder.	Remove parking **and historic fruit trees;** picnic area developed in in portion of site

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Table A
Summary of Alternatives

	Alternative 1	Alternative 2
RESOURCE STEWARDSHIP		
NATURAL RESOURCES		
Ecological restoration of California black oak communities		
The Ahwahnee Tennis Courts	Retain tennis courts	Remove tennis courts; restore area to natural conditions
Historic Superintendent's House (Residence 1)	Superintendent's House (Residence 1) remains	**Relocate Superintendent's House (Residence 1) and restore area to natural conditions**
Ecological restoration of upland communities		
Historic Ahwahnee Row Houses	Ahwahnee Row houses remain	Retain Ahwahnee Row houses
Taft Toe Parking	Taft Toe area remains as is (undeveloped)	Taft Toe area remains as is (undeveloped)
Church Bowl Picnic Area	Church Bowl Picnic Area remains in upland/California black oak community	Remove Church Bowl Picnic Area and restore to upland/California black oak community
CULTURAL RESOURCES		
Archeological Resources		
	• Old sewer plant in El Portal remains, impacting prehistoric cemetery • Development remains atop known burials in Yosemite Village	• Remove old treatment plant in El Portal from sensitive cultural resource area • Remove development from known burials in Yosemite Village
Cultural Landscape Resources (including Historic Sites and Structures)		
Historic Bridges	Retain all historic bridges (Tenaya Creek, Happy Isles, Clark's, Sugar Pine, Ahwahnee, Stoneman, Housekeeping, Superintendent's, Yosemite Creek, and Pohono)	Remove two historic bridges: • Sugar Pine • Stoneman, **if necessary upon further evaluation after removal of Sugar Pine**
Historic Superintendent's House (Residence 1)	Superintendent's House (Residence 1) neither rehabilitated nor removed	**Relocate Superintendent's House (Residence 1) to historic district; re–habilitate for adaptive reuse; restore former site to natural conditions**
The Ahwahnee	No changes to National Historic Landmark structure or setting • Tennis courts retained	No changes to National Historic Landmark structure or setting • Tennis courts removed
Yosemite Village Historic District	• No change to present designed landscape or historic structures • Retain Ahwahnee Row houses	• Rehabilitate designed historic landscape in residential district • Rehabilitate Museum Building • Retain Ahwahnee Row houses
Camp Curry Historic District	No change in individual historic structures or historic district • Retain 427 guest tent cabins • Continue to use historic residences as employee housing	• Retain **174** guest tent cabins and original design intent • **Retain and rehabilitate historic residences as lodging** • Rehabilitate wood bungalows, some other accommodations, and Registration Building

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Table A Summary of Alternatives		
Alternative 3	**Alternative 4**	**Alternative 5**
RESOURCE STEWARDSHIP		
NATURAL RESOURCES		
Ecological restoration of California black oak communities		
Remove tennis courts; restore area to natural conditions	Remove tennis courts; restore area to natural conditions	Remove tennis courts; restore area to natural conditions
Remove Superintendent's House (Residence 1) and restore area to to natural conditions	**Remove Superintendent's House (Residence 1) and develop picnic area; restore River Protection Overlay to natural conditions**	Relocate Superintendent's House (Residence 1) and restore area to natural conditions
Ecological restoration of upland communities		
Remove Ahwahnee Row houses and restore area to natural conditions	Remove Ahwahnee Row houses and restore area to natural conditions	Remove Ahwahnee Row houses and restore area to natural conditions
Construct visitor/transit center and day–visitor parking facility at Taft Toe	Construct visitor/transit center and day–visitor parking facility at Taft Toe	Taft Toe area remains as is (undeveloped)
Retain Church Bowl Picnic Area in upland/California black oak community	Church Bowl Picnic Area remains in upland/California black oak community	Remove Church Bowl Picnic Area and restore to upland/California black oak community
CULTURAL RESOURCES		
Archeological Resources		
• Remove old treatment plant in El Portal from sensitive cultural resource area • Remove development from known burials in Yosemite Village	• Remove old treatment plant in El Portal from sensitive cultural resource area • Remove development from known burials in Yosemite Village	• Remove old treatment plant in El Portal from sensitive cultural resource area • Remove development from known burials in Yosemite Village
Cultural Landscape Resources (including Historic Sites and Structures)		
Remove four historic bridges: • Sugar Pine • Housekeeping • Stoneman • Superintendent's	Remove four historic bridges: • Sugar Pine • Housekeeping • Stoneman • Superintendent's	Remove two historic bridges: • Sugar Pine • Ahwahnee
Remove Superintendent's House (Residence 1) and restore area to natural conditions	**Remove Superintendent's House (Residence 1), develop picnic area; restore area within River Protection Overlay to natural conditions**	Remove Superintendent's House (Residence 1) and restore area to natural conditions
No changes to National Historic Landmark structure or setting • Tennis courts removed	No changes to National Historic Landmark structure or setting • Tennis courts removed	No changes to National Historic Landmark structure or setting • Tennis courts removed
• Rehabilitate designed historic landscape in residential district • Rehabilitate Museum and NPS Administration Buildings as museums • Remove Ahwahnee Row houses • Construct fire station at edge of district	• Rehabilitate designed historic landscape in residential district • Rehabilitate Museum and NPS Administration Buildings as museums • Remove Ahwahnee Row houses • Construct fire station at edge of district	• Rehabilitate designed historic landscape in residential district • Rehabilitate Museum and NPS Administration Buildings as museums • Remove Ahwahnee Row houses • Construct fire station at edge of district
• Retain 150 guest tent cabins • Remove Tresidder Residence and Huff House • Retain Mother Curry Bungalow, Lounge, Registration Building, and bungalows	• Retain 150 guest tent cabins • Remove Tresidder Residence and Huff House • Retain Mother Curry Bungalow, Lounge, Registration Building, and bungalows	• Retain 150 guest tent cabins • Remove Tresidder Residence and Huff House • Retain Mother Curry Bungalow, Lounge, Registration Building, and bungalows

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Table A Summary of Alternatives		
	Alternative 1	**Alternative 2**
RESOURCE STEWARDSHIP		
CULTURAL RESOURCES		
Cultural Landscape Resources (including Historic Sites and Structures)		
Camp 4 (Sunnyside Campground)	No change in current extent or configuration; 37 campsites	Remove 5 westernmost sites; establish 33 additional sites east of original camp
Orchards	Retain (though not cultivate) historic fruit trees in: • Lamon Orchard • Hutchings Orchard • Curry Orchard; parking remains in Curry Orchard	• Initiate genetic conservation program for historic fruit trees in all orchards • Retain, **manage, and interpret** Lamon Orchard • Neither remove nor cultivate trees in Hutchings Orchard • **Remove trees from Curry Orchard; restore much of area to natural conditions; develop wilderness overnight parking in southern portion**
Museum Collection, Archives, and Research Library		
	Collections remain stored in different areas of the park in Yosemite Valley, Wawona, and El Portal	Consolidate collections, including research library, in adapted or new facilities in Yosemite Village
VISITOR EXPERIENCE		
ORIENTATION & INTERPRETATION		
Entrance Station Visitor Centers		
	Seasonal information stations remain at Wawona, Big Oak Flat, and Tuolumne Meadows	Develop NPS visitor centers at or near park entrance stations
Valley Visitor Center		
	Principal visitor center remains in Yosemite Valley at existing facility	Construct new visitor center near day–visitor parking in Yosemite Valley
Yosemite Museum		
	Exhibits remain in lower floor of Museum/Valley District Building	Convert Museum/Valley District Building to museum; **other educational and interpretive opportunities provided in the area**
RECREATION		
Multi–Use Paved Trails		
	Existing trails remain	• Convert Northside Drive from Yosemite Lodge to El Capitan crossover to multi–use paved trail; close to motor vehicles • Construct new multi–use paved trail adjacent to Southside Drive between Swinging Bridge and El Capitan crossover • Happy Isles Footbridge to John Muir Trail replaced
Stock Use		
	Private stock use continues; overnight boarding at concessioner stable	Private stock use continues; no facilities for overnight boarding of stock; day–use corral established east of Curry Village

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Table A
Summary of Alternatives

Alternative 3	Alternative 4	Alternative 5
RESOURCE STEWARDSHIP		
CULTURAL RESOURCES		
Cultural Landscape Resources (including Historic Sites and Structures)		
Remove 5 westernmost sites; establish 17 additional sites adjacent to original camp	Relocate 5 westernmost sites	Relocate 5 westernmost sites
• Initiate genetic conservation program for trees in all orchards • Remove trees from Lamon Orchard; restore to natural conditions • Remove tress from Hutchings Orchard; restore to natural conditions • Remove trees from Curry Orchard; restore to natural conditions	• Initiate genetic conservation program for trees in all orchards • Neither remove nor cultivate trees in Lamon Orchard • Neither remove nor cultivate trees in Hutchings Orchard • Neither remove nor cultivate trees in Curry Orchard	• Initiate genetic conservation program for trees in all orchards • Manage and maintain Lamon Orchard (though no replanting of trees as they die) • Manage and maintain Hutchings Orchard (though no replanting of as they die) • **Remove fruit trees from Curry Orchard;** develop part of area as picnic area; **restore much of the area to natural conditions**
Museum Collection, Archives, and Research Library		
Consolidate collections in rehabilitated existing visitor center, West Auditorium, and new building north of auditorium	Consolidate collections in rehabilitated existing visitor center, West Auditorium, and new building north of auditorium	Consolidate collections, including research library, in new facilities in El Portal
VISITOR EXPERIENCE		
ORIENTATION & INTERPRETATION		
Entrance Station Visitor Centers		
Develop NPS visitor centers at or near park entrance stations	Develop NPS visitor centers at or near park entrance stations	Develop NPS visitor centers at or near park entrance stations
Valley Visitor Center		
Construct new visitor center near day–visitor parking at Taft Toe	Construct new visitor center near day–visitor parking at Taft Toe	Retain and rehabilitate Valley Visitor Center in existing location
Yosemite Museum		
Convert existing NPS Administration Building to natural history museum; convert Museum/Valley District Building to museum of cultural history	Convert existing NPS Administration Building to natural history museum; convert Museum/Valley District Building to museum of cultural history	Convert existing NPS Administration Building to natural history museum; convert Museum/Valley District Building to museum of cultural history
RECREATION		
Multi–Use Paved Trails		
• Convert Northside Drive from Yosemite Lodge to El Capitan crossover to multi–use paved trail; close to motor vehicles • Construct new multi–use paved trail adjacent to Southside Drive between Swinging Bridge and El Capitan crossover	• Convert Northside Drive from Yosemite Lodge to El Capitan crossover to multi–use paved trail; close to motor vehicles • Construct new multi–use paved trail adjacent to Southside Drive between Swinging Bridge and El Capitan crossover	• Close one lane of Northside Drive from Yosemite Lodge to **El Capitan crossover** to motor vehicles and convert it to a multi–use paved trail • Close one lane of Southside Drive from **El Capitan crossover** to Swinging Bridge to motor vehicles and convert it to a multi–use paved trail
Stock Use		
Discontinue private stock use in Yosemite Valley	Private stock use continues; no facilities for overnight boarding of stock; day–use corral established east of Curry Village	Private stock use continues; overnight boarding at relocated concessioner stable east of Curry Village

Note: sections or words that are **bolded** indicate a change from the *Draft Yosemite Valley Plan/SEIS*

Table A
Summary of Alternatives

	Alternative 1	Alternative 2
VISITOR EXPERIENCE		
RECREATION		
Guided Trail Rides		
	Guided trail rides continue; concessioner stable remains	Eliminate guided trail rides; remove concessioner stable
Picnic Areas		
Picnic Areas Retained	All picnic areas remain	Retain Cathedral Beach, Sentinel Beach, and El Capitan Picnic Areas
Picnic Areas Removed	None	Remove Church Bowl and Swinging Bridge Picnic Areas and restore to natural conditions
New Picnic Areas Constructed	None	Develop new picnic areas at Yosemite Village day–visitor parking area; near El Capitan (North American Wall); and group picnic area at Sentinel Beach
Ice Rink		
	Ice skating retained at present Curry Village location	Relocate Curry Ice Rink
Lower Yosemite Fall		
	Trail and parking remains	Redesign trails and remove parking
VISITOR SERVICES		
Overnight Accommodations	*1,735 Total Campsites and Lodging Units*	**1,461** *Total Campsites and Lodging Units*
	• 475 campsites • 691 rustic lodging units • 181 economy lodging units • 265 mid–scale lodging units • 123 deluxe lodging units	• **500** campsites • **274** rustic lodging units • **405** economy lodging units • **159** mid–scale lodging units • 123 deluxe lodging units
Camping	*475 Total Campsites*	**500 Total Campsites**
	• 240 at Upper Pines (drive–in) • 78 at Lower Pines (drive–in) • 86 at North Pines (drive–in) • 30 at Backpackers (walk–in) • 37 at Camp 4/Sunnyside (walk–in) • 0 at Upper and Lower River • 4 at Yellow Pine (volunteer group walk–in)	• **270 at Upper Pines (drive–in)** • 45 at Upper Pines (walk–in) • **60 at Lower Pines (drive–in)** • 0 at North Pines • 0 at Backpackers • 65 at Camp 4/Sunnyside (walk–in) • 0 at Upper and Lower River • 0 at Yellow Pine • 20 at Tenaya Creek (walk–to) • 10 at South Camp (group walk–in) • 30 at Backpackers/South Camp (walk–in)
Shower Facilities	Showers not available at campgrounds	Showers where feasible in campgrounds
Recreational Vehicle (RV) Hook–ups	No RV hookups in campgrounds	RV hook–ups in some Upper Pines and possibly Lower Pines sites
Lodging	*1,260 Total Lodging Units*	**961** *Total Lodging Units*
	• 123 at The Ahwahnee • 264 at Housekeeping Camp • 628 at Curry Village • 245 at Yosemite Lodge	• 123 at The Ahwahnee • **100** at Housekeeping Camp • **487** at Curry Village • **251** at Yosemite Lodge

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Table A
Summary of Alternatives

Alternative 3	Alternative 4	Alternative 5
VISITOR EXPERIENCE		
RECREATION		
Guided Trail Rides		
Eliminate guided trail rides; remove concessioner stable	Eliminate guided trail rides; remove concessioner stable	Guided trail rides continue; relocate concessioner stable
Picnic Areas		
Retain Sentinel Beach and El Capitan Picnic Areas; improve Cathedral Beach and Church Bowl Picnic Areas	Retain Sentinel Beach, El Capitan, and Church Bowl Picnic Areas; improve Cathedral Beach Picnic Area	Retain Cathedral Beach, Sentinel Beach, and El Capitan Picnic Areas
Remove Swinging Bridge Picnic Area and restore to natural conditions	Remove Swinging Bridge Picnic Area and restore to natural conditions	Remove Swinging Bridge and Church Bowl Picnic Areas and restore to natural conditions
Develop new picnic area near El Capitan (North American Wall)	Develop new picnic areas near El Capitan (North American Wall), at Curry Orchard, and **at the site of Superintendent's House (Residence 1)**	Develop new picnic areas near El Capitan (North American Wall) and Curry Orchard; in Yosemite Village; **and at the Lower River area**
Ice Rink		
Relocate Curry Ice Rink	Relocate Curry Ice Rink	Ice skating retained at present Curry location
Lower Yosemite Fall		
Redesign trails and remove parking	Redesign trails and remove parking	Redesign trails and remove parking
VISITOR SERVICES		
1,431 *Total Campsites and Lodging Units*	**1,423** *Total Campsites and Lodging Units*	**1,597** *Total Campsites and Lodging Units*
• **449** campsites • 202 rustic lodging units • **387** economy lodging units • **270** mid–scale lodging units • 123 deluxe lodging units	• 441 campsites • 202 rustic lodging units • **387** economy lodging units • **270** mid–scale lodging units • 123 deluxe lodging units	• **585** campsites • **250** rustic lodging units • **447** economy lodging units • **192** mid–scale lodging units • 123 deluxe lodging units
449 *Total Campsites*	*441 Total Campsites*	**585** *Total Campsites*
• 255 at Upper Pines (drive–in) • 45 at Upper Pines (walk–in) • 40 at Lower Pines (drive–in) • 0 at North Pines • 0 at Backpackers • **49** at Camp 4/Sunnyside (walk–in) • 0 at Upper and Lower River • 0 at Yellow Pine • 20 at Tenaya Creek (walk–to) • 10 at South Camp (group walk–in) • 30 at Backpackers/South Camp (walk–in)	• 255 at Upper Pines (drive–in) • 45 at Upper Pines (walk–in) • 40 at Lower Pines (drive–in) • 0 at North Pines • 0 at Backpackers • 37 at Camp 4/Sunnyside (walk–in) • 0 at Upper and Lower River • 4 at Yellow Pine (volunteer group walk–in) • 20 at Tenaya Creek (walk–to) • 10 at South Camp (group walk–in) • 30 at Backpackers/South Camp (walk in)	• 255 at Upper Pines (drive–in) • 82 at Upper Pines (walk–in) • 60 at Lower Pines (drive–in) • 70 at North Pines (walk–in) • 0 at Backpackers • 37 at Camp 4/Sunnyside (walk–in) • **0 at Upper and Lower River (drive–in)** • 10 at Yellow Pine (group walk–in) • 20 at Tenaya Creek (walk–to) • 21 at South Camp (walk–in) • 30 at Backpackers/South Camp (walk–in)
Showers where feasible in campgrounds	Showers where feasible in campgrounds	Showers where feasible in campgrounds
RV hook–ups in some Upper Pines and possibly Lower Pines sites	RV hook–ups in some Upper Pines and possibly Lower Pines sites	RV hook–ups in some Upper Pines and possibly Lower Pines sites
982 *Total Lodging Units*	**982** *Total Lodging Units*	**1,012** *Total Lodging Units*
• 123 at The Ahwahnee • 52 at Housekeeping Camp • 420 at Curry Village • **387** at Yosemite Lodge	• 123 at The Ahwahnee • 52 at Housekeeping Camp • 420 at Curry Village • **387** at Yosemite Lodge	• 123 at The Ahwahnee • **100** at Housekeeping Camp • 420 at Curry Village • **369** at Yosemite Lodge

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Table A
Summary of Alternatives

	Alternative 1	Alternative 2
VISITOR EXPERIENCE		
VISITOR SERVICES		
Food, Retail, and Other Services		
Yosemite Lodge	• Three restaurants and two stores remain • Post office remains • Service station not replaced	• Three restaurants and two stores remain (one store reduced in size) • Remove post office • Service station not replaced
Yosemite Village	• Village Store retained • Village Grill remains • Degnan's remains • The Ansel Adams Gallery remains • Post office remains • Art Activity Center remains • Village Garage remains • Medical and dental clinics remain	• Move principal grocery store to Curry Village; remove Village Store building; gift sales remain near new visitor/transit center • Develop appropriate food service and grocery outlet adjacent to day–visitor parking • The Ansel Adams Gallery remains • Post office remains • Relocate Art Activity Center to Wilderness Center building; remove existing building for redevelopment • Relocate public garage to El Portal and remove Village Garage building • **Retain medical clinic in historic building** • Remove dental clinic
The Ahwahnee	Retain all food and retail services	Retain all food and retail services
Curry Village	• All food and retail services retained • Ice rink, bike and ski rentals, Mountain Mountain Shop remain in present locations	• Retain or expand food, grocery, and retail services • Ice rink relocated north of Meadow Deck building; relocate Mountain Shop and bike, raft, and ski rental to ice rink • Remove seasonal post office
Happy Isles	Retain modular snack stand	No food service provided
TRANSPORTATION		
TRAFFIC MANAGEMENT		
	Manage under Restricted Access Program when necessary	Prescribes a traveler information and traffic management system
PARKING		
Day–Visitor Parking		
In Yosemite Valley	Parking for day visitors remains scattered throughout Valley (1,393 to 1,662 spaces)	Parking for day visitors consolidated at Yosemite Village (550 spaces) and at **out–of–Valley lots (about 1,490 spaces)**
Out–of–Valley	No out–of–Valley parking for day visitors	Out–of–Valley parking for Valley day visitors: • Badger Pass (about 400 spaces) • **Hazel Green (about 720 spaces) or Foresta (about 700 spaces)** • El Portal (about 370 spaces)
Overnight Parking		
Lodging and Camping	Overnight visitors park at lodging or campground	Overnight visitors park only at lodging or campground
Wilderness	Wilderness parking (120 spaces) in lot east of Curry Village	Wilderness parking (150 spaces) for backpackers/overnight climbers **in lot at Curry Village**

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Table A
Summary of Alternatives

Alternative 3	Alternative 4	Alternative 5
VISITOR EXPERIENCE		
VISITOR SERVICES		
Food, Retail, and Other Services		
• Three restaurants and two stores remain (one store reduced in size) • Remove post office • Service station not replaced	• Three restaurants and two stores remain (one store reduced in size) • Remove post office • Service station not replaced	• Three restaurants and two stores remain (one store reduced in size) • Remove post office • Replace service station in Yosemite Village
• Village Store retained with new deli and reduced grocery and gift sales • Food service retained at Village Grill and Degnan's • The Ansel Adams Gallery remains • Post office remains • Relocate Art Activity Center to Wilderness Center; remove existing building and restore area to natural conditions • Relocate public garage to El Portal and remove Village Garage building; redevelop area • Retain medical and dental clinics	• Village Store retained with new deli and reduced grocery and gift sales • Food service retained at Village Grill and Degnan's • The Ansel Adams Gallery remains • Post office remains • Relocate Art Activity Center to Wilderness Center; remove existing building and restore to natural conditions • Relocate public garage to El Portal and remove Village Garage building and redevelop area • Retain medical and dental clinics	• Village Store retained with new deli and reduced grocery and gift sales • Food service retained at Village Grill and Degnan's • The Ansel Adams Gallery remains • Post office remains • Art Activity Center remains in existing building; add visiting artist apartment • Relocate public garage to El Portal and remove Village Garage building; construct service station • Retain medical and dental clinics
Retain all food and retail services	Retain all food and retail services	Retain all food and retail services]
• Retain or expand food, grocery, and retail services • Ice rink relocated north of Meadow Deck building; relocate Mountain Shop and bike, raft, and ski rental to ice rink • Remove seasonal post office	• Retain or expand food, grocery, and retail services • Ice rink relocated north of Meadow Deck building; relocate Mountain Shop and bike, raft, and ski rental to ice rink • Remove seasonal post office	• Retain or expand food, grocery, and retail services • Ice rink remains in present location; Mountain Shop and bike, raft, and ski rental relocated to new facility at rink • Remove seasonal post office
No food service provided	No food service provided	Construct new snack stand
TRANSPORTATION		
TRAFFIC MANAGEMENT		
Prescribes a traveler information and traffic management system	Prescribes a traveler information and traffic management system	Prescribes a traveler information and traffic management system
PARKING		
Day–Visitor Parking		
Parking for day visitors consolidated at Taft Toe (1,622 spaces)	Parking for day visitors consolidated at Taft Toe (550 spaces) and **at out–of–Valley lots (about 1,590 spaces)**	Parking for day visitors **consolidated at Yosemite Village (550 total spaces)** and at out–of–Valley lots (about **1,365** spaces)
No out–of–Valley parking	Out–of–Valley parking for Valley day visitors: • Badger Pass (about **415** spaces) • **South Landing (about 805 spaces)** • El Portal (about **370** spaces)	Out–of–Valley parking for Valley day visitors: • Henness Ridge (about **370** spaces) • Foresta (about **660** spaces) • El Portal (about 335 spaces)
Overnight Parking		
Overnight visitors park only at lodging or campground	Overnight visitors park only at lodging or campground	Overnight visitors park only at lodging or campground
Wilderness parking (150 spaces) for backpackers/overnight climbers in lot east of Curry Village	Wilderness parking (150 spaces) for backpackers/overnight climbers in lot east of Curry Village	Wilderness parking (150 spaces) for backpackers/overnight climbers **in lot at Yosemite Village**

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Table A Summary of Alternatives		
	Alternative 1	**Alternative 2**
TRANSPORTATION		
PARKING		
Employee Parking		
	Resident employees park at or near residences; most commuting employees drive to workplaces; the concessioner providers optional transportation	Resident employees park at or near residences; most commuting employees required to use employee transportation system; commuter lot at El Portal
TRAFFIC CIRCULATION		
Northside and Southside Drives		
	Traffic continues on present one–way loop; east on Southside Drive and west on Northside Drive	• Close Northside Drive to motor vehicles from Yosemite Lodge to El Capitan crossover and convert to multi–use trail • Convert Southside Drive to two–way from El Capitan crossover to Curry Village and the campgrounds
Yosemite Lodge Area		
	Circulation remains in current configuration	• Reroute Northside Drive along southern perimeter of Yosemite Lodge • Construct new vehicle bridge south of existing Yosemite Creek Bridge • Retain existing Yosemite Creek vehicle bridge for multi–use trail
SHUTTLE BUSES		
In–Valley shuttle bus service		
	Shuttle bus serves existing east–Valley stops	Expand shuttle bus routes to Bridalveil Fall
Out–of–Valley shuttle bus service		
	No out–of–Valley parking areas; no shuttle bus service required	Out–of–Valley shuttle buses serve Badger Pass, El Portal, and **Hazel Green or Foresta** day–visitor parking areas
PARK OPERATIONS		
Headquarters		
	Administrative headquarters for concessioner and NPS remain in Yosemite Village	Relocate headquarters for concessioner and NPS to El Portal or another location outside the park
Stables		
	NPS and concessioner stables retained in the Valley	Relocate NPS and concessioner administrative stables to McCauley Ranch near Foresta
NPS Maintenance Area		
	Existing Valley maintenance area (including NPS Operations Building [Fort Yosemite]) remains	Redesign maintenance area to accommodate bus parking and light maintenance facility, district operations and shops; **adapt NPS Operations Building if feasible**
Fire Station		
	NPS and concessioner fire stations remain	Consolidate NPS/concessioner structural fire operations; **construct two new fire stations, one in Yosemite Village and one in the Curry Village area**

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Table A Summary of Alternatives		
Alternative 3	**Alternative 4**	**Alternative 5**
TRANSPORTATION		
PARKING		
Employee Parking		
Resident employees park at or near residences; most commuting employees required to use employee transportation system; commuter lot at El Portal	Resident employees park at or near residences; most commuting employees required to use employee transportation system; commuter lot at El Portal	Resident employees park at or near residences; most commuting employees required to use employee transportation system; commuter lot at El Portal
TRAFFIC CIRCULATION		
Northside and Southside Drives		
• Close Northside Drive to motor vehicles from Yosemite Lodge to El Capitan crossover and convert to multi–use trail • Convert Southside Drive to two–way from El Capitan crossover to Curry Village and the campgrounds	• Close Northside Drive to motor vehicles from Yosemite Lodge to El Capitan crossover and convert to multi–use trail • Convert Southside Drive to two–way from El Capitan crossover to Curry Village and the campgrounds	• Close one lane of Northside Drive from Yosemite Lodge to **El Capitan crossover** to motor vehicles and convert to multi–use trail • Close one lane of Southside Drive from El Capitan crossover to Swinging Bridge to vehicles and convert to multi–use trail
Yosemite Lodge Area		
• Reroute Northside Drive along southern perimeter of Yosemite Lodge • Construct new vehicle bridge south of existing Yosemite Creek Bridge • Retain existing Yosemite Creek vehicle bridge for multi–use trail	• Reroute Northside Drive along southern perimeter of Yosemite Lodge • Construct new vehicle bridge south of existing Yosemite Creek Bridge • Retain existing Yosemite Creek vehicle bridge for multi–use trail	• Reroute Northside Drive along southern perimeter of Yosemite Lodge • Construct new vehicle bridge south of existing Yosemite Creek Bridge • Retain existing Yosemite Creek vehicle bridge for multi–use trail
SHUTTLE BUSES		
In–Valley shuttle bus service		
Expand shuttle bus routes to Bridalveil Fall	Expand shuttle bus routes to Bridalveil Fall	Expand shuttle bus routes to Bridalveil Fall
Out–of–Valley shuttle bus service		
No out–of–Valley parking areas; no shuttle bus service required	Out–of–Valley shuttle buses serve Badger Pass, El Portal, and **South Landing**	Out–of–Valley shuttle buses serve Henness Ridge, El Portal, and Foresta
PARK OPERATIONS		
Headquarters		
Relocate headquarters for concessioner and NPS to El Portal or another location outside the park	Relocate headquarters for concessioner and NPS to El Portal or another location outside the park	Relocate headquarters for concessioner and NPS to El Portal or another location outside the park
Stables		
Relocate NPS and concessioner administrative stables to McCauley Ranch near Foresta	Relocate NPS and concessioner administrative stables to McCauley Ranch near Foresta	Relocate NPS and concessioner administrative stables to McCauley Ranch near Foresta
NPS Maintenance Area		
Redesign maintenance area for district offices and maintenance shops; remove NPS Operations Building	Redesign maintenance area for district functions and maintenance shops; retain NPS Operations Building	Redesign maintenance area to accommodate bus parking and light maintenance facility, district operations and shops; remove NPS Operations Building
Fire Station		
Construct new NPS/concessioner fire station in Yosemite Village at edge of historic district	Construct new NPS/concessioner fire station in Yosemite Village at edge of historic district	Construct new NPS/concessioner fire station in Yosemite Village near site of Village Garage

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Table A
Summary of Alternatives

	Alternative 1	Alternative 2
PARK OPERATIONS		
Shuttle Bus Maintenance		
	Shuttle bus maintenance remains at existing garage	Relocate shuttle bus light maintenance to existing NPS maintenance area; heavy maintenance to new facility in El Portal
EMPLOYEE HOUSING		
TOTAL EMPLOYEE BEDS		
	1,691 total employee beds in Yosemite Valley, El Portal, Cascades/ Arch Rock, Foresta, and Wawona	**2,084** total employee beds in Yosemite Valley, El Portal, Foresta, and Wawona
Yosemite Valley		
	No change; 1,277 retained in Yosemite Valley	**723** in Yosemite Valley
El Portal		
	No change; 290 retained in El Portal	**1,037** in El Portal
Wawona		
	No change; 112 in Wawona (continue to use 112 beds in government–owned facilities for employees)	310 in Wawona (add 198 beds)
Foresta		
	No change (0 beds); 14 houses lost in 1996 A–Rock Fire not replaced	Reconstruct 14 houses
Cascades and Arch Rock		
	No change; 4 beds retained at Cascades; 8 at Arch Rock	0 beds remain; Cascades houses removed; Arch Rock houses adaptively reused

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Table A
Summary of Alternatives

Alternative 3	Alternative 4	Alternative 5
PARK OPERATIONS		
Shuttle Bus Maintenance		
Relocate shuttle bus light maintenance to Taft Toe; heavy maintenance to new facility in El Portal	Relocate shuttle bus light maintenance to Taft Toe; heavy maintenance to new facility in El Portal	Relocate shuttle bus light maintenance to existing NPS maintenance area; heavy maintenance to new facility in El Portal
EMPLOYEE HOUSING		
TOTAL EMPLOYEE BEDS		
1,862 total employee beds in Yosemite Valley, El Portal, and Foresta	**1,964** total employee beds in Yosemite Valley, El Portal, and Foresta	**2,118** total employee beds in Yosemite Valley, Wawona, El Portal, and Foresta
Yosemite Valley		
689 in Yosemite Valley	689 in Yosemite Valley	752 in Yosemite Valley
El Portal		
1,047 in El Portal	**1,149** in El Portal	**1,042** in El Portal
Wawona		
112 in Wawona (no change; continue to use 112 beds in government–owned facilities for employees)	112 in Wawona (no change; continue to use 112 beds in government–owned facilities for employees)	310 in Wawona (add 198 beds)
Foresta		
Reconstruct 14 houses	Reconstruct 14 houses	Reconstruct 14 houses
Cascades and Arch Rock		
0 beds remain; Cascades houses removed; Arch Rock houses adaptively reused	0 beds remain; Cascades houses removed; Arch Rock houses adaptively reused	0 beds remain; Cascades houses removed; Arch Rock houses adaptively reused

Illustration by Lawrence Ormsby

Peregrine falcon (Falco peregrinus anatum)

Table B
Summary and Comparison of Environmental Consequences

Table B Summary and Comparison of Environmental Consequences		
	Alternative 1	**Alternative 2**
WATER RESOURCES		
		• Overall, regional, long–term, moderate, beneficial impacts would occur largely due to removing facilities from the RPO and the 100–year floodplain, and removal of the Cascades Diversion Dam.
	• In Yosemite Valley, adverse impacts would continue, largely due to the presence of existing facilities and development. Natural hydrologic processes of the Merced River have been interrupted, as facilities interfere with river meandering and flooding, causing unnatural erosion and deposition, and impeding flood flows. Facilities and development also adversely impact water quality, primarily through non–point source pollution associated with runoff from paved surfaces, developed areas, and recreational use of the Merced River.	• In Yosemite Valley, beneficial impacts would result largely due to removal of existing facilities that interfere with hydrologic processes (including flooding) and reduction of non–point source pollution. • Removal of Sugar Pine Bridge would allow for river process restoration in this area, including natural flood flows and river meandering. • Removing facilities from the RPO and restoring these areas would increase riverbank stability and allow for introduction of large woody debris into the river channel. • Removal of Cascades Diversion Dam would restore the natural hydrologic processes of the Merced River in this area. • Water quality would be improved through the reduction in vehicles miles, treatment of stormwater runoff at the new transit facility at Camp 6, and removal of facilities from the RPO. Radiating impacts resulting from concentrations of visitors (e.g. Yosemite Village) and recreational use of the river would continue to adversely impact water resources.
	• In El Portal, adverse impacts would continue, largely due to the presence of existing facilities and development. Natural hydrologic processes of the Merced River have been interrupted by facilities and the riprap that protects these facilities. Facilities and development also adversely impact water quality, primarily through non–point source pollution associated with runoff from paved surfaces, developed areas, and recreational use of the Merced River.	• In El Portal, adverse impacts would result, largely due to the construction of new facilities. Construction of a substantial housing complex at Hennessey's Ranch and improvement of the flood levee would adversely affect floodplain values, as would construction of two pedestrian bridges across the Merced River and development at Railroad Flat. • A beneficial impact to water quality would result from implementation of the RPO. Adverse impacts would result from increased non–point source pollution from increased development.

Acronyms:

CO	carbon monoxide
HABS/HAER	Historic American Building Survey/Historic American Engineering Record
HVR	highly valued resource(s)
NO_x	nitrogen oxide
NPS	National Park Service
ORV	Outstandingly Remarkable Values
PA	Programmatic Agreement
PM	particulate matter
RPO	River Protection Overlay
SHPO	State Historic Preservation Office
VOC	volatile organic compound
WSR	Wild and Scenic River
YCS	Yosemite Concession Services Corp.

Table B Summary and Comparison of Environmental Consequences		
Alternative 3	**Alternative 4**	**Alternative 5**
WATER RESOURCES		
• Overall, long–term, moderate, beneficial impacts to water re–sources would result, largely due to the removal of facilities in Yosemite Valley from the RPO and the 100–year floodplain and the removal of the Cascades Diversion Dam.	• Overall, long–term, moderate, beneficial impacts to water re–sources would result, largely due to the removal of facilities in Yosemite Valley from the RPO and the 100–year floodplain and the removal of the Cascades Diversion Dam.	• Overall, long–term, moderate, beneficial impacts to water re–sources would result, largely due to the removal of facilities in Yosemite Valley from the RPO and the 100–year floodplain and the removal of the Cascades Diversion Dam.
• In Yosemite Valley, beneficial impacts to water resources would result, largely due to the removal of existing facilities that interfere with hydrologic processes (including flooding) and reduction of non–point source pollution.	• In Yosemite Valley, beneficial impacts to water resources would result, largely due to the removal of existing facilities that interfere with hydrologic processes (including flooding) and reduction of non–point source pollution.	• In Yosemite Valley, beneficial impacts to water resources would result, largely due to the removal of existing facilities that interfere with hydrologic processes (including flooding) and reduction of non–point source pollution.
• Removal of Sugar Pine, Stoneman, Superintendent's, and House–keeping Bridges, and possible reconstruction of Swinging Bridge, would allow for the restoration of natural river processes in these areas, including natural flood flows and meandering of the river.	• Removal of Sugar Pine, Stoneman, Superintendent's, and House–keeping Bridges, and the possible reconstruction of Swinging Bridge, would allow for the restoration of natural river processes in these areas, including natural flood flows and meandering of the river.	• Removal of Sugar Pine and Ahwahnee Bridges, and the possible reconstruction of Swinging Bridge, would allow for the restoration of natural river processes in these areas, including natural flood flows and meandering of the river.
• Removal of facilities from the RPO, and restoration of these areas, would increase stability of the riverbanks and allow for intro–duction of large woody debris into the river channel.	• Removal of facilities from the RPO, and restoration of these areas, would increase stability of the riverbanks and allow for intro–duction of large woody debris into the river channel.	• Removal of facilities from the RPO, and restoration of these areas, would increase stability of the riverbanks and allow for intro–duction of large woody debris into the river channel.
• Removal of Cascades Diversion Dam would restore the natural hydrologic processes of the Merced River in this area.	• Removal of Cascades Diversion Dam would restore the natural hydrologic processes of the Merced River in this area.	• Removal of Cascades Diversion Dam would restore the natural hydrologic processes of the Merced River in this area.
• Restoration of Camp 6 would restore natural hydrologic processes in the area, particularly flooding, thus causing a long–term, major, beneficial impact. Radiating impacts resulting from concentra–tions of visitors (e.g., at Yosemite Village) and recreational use of the river would continue to adversely impact water resources.	• Restoration of Camp 6 would restore natural hydrologic processes in the area, particularly flooding, thus causing a long–term, major, beneficial impact. Radiating impacts resulting from concentra–tions of visitors (e.g., at Yosemite Village) and recreational use of the river would continue to adversely impact water resources.	• Adverse impacts associated with the development of Camp 6 would continue, although that portion of Camp 6 in the RPO would be restored to natural conditions. Radiating impacts resulting from concentrations of visitors (e.g., at Yosemite Village) and recreational use of the river would continue to adversely impact water resources.
• Water quality would be improved through the reduction of vehicle miles traveled, the treatment of stormwater runoff at the new Visitor/Transit Center at Taft Toe, and removal of facilities from the RPO.	• Water quality would be improved through the reduction of vehicle miles traveled, the treatment of stormwater runoff at the new Visitor/Transit Center at Taft Toe, and removal of facilities from the RPO.	• Water quality would be improved through the reduction of vehicle miles traveled, the treatment of stormwater runoff at the new transit facility at Camp 6 and Curry Village, and removal of facilities from the RPO.
• Impacts to water resources in El Portal would be the same as described for Alternative 2.	• Impacts to water resources in El Portal would be the same as described for Alternative 2.	• Impacts to water resources in El Portal would be the same as described for Alternative 2.

Table B Summary and Comparison of Environmental Consequences		
	Alternative 1	**Alternative 2**
FLOODPLAINS		
	• Impact would be long–term and adverse.	• The overall impact would be long–term, moderate, and beneficial.
	• In Yosemite Valley, 66 employee beds, 248 lodging units, and miscellaneous structures would remain within the 100–year floodplain, resulting in a long–term, adverse impact to property and human safety from flood hazard. Facilities that would remain in the floodplain include Housekeeping Camp lodging units, the kennel, concessioner stable and associated housing (49 employee beds), the Concessioner Headquarters, three structures at Ahwahnee Row (3 employee beds), the Superintendent's House (Residence 1), five Yosemite Lodge motel units, the Wellness Center and nearby custodial cabins, the Indian Creek apartments (14 employee beds), and Concessioner Headquarters, resulting in impacts that would be long–term and adverse.	• In Yosemite Valley, 164 Housekeeping Camp lodging units, the kennel, concessioner stable and associated housing (49 employee beds), the Superintendent's House (Residence 1), five Yosemite Lodge motel units, the Wellness Center and nearby custodial cabins, and the Indian Creek apartments (14 employee beds) would be removed from the floodplain, resulting in beneficial impacts to property and human safety.
	• In El Portal, 108 employee beds and various nonhousing facilities would remain in the 100–year floodplain. Nonhousing facilities that would remain within the floodplain include the Yosemite Institute office, bulk fuel facility, gas station, El Portal Market, ranger station and offices at the Village Center, and portions of the El Portal warehouse at Railroad Flat, resulting in a long–term, adverse impact to property and human safety from flood hazard.	• In El Portal, the bulk fuel facility would be removed from the floodplain resulting in moderate, beneficial impacts to property and human safety. Construction of 657 employee beds, necessary support facilities, and employee parking at Village Center would result in long–term, minor, and adverse impacts.
	• In Wawona, portions of the Pioneer Yosemite History Center would remain in the 100–year floodplain, resulting in long–term, adverse impacts to property and human safety.	• The impacts for facilities in Wawona would be the same as those for Alternative 1.
WETLANDS		
		• The overall impact would be long–term, major, and beneficial.
	• No measurable change from or impacts to the current conditions would occur on the size, integrity, or connectivity of wetlands.	• There would be a net gain of 118 acres of wetlands (HVRs) and the overall integrity and connectivity of existing wetlands in the area would be enhanced. Wetlands would be connected from the east end of Yosemite Valley to Bridalveil Meadow (with the exception of Camp 6), which would enhance natural processes between the main Merced River channel, riparian borders, and meadows, thus promoting healthy wetlands in the area. This would result in long–term, major, beneficial impacts.

Acronyms:

CO	carbon monoxide
HABS/HAER	Historic American Building Survey/Historic American Engineering Record
HVR	highly valued resource(s)
NO_x	nitrogen oxide
NPS	National Park Service
ORV	Outstandingly Remarkable Values
PA	Programmatic Agreement
PM	particulate matter
RPO	River Protection Overlay
SHPO	State Historic Preservation Office
VOC	volatile organic compound
WSR	Wild and Scenic River
YCS	Yosemite Concession Services Corp.

Table B Summary and Comparison of Environmental Consequences		
Alternative 3	**Alternative 4**	**Alternative 5**
FLOODPLAINS		
• The overall impact would be long–term, moderate, and beneficial. • In Yosemite Valley, removal from the floodplain of 212 Housekeeping Camp lodging units, the kennel, concessioners stables and associated housing (49 employee beds), three structures at Ahwahnee Row (3 employee beds), the Superintendent's House (Residence 1), five Yosemite Lodge motel units, the Wellness Center and nearby custodial cabins, and the Indian Creek apartments would cause long–term, moderate, beneficial impacts. The Concession Headquarters and Indian Creek apartments area would be redeveloped as parking/visitor services and new overnight parking at Yosemite Lodge would be developed, causing a long–term, moderate, beneficial impact because the flood–related risk to human safety and property would be reduced. • Actions with long–term, moderate, beneficial impacts to property and human safety in El Portal would include removal from the floodplain of 36 employee beds and the bulk fuel facility. • In El Portal, construction of 656 employee beds at Hennessey's Ranch and the new NPS headquarters and administrative buildings at the Railroad Flat would be reduced from long–term, moderate, adverse to long–term, minor and adverse through the mitigation of flood hazards. • The impacts for facilities in Wawona would be the same as those for Alternative 1.	• The overall impact would be long–term, moderate, and beneficial. • The impacts to facilities in Yosemite Valley would be the same as those for Alternative 3. • The impacts to facilities in El Portal would be the same as those for Alternative 3. • The impacts to facilities in Wawona would be the same as those for Alternative 1.	• The overall impact would be long–term, moderate, and beneficial. • In Yosemite Valley, removal from the floodplain of 164 housekeeping lodge units, concessioners stables and associated housing (49 employee beds), three structures at Ahwahnee Row (3 employee beds), the Superintendent's House (Residence 1), five Yosemite Lodge motel units, the Wellness Center and nearby custodial cabins, and the Indian Creek apartments (14 employee beds) would cause long–term, moderate, beneficial impacts. The Concession Head–quarters, Indian Creek apartments, and concessioner stable areas would be redeveloped as parking/ visitor services/camping and new overnight parking at Yosemite Lodge would be developed, thus causing a long–term, moderate, beneficial impact because the flood–related risk to human safety and property would be reduced. • Actions with long–term, moderate, beneficial impacts to property and human safety in El Portal would include removing 36 employee beds and the bulk fuel facility from the floodplain. • In El Portal, construction of 656 employee beds at Hennessey's Ranch and the new NPS headquarters and administrative buildings at Railroad Flat would be reduced from long–term, moderate, adverse to long–term, minor, and adverse through the mitigation of flood hazards. • The impacts for facilities in Wawona would be the same as those for Alternative 1.
WETLANDS		
• The overall impact would be long–term, major, and beneficial. • There would be a net gain of 139 acres of wetlands (HVRs), and the overall integrity and connectivity of existing wetlands in the area would be enhanced, causing a long–term, major, beneficial impact.	• The overall impact would be long–term, major, and beneficial. • There would be a net gain of 131 acres of wetlands (HVRs), and the overall integrity and connectivity of existing wetlands in the area would be enhanced, thus causing a long–term, major, beneficial impact.	• The overall impact would be long–term, minor to moderate, and beneficial. • There would be a net gain of 104 acres of wetlands (HVRs), causing a long–term, moderate, beneficial impact.

Table B Summary and Comparison of Environmental Consequences		
	Alternative 1	**Alternative 2**
WETLANDS (continued)		
	• Wetland vegetation would remain degraded in the campground areas of east Yosemite Valley. Facilities and infrastructure would remain, some of which directly impact former wetland areas, such as Upper and Lower River Campgrounds. • Surface water flows that sustain wetlands in meadows would remain obstructed by roads and other development.	• Long–term, minor, adverse impacts would occur to wetland integrity at out–of–Valley areas.
SOILS		
	• No measurable change from current soil conditions within the Valley and out–of–Valley areas. The existing condition would continue to gradually effect soils as a result of continued compaction and erosion.	• The overall impact would be long–term, moderate, and beneficial. • In Yosemite Valley, beneficial impacts would include a large amount of restoration of HVR soils (approximately 177 acres restored, of which 136 acres would be restored HVR soils), causing a long–term, major, beneficial impact. • In Yosemite Valley, adverse impacts would primarily be from new campground, housing, and lodging development (most of which would be non–HVR soils), causing a minor, adverse impact. • In out–of–Valley areas, long–term, locally moderate, adverse impacts (most of which would be in non–HVR soils) would occur primarily at Hazel Green/Foresta, Wawona, El Portal, and the entrance station visitor centers.
VEGETATION		
	• No measurable change from current conditions would occur in the Valley or at out–of–Valley areas. Existing conditions would continue to degrade gradually as a result of effects from continued concentrated and radiating human use. • Ecological functions would continue to be adversely effected by existing fragmentation.	• The overall impact would be long–term, moderate, and beneficial. • Large areas of HVR vegetation would be restored, causing a long–term, major, beneficial impact. The majority of the adverse impacts from new development would occur in non–HVR vegetation types and would be limited in the amount of new fragmentation. • In Yosemite Valley, adverse impacts would occur due to development of campgrounds, housing, and lodging (75 acres developed, 49 of which would be in non–HVR vegetation types).

Acronyms:

CO	carbon monoxide
HABS/HAER	Historic American Building Survey/Historic American Engineering Record
HVR	highly valued resource(s)
NO_x	nitrogen oxide
NPS	National Park Service
ORV	Outstandingly Remarkable Values
PA	Programmatic Agreement
PM	particulate matter
RPO	River Protection Overlay
SHPO	State Historic Preservation Office
VOC	volatile organic compound
WSR	Wild and Scenic River
YCS	Yosemite Concession Services Corp.

Table B Summary and Comparison of Environmental Consequences		
Alternative 3	**Alternative 4**	**Alternative 5**
WETLANDS (continued)		
• Wetlands would be connected from the east end of Yosemite Valley to Bridalveil Meadow, which would enhance natural processes between the main Merced River channel, riparian borders, and meadows, thereby promoting healthy wetlands in the area. • Long–term, minor, adverse impacts would occur to wetland integrity at out–of–Valley areas. • Wetlands in the vicinity of Taft Toe would be indirectly impacted by increased visitor use, thus causing long–term, major, adverse impacts to wetland integrity.	• Wetlands would be connected from the east end of Yosemite Valley to Bridalveil Meadow, which would enhance natural processes between the main Merced River channel, riparian borders, and meadows, thereby promoting healthy wetlands in the area. • Long–term, minor, adverse impacts would occur to wetland integrity at out–of–Valley areas. • Wetlands in the vicinity of Taft Toe would be indirectly impacted by increased visitor use, causing long–term, major, adverse impacts to wetland integrity.	• Long–term, minor, adverse impacts would occur to wetland integrity at out–of–Valley areas.
SOILS		
• The overall impact would be long–term, moderate, and beneficial. • In Yosemite Valley, a large amount of restoration of HVR soils (206 acres restored, 144 acres of which would be restored HVR soils), causing a long–term, moderate, beneficial impact to soils. • In Yosemite Valley, most of the adverse impacts would be associated with the Taft Toe Visitor/Transit Center, which would be long–term and moderate; all parking facility impacts would be within the Valley (none of which would be in HVR soils). • In out–of–Valley areas, long–term, negligible, adverse impacts (most of which would be in non–HVR soils) would occur primarily in El Portal and at entrance station visitor centers.	• The overall impact would be long–term, moderate, and beneficial. • In Yosemite Valley, beneficial impacts would include a large amount of restoration of HVR soils (193 acres restored, 142 acres of which would be restored HVR soils), causing a long–term, moderate, beneficial impact to soils. • In Yosemite Valley, most of the adverse impacts would be associated with the Taft Toe Visitor/Transit Center, which would be long–term and moderate (none of which would be in HVR soils). • In out–of–Valley areas, long–term, moderate, adverse impacts (most of which would be in non–HVR soils) would occur primarily in El Portal, at entrance station visitor centers, and Hazel Green.	• The overall impact would be long–term, minor, and beneficial. • In Yosemite Valley, beneficial impacts would include a large amount of restoration of HVR soils (161 acres restored, 114 acres of which would be restored HVR soils). • In Yosemite Valley, long–term, minor, adverse impacts would occur from new campgrounds, housing, and lodging (most of which would be in non–HVR soils). • In out–of–Valley areas, most of the long–term, moderate, adverse impacts would occur in the El Portal, Foresta, and Henness Ridge areas for parking facilities as well as the entrance station visitor centers and housing at Wawona (most of which would be in non–HVR soils).
VEGETATION		
• The overall impact would be long–term, minor, and beneficial. • In Yosemite Valley, large areas of HVR vegetation would be restored, causing a long–term, major, beneficial impact. • The majority of the adverse impacts from new development would occur in non–HVR vegetation types and would be limited in the amount of new habitat fragmentation.	• The overall impact would be long–term, minor, and beneficial. • In Yosemite Valley, large areas of HVR vegetation would be restored, causing a long–term, major, beneficial impact. • The majority of the adverse impacts from new development would occur in non–HVR vegetation types and would be limited in the amount of new habitat fragmentation.	• The overall impact would be long–term, minor, and beneficial. • In Yosemite Valley, large but scattered areas of HVR vegetation would be restored, causing a long–term, major, beneficial impact. • The majority of adverse impacts would occur in non–HVR areas, and a limited amount of new habitat fragmentation would be generated.

Table B Summary and Comparison of Environmental Consequences		
	Alternative 1	**Alternative 2**
VEGETATION (continued)		
		• In Yosemite Valley, removal and/or consolidation of facilities out of the Merced River floodplain would provide increased ability to restore large portions of the Valley to natural conditions (175 acres restored, of which 160 would be in HVR vegetation types). Long–term, major, beneficial impacts would result from a reduction in fragmentation within the HVR vegetation types (meadow, riparian, and California black oak).
		• In Foresta, Big Oak Flat, Badger Pass, and South Entrance, increased human presence (trampling, non–native plants) and increased fragmentation of vegetation would slightly increase radiating impacts, resulting in long–term, negligible to major, adverse impacts.
		• At Wawona, Hazel Green, Foresta, and Tioga Pass, new housing, parking/transit facilities (vegetation loss), and increased human presence in the spring/summer (trampling) would result in long–term, moderate, adverse impacts.
		• In El Portal, new development within the administrative site and associated radiating impacts from increased human presence (trampling) would result in long–term, moderate, adverse impacts.

Acronyms:

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PM	particulate matter
RPO	River Protection Overlay
SHPO	State Historic Preservation Office
VOC	volatile organic compound
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Table B Summary and Comparison of Environmental Consequences		
Alternative 3	**Alternative 4**	**Alternative 5**
VEGETATION (continued)		
• Long–term, major, beneficial impacts would occur to meadow and riparian vegetation communities in the east end of the Valley due to the removal of some facilities, consolidation of others out of the Merced River floodplain, and an increased ability to restore large portions of the Valley to natural conditions (205 acres restored, of which 186 would be in HVR vegetation types).	• Long–term, major, beneficial impacts would occur to meadow and riparian vegetation communities in the east end of the Valley due to the removal of some facilities, consolidation of others out of the Merced River floodplain, and an increased ability to restore large portions of the Valley to natural conditions (193 acres restored, of which 174 would be in HVR vegetation types).	• Long–term, major, beneficial impacts would occur to riparian communities in the east end of the Valley due to the removal of some facilities, consolidation of others out of the Merced River floodplain, and an increased ability to restore large portions of the Valley to natural conditions (162 acres restored, of which 146 would be in HVR vegetation types).
• Restoration impacts would be somewhat offset by long–term, moderate, adverse impacts to upland forest communities due to the development of the Visitor/ Transit Center at Taft Toe. Additional long–term, moderate, adverse radiating impacts would occur to adjacent areas from increased human activity (trampling, non–native plants) in the currently undeveloped west end of the Valley. Approximately 99 acres would be developed in the Valley, 81 of which would be in non–HVR vegetation types.	• Restoration impacts would be somewhat offset by long–term, moderate, adverse impacts to upland forest communities in the Valley due to the development of the Visitor/Transit Center at Taft Toe. Additional long–term, moderate, adverse radiating impacts would occur to adjacent areas from increased human activity (trampling, non–native plants) in the currently undeveloped west end of the Valley. Approximately 102 acres would be developed in the Valley, 84 of which would be in non–HVR vegetation types.	• Long–term, minor to moderate, adverse impacts to upland communities in the Valley would occur due to development of campgrounds, housing, and lodging (69 acres developed, of which 48 would be in non–HVR vegetation types).
• In Foresta, Big Oak Flat, and South Entrance, long–term, minor, adverse impacts would occur as a result of slightly more radiating impacts from increased human presence (trampling, non–native plants) and increased vegetation community fragmentation.	• In Foresta, Big Oak Flat, South Entrance, and Badger Pass, long–term, minor, adverse impacts would occur as a result of slightly more radiating impacts from increased human presence (trampling, non–native plants) and increased vegetation community fragmentation.	• Long–term, negligible adverse impacts at Wawona, Foresta, Henness Ridge, and Tioga Pass Entrance would occur due to increased parking requirements and human presence (trampling) and increased vegetation community fragmentation.
• At Tioga Pass Entrance, long–term, moderate, adverse effects would occur as a result of new parking/ transit facilities and increased human presence (trampling) in the spring/summer.	• At South Landing, long–term, moderate, adverse impacts would occur (loss of stand structure and continuity) as a result of new parking/transit facilities and increased spring/summer human presence (trampling).	• There would be long–term, moderate, adverse impacts due to radiating impacts from an increased human presence in the spring/ summer (trampling) in the Wawona, Foresta, and Henness Ridge areas. These adverse effects would occur as a result of new housing and parking facilities (causing vegetation loss).
• In El Portal, long–term, moderate, adverse effects would occur due to new development within the administrative site and from increased human presence (trampling).	• In El Portal, long–term, moderate, adverse effects would occur due to new development within the administrative site and from increased human presence (trampling).	• Long–term, moderate, adverse effects to vegetative communities in El Portal would occur due to new development within the administrative site and from increased human presence (trampling).

Table B Summary and Comparison of Environmental Consequences		
	Alternative 1	**Alternative 2**
WILDLIFE		
	• Existing conditions would continue to degrade gradually as a result of continued concentrated and radiating human use. Habitat fragmentation would continue to be a prevalent impact on wildlife and their habitat in east Yosemite Valley, with large areas of HVR habitat occupied by camp–grounds, lodging units, and parking lots. Conditioning of wildlife to human foods would continue; however, no measurable change from existing conditions would occur.	• The overall impact would be long–term, major, and beneficial. • In the Valley, long–term, minor to moderate, beneficial impacts would occur based largely on the increased size, continuity, and integrity of HVR habitat. Long–term, minor to moderate, adverse impacts would occur as a result of Camp 6 parking and widening of Southside Drive. • In the east Valley, El Portal, Hazel Green, Badger Pass, Wawona, and Foresta, long–term, minor to moderate, adverse impacts would result from habitat loss, increased human presence, and wildlife conditioning to human food. • Adverse impacts would result from development of new campgrounds near Tenaya Creek and east of Curry Village; however, impacts would primarily occur within non–HVR habitats. In addition, they would be offset by habitat improvements in the Valley and implementation of mitigation measures.
SPECIAL-STATUS SPECIES		
Wildlife		
	• With existing conditions, there would be concentrated and radiating human use, habitat fragmentation, and the presence of non–native species. However, no measurable change to existing habitats would occur.	• The overall impact would be long–term, moderate, and beneficial because beneficial impacts to many California and federally listed species due to large increases in size, integrity, and connectivity of riparian, meadow, California black oak, and upland habitat areas within the Valley. • Potential long–term, adverse impacts on wildlife species of concern would be minor, based on the existing high levels of development in most impact locations. Implementation of site–specific mitigation measures and impacts would primarily consist of relatively small areas of upland habitat loss in comparison to the amount of upland habitat present in El Portal, Badger Pass, Hazel Green, Foresta, and other out–of–Valley areas.
Vegetation		
	• With existing conditions, there would be concentrated and radiating human use, habitat fragmentation, and the presence of non–native species. However, no measurable change to existing habitats would occur.	• The overall impacts on vegetation would be long–term, minor, and adverse. Fifty–one special–status plant species would be potentially impacted. With mitigation measures, impacts would be reduced to long–term, negligible to minor, and adverse.

Acronyms:

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RPO	River Protection Overlay
SHPO	State Historic Preservation Office
VOC	volatile organic compound
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Table B Summary and Comparison of Environmental Consequences		
Alternative 3	**Alternative 4**	**Alternative 5**
WILDLIFE		
• The overall impact would be long–term, moderate to major, and beneficial. • With Camp 6 fully restored, long–term, major, beneficial impacts would occur, based largely on the increased size, continuity, and integrity of HVR habitat within the Valley. • In the east and west Valley (Taft Toe), El Portal, Foresta, and Badger Pass, minor to major, adverse impacts would result from habitat loss, increased human presence, and wildlife conditioning to human food.	• The overall impact would be long–term, minor to moderate, and beneficial. • With Camp 6 fully restored, long–term, major, beneficial impacts would occur, based largely on the increased size, continuity, and integrity of HVR habitat within the Valley. • In the east and west Valley (Taft Toe), El Portal, Foresta and South Landing, minor to major, adverse impacts would result from habitat loss, increased human presence, and wildlife conditioning to human food.	• The overall impact would be long–term, minor, and beneficial. • Long–term, beneficial impacts would occur, based largely on the increased size, continuity, and integrity of HVR habitat within the Valley. However, Camp 6 would not be fully restored. • In the east Valley, El Portal, Foresta, Henness Ridge, and Wawona, long–term, minor to moderate, adverse impacts would result from habitat loss, increased human presence, and wildlife conditioning to human food.
SPECIAL-STATUS SPECIES		
Wildlife		
• Impacts to special–status species would be essentially the same as Alternative 2, with overall long–term, moderate, beneficial impacts. • Long–term, negligible to minor, adverse impacts would primarily consist of relatively small areas of upland habitat loss in comparison to the amount of upland habitat remaining in Taft Toe, El Portal, and other out–of–Valley areas. The potential severity of adverse impacts on special–status wildlife species would be limited due to the existing high levels of development in most impact locations and the implementation of site–specific mitigation measures.	• Impacts to special–status species would be essentially the same as Alternative 2, with overall long–term, moderate, beneficial impacts. • Long–term, negligible to minor, adverse impacts would primarily consist of relatively small areas of upland habitat loss in comparison to the amount of upland habitat remaining in Taft Toe, El Portal, South Landing, Badger Pass, and other out–of–Valley areas. The potential severity of adverse impacts on special–status wildlife species would be limited due to the existing high levels of development in most impact locations and the implementation of site–specific mitigation measures.	• The overall impact would be long–term, minor, and beneficial because many state and federally listed species would experience scattered increases in riparian and meadow habitat within the Valley; however, this would be on a more limited basis than other action alternatives due to less area restored. • Long–term, negligible to minor, adverse impacts would primarily consist of relatively small areas of upland habitat loss in comparison to the amount of upland habitat remaining in El Portal, Henness Ridge, Foresta, and other out–of–Valley areas. The potential severity of adverse impacts on special–status wildlife species would be limited due to the existing high levels of development in most impact locations and the implementation of site–specific mitigation measures.
Vegetation		
• No impacts would occur to threatened or endangered plant species. Forty–three special–status plant species would be impacted. With mitigation, the overall impact would be long–term, negligible, and adverse.	• No impacts would occur to threatened or endangered plant species. Forty–seven special–status plant species would be impacted. With mitigation, the overall impact would be long–term, minor, and adverse.	• No impacts would occur to threatened or endangered plant species. Forty–seven special–status plant species would be impacted. With mitigation, the overall impact would be long–term, minor, and adverse.

Table B Summary and Comparison of Environmental Consequences		
	Alternative 1	**Alternative 2**
SPECIAL-STATUS SPECIES (continued)		
Vegetation (continued)		
		• Long–term, moderate, beneficial impacts would occur due to habitat restoration for park rare plant species such as boreal bedstraw, false pimpernel, and ladies' tresses in the Valley. • Long–term, minor to moderate, adverse impacts would occur due to habitat loss for rare plant species such as trillium in Wawona and slender–stemmed monkey flower and Small's southern clarkia at Hazel Green. Impacts to six species in El Portal would be mitigated by measures such as designs to avoid plant populations and habitat, and salvaging of topsoil for plant re–establishment.
AIR QUALITY		
	• Assuming vehicle traffic volumes remain similar to current levels, total air emissions would decrease over time because of fleet turnover to vehicles with advanced emission–control technologies. These advanced technologies would meet more stringent emission standards. The overall impact to local air quality would be long–term and beneficial.	• Long–term, moderate, adverse impacts on NO_x emissions would result from using diesel buses through 2015. Compared to air emissions for Alternative 1, there would be long–term, minor to major, beneficial impacts to VOC, CO, and PM emissions. • There would be long–term, moderate, beneficial impacts associated with using fuel cell buses. • Construction–related air emissions would be short–term, localized, and temporary in nature, and therefore would represent a short–term, minor, adverse impact to local air quality.
GEOLOGIC HAZARDS		
	• Overall, impacts are considered adverse because of the high concentration of essential, hazardous, and special occupancy facilities remaining in the talus slope zone; therefore, the level of risk to life and property would remain the same as it is currently.	• Overall, impacts would be long–term, moderate, and beneficial due to a reduction in the density of people and facilities in the talus slope zone. • The level of risk to life and property would be reduced by decreasing the density of standard occupancy structures from the shadow line and/or talus slope zones.

Acronyms:

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VOC	volatile organic compound
WSR	Wild and Scenic River
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Table B Summary and Comparison of Environmental Consequences		
Alternative 3	**Alternative 4**	**Alternative 5**
SPECIAL-STATUS SPECIES (continued)		
Vegetation (continued)		
• Long–term, adverse impacts due to habitat loss for park rare plant species (such as six species in El Portal) would be mitigated by measures such as designs to avoid plant populations and habitat and salvaging of topsoil for re–establishment, thereby reducing the impact intensity to minor. • Beneficial impacts from habitat restoration would be the same as described in Alternative 2.	• Long–term, negligible to minor, adverse local impacts due to habitat loss for rare plant species (whitneya at South Landing and six species in El Portal) would be mitigated by measures such as designs to avoid plant populations and habitat and salvaging of topsoil for re–establishment. • Beneficial impacts from habitat restoration would be the same as described in Alternative 2.	• Adverse impacts due to habitat loss for park rare plant species (such as trilliums in Wawona and six species in El Portal) would be mitigated by measures such as designs to avoid plant populations and habitat, and salvaging of topsoil for re–establishment, resulting in a long–term, minor, adverse local impact. • Beneficial impacts from habitat restoration would be the same as described in Alternative 2.
AIR QUALITY		
• The impacts of this alternative would be the same as Alternative 2 from the present to 2015, except there would be beneficial impacts resulting from reduced NO_x emissions.	• The impacts of this alternative would be the same as Alternative 2 from the present to 2015, except there would be moderate, adverse impacts resulting from increased NO_x emissions.	• The impacts of this alternative would be the same as Alternative 2 from the present to 2015.
GEOLOGIC HAZARDS		
• The overall impact would be the same as described for Alternative 2 (long–term, moderate, and beneficial) due to decreasing the density of standard occupancy structures from the talus slope zone, primarily from the Curry Village and Housekeeping areas, and relocating essential facilities, one hazardous facility, and two special occupancy facilities out of the talus slope and shadow line zones. • The development of the Taft Toe Visitor/Transit Center within the shadow line zone would result in a long–term, adverse, and minor impact.	• The overall impact would be the same as described in Alternative 2. (long–term, moderate, and beneficial) due to decreasing the density of standard occupancy structures from the talus slope zone, primarily from the Curry Village and Housekeeping areas, and relocating essential facilities, one hazardous facility, and two special occupancy facilities out of the talus slope and shadow line zones. • The development of the Taft Toe Visitor/Transit Center within the shadow line zone would result in a long–term, adverse, and minor impact.	• Overall, impacts would be long–term, major, and adverse because there would be no change to the high concentration of essential, hazardous, and special occupancy facilities remaining within the talus slope and shadow line zone, and there would be an increase in the density of facilities within the shadow line zone.

Table B Summary and Comparison of Environmental Consequences		
	Alternative 1	**Alternative 2**
SCENIC RESOURCES		
	• Some existing scenic vistas into Yosemite Valley would continue to be obstructed by roads, traffic, and other development. Therefore, the amount of visual intrusion would remain the same as existing conditions. The degree of obstruction would continue to depend on the vantage point of the viewer.	• The overall impact would be long–term, major, and beneficial. • Approximately 140 acres of restoration would occur, primarily within the A Scenic category, causing a long–term, major, beneficial impact. There would be a net decrease in development by 71 acres within Yosemite Valley. • There would be 71 acres of new develop–ment, primarily adjacent to existing development in Yosemite Village, Yosemite Lodge, and Curry Village in the east Valley as well as the El Capitan crossover check station in the west Valley. • There would be minor, adverse visual impacts in out–of–Valley areas; however, these impacts would contribute directly to improving scenic resources within the Valley, where there is potential for greater beneficial gains.
CULTURAL RESOURCES		
Archeological Resources		
	• Construction of the Indian Cultural Center and routine maintenance activities would have the potential to adversely affect archeological resources; however, the National Park Service would strive to avoid or otherwise mitigate impacts, in accordance with the Programmatic Agreement.	• There would be varied impacts on as many as 58 archeological sites, depending on the potential of the archeological sites to yield significant information about prehistoric and historic lifeways and on the nature and design of proposed development. • In Yosemite Valley, there would be permanent, negligible to minor impacts as a result of data collection. • In El Portal, there would be permanent, moderate, adverse impacts related to development at Hillside East and West. • In all instances where identified sites could not be avoided, the National Park Service would undertake data recovery in accordance with the Programmatic Agreement to retrieve important information, thereby reducing the intensity of adverse impacts. In accordance with the Programmatic Agreement, the National Park Service would inventory project areas, test/evaluate the significance of identified sites, and carry out appropriate data recovery prior to construction disturbance.
Ethnographic Resources		
	• Establishing the Indian Cultural Center would result in beneficial impacts to ethnographic resources by strengthening American Indian presence in Yosemite Valley and strengthening traditional uses. Continued visitor use and routine maintenance have the potential to impact ethnographic resources, but the park	• Overall, actions in Yosemite Valley would have long–term, minor, adverse impacts to the Valleywide ethnographic resources. • Facilities removal and ecological restoration would benefit up to five traditional gathering areas by enhancing conditions for plant resources, and would remove modern development from three historic village areas.

Acronyms:

CO	carbon monoxide
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HVR	highly valued resource(s)
NO_x	nitrogen oxide
NPS	National Park Service
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PM	particulate matter
RPO	River Protection Overlay
SHPO	State Historic Preservation Office
VOC	volatile organic compound
WSR	Wild and Scenic River
YCS	Yosemite Concession Services Corp.

Table B Summary and Comparison of Environmental Consequences		
Alternative 3	**Alternative 4**	**Alternative 5**
SCENIC RESOUR		
• The overall impact would be long–term, moderate, and beneficial. • The approximately 170 acres of restoration, primarily within the A Scenic category, and a net decrease in development by 72 acres within Yosemite Valley would result in a long–term, major, beneficial impact. • There would be 99 acres of new development, with some adjacent to existing development, but the primary impact would be at Taft Toe, where the impact would be long–term, major, and adverse in the Scenic A category. • The out–of–Valley impacts would be the same as described in Alternative 2.	• The overall impact would be long–term, moderate, and beneficial. • Approximately 165 acres of restoration, primarily within the A Scenic category, and a net decrease in development by 66 acres within Yosemite Valley would result in a long–term, major beneficial impact. • There would be 99 acres of new development, with some adjacent to existing development, but the primary impact would be at Taft Toe, where the impact would be long–term, major, and adverse in the Scenic A category. • The out–of–Valley impacts would be the same as described in Alternative 2.	• The overall impact would be long–term, minor, and beneficial. • Approximately 130 acres of restoration, primarily within the A Scenic category, and a net decrease in development by 63 acres within Yosemite Valley, would result in a long–term, moderate, beneficial impact. • There would be 68 acres of new development, primarily adjacent to existing development at Camp 6 and Curry Village, causing a long–term, moderate impact. • The out–of–Valley impacts would be the same as described in Alternative 2.
CULTURAL RESOURCES		
Archeological Resources		
• There would be varied impacts on as many as 59 archeological sites, depending on the potential of the archeological sites to yield significant information about prehistoric and historic lifeways and on the nature and design of proposed development. • Data recovery would be conducted as described for Alternative 2.	• There would be varied impacts on as many as 58 archeological sites, depending on the potential of the archeological sites to yield significant information about prehistoric and historic lifeways and on the nature and design of proposed development. • Data recovery would be conducted as described for Alternative 2.	• There would be varied impacts on as many as 59 archeological sites, depending on the potential of the archeological sites to yield significant information regarding prehistoric and historic lifeways and on the nature and design of proposed development. • Data recovery would be conducted as described for Alternative 2.
Ethnographic Resources		
• Overall, adverse impacts to the ethnographic resources would be the same as described in Alternative 2.	• Overall, adverse impacts to the ethnographic resources would be the same as described in Alternative 2.	• Overall, adverse impacts to the ethnographic resources would be the same as described in Alternative 2.

Table B Summary and Comparison of Environmental Consequences		
	Alternative 1	**Alternative 2**
CULTURAL RESOURCES (continued)		
Ethnographic Resources (continued)		
	would strive to avoid or mitigate impacts in accordance with the Programmatic Agreement.	• In Yosemite Valley, parts of up to eleven traditional gathering areas would be disturbed or destroyed by adding or expanding modern development at eight historic village areas, and by adding development in at least one area figuring in myth and legend. • In El Portal, proposed actions would most likely have moderate to major adverse impacts by destroying portions of historic villages and traditional gathering areas, and by adding concentrated residential use in some areas that are currently undeveloped. These actions would result in permanent, moderate to major, adverse impacts. • An ethnographic resources inventory and evaluation of impact areas would be conducted by the National Park Service. Also, the National Park Service would continue consulting with culturally associated American Indian people to seek ways to avoid, minimize, and mitigate potential adverse impacts to ethnographic resources. These measures could include setting aside some areas for traditional uses, designing new development to avoid the most sensitive areas, screening development from traditional use areas, and directing visitor and residential use away from sensitive areas.
Cultural Landscape Resources (Including Individually Significant Historic Sites and Structures)		
	• There would be no change or impact to the overall character of the landscape. Landscape characteristics, such as circulation patterns, patterns of land use, response to natural features, spatial organization, and architectural styles, would remain intact. • Historic properties and contributing cultural landscape features would be managed and protected under current policies. In some cases (as with Superintendent's House [Residence 1] and the historic orchards), benign neglect would be the management approach. The park would continue to avoid adverse impacts where feasible, or would otherwise carry out appropriate mitigation to reduce the intensity of impacts in accordance with the Programmatic Agreement. • Adverse impacts to individual features, such as the eventual loss of Superintendent's House (Residence 1) and Lamon, Curry, and Hutchings Orchards, as well as the continued intrusion of noncontributing temporary housing structures, would result in a permanent, adverse impact to the overall character of the 10–square–mile Yosemite Valley Cultural Landscape Historic District, a property considered eligible for inclusion on the National Register of Historic Places. Adverse impacts to individual features would be mitigated according to	• The impact to the Valleywide cultural landscape with mitigation would be reduced from major to minor. • Minor to major, adverse impacts would result from removal, relocation, or modification of historic buildings and structures, or from introduction of modern facilities and development either within historic districts and contributing portions of the cultural landscape. Carrying out standard mitigation measures (e.g., HABS/HAER documentation) under the Programmatic Agreement would reduce the intensity of adverse impacts. • Long–term, beneficial impacts would result from measures intended to restore native vegetation communities in patterns more in keeping with the cultural landscape and historic setting. Removal of noncontributing facilities and development from historic areas would also have permanent, minor, beneficial impacts. Adaptively using historic buildings would cause long–term, negligible, beneficial impacts by preserving buildings in accordance with the Secretary of the Interior's Standards for the Treatment of Historic Properties.

Acronyms:

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PA	Programmatic Agreement
PM	particulate matter
RPO	River Protection Overlay
SHPO	State Historic Preservation Office
VOC	volatile organic compound
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Table B Summary and Comparison of Environmental Consequences		
Alternative 3	**Alternative 4**	**Alternative 5**
CULTURAL RESOURCES (continued)		
Ethnographic Resources (continued)		
Cultural Landscape Resources (Including Individually Significant Historic Sites and Structures)		
• The impact to the overall character of the Valleywide cultural landscape, with mitigation, would be reduced from major to moderate. • There would be long–term, major, adverse impacts resulting from development of the Taft Toe Visitor/Transit Center. • Long–term, minor, beneficial impacts to the Valleywide cultural landscape would result from such actions as California black oak woodland and meadow restoration, removal of noncontributing structures, and ecological restoration of the riparian corridor along Yosemite Creek and the Merced River south of Yosemite Lodge. New development would be designed to be compatible with existing historic districts or settings	• The impact to the overall character of the Valleywide cultural landscape, with mitigation, would be reduced from major to moderate. • There would be long–term, major, adverse impacts resulting from development of the Visitor/Transit Center at Taft Toe. • Long–term, minor, beneficial impacts to the Valleywide cultural landscape would result from such actions as California black oak woodland and meadow restoration, removal of noncontributing structures, and ecological restoration of the riparian corridor along Yosemite Creek and the Merced River south of Yosemite Lodge. New development would be designed to be compatible with existing historic districts or settings	• The impact to the Valleywide cultural landscape, with mitigation, would be reduced from moderate to minor. • Long–term, minor, beneficial impacts to the Valleywide cultural landscape would result from such actions as California black oak woodland and meadow restoration, the removal of noncontributing structures, and the ecological restoration of the riparian corridor along Yosemite Creek and the Merced River south of Yosemite Lodge. New development would be designed to be compatible with existing historic districts or settings

Table B Summary and Comparison of Environmental Consequences		
	Alternative 1	**Alternative 2**
CULTURAL RESOURCES (continued)		
Cultural Landscape Resources (Including Individually Significant Historic Sites and Structures) (continued)		
	stipulations of the Programmatic Agreement, including documentation and salvage of materials.	• This alternative would result in long–term, major, adverse impacts to several individual features of the Valleywide landscape, including relocation of the Superintendent's House (Residence 1); loss of Sugar Pine and possibly Stoneman Bridges; loss of structures through the redesign of the NPS maintenance area and Curry Village; introduction of new parking facilities at Yosemite Village; and permanent changes in the land–use patterns, circulation, and spatial organization in the Valley.
Museum Collection (Including Archives and Research Library)		
	• The park's collection and archives are stored in inadequate facilities. Access to and availability of the materials to researchers and others would remain problematic.	• Housing the collection and archival materials in a central rehabilitated facility in Yosemite Valley would have moderate to major, beneficial impacts on the materials, and it would improve effectiveness in accessing, managing, and protecting these resources.
MERCED WILD AND SCENIC RIVER		
Yosemite Valley (Segment 2)		
	• Adverse impacts to the Yosemite Valley segment ORVs would continue largely due to the presence of existing facilities that displace, degrade, or fragment riparian habitat; impede flood flow; inhibit natural meandering of the river; cause scouring or unnatural channeling of the river; or detract from the scenic interface of river, rock, meadow, and forest. In particular, historic bridges would continue to have a long–term, adverse impact on the hydrologic processes ORV because they prevent meandering and scouring, cause unnatural channeling, and impede flood flows.	• A long–term, moderate, beneficial impact on ORVs would result, largely due to removal of facilities that impede flood flows and inhibit the river's natural meandering; implementation of the RPO; restoration of substantial areas of river–related vegetation communities; improvement of the scenic interface of river, rock, meadow, and forest; and maintenance of the diversity of river–related recreational opportunities. A long–term, minor to moderate, adverse impact to the cultural ORV would occur due to the removal of historic structures and potential disturbance of river–related archeological resources.

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Table B Summary and Comparison of Environmental Consequences		
Alternative 3	**Alternative 4**	**Alternative 5**
CULTURAL RESOURCES (continued)		
Cultural Landscape Resources (Including Individually Significant Historic Sites and Structures) (continued)		
to the greatest extent possible, and adverse impacts to individual features would be mitigated according to stipulations of the PA. • This alternative would result in long–term, major, adverse impacts to individual features, such as the loss of Superintendent's House (Residence 1) and Sugar Pine, Stoneman, Superintendent's, and Housekeeping Bridges, and permanent changes in land–use patterns, circulation, and spatial organization in the Valley. • Data recovery would be conducted as described for Alternative 2.	to the greatest extent possible, and adverse impacts to individual features would be mitigated according to stipulations of the PA. • This alternative would result in, major, adverse impacts to individual features, such as the loss of Superintendent's House (Residence 1) and Sugar Pine, Stoneman, Superintendent's, and Housekeeping Bridges, and permanent changes in land–use patterns, circulation, and spatial organization in the Valley. • Data recovery would be conducted as described for Alternative 2.	to the greatest extent possible, and adverse impacts to individual features would be mitigated according to stipulations of the PA. • This alternative would result in adverse impacts to individual features, such as the loss of Super–intendent's House (Residence 1), the loss of the Sugar Pine and Ahwahnee Bridges, and permanent changes in land–use patterns and circulation in the Valley. • Data recovery would be conducted as described for Alternative 2.
Museum Collection (Including Archives and Research Library)		
• Impacts to the museum collection would be the same as described for Alternative 2.	• Impacts to the museum collection would be the same as described for Alternative 2.	• Impacts to the museum collection would be the same as described for Alternative 2, although the collection would be consolidated in El Portal.
MERCED WILD AND SCENIC RIVER		
Yosemite Valley (Segment 2)		
• A long–term, moderate, beneficial impact on ORVs would result largely due to the removal of facilities that impede flood flows and inhibit the natural meandering of the river; implementation of the RPO; the restoration of substantial areas of river–related vegetation communities; the improvement of the scenic interface of river, rock, meadow, and forest; and the maintenance of the diversity of river–related recreational opportunities. • The beneficial impact of this alternative would be partially offset by the long–term, minor to moderate, adverse impact to the cultural ORV resulting from the removal of historic structures, as well as the radiating impacts to the ORVs resulting from concentrations of visitors (e.g., at Taft Toe).	• Impacts to ORVs would be the same as described for Alternative 3. A long–term, moderate, beneficial impact on ORVs would result largely due to the removal of facilities that impede flood flows and inhibit the natural meandering of the river; implementation of the RPO; the restoration of substantial areas of river–related vegetation communities; the improvement of the scenic interface of river, rock, meadow, and forest; and the maintenance of the diversity of river–related recreational opportunities. • The beneficial impact of this alternative would be partially offset by the long–term, minor to moderate, adverse impact to the cultural ORV resulting from the removal of historic structures, as well as the radiating impacts to the ORVs resulting from concentrations of visitors (e.g., at Taft Toe).	• A long–term, minor, beneficial impact on ORVs would result largely due to the removal of facilities that impede flood flows and inhibit the natural meandering of the river; implementation of the RPO; the restoration of substantial areas of river–related vegetation communities; the improvement of the scenic interface of river, rock, meadow, and forest; and the maintenance of the diversity of river–related recreational opportunities. • The beneficial impact of this alternative would be partially offset by the long–term, minor to moderate, adverse impact to the cultural ORV resulting from the removal of historic structures, potential disturbance of river–related archeological resources and the radiating impacts to the ORVs resulting from concentrations of visitors.

Table B Summary and Comparison of Environmental Consequences		
	Alternative 1	**Alternative 2**
MERCED WILD AND SCENIC RIVER (continued)		
Impoundment (Segment 3A) and Merced River Gorge (Segment 3B)		
	• Continued adverse impacts would be largely due to the presence of the Cascades Diversion Dam and the associated continued loss of riparian vegetation and habitat, interference with movement of aquatic wildlife (including rainbow trout), and interference with the free–flowing condition of the river.	• The actions of this alternative would have a long–term, moderate to major, beneficial impact on ORVs, largely because the removal of Cascades Diversion Dam and implementation of the RPO would substantially improve the free–flowing condition of the river, enhance riparian habitat and rainbow trout movement, and improve views of waterfalls and cliffs. This beneficial impact would be partially offset by adverse impacts to cultural ORVs resulting from the removal of the Cascades houses.
El Portal (Segment 4)		
	• There would generally be no impacts to ORVs in this segment; however, some adverse impacts would continue, largely because of the presence of facilities that contribute to the loss or disturbance of riparian vegetation and river–related habitat. This adverse impact would partially be offset by beneficial impacts to the recreation ORV associated with existing roadways that provide visitor access for river–related recreational opportunities, and the preclusion of future development incompatible with the RPO.	• In the El Portal segment, the actions of this alternative would have a long–term, minor beneficial impact, largely because implementation of the RPO would remove and limit development on the riverbank and contribute to the restoration of sensitive riparian vegetation communities (e.g., at Hennessey's Ranch). In addition, the recreation ORV would be beneficially impacted by improved hiking opportunities along the river. The beneficial impact to ORVs for this segment would be partially offset by the long–term, minor, adverse impacts to the cultural ORV due to the possible loss of historic structures and possible disturbance of archeological sites.
Wawona (Segment 7)		
	• ORVs of the Wawona segment would continue to experience long–term, adverse impacts, largely due to the presence of facilities that displace river–related vegetation and detract from views of Wawona Dome from the river. These adverse impacts would be partially offset by the continuation of the management trend to restore riparian areas and the beneficial impact to the biological and scenic ORVs that would result.	• In the Wawona segment, the actions of this alternative would have a long–term, minor, beneficial impact, largely due to the beneficial effects of implementing the RPO. The beneficial impact would be partially offset by the radiating impacts to ORVs resulting from new employee housing in Wawona.
VISITOR EXPERIENCE		
	• This alternative would continue to allow for spontaneity in a Valley visit, but most visitors would still rely on private vehicles, resulting in traffic and seasonal congestion.	• Opportunities for visitors to travel spontaneously to and through Yosemite Valley would be reduced, causing a long–term, minor, adverse impact to those visitors who expect to drive into Yosemite Valley at any time.
	• There would be both beneficial and adverse impacts, depending upon visitor expectations and desires.	• The average visitor would experience a long–term, moderate, adverse impact because of the increase in the time required to travel to the Valley.
	• Many visitors would continue to spend time searching for parking and could become frustrated by the need to search for parking in scattered locations.	• The reliability of the Yosemite Valley transportation system would cause long–term, major, beneficial impacts because visitors would be better served by the expanded and more frequent bus service.

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PA	Programmatic Agreement
PM	particulate matter
RPO	River Protection Overlay
SHPO	State Historic Preservation Office
VOC	volatile organic compound
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Table B Summary and Comparison of Environmental Consequences		
Alternative 3	**Alternative 4**	**Alternative 5**
MERCED WILD AND SCENIC RIVER (continued)		
Impoundment (Segment 3A) and Merced River Gorge (Segment 3B)		
• Impacts to ORVs would be the same as described for Alternative 2; the actions of this alternative would be long–term, moderate to major, beneficial.	• Impacts to ORVs would be the same as described for Alternative 2; the actions of this alternative would be long–term, moderate to major, and beneficial.	• Impacts to ORVs would be the same as described for Alternative 2; the actions of this alternative would be long–term, moderate to major, and beneficial.
El Portal (Segment 4)		
• Impacts to ORVs would be the same as described for Alternative 2; the actions of this alternative would be long–term, minor, and beneficial.	• Impacts to ORVs would be the same as described for Alternative 2; the actions of this alternative would be long–term, minor, and beneficial.	• Impacts to ORVs would be the same as described for Alternative 2; the actions of this alternative would be long–term, minor, and beneficial.
Wawona (Segment 7)		
• Impacts to ORVs would be long–term, minor, and beneficial, largely due to the beneficial effects of implementing the RPO.	• Impacts to ORVs would be the same as described for Alternative 3; the actions of this alternative would have a long–term, minor, beneficial impact, largely due to the beneficial effects of implementing the RPO.	• Impacts to ORVs would be the same as described for Alternative 2; the actions of this alternative would have a long–term, minor, beneficial impact, largely due to the beneficial effects of implementing the RPO. The beneficial impact would be partially offset by the radiating impacts to ORVs resulting from new employee housing in Wawona.
VISITOR EXPERIENCE		
• The spontaneity of travel to and through Yosemite Valley would be reduced, thereby causing a long–term, major, adverse impact to those visitors who expect to drive into Yosemite Valley at any time. • The average visitor would experience a long–term, negligible, adverse impact due to the increase in the time required to travel to the Valley.	• The spontaneity of travel to and through Yosemite Valley would be reduced, thereby causing a long–term, major, adverse impact to those visitors who expect to drive into Yosemite Valley at any time. • The average visitor would experience a long–term, moderate, adverse impact due to the increase in the time required to travel to the Valley.	• The spontaneity of travel to and through Yosemite Valley would be reduced, thereby causing a long–term, major, adverse impact to those visitors who expect to drive into Yosemite Valley at any time. • The average visitor would experience a long–term, minor, adverse impact due to the increase on the time required to travel to the Valley.

Table B Summary and Comparison of Environmental Consequences		
	Alternative 1	**Alternative 2**
VISITOR EXPERIENCE (continued)		
	• Visitation levels would continue to grow, resulting in more crowding, longer delays in getting access to the Valley, and increased demand on a relatively small number (475) of campsites and a relatively larger number (1,260) of lodging units.	• On most days visitors would find a more tranquil environment, with transit services distributing visitors to more destinations than under Alternative 1. This would potentially result in fewer visitors in the east Valley and more opportunities for visitors in the mid–Valley. • Opportunities for recreation would be oriented more toward the shuttle bus system, thus reducing spontaneity and causing both long–term, beneficial, and adverse impacts. The degree of impact would depend upon the expectations and desires of each visitor. • Opportunities for camping overnight in Yosemite Valley would increase moderately (to 500 sites), causing a long–term, moderate, beneficial impact. Opportunities for lodging would decrease substantially (to 961 units), causing a long–term, moderate, adverse impact.
TRANSPORTATION		
		• The overall impact to traffic operations would be long–term, major, and beneficial because the actions of this alternative would reduce traffic volume, and improve traffic flow within the Valley.
	• Existing traffic patterns would continue. Visitors would continue to be able to drive to the Valley and travel in their private vehicles to most destinations within the Valley.	• Average travel time to access the Valley would increase by 20 to 21 minutes (over existing travel times), representing a long–term, moderate, adverse impact to visitors.
	• Traffic volumes would be higher than any of the action alternatives, and traffic volumes would be expected to increase in the future.	• Traffic volumes on roads would be reduced by 50%, and bus trips into the Valley would increase by 285 per day. This would represent a major decrease in overall traffic volumes and a major improvement in traffic flow, resulting in a long–term, moderate, beneficial impact.
	• Traffic congestion would continue to occur at the busy intersections of Sentinel Road with Southside Drive and Northside Drive.	• Traffic congestion would be reduced at the intersections of Sentinel Road with Northside Drive and Southside Drive, and traffic flow would improve on Pohono Bridge in the morning and evening and substantially improve on El Portal Road and Northside Drive. These changes would lead to a long–term, major, beneficial impact.
	• Traffic flow would be acceptable, but congested, along Northside Drive between Yosemite Village and Yosemite Lodge.	

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Table B Summary and Comparison of Environmental Consequences		
Alternative 3	**Alternative 4**	**Alternative 5**
VISITOR EXPERIENCE (continued)		
• On most days visitors would find a more tranquil environment, as described in the summary for Alternative 2.	• On most days visitors would find a more tranquil environment, as described in the summary for Alternative 2.	• On most days visitors would find a more tranquil environment, as described in the summary for Alternative 2.
• Impacts to the opportunities for recreation would be similar to Alternative 2.	• Impacts to the opportunities for recreation would be similar to Alternative 2.	• Impacts to the opportunities for recreation would be similar to Alternative 2.
• Opportunities for camping in Yosemite Valley would decrease modestly (to 449 sites), causing a long–term, minor, adverse impact, and would decrease substantially for lodging (to 982 units), causing a long–term, moderate, adverse impact.	• Opportunities for camping in Yosemite Valley would decrease moderately for camping (to 441 sites, the fewest sites of any alternative), causing a long–term, minor, adverse impact, and would decrease substantially for lodging (to 982 units, the same as Alternative 3), causing a long–term, moderate impact.	• Opportunities for camping in Yosemite Valley would increase substantially for camping (to 585 sites), causing a long–term, moderate, beneficial impact, and would decrease substantially for lodging (to 1,012 beds), resulting in a long–term, moderate, adverse impact.
TRANSPORTATION		
• The overall impact to traffic operations would be long–term, major, and beneficial because the actions of this alternative would reduce traffic volume, improve traffic flow, and decrease the overall time required to travel within the Valley.	• The overall impact to traffic operations would be long–term, major, and beneficial because the actions of this alternative would reduce traffic volume, improve traffic flow, and decrease the overall time required to travel within the Valley.	• The overall impact to traffic operations would be long–term, moderate, and beneficial because the actions of this alternative would reduce traffic volume, improve traffic flow, and decrease the overall time required to travel within the Valley. However, this alternative would have the most traffic compared to Alternatives 2, 3, and 4.
• Average travel time to access the Valley would increase by 8 minutes over Alternative 1, representing a long–term, minor, adverse impact to visitors.	• Average travel time to access the Valley would increase by 29 minutes over Alternative 1, representing a long–term, moderate, adverse impact to visitors.	• Average travel time to access the Valley would increase by 19 minutes over Alternative 1, representing a long–term, minor, adverse impact to visitors.
• Traffic volumes on roads would be reduced by 49%, and bus trips into the Valley would increase by 253 per day. This would represent a decrease in traffic volumes and a improvement in traffic flow, resulting in a long–term, moderate, beneficial impact.	• Traffic volumes on roads would be reduced by 57%, and bus trips into the Valley would increase by 254 per day. This would represent a decrease in traffic volumes and a major improvement in traffic flow, resulting in a long–term, major, beneficial impact.	• Traffic volumes on roads would be reduced by about 31%, and bus trips into the Valley would increase by 239 per day. This would represent a decrease in traffic volumes and an improvement in traffic flow, resulting in a long–term, moderate, beneficial impact.
• Traffic congestion would be reduced at the intersections of Sentinel Road with Northside Drive and Southside Drive. Traffic flow would remain relatively unchanged on Southside Drive and would improve substantially on Northside Drive. These actions would cause a long–term, major, beneficial impact.	• Traffic congestion at major intersection and roadway segments would be the same as Alternative 3, except there would be a greater improvement in the level of service on El Portal Road. Traffic flow would remain relatively unchanged on Southside Drive and would improve substantially on Northside Drive. These actions would cause a long–term, major, beneficial impact.	• Traffic congestion would be somewhat reduced at the intersections of Sentinel Road with Northside Drive, and Southside Drive and traffic flow would improve along Southside Drive during the inbound peak hour only, causing a long–term, moderate, beneficial impact.

Table B Summary and Comparison of Environmental Consequences		
	Alternative 1	**Alternative 2**
NOISE		
Vehicle Noise		
	• Transportation–related noise would continue with no change from its current levels; therefore, there would be no change in impact. • Peak vehicle sound would not typically be noticeable at a distance of 100 feet or more from Yosemite Valley roads, except for individual sound events such as the passing of buses.	• Overall, general sound levels associated with traffic along most roadways in the Valley would be reduced, which represents a long–term, negligible, beneficial impact. • East of El Capitan crossover, traffic and the associated sound would be concentrated on Southside Drive and Sentinel Road. Northside Drive would experience long–term, major, beneficial impacts from the removal of the sound of all vehicles between Yosemite Lodge and El Capitan crossover and between Stoneman Bridge and Yosemite Village. • The general reduction in sound levels would be accompanied by an increase in the number of bus trips into the Valley. The areas west of El Capitan crossover, Southside Drive from El Capitan crossover to Sentinel Bridge, and the Camp 6 area would experience long–term, major, adverse impacts because of the increases in the number of sound events associated with buses. • Increases in bus–related sound events would be accompanied by long–term, major, beneficial impacts through the decrease in sound events along Northside Drive from Yosemite Lodge to El Capitan crossover and minor reductions in such events between Stoneman Bridge and Yosemite Village on Northside Drive.
Nonvehicle Noise		
	• Nontransportation–related noise would continue to affect the experiences of both visitors and residents, with no change from current levels. • Existing noise sources include maintenance activities, conversations, air conditioners, electrical generators, radios, and other similar small appliances.	• Overall, nonvehicle noises would be reduced in Yosemite Valley, which would result in a long–term, moderate, beneficial impact. • El Portal, Badger Pass, Hazel Green, and Foresta would experience an increase in nonvehicle noise levels, which would result in a long–term, moderate, adverse impact.

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Table B Summary and Comparison of Environmental Consequences		
Alternative 3	**Alternative 4**	**Alternative 5**
NOISE		
Vehicle Noise		
• This alternative would maintain current sound conditions west of El Capitan crossover and substantially reduce traffic volumes east of El Capitan crossover, resulting in an overall reduction in sound levels from traffic. The reduction in overall impacts to sound levels would be long–term, minor, and beneficial.	• This alternative would result in sound level reductions throughout the portions of the Valley east of El Capitan crossover. Although this reduction would be greater than for Alternative 3, the difference between these two alternatives would not be perceptible.	• This alternative would introduce additional long–distance bus traffic onto the Valley roadway system. Because the existing traffic patterns would be maintained with this alternative, adverse impacts from the sound of the buses would occur along all roadways to the west of Yosemite Village.
• Because this alternative would intercept all long–distance buses at Taft Toe, it would reduce the occurrence of noticeable sound events in most east Valley locations, resulting in long–term, minor to moderate, beneficial impacts.	• The introduction of out–of–Valley shuttle buses would result in an increase in the number of very noticeable sound events west of El Capitan crossover. The impact in this area would be long–term, major, and adverse.	• While overall sound levels are estimated to remain unchanged, resulting in long–term, negligible impacts, individual sound events would increase and have a long–term, major, adverse impact on the sound environment in most parts of the Valley.
• Closure of Northside Drive between Yosemite Lodge and El Capitan crossover and between Stoneman Bridge and Yosemite Village would have long–term, major, beneficial impacts related to sound reduction from the removal of all traffic.	• Similar to Alternatives 2 and 3, this alternative would result in long–term, major, beneficial impacts related to sound reduction along Northside Drive between Yosemite Lodge and El Capitan crossover and between Stoneman Bridge and Yosemite Village.	• Existing traffic patterns would be maintained; adverse impacts from the sound of buses would be heard along all roads to the west of Yosemite Village.
Nonvehicle Noise		
• Overall, nonvehicle noises would be reduced in Yosemite Valley, which would result in a long–term, minor, beneficial impact. • El Portal would experience an increase in nonvehicle noise levels due to an increase in employee beds, which would result in a long–term, minor, adverse impact.	• Overall, nonvehicle noises would be reduced in Yosemite Valley, which would result in a long–term, minor, beneficial impact. • Increases in nonvehicle noise in El Portal, South Landing, and Badger Pass would result in long–term, moderate, adverse impacts.	• Overall, nonvehicle noises would be reduced in Yosemite Valley, which would result in a long–term, moderate, beneficial impact. • Increases in nonvehicle noise in El Portal, Foresta, and Henness Ridge would result in long–term, moderate, adverse impacts.

Table B Summary and Comparison of Environmental Consequences		
	Alternative 1	**Alternative 2**
SOCIAL AND ECONOMIC ENVIRONMENTS		
Local Communities		
	• The existing character of the communities of Yosemite Valley, El Portal, Wawona, and Yosemite West would remain unchanged. Commuting conditions in these communities would remain unchanged. Crowded and substandard conditions and general lack of available housing and privacy would continue to exist for employees living in Yosemite Valley.	• Improvements to the housing quality in Yosemite Valley would be a long–term, major, beneficial impact. • Although overall summer and winter residential population growth (27% and 97%, respectively) would be expected to occur gradually, the increase would cause long–term, major, adverse impacts on the El Portal social environment. • Summer and winter population growth in Wawona (18% and 44%, respectively) would cause a long–term, major, adverse impact to the Wawona social environment. • New residential populations would have a long–term, negligible, adverse impact on most utility and fire protection services in Wawona, El Portal, and Foresta areas. • New residential population in El Portal would have a long–term, moderate, adverse impact on Mariposa County regarding the need for increased law enforcement and court services. • Impacts on the Mariposa County High School system would be long–term, negligible, and adverse. Impacts to the elementary schools would be long–term, minor, and adverse until the primary headquarters are relocated. Relocation of the Concessioner Headquarters would likely have long–term, major, adverse impacts on the elementary school system by threatening the viability of the Yosemite Valley school. • Child care operations in Yosemite Valley and El Portal would experience short–term, major, adverse impacts until facilities can be expanded. • Increased Mariposa County ambulance service needs would represent a long–term, minor, adverse impact. • The placement of NPS and concessioner stables at McCauley Ranch, the replacement of 14 NPS houses, and the potential development of 700 visitor parking spaces would have a long–term, major, adverse impact in the Foresta area. • In Wawona, no impacts on the local school system or child care system would be expected; however, increased infrastructure and utility demands would present a long–term, negligible, adverse impact.
Visitor Population		
	• No changes to the park's visitor facilities or operations would occur; therefore, no impacts on visitors are expected.	• The equivalent of a 1.5% decrease to 1998 overnight visitation would be expected, representing a long–term, minor, adverse impact.

Acronyms:

CO	carbon monoxide
HABS/HAER	Historic American Building Survey/Historic American Engineering Record
HVR	highly valued resource(s)
NO_x	nitrogen oxide
NPS	National Park Service
ORV	Outstandingly Remarkable Values
PA	Programmatic Agreement
PM	particulate matter
RPO	River Protection Overlay
SHPO	State Historic Preservation Office
VOC	volatile organic compound
WSR	Wild and Scenic River
YCS	Yosemite Concession Services Corp.

Table B Summary and Comparison of Environmental Consequences		
Alternative 3	**Alternative 4**	**Alternative 5**
SOCIAL AND ECONOMIC ENVIRONMENTS		
Local Communities		
• Impacts to housing quality in Yosemite Valley would be the same as those described under Alternative 2.	• Impacts to housing quality in Yosemite Valley would be the same as those described under Alternative 2.	• Impacts to housing quality in Yosemite Valley would be the same as those described for Alternative 2.
• Although overall summer and winter residential population growth (28% and 98%, respectively) would be expected to occur gradually, the increase would cause long–term, major, adverse impacts on the El Portal social environment.	• Although overall summer and winter residential population growth (31% and 111%, respectively) would be expected to occur gradually, the increase would cause long–term, major, adverse impacts on the El Portal social environment.	• Although overall summer and winter residential population growth (28% and 100%, respectively) would be expected to occur gradually, the increase would cause long–term, major, adverse impacts on the El Portal social environment.
		• Impacts to the social environment in Foresta would be long–term, major, and adverse.
• Impacts to utilities, service and infrastructure needs (including schools), fire protection services, and court and law enforcement needs would be essentially the same as those described under Alternative 2.	• Impacts to utilities, service and infrastructure needs (including schools), fire protection services, and court and law enforcement needs would be essentially the same as those described under Alternative 2.	• Impacts to utilities, service and infrastructure needs (including schools), fire protection services, and court and law enforcement needs would be essentially the same as those described under Alternative 2.
		• Impacts to Yosemite West from parking at Henness Ridge would cause long–term, minor, and adverse impacts.
• The placement of NPS and concessioner stables at McCauley Ranch and the replacement of 14 NPS houses would have a long–term, minor, adverse impact in the Foresta area.		
		• The impacts on Wawona would be the same as those described under Alternative 2.
Visitor Population		
• The equivalent of an annual 2.6% increase from 1998 overnight visitation would be expected, representing a long–term, moderate, beneficial impact.	• The equivalent of an annual 1.3% increase from 1998 overnight visitation would be expected, representing a long–term, minor, beneficial impact.	• The equivalent of an annual 10.1% increase from 1998 overnight visitation would be expected, representing a long–term, major, beneficial impact.

Table B Summary and Comparison of Environmental Consequences		
	Alternative 1	**Alternative 2**
SOCIAL AND ECONOMIC ENVIRONMENTS		
Local Communities		
	• The existing character of the communities of Yosemite Valley, El Portal, Wawona, and Yosemite West would remain unchanged. Commuting conditions in these communities would remain unchanged. Crowded and substandard conditions and general lack of available housing and privacy would continue to exist for employees living in Yosemite Valley.	• Improvements to the housing quality in Yosemite Valley would be a long–term, major, beneficial impact. • Although overall summer and winter residential population growth (27% and 97%, respectively) would be expected to occur gradually, the increase would cause long–term, major, adverse impacts on the El Portal social environment. • Summer and winter population growth in Wawona (18% and 44%, respectively) would cause a long–term, major, adverse impact to the Wawona social environment. • New residential populations would have a long–term, negligible, adverse impact on most utility and fire protection services in Wawona, El Portal, and Foresta areas. • New residential population in El Portal would have a long–term, moderate, adverse impact on Mariposa County regarding the need for increased law enforcement and court services. • Impacts on the Mariposa County High School system would be long–term, negligible, and adverse. Impacts to the elementary schools would be long–term, minor, and adverse until the primary headquarters are relocated. Relocation of the Concessioner Headquarters would likely have long–term, major, adverse impacts on the elementary school system by threatening the viability of the Yosemite Valley school. • Child care operations in Yosemite Valley and El Portal would experience short–term, major, adverse impacts until facilities can be expanded. • Increased Mariposa County ambulance service needs would represent a long–term, minor, adverse impact. • The placement of NPS and concessioner stables at McCauley Ranch, the replacement of 14 NPS houses, and the potential development of 700 visitor parking spaces would have a long–term, major, adverse impact in the Foresta area. • In Wawona, no impacts on the local school system or child care system would be expected; however, increased infrastructure and utility demands would present a long–term, negligible, adverse impact.
Visitor Population		
	• No changes to the park's visitor facilities or operations would occur; therefore, no impacts on visitors are expected.	• The equivalent of a 1.5% decrease to 1998 overnight visitation would be expected, representing a long–term, minor, adverse impact.

Acronyms:

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PM	particulate matter
RPO	River Protection Overlay
SHPO	State Historic Preservation Office
VOC	volatile organic compound
WSR	Wild and Scenic River
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Table B Summary and Comparison of Environmental Consequences		
Alternative 3	**Alternative 4**	**Alternative 5**
SOCIAL AND ECONOMIC ENVIRONMENTS		
Local Communities		
• Impacts to housing quality in Yosemite Valley would be the same as those described under Alternative 2.	• Impacts to housing quality in Yosemite Valley would be the same as those described under Alternative 2.	• Impacts to housing quality in Yosemite Valley would be the same as those described for Alternative 2.
• Although overall summer and winter residential population growth (28% and 98%, respectively) would be expected to occur gradually, the increase would cause long–term, major, adverse impacts on the El Portal social environment.	• Although overall summer and winter residential population growth (31% and 111%, respectively) would be expected to occur gradually, the increase would cause long–term, major, adverse impacts on the El Portal social environment.	• Although overall summer and winter residential population growth (28% and 100%, respectively) would be expected to occur gradually, the increase would cause long–term, major, adverse impacts on the El Portal social environment.
		• Impacts to the social environment in Foresta would be long–term, major, and adverse.
• Impacts to utilities, service and infrastructure needs (including schools), fire protection services, and court and law enforcement needs would be essentially the same as those described under Alternative 2.	• Impacts to utilities, service and infrastructure needs (including schools), fire protection services, and court and law enforcement needs would be essentially the same as those described under Alternative 2.	• Impacts to utilities, service and infrastructure needs (including schools), fire protection services, and court and law enforcement needs would be essentially the same as those described under Alternative 2.
		• Impacts to Yosemite West from parking at Henness Ridge would cause long–term, minor, and adverse impacts.
• The placement of NPS and concessioner stables at McCauley Ranch and the replacement of 14 NPS houses would have a long–term, minor, adverse impact in the Foresta area.		
		• The impacts on Wawona would be the same as those described under Alternative 2.
Visitor Population		
• The equivalent of an annual 2.6% increase from 1998 overnight visitation would be expected, representing a long–term, moderate, beneficial impact.	• The equivalent of an annual 1.3% increase from 1998 overnight visitation would be expected, representing a long–term, minor, beneficial impact.	• The equivalent of an annual 10.1% increase from 1998 overnight visitation would be expected, representing a long–term, major, beneficial impact.

Table B Summary and Comparison of Environmental Consequences		
	Alternative 1	**Alternative 2**
SOCIAL AND ECONOMIC ENVIRONMENTS (continued)		
Regional Economies		
	• No change in Yosemite visitor spending behavior would occur under this alternative since no changes to type of goods and services available to visitors would occur. No change in park employment is projected; therefore, no employment impact on the regional economy would occur. • No new construction is proposed to occur within the Valley; therefore, there would be no construction spending impacts on the regional economy.	• The overall economic impacts of the changes from visitor spending and operational spending to the regional economy would be long–term, negligible, and beneficial. This impact would result primarily from the long–term, negligible, beneficial impact associated with the spending and employment effects from the increased park operations. • During the first 5 years of development, approximately $32 million in annual spending would expand the regional economy by almost $45.5 million of output. This and other related activities would represent an overall short–term, negligible, beneficial impact. • Increased employment opportunities in the region would create a short–term, negligible, beneficial impact. • Redevelopment of lodging and campsite facilities would present long–term, negligible, adverse impacts by changing visitor spending in the region. • The overnight decrease in visitation (and its associated visitor spending) would be expected to have a long–term, negligible, adverse impact on the regional economy, assuming it represents a long–term decrease in the Valley's visitor capacity.
Concessioners and Cooperators		
	• No impacts are projected under this alternative that would affect any of the concessioner or cooperator operations or finances.	• Proposed changes to Yosemite Valley facilities would have a long–term, minor, adverse impact on the primary concessioner, mostly associated with new employee housing located outside the Valley. • Reductions in Curry Village tent cabins would have a long–term, moderate, adverse impact on Yosemite Institute because program participants would have to use other, more expensive lodging facilities. • Associated increases in employees plus additional employee housing in El Portal for Yosemite Association staff may have a long–term, moderate, beneficial impact on the organization. • The impacts to The Ansel Adams Gallery are indeterminate. • Proposed changes to visitor interpretation facilities would have a long–term, moderate, beneficial impact on the Yosemite Association by providing improved and increased retail sales opportunities. • The Yosemite Dental Clinic would experience a long–term, minor, adverse impact due to reduction of employees living in the Valley.

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Table B Summary and Comparison of Environmental Consequences		
Alternative 3	**Alternative 4**	**Alternative 5**
SOCIAL AND ECONOMIC ENVIRONMENTS (continued)		
Regional Economies		
• The overall economic impacts of the changes from visitor spending and operational spending to the regional economy would be long–term, negligible, and beneficial. This impact would result primarily from the long–term, negligible, beneficial impact associated with the spending and employment effects from the increased park operations. • During the first 5 years of develop–ment, approximately $31.0 million in annual spending would expand the regional economy by almost $44 million of output. This and other related activities would represent an overall short–term, negligible, beneficial impact. • The impact to employment opportunities would be the same as described in Alternative 2. • Impacts from redevelopment of lodging and campsite facilities would be the same as those discussed for Alternative 2.	• The overall economic impacts of the changes from visitor spending and operational spending to the regional economy would be long–term, negligible, and beneficial. This impact would result primarily from the long–term, negligible, beneficial impact associated with the spending and employment effects from the increased park operations. • During the first 5 years of develop–ment, approximately $32.2 million in annual spending would expand the regional economy by almost $46 million of output. This and other related activities would represent an overall short–term, negligible, beneficial impact. • The impact to employment opportunities would be the same as described in Alternative 2. • Impacts from redevelopment of lodging and campsite facilities would be the same as those discussed for Alternative 2.	• The overall economic impacts of the changes from visitor spending and operational spending to the regional economy would be long–term, minor, and beneficial. This impact would result primarily from the long–term, moderate, beneficial impact associated with the spending and employment effects from the increased park operations. • During the first 5 years of develop– ment, over $35 million in annual spending would expand the regional economy by almost $50 million of output. This and other related activities would represent an overall short–term, negligible, beneficial impact. • The impact to employment opportunities would be the same as described in Alternative 2.
Concessioners and Cooperators		
• Impacts to the primary concessioner (currently YCS) would essentially be the same as those described under Alternative 2. • Reductions in tent cabins would have the same impact as Alternative 2. • Impacts to the Yosemite Dental Clinic, The Ansel Adams Gallery, the Yosemite Association, the Yosemite Institute, the El Portal Chevron Station, and the El Portal Market would be the same as those described under Alternative 2.	• Impacts to the primary concessioner (currently YCS) would essentially be the same as those described under Alternative 2. • Reductions in tent cabins would have the same impact as Alternative 2. • Impacts to the Yosemite Dental Clinic, The Ansel Adams Gallery, the Yosemite Association, the Yosemite Institute, the El Portal Chevron Station, and the El Portal Market would be the same as those described under Alternative 2.	• Impacts to the primary concessioner (currently YCS) would essentially be the same as those described under Alternative 2. • Reductions in tent cabins would have the same impact as Alternative 2. • The impacts to The Ansel Adams Gallery, the Yosemite Dental Clinic, the Yosemite Association, the Yosemite Institute, the El Portal Chevron Station, and the El Portal Market would be the same as those discussed under Alternative 2.

Table B Summary and Comparison of Environmental Consequences		
	Alternative 1	**Alternative 2**
SOCIAL AND ECONOMIC ENVIRONMENTS (continued)		
Concessioners and Cooperators (continued)		
		• Unless suitable replacement facilities could be provided, relocation of the programs administrative offices and the adaptive reuse of the East Auditorium would, respectively, represent long–term, minor and moderate, adverse impacts on the Yosemite Institute. • Proposed changes to visitor access and relocation of employee housing would have a net long–term, minor, adverse impact on the El Portal Chevron Station and a long–term, negligible, adverse impact on the El Portal Market.
PARK OPERATIONS		
	• Existing NPS parkwide operations are supported by approximately 565 personnel assigned to the Maintenance, Protection, Interpretation, Resources Management, and Concessioner Administration divisions, and the Superintendent's office. • Staff and operations costs to support this current work force were approximately $21,205,000 in 1999, or approximately $37,531 per person.	• This alternative would require that approximately 127 additional NPS personnel be assigned to the Maintenance, Protection, Interpretation, Resources Management, Concessioner, and Administration divisions. • Additional staff and operations costs to support this additional work force would be approximately $4,762,500 annually in additional park funding for salary and operations costs above those discussed for Alternative 1, representing a long–term, moderate, adverse impact.
Energy Consumption		
	• No discernible changes to current home energy consumption would occur because the housing would remain the same. • Over time, total vehicle fuel consumption would decrease relative to current levels due to the vehicle fleet turnover to vehicles with improved fuel economy. This would represent a savings of approximately 441,400 gallons per year, or a 14% reduction in vehicle energy consumption per year by 2015 from current conditions. This represents a long–term, beneficial impact to energy consumption.	• Overall propane consumption would increase by 60,000 gallons per year, or a 17% increase, representing a long–term, minor, adverse impact. • By 2015, there would be a combined motor fuel savings of 1,006,300 gallons of fuel. This is a decrease of approximately 37% from existing overall energy consumption for vehicles and represents a long–term, moderate, beneficial impact to energy consumption. (Similar energy consumption savings would be achieved by 2005 and 2010.)

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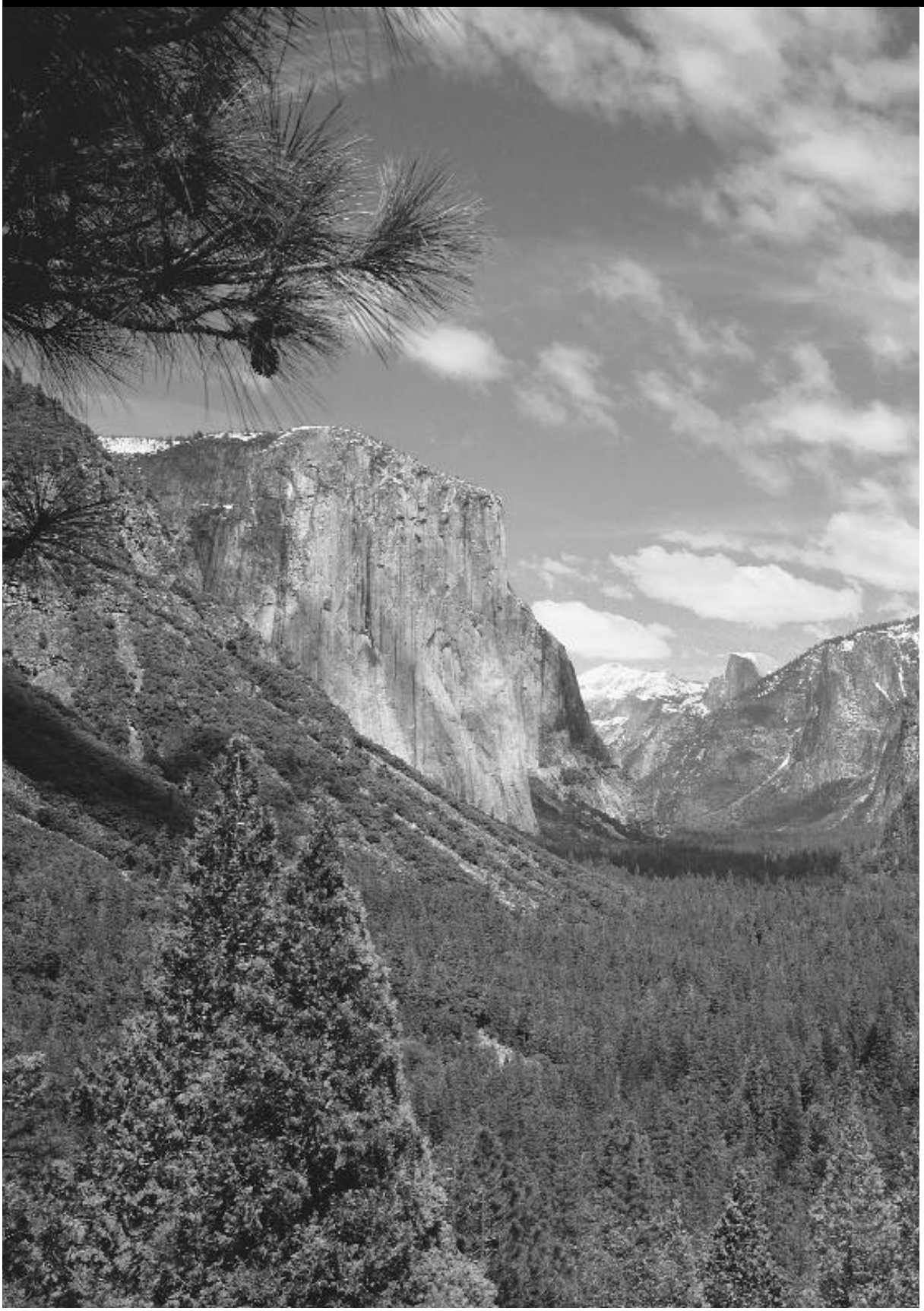
ORV	Outstandingly Remarkable Values
PA	Programmatic Agreement
PM	particulate matter
RPO	River Protection Overlay
SHPO	State Historic Preservation Office
VOC	volatile organic compound
WSR	Wild and Scenic River
YCS	Yosemite Concession Services Corp.

Table B Summary and Comparison of Environmental Consequences		
Alternative 3	**Alternative 4**	**Alternative 5**
SOCIAL AND ECONOMIC ENVIRONMENTS (continued)		
Concessioners and Cooperators (continued)		
PARK OPERATIONS		
• This alternative would require that approximately 115 additional NPS personnel be assigned to the Maintenance, Protection, Interpretation, Resources Management, Concessioner, and Administration divisions. • The staff and operations costs to support this additional work force would be approximately $4,312,500 annually in additional park funding for salary and operations costs above those discussed for Alternative 1, representing a long–term, moderate, adverse impact.	• This alternative would require that approximately 130 additional NPS personnel be assigned to the Maintenance, Protection, Interpretation, Resources Management, Concessioner, and Administration divisions. • The staff and operations costs to support this additional work force would be approximately $4,875,000 annually in additional park funding for salary and operations costs above those discussed for Alternative 1, representing a long–term, moderate, adverse impact.	• This alternative would require that approximately 131 additional NPS personnel be assigned to the Maintenance, Protection, Interpretation, Resources Management, Concessioner, and Administration divisions. • The staff and operations costs to support this additional work force would be approximately $4,912,000 annually in additional park funding for salary and operations costs above those discussed for Alternative 1, representing a long–term, moderate, adverse impact.
Energy Consumption		
• Overall propane consumption would increase by 34,520 gallons per year, or a 10% increase, representing a long–term, minor, adverse impact. • The overall net effect of Alternative 3 by 2015 would be a combined motor fuel savings of 528,800 gallons of fuel. This would be an approximately 20% decrease from Alternative 1 in overall energy consumption for vehicles, and represents a long–term, minor, beneficial impact to energy consumption. There would be a similar percentage decrease in energy consumption savings achieved by 2005 and 2010. • The combined motor fuel consumption savings for this alternative in 2005, 2010, and 2015 would represent a minor, long–term, beneficial impact.	• Overall propane consumption would increase by 60,020 gallons per year, or a 17% increase, representing a long–term, minor, adverse impact. • The overall net effect of Alternative 4 by 2015 would be a combined motor fuel savings of 1,150,500 gallons of fuel. This would be an approximately 42% decrease from Alternative 1 in overall energy consumption for vehicles, and represents a long–term, moderate, beneficial impact to energy consumption. There would be a similar percentage decrease in energy consumption savings achieved by 2005 and 2010. • The combined motor fuel consumption savings for this alternative in 2005, 2010, and 2015 would represent a moderate, long–term, beneficial impact.	• Overall propane consumption would increase by 79,110 gallons per year, or a 23% increase, representing a long–term, moderate, adverse impact. • The overall net effect of Alternative 5 by 2015 would be a combined motor fuel savings of 822,600 gallons of fuel. This would be an approximately 30% decrease from Alternative 1 in overall energy consumption for vehicles, and represents a moderate, long–term, beneficial impact to energy consumption. There would be a similar percentage decrease in energy consumption saving achieved by 2005 and 2010. • The combined motor fuel consumption savings for this alternative in 2005, 2010, and 2015 would represent a long–term, moderate, beneficial impact.

chapter 3



Affected Environment

Final Yosemite Valley Plan

Supplemental EIS

Photo on previous page by Scott Miller

The timeless scene of Yosemite Valley from Tunnel View. Looking east. El Capitan is sold out at left, and Half Dome in the distance.

CHAPTER 3

AFFECTED ENVIRONMENT

INTRODUCTION

This chapter describes the existing environment that could be affected by actions proposed in this Final Yosemite Valley Plan/Supplemental Environmental Impact Statement (SEIS). This chapter begins with a list of the specific topics that are analyzed to determine the environmental impacts of the alternatives. These topics were selected based on federal law, regulations, executive orders, NPS Management Policies, National Park Service subject-matter expertise, and concerns expressed by other agencies or members of the public during scoping and comment periods. The conditions described establish the baseline for the analyses of effects found in Vol. IB, Chapter 4, Environmental Consequences.

IMPACT TOPICS CONSIDERED

Water Resources

Actions, such as new development, may affect water resources in the park. The Clean Water Act requires the National Park Service, in implementing its management activities, to comply with all federal, state, interstate, and local requirements; administrative authority; and processes and sanctions regarding the control and abatement of water pollution in the same manner and to the same extent as any non-governmental entity, including the payment of reasonable service charges (33 USC 1323). Hydrology and water quality are also discussed under this topic.

Floodplains

The Floodplains section defines the extent and condition of the Merced River floodplain and the potential risks involved in constructing facilities within the floodplain. It also summarizes the laws, regulations, and guidelines that govern development within the floodplain, including the Wild and Scenic Rivers Act, Executive Order 11988 (*Floodplain Management*), and the NPS *Floodplain Management Guideline* (NPS 1993c).

Wetlands

Wetlands are important for the preservation of natural habitats and processes. Executive Order 11990 (*Protection of Wetlands*) requires the examination of impacts on wetlands and options for the placement of structures in wetland areas. Wetlands are considered a highly valued natural resource (see Vol. IC, plate D).

Soils

Many of the soil types in Yosemite Valley and surrounding areas place limitations on construction or development. Many rich soil areas are considered highly valued natural resources and have the potential to support highly valued vegetative communities, such as meadows or wetlands (see Vol. IC, plate D).

Vegetation

The vegetation of Yosemite is diverse and complex and is a significant part of the beauty and biological diversity of the park. Vegetation plays a vital role in maintaining ecosystem health and environmental quality. Plants recycle nutrients, provide wildlife habitat and food, contribute to regulation of microclimate, regulate stream discharge, maintain water quality, and prevent soil erosion. The vegetation communities are also character-defining features of the park's cultural landscapes, reflecting the effects of human occupation (both prehistoric and historic) in many areas of the park, and most obviously in Yosemite Valley. Riparian, meadow, and California black oak communities in Yosemite Valley are highly valued resources (see Vol. IC, plate D).

Wildlife

Wildlife and their habitats are extremely important in the park and serve as conspicuous indicators of ecosystem condition. This section also addresses wildlife species that do not naturally occur in the park's ecosystems. Sensitive wildlife habitat is considered a highly valued natural resource (see Vol. IC, plate D), based partially on its value to special-status species.

Special-Status Species

The Federal Endangered Species Act requires an examination of impacts on all federally listed threatened or endangered species. National Park Service policy requires examination of the impacts on state-listed rare, threatened, or endangered species, as well as federal species of concern, and state species of special concern. The National Park Service has identified additional plant species that are rare within the park or are particularly sensitive to human disturbance.

Air Quality

The Clean Air Act requires federal land managers to protect air quality. Yosemite National Park is classified as a Class I area under the Clean Air Act (42 USC 740 et seq.). National Park Service *Management Policies* address the need to analyze air quality during park planning and to ensure that air pollution sources in national parks comply with all federal, state, and local air quality regulations.

Geologic Hazards

Rockfalls and rock avalanches continue to occur within Yosemite Valley, posing potential risk to life and property. The National Park Service and the U.S. Geological Survey have documented potential geologic hazards in Yosemite Valley (see Vol. Ic, plate E). This information was used to develop the *Yosemite Valley Geologic Hazard Guidelines* to assess risk to life and property (see Vol. II, Appendix C).

Scenic Resources

Conserving the scenery of national parks was one of the fundamental purposes of the National Park Service 1916 Organic Act. Yosemite National Park's enabling legislation also expressed the importance of protecting park scenery (see Vol. Ic, plate F).

Cultural Resources

The National Historic Preservation Act, the Archeological Resources Protection Act, the Native American Graves Protection and Repatriation Act, and the National Environmental Policy Act require that the effects of any federal undertaking on cultural resources be examined. In addition, NPS *Management Policies*, expressed in *Director's Order* (DO) 2: Park Planning; NPS-28 *Cultural Resources Management Guidelines;* and NPS *Museum Collections Management Guideline* (DO-24, final draft), call for the consideration of cultural resources in planning proposals. During the planning process, significant historic and archeological sites, historic buildings and structures, cultural landscape resources, traditional cultural properties, and museum collections that could be affected by the alternatives were identified.

Archeological Resources

Past and ongoing studies have indicated that Yosemite National Park is rich in archeological resources. Yosemite Valley has been designated as an archeological district, with more than 100 sites containing evidence of human occupation and land use over several millennia. Archeological sites with high data potential are considered highly valued cultural resources (see Vol. Ic, plate D)

Ethnographic Resources

Proposed actions could affect properties that are associated with cultural practices or beliefs of culturally associated American Indian people (traditional cultural properties). These include plant-gathering areas, spiritual places, places that figure in oral traditions, and historic village locations. The protection of ancestral burial areas is also an important concern of Indian people. Known human burials in Yosemite Valley are considered highly valued cultural resources (see Vol. Ic, plate D).

Cultural Landscape Resources

As described in the 1994 *Yosemite Valley Cultural Landscape Report*, the cultural landscape of Yosemite Valley is composed of both natural and human-made elements, including historic structures, buildings, districts, and sites. Any alternative that would affect the natural or human-

made environment could also affect the cultural landscape. Cultural landscape resources are considered highly valued resources.

Historic Sites and Structures

Many of the historic resources identified in the park are listed on, or are eligible for listing on, the National Register of Historic Places. These places reflect important eras or the influence of individuals important in the human history of the park. Three National Historic Landmarks are located in Yosemite Valley: The Ahwahnee, the Rangers' Club, and LeConte Memorial Lodge. These reflect the highest level of historic significance and are considered highly valued resources (see Vol. IC, plate D).

Museum Collection

The location, management, and long-term preservation of the museum collection, including the archives and research library, could be affected by the proposed actions. These resources are important for documenting and understanding the natural and human history of the park and interpreting that understanding to the public.

Merced Wild and Scenic River

In 1987, Congress designated the main stem and the South Fork of the Merced River as a Wild and Scenic River under the Wild and Scenic Rivers Act of 1968, as amended. This section outlines the Wild and Scenic River values associated with the main stem of the Merced River where it flows through Yosemite Valley and the El Portal Administrative Site, and of the South Fork where it flows through Wawona (see Vol. IC, plates G-1, G-2, and G-3).

Visitor Experience

Providing for visitor enjoyment, understanding, and stewardship is one of the fundamental purposes of the National Park Service. Many actions considered in this *Final Yosemite Valley Plan/SEIS* could affect patterns of visitor use and the type and quality of visitor experiences. Visitor access, orientation and interpretation, recreation, visitor services (including camping and lodging), and night sky are specific elements of the visitor experience; however, the impacts in other topic areas could also directly affect visitor experience. For example, enhancement or degradation of visual resources would also enhance or degrade the visitor experience.

Transportation

Traffic volume, including both private and transit vehicles, could be affected. Alternative travel modes, including bicycling and hiking, would also be affected.

Noise

Changes in noise, primarily from traffic, is an issue of concern. Reduced vehicle traffic, increased bus service, road relocations and closures, and changes in parking locations could affect noise levels.

Social and Economic Environments

The National Environmental Policy Act requires an examination of social and economic impacts caused by federal actions.

Social Environment of Affected Communities

Five local communities—Yosemite Valley, El Portal, Foresta, Wawona, and Yosemite West—could be affected by relocation of employees, construction of new housing, and changes in commuting patterns.

Regional Economies

The surrounding counties that provide services to visitors and employees and receive tax revenue or benefits through retail and other trade could be affected. These counties are Merced, Mariposa, Madera, Mono, and Tuolumne.

Environmental Justice

Executive Order 12898 (*Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*) requires all federal agencies to incorporate environmental justice into their missions. This is accomplished by identifying and addressing disproportionately high and adverse human health or environmental effects of federal programs and policies on minorities and low-income populations. This executive order also requires that the programs and policies of federal agencies do not discriminate against persons (including populations) because of race, color, or national origin.

Park Operations

The alternatives being considered have the potential to affect National Park Service, concessioner, and other park partner operations and facilities available for public or administrative use.

Energy Consumption

The National Environmental Protection Act requires a discussion of the energy requirements of the alternatives.

Impact Topics Dismissed From Further Analysis

Wilderness

Approximately 704,624 acres (94%) of the 747,969 acres that comprise Yosemite National Park have been designated as Wilderness under the California Wilderness Act of 1984 (Public Law 98-425). Five major hiking trails enter the Yosemite Wilderness from Yosemite Valley, including the renowned John Muir Trail. Yosemite Valley is also an international destination for world-class rock climbing, much of which occurs within the designated Wilderness.

The Valley floor is roughly 4,000 feet above sea level. The designated Wilderness in the vicinity of the Valley starts at approximately 4,200 feet above sea level. The Valley floor, where the majority of park infrastructure and facilities are located, is not within or directly adjacent to the designated Wilderness. Activities proposed by the action alternatives would not encroach upon or otherwise physically disturb any portion of the designated Wilderness. In addition, any changes in activities that may occur as a result of implementation of the action alternatives would not discernibly change visitor use of the designated Wilderness from current levels. Therefore, no impacts to the designated Wilderness would occur.

In 1982, the McCauley Ranch (185 acres), located a half mile southwest of Foresta, was added to Yosemite National Park. In 1984, the California Wilderness Act required the Secretary of the Interior to study this addition to determine the suitability or nonsuitability of its designation as Wilderness. To date, a Wilderness suitability assessment has not been completed.

Geology

The geology of Yosemite Valley, El Portal, and adjacent areas is a distinctive element of the park's scenic character. None of the actions proposed in the alternatives considered in this *Final Yosemite Valley Plan/SEIS* would appreciably affect the geology of the area. Short-term incidental effects to soils and underlying rock formations may occur in localized areas from the construction or removal of facilities, but no permanent changes to the area's geologic resources are anticipated.

Implementation of the alternatives would not discernibly affect the Valley's rock formations, walls, or glacial moraines. Actions proposed in the alternatives would occur some distance from these and other important geologic features. Impacts related to soils and geologic hazards are presented in Vol. Ib, Chapter 4, Environmental Consequences.

The Sierra Nevada range in the vicinity of Yosemite National Park is not considered an area of particularly high seismic activity. No active or potentially active faults have been identified in the mountain region of the park (CDMG 1990). However, the possibility still exists that Yosemite could undergo seismic shaking associated with earthquakes on fault zones to the east and west margins of the Sierra Nevada. These fault zones include the Foothills fault zone, the volcanically active Mono Craters–Long Valley Caldera area, and the various faults within the Owens Valley fault zone (CDMG 1996).

Regional Setting

Yosemite National Park lies on the western slope of the Sierra Nevada, a massive mountain range dividing central and northern California from more arid lands to the east. The Sierra Nevada ecoregion (which extends through the foothill zone on the west side and the base of the escarpment on the east side) is about 450 miles long and 100 miles wide. Elevations in the park range from approximately 2,000 feet to 13,114 feet. Most of the 747,969 acres of the park is designated Wilderness (94%, or 704,624 acres). National forest lands surround the park (see Vol. Ic, plates B and C).

Yosemite National Park lies about 200 miles east and four hours by car from San Francisco, and about 320 miles northeast and six hours from Los Angeles (see Vol. Ic, plate A). The park has four main entrances. South Entrance on the Wawona Road (Highway 41), Arch Rock Entrance on the El Portal Road (Highway 140), and Big Oak Flat Entrance on the Big Oak Flat Road (Highway 120 West) offer year-round access on the west side of the Sierra Nevada (see Vol. Ic, plate C). Tioga Pass Entrance on the Tioga Road (Highway 120 East) offers seasonal access on the east side of the Sierra Nevada.

The geologic environment of Yosemite National Park is characterized by granitic rocks and remnants of older rock (Huber 1989). In the early Tertiary period, 40 to 60 million years ago, the geologic environment of the Sierra Nevada region was lower in elevation, with a gently rolling upland surface. The Merced River flowed at a gentle gradient westward through a broad river valley. About 10 million years ago, the Sierra Nevada was uplifted and then tilted to form its relatively gentle western slopes and the more dramatic, steep eastern slopes. The uplift increased the flow gradients, resulting in deep, narrow canyons.

About 1 million years ago, snow and ice accumulated, forming glaciers at the higher alpine elevations that began to move westward down the river valleys. Ice thickness within Yosemite Valley may have reached 4,000 feet during the early glacial episode. The downslope movement of the ice masses cut and sculpted the U-shaped valley evident today. After the last glacier left the valley about 15,000 years ago, a lake referred to as Lake Yosemite was formed behind the materials deposited by the glaciers. More than 1,000 feet of glacial and stream sediment now underlies the floor of Yosemite Valley and cover glacially disturbed granitic rock (Huber 1989).

The Sierra Nevada range contains the headwaters of 24 major river basins, two of which are in the park: the Merced River and the Tuolumne River. The California Wilderness Act of 1984 established portions of the Tuolumne River (including the Dana and Lyell Forks) as part of the Wild and Scenic Rivers System. In 1987, Congress also designated the main stem and the South Fork of the Merced River as part of the Wild and Scenic Rivers System.

About one-third of the Sierra Nevada is privately owned, and about two-thirds publicly owned. The U.S. Forest Service manages most of the public land; the Bureau of Land Management and National Park Service manage most of the remainder. The majority of the land at high elevations throughout the Sierra Nevada is public, as are large proportions of the eastern Sierra Nevada. Private lands are predominately below 3,000 feet in elevation in the western Sierra Nevada (UC Davis 1996e).

The population in the Sierra Nevada doubled between 1970 and 1990; 40% of the population growth occurred north of Yosemite National Park. Official projections indicate that the 1990 Sierra Nevada population of 650,000 will triple by the year 2040. The foothill regions south of El Dorado County are likely to see a three- to five-fold population increase. Communities in the Sierra Nevada are dependent on the ecosystem for a combination of natural resource benefits, including non-economic benefits associated with aesthetics and scenery (UC Davis 1996e).

The major vegetation zones of the Sierra Nevada form readily apparent, large-scale north-south elevational bands along the axis of the mountain range. Major east-west watersheds that dissect the Sierra Nevada with steep canyons form a secondary pattern of vegetation. On the west side, forest types change with increasing elevation from ponderosa pine to mixed conifer to firs. Straddling the crest of the Sierra Nevada is a zone of subalpine and alpine vegetation. Fire suppression, in concert with changing land-use practices, has changed natural fire regimes of the Sierra Nevada dramatically. This has altered ecological structures and functions in Sierra Nevada plant communities (UC Davis 1996e).

Four Sierra Nevada national parks—Lassen Volcanic, Yosemite, Sequoia, and Kings Canyon—make up most of the remaining large contiguous areas of late successional forest in middle-elevation conifer types. While the national parks contain large blocks of high-quality late successional forest, similar but considerably smaller patches are relatively well distributed throughout the Sierra Nevada. However, these forest patches have been compromised in many areas by the effects of fire suppression and grazing (UC Davis 1996e).

The Sierra Nevada is rich in plant diversity. Of California's 7,000 plant species, about 50% occur in the Sierra Nevada. Of these, more than 400 are found only in the Sierra Nevada, and 200 are rare. As a group, Sierra Nevada plants are most at risk where habitat has been reduced or altered. However, rare local geologic formations and the unique soils derived from them have led to the evolution of ensembles of plant species restricted to these habitats. This is true in the El Portal area, where a number of state-listed rare species are sustained in a unique contact zone of metamorphic and granitic rock.

About 300 terrestrial vertebrate species (including mammals, birds, reptiles, and amphibians) use the Sierra Nevada as a significant part of their range. Three vertebrate species once well distributed in the range are now extinct from the Sierra Nevada: Bell's vireo, California condor, and grizzly bear. Sixty-nine species of terrestrial vertebrates (17% of the Sierra Nevada fauna) are considered at risk by state or federal agencies. These species include Sierra Nevada bighorn sheep, Yosemite toad, foothill yellow-legged frog, mountain yellow-legged frog, and western pond turtle. The most important identified cause of the decline of Sierra Nevada vertebrates has been the loss of habitat, especially foothill and riparian habitats and late successional forests.

Aquatic and riparian systems are the most altered and impaired habitats of the Sierra Nevada. Dams and diversions throughout the Sierra Nevada have altered streamflow patterns and water temperatures. Foothill areas below about 3,300 feet appear to have the greatest loss of riparian vegetation of any region in the Sierra Nevada (UC Davis 1996a).

Humans have lived and sustained themselves in the region for at least 10,000 years and are part of the Sierra Nevada ecosystem. Indigenous populations were widely distributed throughout the range at the time of Euro-American immigrations. Archeological evidence indicates that for more than 3,000 years American Indians practiced localized harvesting, pruning, irrigation, and vegetation thinning. Immigration of Euro-American settlers in the early 1800s began a period of increasingly intense resource use and settlement (UC Davis 1996e).

The Sierra Nevada region is a popular destination, containing some of the world's outstanding natural features. Residents and nonresidents, including visitors from around the country and the world, are drawn to the recreational resources in Yosemite Valley, Lake Tahoe, Mono Lake, and sequoia groves, which attract millions of visitors each year. Among the larger public agencies, 57-67% of recreational activity takes place on land administered by the U.S. Forest Service, while lands of the California Department of Parks and Recreation (15-27%), the Bureau of Reclamation (7-8%), the National Park Service (6-7%), and the U.S. Bureau of Land Management (3%) provide additional recreational opportunities. Other public lands, utility-owned properties, and private lands account for substantial additional recreational opportunities in the Sierra Nevada (UC Davis 1996b).

Within Yosemite National Park, diverse recreational opportunities and experiences are available. Three principle destinations—Yosemite Valley, Tuolumne Meadows, and Wawona– provide a wealth of opportunities for walking and hiking, stock use, fishing, natural and cultural sightseeing, interpretive centers and programs, camping, and lodging. Approximately 95% of Yosemite National Park is designated Wilderness and provides opportunities for solitude, extensive hiking, backpacking, and stock use. Camping is also available at several campgrounds along the Tioga and Glacier Point Roads, and near the Big Oak Flat Entrance. Three sequoia groves provide opportunities for hiking among these giants. Popular short and long hiking trails also originate along the Glacier Point Road. While climbing is popular in many park areas, the most unique opportunities are found in Yosemite Valley. Other recreational opportunities are available as well: downhill and cross-country skiing, snowshoeing, bicycling, and rafting, as well as golf, ice-skating, and tennis.

Water Resources

This section provides an overview and description of water resources, including hydrology and water quality. Additional information regarding the relationship of water resources, flora, fauna, and soils is contained in the Floodplains, Merced Wild and Scenic River, and Wetlands sections of this chapter.

Hydrology

Yosemite has a variety of surface water features, some of which are a major attraction for park visitors. Some of the tallest waterfalls in the world are found in Yosemite Valley, including Yosemite Falls (with a total drop of 2,425 feet) and Ribbon Fall (1,612 feet). The Tuolumne and Merced River systems originate along the crest of the Sierra Nevada in the park and have carved river canyons 3,000 to 4,000 feet deep. The Tuolumne River drains the entire northern portion of the park, an area of approximately 680 square miles. The Merced River begins in the park's southern peaks, primarily the Cathedral and Clark Ranges, and drains an area of approximately 511 square miles. Hydrologic processes, including glaciation, flooding, and fluvial geomorphic response, have been fundamental in creating landforms in the park.

The main stem of the Merced River flows from the crest of the Sierra Nevada through Yosemite Valley and down to the San Joaquin Valley of California. The upper watershed is entirely within the boundaries of the park. Principal tributaries of the Merced River in Yosemite Valley include Tenaya Creek, Yosemite Creek, and Bridalveil Creek. Historic discharge in the river, measured at the Pohono Bridge gauging station in the west Valley, has ranged from a high of about 25,000 cubic feet per second to a low of less than 10 cubic feet per second. The mean daily discharge is about 600 cubic feet per second.

Glaciation in Yosemite Valley carved a wide, U-shaped valley that extends westward to a location near the Pohono Bridge. Following glacial retreat, a prehistoric lake known as Lake Yosemite developed and eventually filled with sediment from the El Capitan moraine upstream to Happy Isles. The resulting valley floor had a very mild slope and is responsible for the meandering pattern of the present-day river. The Merced River is an alluvial river through most of Yosemite Valley, and the bed and banks of the channel are comprised of fine-grained sediments, cobbles, and soil layers. This condition makes for a dynamic river that alters its course periodically by eroding and depositing bed and bank materials.

In El Portal, the Merced River has a steeper gradient than in Yosemite Valley and consists mostly of continuous rapids. The riverbed and banks are largely comprised of bedrock, with boulders and cobbles ranging in size from a few inches to several feet in diameter. The steeper river gradient and its contact with bedrock prevents the river from meandering as extensively as it does in Yosemite Valley. Additionally, riverbank areas in many locations have been developed and strengthened for road and facility protection. Because of the gradient and development at El Portal, shifting of the river channel usually occurs only during large floods.

In Wawona, the river meanders through a large alluvial floodplain with substantial gravel bars within the channel.

Surface water and groundwater function together in Yosemite and El Portal. In the Wawona area, the groundwater flows through upper unconsolidated fills and lower fractured rock aquifers that have not been defined. Recharge of the shallow groundwater aquifers reaches a peak during the spring snowmelt. In Yosemite Valley, the entire meadow system may be saturated to the forest edge, resulting in restricted tree growth that defines the forest/meadow boundaries and extensive Valley wetlands. In El Portal and Wawona, the steeper terrain and resulting river gradient have played a role in limiting the extent of wetlands. Wawona Meadow is a 200-acre, low-elevation wetland that is not directly influenced by the Merced River.

Groundwater is used in Yosemite Valley, Wawona, and El Portal for domestic water supplies. Four groundwater production wells in Yosemite Valley produce approximately 1,400 gallons per minute. In El Portal six wells support a capacity of approximately 240 gallons per minute. In Wawona, approximately 100 groundwater wells support about 260 residents and a store. The South Fork of the Merced River is the source for the communal water system supporting the remaining residents and all government and concessioner facilities in Wawona.

Eleven bridges cross the Merced River in Yosemite Valley between Happy Isles at the east end and Pohono Bridge at the western end. Many of these bridges influence the width, location, and velocity of the Merced River. The National Park Service (1991b) and Milestone (1978) found constriction of the river at all of these bridge sites.

The Merced River in eastern Yosemite Valley is an alluvial river, where the bed and banks are made up of the same materials that are transported by the river. Natural erosion and deposition processes cause the river channel to migrate, often over an extensive area. In addition, alluvial rivers create and use large floodplain areas.

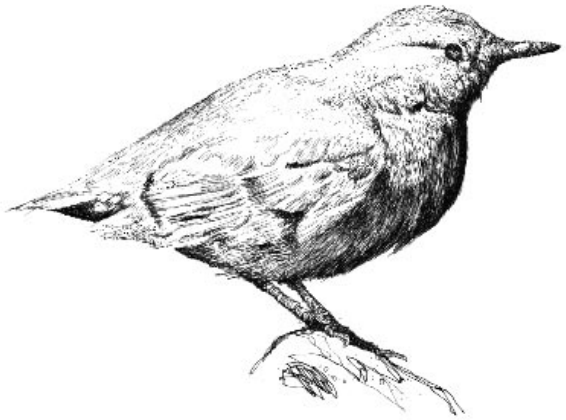
The inherent dynamic nature of this alluvial river makes its coexistence with stationary bridges problematic; bridges can alter the morphology of the river by changing the rate, depth, and velocity of flow in the vicinity of the structure. Bridges rarely span the entire floodplain width of alluvial rivers and do not generally even span the entire natural channel width and, therefore, constrict flow area. During floods, portions of the river that would normally flow into floodplain areas are forced under the structure, increasing the amount of channel discharge. The effect of these seemingly minor, flow-related changes can be profound, both upstream and downstream of the bridge. The higher discharge and reduced flow area cause a backwater effect (a deep, slow-velocity area) to form upstream and high velocities to occur near and under the bridge opening.

The reach upstream of the bridge (in the backwater zone) often develops a sand and gravel bar in the middle of the channel caused by sediments deposited by slower-moving water. The development of this mid-channel bar can lead to bank instability as the force of the river is directed away from the bar and into the riverbank. If this lateral erosion occurs, riverbanks will eventually fail, causing rapid movement of large quantities of sediment and vegetative debris. This can even occur on banks that have been stabilized by riparian vegetation.

At Sugar Pine Bridge, water flows are dammed by the structure, forcing the river to move laterally, which in turn has encouraged development of a new channel that cuts off the natural meander of the river. Prior to the construction of the bridge and its western approach road,

there were several small, natural, flood-overflow channels at this river meander. Constriction of water at the bridge, coupled with the influence of Tenaya Creek (which deflects water toward the left bank at the upstream end of the bridge), has resulted in a single, large cutoff channel immediately adjacent to the road.

In the reaches immediately upstream and downstream of the Sugar Pine Bridge, flow velocity is high. This causes bank scouring where the river meets the bridge opening. Directly beneath the bridge, velocities are at a maximum, causing a deep scour pool. Downstream of the bridge, a mid-channel bar is likely to develop as this scoured sediment drops out in the slower-moving water. As with development of a mid-channel bar upstream of a bridge, lateral channel instability and loss of riparian vegetation can occur.



At Stoneman Bridge, the channel width is also constricted, causing increased velocities during high flow, resulting in the formation of a downstream scour pool and mid-channel bar. The presence of the downstream bar has caused erosion to increase unnaturally along the right bank. The constricted channel width has also led to impacts upstream, with flood waters backing up behind the bridge and causing erosion on both banks.

Ahwahnee Bridge constricts flood flows to a lesser degree, but has two center piers in the river channel that trap logs at high flows. The trapped logs threaten the structure, but are also important components of the hydrologic and biologic processes of the Merced River.

Water Quality

Water quality throughout Yosemite National Park is considered to be good and is generally above state and federal standards. An inventory of water quality performed by the National Park Service indicated pristine conditions in many parts of the park, but some water quality degradation in areas of high visitor use (NPS 1994c). The surface water quality of most park waters is considered by the State of California to be beneficial for wildlife habitat, freshwater habitat, and for canoeing, rafting, and other recreation, as indicated in the 1998 Central Valley Regional Water Quality Control Board's *Water Quality Control Plan* (*Basin Plan*).

Surface Water

Surface water draining granitic bedrock in the park exhibits considerable variability in chemical composition, despite the relative homogeneity of bedrock chemistry (Clow et al. 1996). Surface water in most of the Merced River basin is diluted (lacking in dissolved solids), making the ecosystem sensitive to human disturbances and pollution (Clow et al. 1996). Studies have indicated a presence of *Giardia lamblia* and fecal coliform in various surface waters throughout the park, thereby limiting direct consumption of surface water by humans (Williamson et al. 1996b).

High water quality is critical for the survival and health of species associated with riparian and aquatic ecosystems. Water quality elements that affect aquatic ecosystems include water temperature, dissolved oxygen, suspended sediment, nutrients, and chemical pollutants. These elements interact in complex ways within aquatic systems to directly and indirectly influence patterns of growth, reproduction, and mobility of aquatic organisms. For example, sediment may not be directly lethal to fish, but sediment deposited on the streambed may disrupt the productivity and life cycles of fish and aquatic insects.

Surface water quality of the main stem and South Fork of the Merced River is characterized by near excellent conditions in most areas and some water quality stresses near human development. Surface water chemistry exhibits low electrical conductivity (limited ions due to a lack of dissolved solids), near-neutral pH, low alkalinity, and low nutrient concentrations (NPS 1994c). Calcium and bicarbonate are the predominant ions in the water. Within the Merced River, major ion concentrations slightly increase downstream, but levels remain relatively low, and no significant changes have been observed in pH, alkalinity, or nutrient concentrations (NPS 1994c). Due to the low alkalinity of the stream water, the buffering capacity (ability to absorb water chemistry changes or additions) of the Merced River and its tributaries is limited. Occasional concentrations of lead, cadmium, and mercury above drinking water and freshwater criteria have been noted within the Merced River main stem (NPS 1994c). Potential sources of these metals include leaded gasoline, stormwater runoff from developed surfaces (such as parking lots), wastewater discharge, campsites, and fuel storage facilities.

Groundwater Quality Characteristics

Groundwater quality is generally good in the Merced River basin; groundwater is the sole source of potable water for Yosemite Valley and El Portal. In Wawona, the primary source of potable water is surface water, although some private residences maintain private wells. There are locations in Yosemite Valley where relatively high iron concentrations in groundwater result in reddish deposits on the ground surface (e.g., springs near lower Tenaya Creek and several locations on the Merced River) (Williamson et al. 1996a). These iron concentrations are naturally occurring and are not a threat to water quality. Federal regulations require that potable water systems that rely on groundwater be continually monitored and operated within set levels for turbidity, waterborne pathogens, and other potential pollutants.

Bank Erosion

Water quality in the popular areas along the Merced River has been affected by extensive and concentrated visitor use. Heavy use along streambanks induces bank erosion through the loss of vegetative cover and soil compaction. Bank erosion can result in widening of the river channel and loss of riparian and meadow floodplain areas. Water quality is then altered through increased suspended sediments due to erosion, higher water temperatures from a lack of shade once provided by riparian vegetation, and lower dissolved oxygen levels due to elevated temperatures and shallower river depths.

Non-point Pollution Sources

Human activities and the use of motor vehicles can distribute potential water pollutants that may collect on land surfaces and later be transported into the river or its tributaries by stormwater runoff and sediment erosion. Recreational activities such as horseback riding, swimming, and hiking can lead to the introduction of organic, physical, and chemical pollutants into aquatic systems. These sources have the potential to affect water quality in all segments of the Merced River.

Non-point source runoff from roads and parking lots may potentially affect water quality by introducing organic chemicals and heavy metals. Areas of concentrated livestock use, including stock trails used for concessioner-led trail rides, introduce nutrients and sediments contributed through erosion, while the developed areas introduce various pollutants associated with human waste and debris. The Wawona Golf Course presents a potential non-point pollution source due to the occasional use of fertilizers and pesticides (including herbicides) to maintain the golf course green, although the kinds of pesticides used and their application and disposal are strictly controlled.

Stormwater runoff from developed surfaces in the park is managed in different ways. For example, a small portion of runoff from parking lots in Yosemite Valley is diverted into the wastewater drains and treated at the El Portal Wastewater Treatment Plant. Direct runoff of oil, grease, rubber particles, metals, and other road deposits occurs from most roadways, which discharge directly or indirectly to streams and lakes throughout the park. Water resources in the park can also be affected by regional air quality pollution through particulate deposition and polluted precipitation. The entire Sierra Nevada range is sensitive to acid precipitation due to its granitic substrate and the resulting low buffering capacity of its water resources. Ongoing studies are examining the effects of air pollutants generated outside the park and inside the park on natural resources, including surface water resources.

Underground Tanks and Abandoned Landfills

A variety of potentially hazardous materials has been stored in the park over the last century, often in underground storage vessels. Since 1986, more than 100 underground tanks have been located and removed. The park has more than 30 known contamination sites from leaking underground storage tanks. Currently, 12 underground storage tank sites are being cleaned up. Once clean, these sites will be closed. There are also a number of old landfills and surface dump sites in the park (NPS 1999b). These underground non-point pollution sources present potential impacts to water quality.

Point Sources of Pollution

Point sources of pollution are discharges that can be traced to a single point or location, such as a pipe or other device. Facilities in Yosemite Valley and El Portal are connected to a wastewater collection system that terminates at a wastewater treatment plant. Treated wastewater is discharged to percolation and evaporation ponds at the treatment facility. Water quality impacts

from wastewater may occasionally occur as a result of sewer line blockage and wastewater backup and overflow. A tertiary wastewater treatment plant serves most of the public and private sources in Wawona; the treated wastewater is augmented by surface water draws from the South Fork of the Merced River (up to 500,000 gallons per day in August) used to irrigate the Wawona Golf Course. During winter months, the treated wastewater is discharged into the South Fork when storage capacity is insufficient and disposal to the golf course is not feasible due to snow cover.

Fires

Fire is a natural process of the Sierra Nevada and Yosemite National Park. The recurrence of fire shapes the ecosystems of the park, with many common plants exhibiting specific fire-adapted traits.

The National Park Service has adopted a *Fire Management Plan* (NPS 1990b), which has clear guidelines about when and where to allow natural and prescribed fires to burn. The effects of fire on water quality are important; fires are a disturbance that can increase sediment contributions to aquatic systems, alter runoff patterns, and thereby influence concentrations of chemical and biological constituents in water bodies.

Floodplains

The Merced River watershed has had 11 winter floods since 1916 that have caused substantial damage to property. All of these floods took place between November 1 and January 30. The largest floods occurred in 1937, 1950, 1955, and 1997 and were in the range of 22,000 to 25,000 cubic feet per second, as measured at the Pohono Bridge gauging station in Yosemite Valley. These floods were caused by warm winter rains falling on snow at elevations up to 8,600 feet (e.g., Tuolumne Meadows), partially melting the accumulated snowpack.

The 100-year floodplain is the area that is inundated by a 100-year flood, or the annual peak flow that has a 1% chance of being equaled or exceeded in any given year (see Vol. Ic, plate E). Prediction of the 100-year floodplain is necessary in order to comply with Executive Order 11988 (*Floodplain Management*) and with the NPS *Floodplain Management Guideline*. In order to predict the 100-year floodplain, it is necessary to perform a flood frequency analysis of the nearest gauging station data to determine the flow rate of a 100-year flood. This flow rate, along with topographic cross sections, is used by models to predict the inundation (or floodplain), flow velocities, and inundation depths of a 100-year flood event. The accuracy of these predictions is higher for areas near gauging stations, for areas with gauging stations that have been operating for many years, and for areas with more precise topographic cross-section data.

Following the January 1997 flood, National Park Service staff mapped the actual extent of the flood inundation in Yosemite Valley and El Portal, and the U.S. Geological Survey determined actual flood flow rates at the Pohono and Happy Isles gauging stations. These data were used to calibrate the flood frequency analysis (i.e., the predicted flow rate of a 100-year flood) and the flood inundation models (i.e., the predicted area that will be inundated by a 100-year flood) for Yosemite Valley and El Portal and are discussed below.

Above Happy Isles

The 100-year floodplain has not been mapped above Happy Isles. With a few minor exceptions, the floodplain is not well developed between Happy Isles and the Merced River headwaters.

Happy Isles to Housekeeping Bridge

The predicted 100-year floodplain in this area was mapped by Cella Barr Associates (1998), using the flood frequency analysis performed by the U.S. Geological Survey. Flow rates and inundation depths were also calculated. Flood waters associated with the Merced River use Tenaya Creek as a backwater area.

Housekeeping Bridge to Swinging Bridge

The 100-year floodplain in this area was mapped by Stantec Consulting, Inc. (2000). Formerly known as Cella Barr Associates, Stantec continued the work done in 1998 and used the same techniques and flood frequency analysis. Flood waters associated with the Merced River use Indian Creek and Yosemite Creek as backwater areas.

Swinging Bridge to Pohono Bridge

The extent of the January 1997 flood, as mapped by National Park Service staff, is considered the best available data for the 100-year floodplain in this area.

Pohono Bridge to Park Boundary

The 100-year floodplain has not been mapped in this area. With a few minor exceptions, the floodplain is not well developed.

El Portal Administrative Site

Following the January 1997 flood, the U.S. Army Corps of Engineers calculated the flood frequency for El Portal and used the predicted flow rate for a 100-year flood to determine the 100-year floodplain. This effort was hampered by the lack of stream gauge data in El Portal. The Army Corps of Engineers determined that the January 1997 flood had a lower flow rate than the predicted 100-year flood.

South Fork Merced River at Wawona

The 100-year floodplain for this area was mapped by the Corps of Engineers in 1981.

Floodplain Characteristics

The floodplain of the Merced River in Yosemite Valley is well-developed in some sections, such as in meadow areas in Yosemite Valley. In other areas the floodplain is lacking due to narrowing of canyon/valley walls, such as the gorge, or incision of the channel into moraine deposits, such as west Yosemite Valley moraines (NPS 1997g).

In Yosemite Valley, the character of the floodplain varies in different locations because of local hydraulic controls. From Clark's Bridge to Housekeeping Camp in the east Valley, the Merced River floods areas outside the main river channel with shallow swift flows that cut across meander bends. Near Yosemite Lodge and downstream to the El Capitan moraine, flood waters back up against the dense vegetation and tend to be deep and slow (low velocity). From the El Capitan moraine downstream, the river channel is steeper and confined in the narrow river canyon, the floodplain is narrow, and flow velocities are high.

The broad, well-developed floodplain that occurs in Yosemite Valley between Housekeeping Camp and the El Capitan moraine serves many hydrologic functions, including dissipation of flood water energy as water spreads out over the flat, expansive plain. The meadows in Yosemite Valley occur primarily in the floodplain and are maintained and rejuvenated by periodic flood waters. The roads across Stoneman, Ahwahnee, Cook's, Sentinel, and El Capitan Meadows have varying degrees of influence on the function of the floodplain.

The river channel in El Portal is narrow and steep, though less steep than in the gorge segment immediately upstream, and flow velocities are very high. The river channel can shift laterally during large floods.

In Wawona, an elongated alluvial valley, the river meanders less than in Yosemite Valley, but the river channel can shift laterally during large floods. Development in Wawona has altered the floodplain. Surface water diversions affect the Wawona floodplain through reduction of the water table during dry periods such as drought and in the fall before the onset of winter rains. Water diversion is governed by the *Wawona Water Conservation Plan*, which includes provisions for reduction and/or cessation of withdrawals when stream flow drops to critical levels (NPS 1987b).

Frazil Ice Flooding

Waterfalls in the park occasionally produce a late winter and early spring phenomenon called frazil ice at the base of the fall. Small ice crystals develop in turbulent super-cooled stream water when the air temperature suddenly drops below freezing. These ice crystals join into slush and become pressed together as more crystals form. Frazil ice lacks the erosional force of regular stream ice, but it can cause streams to overflow their banks and change course. Frazil ice sometimes reaches a depth of more than 20 feet along Yosemite Creek at the Lower Yosemite Fall Bridge. A 1954 flow of frazil ice completely filled the streambed of the creek and covered the footbridge near Lower Yosemite Fall with many feet of ice (Hubbard and Brockman 1961). More recently, a frazil ice event covered the Yosemite Falls footbridge on February 27, 1996.

Non-Flood Alterations of the Floodplain

Although floods are significant to ecosystems because they can induce large changes in channel morphology and the floodplain landscape, low stream-flow characteristics are also important. Low stream flow during the summer can affect the surrounding floodplain as riparian and wetland communities undergo a drying phase. Diversion of river flows for human consumption can upset this normal balance and induce further reduction of riparian communities and destabilization of stream banks. Prior to 1985, potable water in Yosemite Valley was produced almost entirely from surface water diverted from the Merced River upstream of Happy Isles. It is estimated that up to 54% of the low stream-flow discharge may have been diverted for park facilities (NPS 1991b). This practice has been terminated in Yosemite Valley, and all potable water is now taken from groundwater wells; however, water continues to be drawn from the South Fork in Wawona to augment groundwater supplies.

Development in Floodplains

Executive Order 11988 (*Floodplain Management*) and the NPS *Floodplain Management Guideline* (NPS 1993e) provide guidance for the protection of life and property in conjunction with natural floodplain values in the National Park System. This guidance applies to both existing facilities and proposed facilities, and requires the National Park Service to avoid locating facilities in floodplains if alternative locations are feasible. Where no alternative exists, and with a formal statement of findings (see Volume II, Appendix N), properly mitigated facilities can be located in floodplains.

Each action (or facility) is assigned to one of three classes, depending on its use, and each class has a different regulatory floodplain. Actions of a given class can occur within the regulatory floodplain if properly mitigated. The regulatory floodplain for Class I actions, such as administrative facilities, residential areas, warehouses, and maintenance buildings, is the 100-year floodplain. The regulatory floodplain for Class II actions, such as medical facilities, emergency services, schools, irreplaceable records, museums, and fuel storage areas, is the 500-year floodplain.

Excepted actions are exempt from the NPS *Floodplain Management Guideline* if risks to human life and property are studied and then minimized or mitigated through design. Examples of excepted actions are bridges, flood control facilities, picnic areas, trails, roads, day-visitor parking facilities, and campgrounds.

If a non-exempted action is proposed, a formal statement of findings is required (see Volume II, Appendix N). The statement of findings includes a description of the site-specific flood risk, describes why the action must be located in the floodplain, and describes how the action will be designed or modified to minimize harm to floodplain values or risk to life or property.

Existing facilities in Yosemite Valley, El Portal, and Wawona that are within the 100-year floodplain are listed below.

Yosemite Valley

- Six individual campsites and a recreational vehicle dump station in the Upper Pines Campground area
- Approximately 50% of the existing Lower Pines Campground, including four restrooms
- Most of North Pines Campground, including four restrooms and a lift station
- All of the flood-damaged site of former Upper and Lower River Campgrounds, including 10 restrooms, two entrance kiosks, and one amphitheater
- A small portion of Backpackers Campground
- All of the former Group Campground, including three restrooms
- Most of the concessioner stable and associated housing, including 18 housing units and a community kitchen
- 124 structures (248 units), seven bathrooms, three miscellaneous structures, and the laundry and store at Housekeeping Camp
- Camp 6, used for day-visitor parking and construction staging
- Two small employee apartment buildings in Yosemite Village
- Two Ahwahnee Row houses
- Concessioner headquarters
- Superintendent's House (Residence 1) and garage
- At Yosemite Lodge: the Laurel, Maple, Alder, Hemlock, and Juniper motel units, six miscellaneous structures near the Wellness Center, and three miscellaneous small structures near Dogwood Cottage
- Human-built rock-rubble pile at base of Yosemite Falls
- The Yosemite Creek sewage lift station
- Groundwater wells near Yosemite Creek
- Kennel in Lamon Orchard
- 11 bridges that cross the Merced River; Tenaya Creek Bridge; two bridges across Yosemite Creek; and numerous footbridges across intermittent tributaries
- Restroom at Happy Isles
- Utility corridors

El Portal

- The gas station
- El Portal Ranger Office
- 12 Motor Inn cabins
- El Portal Hotel
- El Portal Market

- Embankment/levee between El Portal Market and gas station
- Odgers' fuel transfer center
- 59 trailers, five houses, and floodwall at Hennessey's Ranch (Trailer Village and Abbieville)
- Bridge over Highway 140 and Foresta Bridge over the river
- Most of the NPS warehouse complex at Railroad Flat
- Construction staging at the sand pit
- Utility corridors

WAWONA

- Portions of the Pioneer Yosemite History Center
- The Covered Bridge and the Wawona Road Bridge
- Approximately 20 private structures in Section 35
- A small portion of the NPS maintenance area
- Utility corridors

WETLANDS

Wetlands have many distinguishing features, the most notable of which are the presence of standing water, unique soils, and vegetation adapted to or tolerant of saturated soils (Mitsch and Gosselink 1993). Wetlands are considered highly valued resources, as they perform a variety of hydrological and ecological functions vital to ecosystem integrity. These functions include flood abatement, sediment retention, groundwater recharge, nutrient capture, and high levels of plant and animal diversity (USFS 1996). Since the mid-1800s, more than half of the nation's original wetlands have been drained (Mitsch and Gosselink 1993).

Historically, California wetlands were much more extensive than they are today. The state has lost more than 85% of its original wetland acreage (USGS 1996). Early settlers drained wetlands to improve forage and facilitate agriculture (UC Davis 1996a). In the Sierra Nevada, broad, flat valleys with vast wetlands were often converted to reservoir sites. The most common causes of wetland loss are: (1) draining, dredging, and filling of wetlands; (2) modification of hydrologic regimes; (3) road construction; (4) mining and mineral extraction; and (5) water pollution.

Probably the earliest major impact to wetlands in Yosemite Valley occurred in the late 1800s when a portion of the El Capitan moraine was blasted to lower the water level that backed up behind it. The moraine, a band of unconsolidated boulders and sediments deposited by glaciers, spanned the Merced River and served as a natural dam to annual high water flows. The moraine was believed to be 4 to 9 feet higher before it was blasted. Recent studies show that the blasting lowered some water tables that sustained meadow vegetation and wildlife, and accelerated erosion of the river base level in adjacent areas between El Capitan Meadow and Yosemite Lodge. Other historic impacts to wetlands include farming, roads, placement of structures, and ditching.

Wetland Classification

The National Park Service classifies and maps wetlands using a system created by the U.S. Fish and Wildlife Service that is often referred to as the Cowardin classification system (USFWS 1979). 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 and adopted by the National Park Service, are lands transitional between terrestrial and aquatic systems, where the water table is usually at or near the surface or the land is covered by shallow water. For purposes of this classification, wetlands must have at least one 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 high 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 (USFWS 1979).

Under Section 404 of the Clean Water Act, the U.S. Army Corps of Engineers issues permits for the discharge of dredged or fill material into waters of the United States (33 CFR 323.3). 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)."

The Cowardin system and the Corps of Engineers both use the three wetland parameters to define wetlands: hydrophytic vegetation, hydric soil, and wetland hydrology. However, Cowardin and the National Park Service require only one of the parameters be present to be wetland, where as the Corps of Engineers requires all three parameters be present. Therefore, the Cowardin definition identifies more habitat types as wetlands than the definition used by the Corps. The Cowardin wetland definition also recognizes that many unvegetated sites (e.g., mudflats, stream shallows, saline lakeshores, playas) or sites lacking soil (e.g., rocky shores, gravel beaches) are wetland habitats. The reason these wetlands lack hydrophytic vegetation or hydric soil is due to natural chemical or physical factors. These additional aquatic environments are still regulated by the Corps of Engineers under the Section 404 permit program as other "waters of the United States."

Wetland Types in Yosemite

Riverine

The riverine classification includes all the wetland and deepwater habitats contained within a river channel, except wetlands dominated by trees, shrubs, persistent emergent mosses, or lichens. 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" (USGS 1960).

Riverine Lower Perennial

The gradient is low, and water velocity is slow. The substrate consists mainly of sand and mud. Floodplains are well developed.

Riverine Upper Perennial

The gradient is steep, with fast water velocities. Some water flows throughout the year. The substrate consists of rock, cobbles, or gravel with occasional patches of sand. Algae concentrations are typically low, and there is little floodplain development.

Lacustrine

Lacustrine habitat is characterized by the presence of standing water in ponds and other shallow depressions. In Yosemite Valley, such habitats are found in association with fresh emergent wetlands and wet meadows, and are mostly found in cutoff channels of streams and rivers. Lacustrine habitats are the most scarce type in Yosemite Valley, making up only 0.03% of the Valley's total area. Water levels in the ponds vary throughout the year, with the highest levels occurring during peak spring runoff and declining through summer and fall. This fluctuation in water level provides a rich organic food base from seasonally inundated vegetation that decomposes, supporting an abundance of zooplankton and aquatic insects. Also, water in lacustrine habitats tends to be warmer than adjacent flowing streams, especially during summer and fall. Lacustrine habitats are important feeding, roosting, and brood-rearing areas for mallards that nest in Yosemite Valley. They were also the prime habitat for California red-legged frogs that are now probably extinct in the park. The likely cause of this extinction was predation by bullfrogs that were probably introduced in the late 1960s. Lacustrine habitats, especially those that contain water year-round, are important breeding areas for bullfrogs, and recent efforts to eradicate bullfrogs have focused on these areas.

Palustrine

The palustrine classification includes vegetated wetlands, but can also include nonvegetated wetlands that are less than 20 acres, less than 6.5 feet in the deepest part at low water, and do not have a wave-formed or bedrock shoreline. Palustrine wetlands can occur as isolated wetlands, on river floodplains, and along lake or pond shores. Palustrine wetlands include riparian corridors, marshes, and ponds.

Palustrine Emergent

This wetland type includes meadows, marshes, and vegetatedponds. Emergent wetlands are characterized by erect, rooted,herbaceous hydrophytes that are usually present for most of the growing season.

Palustrine Forest

These riparian forest habitats are regularly inundated by normal high-water flows or flood flows. The dominant woody vegetation is at least 20 feet tall.

Palustrine Scrub Shrub

This wetland type includes areas dominated by woody vegetation less than 20 feet tall, such as willows.

Wetland Extent

The U.S. Fish and Wildlife Service mapped wetlands in Yosemite in 1995 as part of the National Wetlands Inventory. Wetlands were mapped on a U.S. Geological Survey topographic base map (1:24,000) from an analysis of color, infrared photographs taken in 1984 (1:58,000). Wetlands were identified and classified based on vegetation, visible hydrology, and geography in accordance with the Cowardin classification system. Some areas in Yosemite, such as campgrounds, have had more specific on-the-ground surveys to provide wetland delineations (Kleinfelder 1998).

Yosemite Valley

The wetland extent in Yosemite Valley was estimated using the National Wetlands Inventory information, supplemented with the 1994 Yosemite Valley vegetation map (NPS 1994e), which contains more detailed information on hydrophytic vegetation in Yosemite Valley. This map was developed using SPOT satellite imagery and color, infrared, aerial photographs (1:12,000), and has a spatial accuracy of 30 to 65 feet. For the purposes of the *Final Yosemite Valley Plan/SEIS*, all meadow and riparian communities (as identified on the Yosemite Valley vegetation map) were classified as palustrine wetlands and were evaluated throughout the document as wetlands. Table 3-1 shows a total for all the palustrine and riverine wetland acreage identified on the Yosemite Valley vegetation map (NPS 1994e).

Table 3-1
Wetland Types in Yosemite Valley

Yosemite Valley Wetland Type	Acreage
Riverine	120
Palustrine emergent	420
Palustrine forest	185
Palustrine scrub shrub	271
Total	**996**

Out-of-Valley Locations

El Portal

Wetland occurrences and types in El Portal vary by slope, aspect, and water availability. The extent of wetlands was estimated from National Wetlands Inventory maps. Drainages that flow through the El Portal community and adjacent nondeveloped slopes, such as Crane Creek, are inhabited by riverine upper perennial and intermittently flooded wetlands.

Low-lying areas and areas with low to flat gradients on older river terraces have palustrine scrub shrub and palustrine forest wetlands. Both types are found in the vicinity of the Trailer Village and Abbieville (Hennessey's Ranch).

Some areas have remnant river channels surrounded by development. These sites were not designated as wetlands by the National Wetlands Inventory maps due to their small size and

isolated nature. Water flows in these historic channels, including one near the Village Center (El Portal), have been altered, and the understory vegetation is dominated by non-native plant species. Overstory species support classification of these sites as remnant palustrine forest.

Foresta

Drainages throughout Foresta are inhabited by palustrine scrub shrub wetlands, including those flowing through Big Meadow. An artificial palustrine emergent wetland occurs near the Foresta wood yard where earthmoving equipment has created a pond.

South Landing

A palustrine emergent wetland occurs east of the existing road along a small drainage.

Henness Ridge

No wetlands are located within areas of proposed development.

Badger Pass

An extensive palustrine scrub shrub wetland occurs in the drainage exiting the developed Badger Pass area. A large palustrine emergent wetland inhabits the open meadow at the base of the winter-use ski area.

Hazel Green

An artificial palustrine scrub shrub wetland occurs on National Park Service land immediately adjacent to the Big Oak Flat Road. This wetland results from the interception of slope drainage by the road, where water is concentrated into an inboard ditch that is directed under the road through a culvert. Additional wetlands occur in the riparian and meadow areas traversing the Hazel Green Ranch site.

Wawona

No wetlands are located within areas of proposed development.

Big Oak Flat Road

No wetlands are located within areas of proposed development.

South Entrance

Palustrine scrub shrub and forest wetlands occur along drainages adjacent to the Wawona Road corridor.

Tioga Pass

Extensive wetlands characterize this area, in the form of subalpine meadows and a network of tarns.

Soils

General Soil Properties

All soils form from the combined effect on geologic parent material of climate, biologic activity, topographic position and relief, and time. Within the park, topography is the most important factor contributing to soil differentiation. Topography influences surface water runoff, groundwater, distribution of stony soils, and the separation of alluvial soils of various ages (Zinke and Alexander 1963). More than 50 soil types exist within the park; general or local variations depend on glacial history and the ongoing influences of weathering and stream erosion and deposition. Local variations also result from differences in microclimates due to aspect and major vegetation types.

Soils of the Yosemite region are primarily derived from underlying granitic bedrock and are of a similar chemical and mineralogical composition. Except for meadow soils, most soils at high elevations were developed from glacial material (glacial soils) or developed in place from bedrock (residual soils). Extensive areas above 6,000 feet are covered by glacial moraine material, a mixture of fine sand, glacial flour, pebbles, cobbles, and boulders of various sizes. Alluvial soils develop along streams through erosion and deposition. Alluvial soils tend to have sorted horizons (layers) of sandy material. Colluvial soils have developed along the edges of the Valley in areas where landslides and rockslides have occurred. Colluvial soils are composed of variously sized particles and rocks and have high rates of infiltration and permeability.

Organic content within the upper soil profile varies with the local influences of moisture and drainage. Thick sedges and grasses have contributed to the organic content of soils near ponds, lakes, and streams. Coniferous forest soils have a relatively high organic content and are relatively acidic. Soils lacking organic accumulations are frequently a result of granitic weathering, consist largely of sand, and support only scattered plants tolerant to drought-like conditions.

Certain soil types have been identified in Yosemite as highly valued resources (see Vol. Ic, plate D, and Chapter 2, Alternatives, Development Considerations, Highly Valued Resources). The criteria used to designate highly valued resource soils include the potential for restoring highly valued vegetation communities, protection by federal laws, and significance as a sensitive area (such as soils that take an inordinately long time to recover from disturbance). Highly valued resource soils are found in or adjacent to meadows and riparian areas, hydric soils, and soils associated with lateral or terminal moraines. Soils in and along riparian and meadow areas are often in ecotones—areas where ecosystems overlap—and are especially rich with vegetative and wildlife diversity. Highly valued resource soils are typically more susceptible to development impacts; they lack the structure to readily support building weight and erode more easily than a resilient soil type. Therefore, a highly valued resource soil is suitable for restoration. The Leidig fine sandy loam found in and around Leidig Meadow is an example of a highly valued resource soil.

Hydric soils are legally protected because they form in wetlands, which are protected by federal law. Hydric soils form under sufficiently wet conditions to develop anaerobic conditions and can usually support a predominance of hydrophytic vegetation. Hydric soils are found primarily in the river valleys of the Merced River and Tenaya Creek and in low meadows.

The 1980 *General Management Plan* identifies areas with development limitations based on frequent flooding, seasonally high water tables, poor drainage, steep slopes, high rock concentration, and a sandy structure that will not readily support weight. Each area is rated to show the degree of limitation that restricts the use of a site for a specific purpose. For example, a rating of "slight" is given for soils that have properties favorable for use. A rating of "severe" is given to soils that have one or more property unfavorable for the rated use. A soil with a severe rating generally requires intensive maintenance, major soil reclamation, engineering controls, or other mitigation measures.

Soils that are more suitable for use are identified as resilient. Resilient soils are those that are capable of withstanding alteration without permanent deformation, or recover more easily from alteration. Generally, resilient soils do not have major development limitations or restrictive physical attributes.

Other soils are not considered highly valued resources or resilient soils. Generally, these soils place more limitations on use because of steep slopes or other physical attributes. They may require more intensive management or engineered mitigation measures for development compared to resilient soils. Other soils do not fit into the highly valued resource soil resource category because they are generally more abundant and do not support plant communities that are rare or especially diverse. The Half Dome soil complex is an example of such a soil resource.

Soil Properties by Area

Yosemite Valley

The Yosemite Valley soils were intensively investigated by Zinke and Alexander in 1963 and were mapped by the Natural Resource Conservation Service in 1991. During flood events, alluvial soils are formed and removed as flood waters deposit and erode material over the floodplain. The active flooding builds river terraces of fine- to coarse-textured sands. Older riverbeds made up of boulders and gravel may be buried under the terrace soils. Residual soils are scattered throughout the Valley where bedrock weathering has occurred. Glacial soils are principally associated with terminal moraines. Colluvial soils have developed on the talus slopes along the edge of the Valley floor. Yosemite Valley soil depths range from nonexistent on the Valley rim to estimated depths of 1,960 feet near the Valley center. Valley soil textures vary from fine clay to fine gravel. Most soils have a relatively undeveloped profile, indicating their relatively recent origin and young geologic age.

The Natural Resource Conservation Service identified 21 soil series/types in Yosemite Valley. Each soil type has specific characteristics that influence factors such as plant growth, water movement, and land-use capabilities. El Capitan fine sandy loam, found in and around El Capitan Meadow, is an example of a Yosemite Valley soil with physical constraints that limit land use due to occasional flooding. Limitations on specific types of use associated with the various soil types are shown in table 3-2.

Table 3-2 Yosemite Valley Land-Use Limitations Based on Soil Type					
Soil Type	**Slope**	**Roads**	**Structures**	**Campgrounds**	**Picnic Areas**
101 Riverwash	0–2%	Severe[1]	Severe[1]	Severe[1] to Moderate[4]	Moderate[1, 4]
102 Riverwash	1–4%	Severe[1]	Severe[1]	Severe[1]	Moderate[1, 4]
104 Aquandic Humaquepts	0–2%	Severe[1]	Severe[1]	Severe[1]	Severe[2]
151 El Capitan fine sandy loam	0–2%	Severe[1]	Severe[1]	Severe[1]	Slight[1]
152 Vitrandic Haploxerolls	0–3%	Severe[1]	Severe[1]	Severe[1]	Slight[1]
201 Leidig fine sandy loam	0–2%	Severe[1]	Severe[1]	Severe[1]	Slight[1]
301 Vitrandic Haploxerolls coarse loamy	0–2%	Moderate[1, 2]	Severe[1]	Severe[1, 2]	Slight[1] to Moderate[7]
401 Sentinel loam	0–2%	Moderate[1]	Severe[1]	Severe[2]	Slight[1] to Moderate[7]
501 Miwok complex	1–5%	Moderate to Severe[1]	Severe[1]	Severe[2]	Slight[1, 7]
502 Miwok sandy loam	0–3%	Moderate[1]	Severe[1]	Severe[2]	Slight[1]
504 Mollic Xerofluvents	1–5%	Severe[1]	Severe[1]	Severe[2]	Severe[3] to Moderate[7]
551 Miwok–Half Dome complex	5–15%	Moderate to Severe[3, 4]	Severe[3, 4]	Moderate to Severe[3, 4]	Moderate to Severe[3, 4]
552 Mollic Xerofluvents	5–15%	Severe[1] to Moderate[3]	Severe[1, 3]	Severe[1] to Moderate[3, 7]	Moderate[1, 3, 7]
590 Terric Medisaprist	0–3%	Severe[2, 5]	Severe[1, 2, 5]	Severe[1, 2, 8]	Severe[8] to Moderate[2]
601 Half Dome complex	25–60%	Severe[3, 4]	Severe[3, 4]	Severe[3, 4]	Severe[3, 4]
602 Half Dome extremely stony sandy loam	10–25%	Severe[3, 4]	Severe[3, 4]	Severe[3, 4]	Severe[3, 4]
610 Rubble land – Half Dome complex	25–60%	Severe[3, 4]	Severe[3, 4]	Severe[3, 4]	Severe[3, 4]
620 Half Dome complex, warm phase	25–60%	Severe[3, 4]	Severe[3, 4]	Severe[3, 4]	Severe[3, 4]
630 Rubble land – Half Dome complex, warm phase	25–60%	Severe[3, 4]	Severe[3, 4]	Severe[3, 4]	Severe[3, 4]
701 Vitrandic Haploxerolls	4–30%	Slight to Severe[3]	Moderate to Severe[3]	Slight to Severe[3, 4]	Slight to Severe[3]
702 Vitrandic Xerochrept	4–30%	Slight to Severe[3]	Moderate to Severe[3]	Slight to Severe[3, 4]	Slight to Severe[3]
900 Rock outcrop	NA	Severe[3, 6]	Severe[3, 6]	Severe[3, 6]	Severe[3, 6]

Source: Derived from 1991 Yosemite Valley Soil Survey data and the *National Soils Survey Handbook*, "Part 620 – Soil Interpretation Rating Guides" (1993)
Restrictive features contributing to limitations: 1. flooding; 2. high water table; 3. slope (worst case); 4. stoniness; 5. low strength (assumed); 6. depth to bedrock; 7. dusty or too sandy; 8. mucky surface. NA=Not Applicable

El Portal

Most soil data for El Portal have been collected on steep slopes by the National Resource Conservation Service for the current Yosemite soil survey or extrapolated from Stanislaus National Forest and Mariposa County soil surveys.

Most El Portal soils are metamorphosed sedimentary and granitic in origin. Soils that formed in old river channels consist of alluvial boulders, cobbles, riverwash, and loamy sands. El Portal soils, for the most part, have moderate to severe development limitations. Hence, these soils require engineering and mitigation measures. Major soil types found in the area and their limitations are summarized in table 3-3.

Table 3-3 El Portal Land-Use Limitations Based on Soil Type				
Soil Type	**Roads**	**Structures**	**Campgrounds**	**Picnic Areas**
Ahwahnee	Moderate	Moderate	Moderate	Moderate to Severe
Rancheria	Severe	Severe	Moderate	Moderate to Severe
Rockland (igneous)	Severe	Severe	Moderate to Severe	Moderate to Severe
Rockland (metasedimentary)	Severe	Severe	Moderate to Severe	Moderate to Severe
Loamy alluvial land	Moderate	Moderate	Slight	Slight
Chawanakee	Moderate	Moderate	Slight	Moderate

Wawona

Wawona area soils are primarily residual on slopes and alluvial in the Valley. Soil depth varies from 2 to 4 feet above bedrock; these soils are moderately to strongly acidic. Most soils are subject to erosion after disturbance or loss of vegetative cover. The six major soil types are distinguished by their textures and the amount and type of rock fragments they contain. Limitations on use associated with these soil types are presented in table 3-4.

Table 3-4 Wawona Land-Use Limitations Based on Soil Type				
Soil Type	**Roads**	**Structures**	**Campgrounds**	**Picnic Areas**
Soboba stony loamy sand	Slight	Severe	Moderate	Moderate
Kimmerling silt loam	Severe	Moderate	Severe	Severe
Calpine sandy loam	Moderate	Moderate	Severe	Moderate
Musick sandy loam	Severe	Moderate	Severe	Severe
Chaix coarse sandy loam	Severe	Moderate	Severe	Severe
Stump springs coarse sandy loam	Severe	Moderate	Severe	Severe

Foresta

Soils of the Foresta/Big Meadow area are primarily derived from alluvial materials, with a predominance of unconsolidated, gray to brown soils containing some clays. Some of the clay soils are moderately expansive (swell when wet and shrink when dry), but most other types are well drained and stable. Expansive soils limit building and road construction due to the potential for shifting. Isolated pockets of soils formed in glacial outwash also occur in this area. Due to limited soils data, land-use limitations are not known for this area.

Henness Ridge

Most current soil data for Henness Ridge were extrapolated from soils collected in nearby and similar environments by the National Resource Conservation Service for the current Yosemite soil survey. The soil environment at Henness Ridge is characterized by fairly thin soils that were formed from igneous granodiorite material. The main limitations of the soils are their thin horizons and high erosion potential. Water tends to flow over rather than drain into the soils. Area soils are also susceptible to erosion when the surface organic layer is lost. Land-use limitations are not available for this area due to limited soils data.

South Landing and Badger Pass

Most soil data for South Landing and Badger Pass have been collected on steep slopes by the National Resource Conservation Service for the Yosemite Valley soil survey or extrapolated from information in the Stanislaus National Forest and Mariposa County soil surveys.

Soils of the South Landing area are primarily derived from alluvial materials, with a predominance of unconsolidated, gray to brown soils containing some clays. Some of the clay soils are moderately expansive, but most other types are well drained and stable. Isolated pockets of glacial outwash, and possibly ash, also occur in this area. Due to limited soils data, land-use limitations are not known for this area.

South Entrance

Soils at the South Entrance are similar to those found in the Wawona area. The Chiax series/family is likely the most dominant. These soils tend to be coarse textured, somewhat excessively drained, and gently to steeply sloping. Due to liminted soils data, land-use limitations are not known for this area.

Hazel Green

Information for the Hazel Green area has been extrapolated from similar and nearby soil descriptions, as evaluated in the 1996 *Soil Handbook for the Soil Survey of Yosemite National Park* (Taskey 1996) and the 1993 *Soil Survey of Sierra National Forest Area, California* (USFS 1993). The landscape positions within the area include backslopes, mountainsides, and broad ridges. A narrow band of alluvial soils is likely present along the Hazel Green Creek; otherwise, soils have formed in residual materials. Due to limited soils data, land-use limitations are not known for this area.

Big Oak Flat

Big Oak Flat is close to Hazel Green and has a similar geomorphology. Thus, the soils at Big Oak Flat are similar to those at Hazel Green. Due to limited soils data, land-use limitations are not known for this area.

Tioga Pass

Descriptions of soil data for Tioga Pass have been extrapolated from similar and nearby descriptions from previously referenced sources as well as the *Soil Survey of Tuolumne Meadows* (NRCS 1995a). Due to limited soils data, land-use limitations are not known for this area data.

Soils at Tioga Pass formed in granitic glacial till/moraine, colluvium, and alluvium. The slopes range from gently sloping near the Tuolumne River to steep along the mountainsides. Soil textures tend to be coarse and loamy to sandy.

Vegetation

Yosemite National Park supports five major vegetation zones: chaparral/oak woodland, lower montane, upper montane, subalpine, and alpine. Yosemite Valley is in the lower montane mixed conifer zone, where 41 vegetation types have been identified (NPS 1994e). These have been loosely lumped into five groupings: upland, California black oak, meadow, riparian, and other. El Portal is in the chaparral/oak woodland zone, and other areas outside of Yosemite Valley that are being evaluated are in the lower montane, upper montane, and subalpine zones (Sawyer and Keeler-Wolf 1995). Root rot diseases primarily affect upland and California black oak communities, and they are discussed within the context of those two categories. Non-native plant species occur to some extent in each of the communities and areas listed below; they are described within each section where pertinent.

Yosemite Valley

Upland Communities

Upland plant communities are found where soil moisture conditions are average to dry and where soils are not periodically flooded or saturated. In Yosemite Valley these communities fall into the categories of mixed conifer, California black oak, live oak, and cliff. Due to the ecological and cultural value as well as the sensitivity of California black oak communities, this community has been removed from the upland category and evaluated separately throughout the document. Upland plant communities dominate about 75% of Yosemite Valley. Upland communities are much more common, widespread, and vegetatively intact than California black oak, riparian, or meadow communities in Yosemite Valley as well as throughout the Sierra Nevada (NPS 1994e; UC Davis 1996e). However, they have undergone alterations through changes in fire frequency, spread of native root rot, and establishment of non-native species.

Mixed conifer communities are normally dominated by ponderosa pine, sugar pine, and/or incense-cedar and generally grow at elevations of 3,000 feet to 5,000 feet. This community also contains Douglas-fir and California black oak. The most common understory shrubs are Mariposa manzanita and deerbrush. The mixed conifer community is adapted to low-intensity, frequent fires. Nearly 100 years of fire suppression has resulted in a change from open forest to dense thickets of shade-tolerant tree species (including incense-cedar, white fir, and Douglas-fir) in many areas. Under natural conditions, the return interval for fire is estimated at 8 to 12 years (NPS 1990b). Existing conditions, however, often generate fires of much greater intensity than under a natural fire regime. Most undeveloped mixed conifer areas of the Valley are now managed through a combination of mechanical removal of hazardous fuel and prescribed burning. These treatments simulate the natural and anthropogenic fire regimes of the Valley and help decrease stand densities to more natural levels.

Canyon live oak communities grow on both north- and south-facing talus slopes and often form pure or almost pure stands. Fires in this community are infrequent but intense, with a fire return interval of 20 to 50 years on south-facing slopes. Most trees and shrubs in this community are adapted to resprout after fire.

Annosus root disease is a widespread native fungus occurring throughout northern Europe and western North America in coniferous forests. In pines the fungus first spreads through the root system, attacking and eventually killing the inner bark and sapwood. Within two to six years after initial infection, the tree can die with the fungus remaining active as a saprophytic, wood-decaying organism within roots and the butt of the dead tree. Pines weakened by annosus root disease are often killed by bark beetles. Incense-cedars, however, are not affected by beetles and will stand green for many years until the disease finally weakens the structure enough to cause failure. Cedars are thought to act as reservoirs for annosus root disease (NPS 1998h).

In Yosemite Valley, the large size of annosus root disease centers is unusual; only a few other large population centers of this species occur on the western side of the Sierra Nevada. The Valley has dense stands of large trees on a sandy floor, a high water table, and frequent flooding. The conifer forest in Yosemite Valley may not be sustainable because of these large centers of annosus that have developed within the unnaturally dense stands of conifers in former California black oak, meadow, and riparian areas. Several centers of significant annosus infestation are present in the Valley today, including former Upper and Lower River Campgrounds, Yellow Pine Campground, Sentinel Beach Picnic Area, portions of Yosemite Lodge, and most of the Taft Toe area. Existing annosus centers in developed areas can be mitigated by landscaping with native species that are not susceptible to infection, such as California black oak, live oak, and big-leaf maple.

Non-native plant species have become established in the mixed conifer zone, although not to the same extent as in meadows and California black oak stands. These species are the result of either deliberate or accidental introductions and are not part of the naturally evolved community. Many of these species are indicators of past agricultural activities that occurred throughout the area. Approximately 180 non-native plant species have been identified in the park, primarily in the chaparral/oak and mid-elevation forests (Fritzke and Moore 1998). In the upland plant communities of Yosemite Valley, non-native species are generally herbaceous and associated with ground disturbance (one-time or recurring). Typical species include European annual grasses. Bull thistle is an example of one of the more troublesome species, because it out-competes native herbaceous perennials and annuals for soil moisture and light (especially in seep and spring areas) and, with sufficient moisture and time, can convert some areas to near monocultures.

California Black Oak Communities

California black oaks on the floor of Yosemite Valley form pure, open stands of large, stately trees with an herbaceous understory. These pure stands—unique to the Valley due to thousands of years of anthropogenic activities, such as annual burning and removal of young conifers—are found at the change in slope between upland colluvial deposits and lower, water-driven alluvial areas. They form a band of oaks around the Valley floor between the upland plant communities and the lower-lying meadow and riparian communities. The California black oak acorn was a primary food source of American Indians in Yosemite Valley, and most of the large groves continue to be used as traditional gathering areas today. California black oak stands mixed with ponderosa pine are found throughout the Valley, and additional areas of California black oak

that have buildings and other development are found in the east Valley. California black oaks also grow in dense stands on talus slopes near drainages, but for the purposes of this analysis, talus black oaks are grouped with the other upland communities. California black oak communities are considered a highly valued natural and cultural resource in Yosemite Valley.

California black oak communities in Yosemite Valley are identified as sensitive due to declines in population size, vigor, and recruitment rates, and have been included in the highly valued resources map (Vol. Ic, plate D). Changes in natural or cultural fire processes, encroachment by conifers, browsing by deer and rodents, impacts from development, and unmanaged visitor use have all caused a significant decline in density and stand structure (Fritzke 1997). Oak woodlands are also some of the most ecologically transformed terrestrial ecosystems in the Sierra Nevada due to alterations of natural processes, development, and the introduction of non-native species. The conversion of California black oak woodlands has also had a substantial effect on wildlife species (UC Davis 1996c).

Armillaria species are fungi that attack the root and crown of hardwoods and conifers of all ages. These fungi can be found on nearly every California black oak in Yosemite Valley. *Armillaria mellea* can kill disturbed or severely stressed oaks and is apparently favored by high levels of soil moisture during the summer. Summer watering of California black oaks in landscaped areas has contributed to the overall decline of this community in Yosemite Valley.

California black oak communities are also adapted to frequent, low-intensity fires, similar to upland mixed-conifer communities. Under natural conditions, the return interval for fire is estimated at eight to 12 years (NPS 1990b). Non-native plant species have also become established in California black oak communities. Due to past and current levels of disturbance in this community, non-native species have become more widespread than in upland forests. These non-native species include annual grasses, black locust, American elm, and extensive ground-covering stands of Himalayan blackberry.

Meadow/Floodplain Communities

The meadow/floodplain communities support a wide range of vegetation. Sedges and rushes dominate wet meadows, shallow backwater areas, and ponds; flood-tolerant woody species dominate other areas. Upland species are present on natural terraces that are less frequently flooded or are flooded for only short durations. Floodplains and their associated wetlands are regarded as among the most productive and diverse ecosystems in the world (Lieth and Whittaker 1975; Brinson et al. 1981; USFS 1977a). The diversity of floodplain areas is largely due to dynamic processes associated with erosion and sediment deposition, channel migration, and flood duration.

The meadow/floodplains in Yosemite Valley play a particularly critical role in the Merced River ecosystem. High spring flows create wet areas in side channels, low-lying wetlands, meadows, and cutoff channels. These areas support concentrations of organic matter, nutrients, microorganisms, and aquatic invertebrates throughout the relatively dry summer. When the flush of winter or spring flooding occurs, this stored aquatic biomass is washed into the main river channel. Nutrients flushed from the meadow/floodplain areas form the base of the aquatic food chain in the main river channel.

Lower Montane

Lower montane meadows on the Merced River floodplain are hydrologically controlled communities. The maintenance of these communities depends on sustaining river processes, including the frequency, duration, and magnitude of flooding, and frequent, low-intensity fires. The meadows in Yosemite Valley are transition zones from drier upland and California black oak communities to wetter riparian communities. The meadows themselves have water tables that vary seasonally and link the Merced River and tributaries to seasonally dry land. Meadow communities in Yosemite Valley are considered highly valued resources.

Yosemite Valley meadows are classified into three general types: (1) wet meadow, dominated by native hydrophilic vegetation; (2) grass meadow, dominated by non-native grasses (introduced in turn-of-the-century agriculture); and (3) native hydrophytic forbs (NPS 1994e). Meadow acreage in the Valley has substantially diminished since the mid-1800s, from 745 acres in 1866 (as mapped by state geologist J.D. Whitney) to less than half that today, primarily through human-caused conversion from meadow to upland communities. Contributing factors have been a change in prehistoric fire frequency maintained by American Indians and more recent manipulations of hydrological patterns, including intentional draining of meadows to facilitate grazing and agricultural use, road and trail building with drainage diversions, and channelization of surface and subsurface water runoff.

As a result of these changes, many non-native species have become established in these meadows. Non-native grasses, planted intentionally at the turn of the century for agricultural purposes, remain the dominant species in the drier portions of most meadows. Bull thistle and Himalayan blackberry are other examples of non-native species that have proven their ability to invade and out-compete native vegetation. Non-native species alter the composition of Valley meadows, out-compete native species, and could reduce regional species diversity. Control and preventive measures are in place for many of these species.

Riparian Communities

The riparian communities are vegetative communities adjacent to the main river channel and tributaries. These plant communities serve as the interface between the river and the surrounding meadow and upland communities. Riparian plants in Yosemite tend to share the following characteristics: broad leaves, winter-deciduous, fast growth, short-lived, high soil moisture requirements, high rates of transpiration, ability to tolerate seasonal flooding and low-oxygen root environments, and ability to produce sprouts, suckers, and new root systems. Large trees within the riparian zone provide shade to keep water cooler in the summer. The thick vegetation along the river channel helps stabilize soils, which tend to be easily eroded because of their coarse texture.

Riparian zones extend outward from the Merced River and its tributaries into the canopy of riverside vegetation. These communities provide specialized habitat and important nutrients to the meadow and river systems. For example, leaves dropping into the river support a complex succession of microorganisms and invertebrates involved in decomposition. Riparian zones also moderate riverine microclimates by influencing light, temperature, and shade. They are included in the highly valued resource category due to their relatively limited distribution along

watercourses, the current level of impact they are experiencing, their importance ecologically, and their overall decline both in Yosemite Valley and throughout the Sierra Nevada.

Riparian zones in Yosemite Valley are characterized by broad-leaved deciduous trees such as white alder, black cottonwood, and willow species. Vegetation along moving water is regularly disturbed by the deposition and removal of soil and the force of flood waters. Vegetation in this zone readily colonizes newly formed river-edge deposits. Big-leaf maple riparian forests grow on moist, gravelly soils in protected spots at the base of cliffs and on alluvial soils bordering streams. They are dominated by big-leaf maples, white alder, white fir, and mountain dogwood (NPS 1994e).

Riparian communities are among the most productive, sensitive, and biologically diverse in Yosemite Valley. They also are among the most impacted resources due to their proximity to water and the effects of trampling and above- and below-ground infrastructure, including impacts from lift stations, bridges, and underground sewer lines. The National Park Service has initiated ecological restoration projects designed to protect these sensitive communities and riverbanks from unnaturally high rates of erosion and to encourage the re-establishment of vegetative cover. Visitors are directed to areas that can accommodate heavy use without long-term impacts, such as point bars and gravel bars along meandering river segments.

Out-of-Valley Areas

El Portal

In the Merced River canyon, the river is lined with a narrow band of riparian vegetation. Farther up the canyon walls is a dense mosaic of chaparral and foothill woodland communities. These communities include blue oak woodland, interior live oak woodland, foothill pine/oak woodland, interior live oak/chaparral, and riparian woodland.

All of the vegetation communities in the El Portal area are adapted to regular, frequent natural fires sparked by lightning. Fire suppression has led to increased vegetative density, especially on north-facing slopes. Natural fires probably burned every five to 10 years in grassy areas, and 25 to 40 years in chaparral areas (van Wagtendonk 1994).

Flooding has also been an important aspect of the development of riparian communities along the Merced River and along tributaries intersecting drier adjacent vegetation types of El Portal. Localized, seasonal flooding creates debris flows in tributary channels, creating a diversity of scoured areas and depositional soils for riparian species. On the Merced River, natural flooding patterns have been influenced by the construction of levees and application of riprap to confine the river. In some places, these structures have limited the development of riparian vegetation.

Oak Communities

El Portal supports numerous stately mature oak trees. Of the eight tree-like species of oak in California, six grow in El Portal. Generally, existing development in El Portal has been built to retain an overstory of native mature oaks, including valley oak, blue oak, and California black oak. This oak canopy provides indispensable shade, scenery, and wildlife habitat. The

shrub layer also retains many native elements, such as redbud, buckeye, Mariposa manzanita, and yerba santa. Undeveloped areas retain a grassy understory that consists of mostly non-native grasses along with native wildflowers. Yellow star-thistle, tocalote, and other invasive species have recently become established in these sites. Historic and current development and landscaping have introduced many non-native species into this community, including the invasive tree-of-heaven, French broom, numerous herbaceous lawn grasses, and yellow star-thistle. Fruit trees and other landscape trees are also common.

Riparian Communities

Riparian communities occur along tributaries of the Merced River; on flat, shaded terraces above the Merced River; and in areas where runoff from upland sites collects in natural depressions. Black cottonwood, red willow, white alder, big-leaf maple, and ash trees occur in the wetter areas; historic fruit trees also occur in some of these locations. The drier terraces adjacent to riparian areas are dominated by a mix of valley and live oaks and foothill pines.

Foresta

In the area being considered for development in Foresta, more than half of the site is dominated by a dry Mariposa manzanita/deerbrush/cheatgrass association. The area is undergoing secondary succession following the 1990 A-Rock Fire, with redeveloping stands of lower montane mixed conifer forests, including seedling- to sapling-sized ponderosa and knobcone pine, and resprouting California black oaks. Mesic red willow/deerbrush/Mariposa manzanita association, cattail/velvet grass wetland area, and red willow occur within and adjacent to this area. Non-native species such as annual grasses, yellow star-thistle and tocalote, and a small population of spotted knapweed, have also become established in this area and are being managed by the National Park Service.

South Landing

Vegetation at South Landing is dominated by a moderately aged stand of ponderosa pine/incense-cedar/sugar pine with shade-tolerant white fir and incense-cedar in the subcanopy. Understory shrub cover is dominated by greenleaf manzanita. The area has been disturbed by historic railroad logging and by construction of the Big Oak Flat Road. A small opening within the site is dominated by native perennials, including blue wildrye grass and lupines. North of the access road loop is a ponderosa pine/incense-cedar vegetation type with large, emergent sugar pine, ponderosa pine, white fir, and incense-cedar in the subcanopy, and an understory of greenleaf manzanita. A small drainage east of the access road is dominated by bracken fern, yarrow, and sedges.

Henness Ridge

Vegetation consists of a fairly intact overstory canopy of montane mixed conifer in the white fir/incense-cedar/sugar pine vegetation type, with a typical understory of snowberry and kelloggia. Small patches of greenleaf manzanita and bear clover with native herbaceous plants occur in gaps in the understory.

Badger Pass

The Badger Pass developed area straddles a small north-facing drainage that is densely vegetated by upper montane forests. Predominant species adjacent to the parking area and ski lodge are red fir and white fir, with a whitethorn understory. A montane wet meadow community south of the ski lodge has a diverse flora of native herbaceous and wetland species, including creek dogwood, sedges, willows, and alder. Lodgepole pines occur in the vegetated islands within the parking lot and along stream courses above and below the meadow. Non-native species have become established in heavily used portions of the site, including the base of the ski slopes and the parking area. These non-native species include common mullein, European annual grasses, and bull thistle.

Hazel Green

Vegetation at the Hazel Green area adjacent to the Big Oak Flat Road is dominated by a white fir/sugar pine/red fir association. Large white fir and sugar pine form a partially closed canopy, with an open subcanopy and minimal ground cover on the westernmost portions of the site. Average trees range from 30 inches to more than 100 inches in diameter, indicating a mixed-aged stand that has been in existence for some time. A majority of this area was burned at a low intensity by the 1987 Stanislaus Complex Fire. A ponderosa pine/incense-cedar vegetation type occurs in the central portion of the site, which is located on a knoll straddling the Hazel Green and Bull Creek headwaters. Emergent sugar pine is dominant in the subcanopy, which was logged in the early 1920s. A small stand of red willow occurs along the artificial drainage ditches

adjacent to the Big Oak Flat Road, where the headwaters of Hazel Green Creek are concentrated into one large culvert beneath the road. Hazel, ocean-spray, and white alder with sedges and rushes grow within and immediately adjacent to the drainage ditch. A small open stand of ponderosa pine occurs around the edges of the meadow at the headwaters of Bull Creek's subcanopy; it has a high proportion of California black oaks. The meadow is dominated by non-native grasses, including Kentucky bluegrass and various forbs.

Tioga Pass

Tioga Pass vegetation is characterized by a mosaic of both wet and dry subalpine meadows dominated by native perennial grasses, sedges, rushes, and forbs, and lodgepole pine forests. In dry meadows, vegetative cover is sparse and is dominated by mat-forming, short-hair sedge. A short growing season and moisture are the limiting factors in these meadows, and plants take years to become established in newly disturbed areas or to recover from trampling and construction damage. Wet meadow vegetation is found within the treeless drainages near the pass, as well as surrounding the tarns to the south. The species mix in this community is variable, but all plants remain fairly low to the ground, forming dense, matted vegetation. These areas remain saturated throughout the growing season and are more resilient to impacts due to this increased moisture availability. However, saturated soils also increase the likelihood of impacts from trampling, with the potential for increased sedimentation into streams and water bodies, as well as damage to willows and other woody perennial species.

Lodgepole pine forests in the vicinity of Tioga Pass form open to moderately dense stands on rocky, well-drained sites and east-facing slopes above the entrance station. Herbaceous vegetation forms a sparse ground cover intermixed with dead-and-down woody material. Lodgepole seedlings are readily established in disturbed soils, often forming linear stands over utility lines and along road edges; they are an indicator of past disturbance in many subalpine areas of the park. Due to the short growing season and harsh conditions, non-native plants have not yet become a problem in this area. Yellow star-thistle has been sighted in the area, and the potential exists for this and other non-native species to become established in the future.

South Entrance

Vegetation at the South Entrance is characterized by dense montane mixed coniferous forests on the drier, upland sites and riparian vegetation along ephemeral and perennial stream channels. The forests are dominated by a white fir overstory with subordinant sugar pine, Douglas-fir, and ponderosa and Jeffrey pine. Most of this area was logged by the Sugar Pine Lumber Company (railroad logging), and remnants of these practices are visible at the site. As a result, sugar pine remains a minor component of the stand structure, although it should be codominant. The understory is fairly sparse due to the dense, overgrown nature of the subcanopy and canopy. Fire has been excluded from much of the area for over a century, and fuel loads have built up to the point that normal ground cover species, such as whitethorn ceanothus and greenleaf manzanita, are nearly absent. Perennial herbaceous species such as trail plant, wood orchid, and rattlesnake plantain are common.

The leach field (for the residence and restrooms at the entrance station) is an unnatural opening in the canopy and has a variety of native and non-native plant species, including sedges, horsetail rush, bull thistle, and rabbits-ear. Riparian vegetation in the South Entrance area is found in and around low-lying areas and along stream courses. These areas are dominated by an overstory of cottonwood, Sierra dogwood, and alder, with a mix of willow, Sierra sweet-bay, and western azalea in the understory. Ground cover consists of horsetail, bracken fern, and other moisture-dependent species. Non-native species such as bull thistle and cut-leaved blackberry have become established in these riparian corridors, but remain a minor component.

Big Oak Flat Entrance

Vegetation in the vicinity of the Big Oak Flat Entrance is dominated by two types: a white fir/sugar pine/red fir vegetation type, and a ponderosa pine/incense-cedar vegetation type with emergent sugar pine. The fir association, found along the west side of the parking area and along drainages in the area, is characterized by trees of variable sizes with diameters up to 40 inches. Most of this site was logged in the early 1920s, prior to inclusion in Yosemite National Park. The subcanopy is dominated by shade-tolerant white fir with little shrub or ground cover. The ponderosa pine vegetation type occurs on drier sites to the east of the current parking area and has a more open canopy. The subcanopy is dominated by young incense-cedar and a sparse understory of whitethorn ceanothus and greenleaf manzanita.

Wawona

The proposed site for new housing in Wawona (Alternatives 2 and 5) occurs on a gentle, north-facing slope above the South Fork of the Merced River. The site is dominated by a lower montane mixed conifer forest of ponderosa pine, incense-cedar, sugar pine, white fir, and Douglas-fir. The subcanopy is dominated by shade-tolerant incense-cedar and white fir. Natural openings and rock outcrops within the site are characterized by small stands of California black oak, with an understory of native perennial grasses, including blue wildrye and California brome.

Wildlife

Wildlife in Yosemite National Park is diverse and abundant, reflecting the wide range of Sierra Nevada habitats in relatively intact condition. Concentrated areas of human use in Yosemite have affected wildlife and their habitats, especially in the east end of Yosemite Valley. Some of the most valuable and sensitive habitats are also located or once existed in the east Valley. Montane meadow and riparian areas are highly productive, structurally diverse habitats that support a high level of species diversity and provide important linkages between terrestrial and aquatic communities. The long history of development and human use in the Valley has resulted in fragmentation and reduction of these habitats, affecting their quality to wildlife.

Habitat

Habitat fragmentation is a factor affecting Yosemite's wildlife species. For wildlife populations to be viable, resources and environmental conditions must be sufficient for foraging, nesting or denning, cover, and dispersal of animals. Distribution, types, and amounts of resources must be sufficient for the needs of reproductive individuals daily, seasonally, and annually. Habitat must also be well distributed over a broad geographic area to allow breeding individuals to interact spatially and temporally within and among populations.

Some habitat types in the park may be affected by implementation of actions in the proposed alternatives. These habitat types and wildlife species typical of each are discussed in this section. Table 3-5 shows relationships between the vegetative communities discussed in the Vegetation section of this chapter and the wildlife habitat types discussed below.

Upland Habitats

Lodgepole Pine

This habitat type, found at the Tioga Pass Entrance, is dominated by lodgepole pine, which forms open stands with sparse understory vegetation. Seedlings and saplings of lodgepole pine can, however, be abundant under the canopy of mature trees. At meadow edges, stands of lodgepole pines can contain rich herbaceous layers of grasses, forbs, and sedges. Because of the low structural diversity of this habitat type, the diversity of wildlife species it contains is relatively low. Species likely to be present include northern alligator lizard, northern goshawk, Williamson's sapsucker, mountain chickadee, and red crossbill.

Montane Hardwood

This habitat type is found in Yosemite Valley, Wawona, and El Portal. Typically, this habitat is composed of a definite hardwood tree layer, made up primarily of California black oak and canyon live oak, with a poorly developed shrub layer. Some scattered conifers, such as Douglas-fir and ponderosa pine, may rise above the hardwood canopy. Acorns produced by the dense oaks provide an abundant food source for wildlife such as gray squirrel, acorn woodpecker, band-tailed pigeon, mule deer, and black bear. Snags and mature trees provide roosting and nesting cavities.

Table 3-5 Wildlife Habitat and Vegetation Relationships		
Vegetation Types	**Wildlife Habitat Types**	**Vegetation Name**
Upland	Lodgepole pine	Lodgepole pine
	Montane hardwood	Canyon live oak South–facing mixed conifer/canyon live oak Talus forest
	Montane hardwood conifer	California black oak woodland with encroaching conifers North–facing mixed conifer/canyon live oak Talus forest Open ponderosa pine/California black oak woodland
	Ponderosa pine	Ponderosa pine forest Sparse ponderosa pine scrub
	Sierra mixed conifer	Dense mixed coniferous forest White fir/Douglas–fir forest
California black oak	California black oak woodland	California black oak woodland Bridalveil[1] California black oak woodland Talus California black oak woodland
Meadow	Fresh emergent wetland	Fen
	Wet meadow	Bracken fern meadow Bunchgrass meadow *Carex senta* wet meadow border *Carex vesicaria* wet meadow Cow parsnip meadow Dogbane meadow Grass–sedge meadow Grass meadow Mixed low meadow *Muhlenbergia* meadow *Penstemon meadow*
Riparian	Riverine	River
	Lacustrine	Ephemeral pond
	Montane riparian	Azalea/blackberry/*Prunus* Big–leaf maple riparian forest Dense black cottonwood/willow riparian forest Impacted mixed riparian/conifer corridor forest Mixed riparian/conifer corridor forest Montane/alpine riparian scrub Oxbow and cutoff channels Sandbar willow riparian woodland White alder riparian forest
Other	Urban	Orchard Bare Developed open area/sparse vegetation Watered lawn Developed ponderosa pine/California black oak woodland Developed ponderosa pine forest Developed California black oak woodland

1. Changed from Pygmy California black oak woodland

Montane Hardwood Conifer

This habitat is found in Yosemite Valley, Wawona, and El Portal, and is in early succession stages in Foresta. This habitat contains about equal components of hardwoods and conifers, often occurring in mosaic-like distributions of small, pure stands of each type. The degree of canopy closure is high, with conifers such as ponderosa pine often forming the upper canopy, and broad-leaved trees such as California black oaks and canyon live oaks forming the lower canopy. The dense canopy generally allows only sparse vegetation on the forest floor, but

edges and openings can have considerable ground and shrub cover. Variability in canopy cover and understory vegetation make the habitat suitable for a wide variety of wildlife species, such as black bear, acorn woodpecker, and band-tailed pigeon. Denser stands are a favored habitat of California spotted owls. Mast crops produced by trees are an important source of food to wildlife in this habitat, and mature forests provide cavities for nesting birds.

Ponderosa Pine

This habitat type is found in Yosemite Valley and Wawona. Stands of coniferous trees dominated by ponderosa pines characterize this habitat. Understory vegetation varies inversely with canopy closure; openings and fire-disturbed areas can support dense stands of shrubs, such as manzanita, dogwood, ceanothus, and buckthorn. A mosaic of areas with trees of different ages and different canopy closure provides a wide variety of habitat layers for wildlife, such as Douglas squirrel, long-eared chipmunk, western wood pewee, red-breasted nuthatch, and Steller's jay. Large snags and lightning-scarred trees can be important roosts for several bat species. Ponderosa pine habitat can be an important holding area for migratory mule deer, providing forage and thermal cover.

Sierra Mixed Conifer

This habitat type is found in Yosemite Valley, Henness Ridge, South Landing, Hazel Green, Big Oak Flat, Badger Pass, Wawona, and South Entrance. This habitat is a mixed assemblage of conifer and hardwood species that forms multiple forest layers. Such diversity within the habitat results in numerous ecological niches for wildlife. Acorns from scattered California black oaks are an important wildlife food source, but seeds from the more abundant conifers are also a substantial source. Shrubs under canopy openings, such as manzanita, bitter cherry, and gooseberry, provide food and cover on the forest floor. Pileated woodpeckers favor this habitat, as do brown creepers, white-headed woodpeckers, Hammond's flycatcher, flammulated owl, and hermit thrush. At higher elevations, Sierra mixed conifer is the habitat of species such as marten and northern goshawk.

California Black Oak Habitat

California Black Oak Woodland

This habitat type is found in Yosemite Valley, El Portal, and Wawona. Stands of trees dominated by California black oaks characterize this habitat type. Acorns provided by California black oak in Yosemite Valley are an important source of food to a variety of wildlife. Mule deer and black bears forage extensively in this habitat in years of good acorn production. Acorn woodpeckers, as their name suggests, are highly dependent on this food source. Gray squirrels, ground squirrels, deer mice, and band-tailed pigeons also feed heavily on acorns. The large, mature California black oaks also provide cover and nesting habitat for species such as great-horned owls. Pallid bats favor mature oaks as roost sites. Many small birds such as ruby-crowned kinglets, yellow-rumped warblers, and western bluebirds glean the foliage for insects or hawk them in the understory.

Meadow Habitats

Fresh Emergent Wetland

This habitat type is found in Yosemite Valley, Foresta, El Portal, and Badger Pass. It is found in areas that are flooded frequently by streams and runoff, resulting in vegetation dominated by water-loving plants (hydrophytes). The cycle of flooding and drying in these areas causes much plant decomposition, supporting a rich nutrient cycle. Fresh emergent wetland is the second scarcest habitat type in Yosemite Valley, occupying just 0.43% of the Valley. The shallow waters in this habitat are important breeding areas for western toads and Pacific tree frogs, and they are used in spring by foraging mallards. Red-winged blackbirds nest in the taller vegetation.

Wet Meadow

This habitat type is found in Yosemite Valley, Foresta, and Badger Pass. These habitats generally have a simple structure composed of a layer of herbaceous plants and occur in places where water is at or near the surface during most of the growing season. While shrubs and trees are usually absent or sparse, they can be an important habitat component in the meadow and around its edge. Willow flycatchers depend on willow thickets for nesting habitat. Within the herbaceous plant community, habitat layers are often present on a smaller scale, with different plant species growing to different heights. Wet meadows are generally too wet for small mammals during periods of high water, but they are an important source of green vegetation in summer for herbivores such as mule deer. Birds such as mallards and red-winged blackbirds nest in wet meadows, where the water and tall vegetation can be barriers to predators. Pacific tree frogs and western toads breed in the shallow waters found in this habitat.

Riparian Habitats

Riverine

This habitat type is found in Yosemite Valley, Wawona, and El Portal. Intermittent or continually flowing water in rivers and streams distinguishes this habitat. The rate of flow varies with stream gradient; faster reaches tend to have rock or gravel bottoms, and slower reaches tend to have mud or sand bottoms. Algae and decomposing leaves from trees along the river or stream form the basis of the food chain. Nymphs of caddisflies, mayflies, and stoneflies live on the undersides of rocks and gravel, and they provide food for species such as rainbow trout and American dippers. Seasonal hatches of these aquatic insects provide important food sources for insectivorous birds and many bat species. Boulders and fallen trees in the water provide habitat diversity and substrates for organisms. Belted kingfishers dive for small fish, and mallards feed and raise broods in slower-flowing reaches. Rainbow trout, California roach, riffle sculpin, and Sacramento sucker are the native fish species in the Merced River and its tributaries. Brown trout have been introduced in these same waters, and they compete with and prey on the native species.

Montane Riparian

This habitat type is found in Yosemite Valley, El Portal, Wawona, Badger Pass, and South Entrance. Vegetation in this habitat type is structurally diverse, composed of narrow bands of dense, deciduous trees associated with lakes, ponds, springs, meadows, rivers, and streams where water may be permanent or ephemeral. Such habitats are of high value to wildlife, providing water, migration corridors, thermal cover, and diverse feeding and nesting opportunities. The linear nature of montane riparian habitat along streams is highly valuable to wildlife. Insects that feed on the trees provide abundant food for bats and insectivorous birds. Cavities in trees and snags provide nesting habitat for bird species such as swallows and woodpeckers. Leaves from deciduous trees that fall into the water are important sources of nutrients in the aquatic food chain.

The diversity and structural complexity of riparian vegetation creates a wide variety of habitats for wildlife. Additionally, the riparian habitat provides a cool/moist microclimate, further adding to habitat diversity. More species and greater numbers of wildlife are found in riparian habitats than in any other Sierra Nevada habitat type (USFS 1977b). For example, the density and diversity of bird species (breeding and migratory) tend to be much greater in riparian areas than adjacent areas (Gaines 1988). Some of these species, and most amphibians, are completely dependent on riparian and adjoining aquatic environments. The riparian vegetation along the river channel provides a continuous corridor for wildlife movement.

Other Habitats

Urban

This habitat type is found in Yosemite Valley and El Portal. Development is also found in the Foresta, Wawona, Big Oak Flat, South Entrance, and Tioga Pass areas. This habitat is composed primarily of stands of native vegetation interspersed with areas of development, such as campgrounds, parking areas, lodging, and housing areas. Vegetation can be similar in complexity to less-disturbed habitats, with California black oak, ponderosa pine, and incense-cedar as canopy species, and a shrub understory. The quality of these habitats for wildlife is limited by their small sizes and their proximity to human activity. Structures in developed areas can, however, provide nesting or roosting habitat for species such as cliff swallows and several species of bats. Urban habitats also contain non-native plant species that have been planted as ornamentals or for agriculture. Fruit-bearing species provide sources of food to wildlife in some urban habitats, such as El Portal and the east end of Yosemite Valley.

Mammals

Approximately 85 native mammal species in six families inhabit Yosemite. Of the insectivore family, five shrews and one mole are present. There are 17 species of bats, nine of which are either California species of special concern or federal species of concern (see table 3-6, following this section). Many of these bat species depend on riparian and meadow habitats for foraging, and large trees or snags for roosting. Carnivores include black bears, bobcats, coyotes, raccoons, weasels, grey foxes, mountain lions, and ringtails. Six species of squirrels, eight species of chipmunks, eight species of mice, and other species of rodents, including wood rats, voles,

gophers, and porcupines, inhabit the park. Yosemite's largest mammal, the grizzly bear, was extirpated from the region and from the state in the 1920s. There are two native species of hoofed mammals in Yosemite: the Sierra Nevada bighorn sheep and mule deer. Other mammal species that occur, but are extremely rare, are the fisher, wolverine, and Sierra Nevada red fox.

Heavy visitation to Yosemite Valley, along with the relatively large number of resident employees, has led to many human/wildlife conflicts involving mammal species such as raccoons, mule deer, and especially black bears. The basis of most of these problems is the availability of human food. Improperly stored food and garbage and deliberate feeding alter the natural behavior of wildlife and lead to property damage and threats to human safety. In 1999, more than $225,000 in property damage (746 incidents) was caused by black bears in the park.

Sightings of mountain lions in Yosemite Valley have increased in recent years. Lions are attracted to developed areas by unnaturally large prey populations that are supported by human food sources.

Birds

Yosemite's wide range of elevations and habitats support diverse bird species; 150 species regularly occur in the park, and approximately 80% of these are known or suspected to breed there. Most of these species begin to migrate to lower elevations or latitudes in the late summer and fall. Of the 84 species that are known to nest in Yosemite Valley, 54% are rare or absent in winter.

Noticeable population declines have been detected in numerous bird species in the Sierra Nevada, including Yosemite. Possible causes for these declines include grazing, logging, fire suppression, development, recreational use, pesticides, habitat destruction on wintering grounds, and large-scale climate changes. Brown-headed cowbird nest parasitism has also been identified as a possible significant factor in population declines of certain species (see Non-Native Wildlife Species, below).

Human activity has been the suspected cause in reducing several bird species in Yosemite Valley. Valley meadows are a suitable habitat for great gray owls, but sightings of this species in Yosemite Valley are rare. Willow flycatchers no longer nest in the Valley, probably due to the loss of riparian and meadow habitat and nest parasitism by brown-headed cowbirds. Warbling and solitary vireos are also vulnerable to cowbird parasitism; for this reason, reduction of these vireo species in the park is also likely. Harlequin ducks are now rarely seen in Yosemite Valley, although a pair was observed in April 2000 on the Merced River in the Valley. The next most recent observation was in 1980.

Reptiles and Amphibians

Compared to most mountain regions of the west, Yosemite has a particularly large number of native reptiles and amphibians: 14 snakes (one poisonous), seven lizards, one turtle, two toads, one tree frog, three true frogs, and five salamanders (including newt and ensatina). Most of these species have been found in Yosemite Valley.

Amphibians in Yosemite have suffered population declines similar to those seen in the rest of the Sierra Nevada (Drost and Fellers 1996). Only a few remnant populations of California red-

legged frogs and foothill yellow-legged frogs are left in the entire Sierra Nevada. At higher elevations, mountain yellow-legged frogs and Yosemite toads are still present in a number of areas; however, they are severely reduced in population and range. Research continues to identify the causes of decline in Sierra Nevada amphibians, but possible causes include habitat destruction, non-native fish and frogs, pesticides, and diseases. Two of the species of true frogs once found in Yosemite Valley are now apparently extinct: foothill yellow-legged frog and California red-legged frog. Possible factors in their disappearance include a reduction in perennial ponds and wetlands, and predation by bullfrogs, a non-native species found throughout Yosemite Valley.

Fish

Most fish in Yosemite have been introduced. Prior to trout stocking for sport fishing, native fish were limited in both range and number of species. The last period of glaciation eliminated all fish from the high country. After the glaciers retreated, the waterfalls remaining on the rivers prevented repopulation by upstream migration. Only the lower systems of the Tuolumne and Merced Rivers were populated with fish when Euro-Americans first arrived. Rainbow trout and Sacramento sucker were abundant, while the Sacramento pike-minnow, hardhead, California roach, and riffle sculpin were less common.

Because of severe climatic conditions, low nutrient availability associated with snowmelt over granitic watersheds, and a lack of spawning habitat, fish introduced in the majority of Yosemite's lakes have not survived. Fishery surveys conducted in the mid-1970s found 62 lakes with self-supporting fish populations, and 195 with little or no natural reproduction. Approximately 550 miles of streams in Yosemite National Park are thought to support fish (NPS 1977).

Beginning in 1978, a park policy was implemented that by 1991 had ended almost 100 years of fish stocking in Yosemite. Human activity has undoubtedly altered fish populations in Yosemite Valley. Non-native brown trout now outnumber rainbow trout in many stretches of the Merced River, and introductions of non-native rainbow trout have altered the genetics of Yosemite Valley's native strain.

Until recently, trees that fell into the Merced River were considered hazardous to bridges and humans and were removed. Removing fallen trees from the river, however, deprived fish and other aquatic organisms of important habitat and altered natural river dynamics. Fallen trees are now allowed to remain in the river because of their value to aquatic and riparian ecosystems.

The elimination of riparian vegetation by human trampling and placement of bank stabilization devices in many areas along the Merced River has reduced nutrients from fallen leaves in aquatic ecosystems, which has affected the food chain. The loss of soil from riverbanks caused by the lack of riparian vegetation has also led to the creation of broad, shallow stretches of the river that support few fish (CDFG 1990; USFWS 1992). Roads, ditches, utilities, and other structures in meadows have likely altered meadow hydrology, affecting water and nutrient flows into aquatic ecosystems.

Non-Native Wildlife Species

Non-native wildlife in Yosemite include several species of trout, white-tailed ptarmigan, wild turkey, brown-headed cowbird, European starling, house sparrow, and the bullfrog. Feral pigs have recently been sighted near the park and could establish ranges in park ecosystems. All of these species have some effect on native wildlife.

Rainbow trout are native to the Merced River and its tributaries in Yosemite Valley. Brown trout and non-native strains of rainbow trout were introduced, and this has altered the aquatic ecosystem of the Merced River and its tributaries in Yosemite Valley. Introducing brown, rainbow, and brook trout in higher-elevation lakes and streams, all of which were naturally fishless, has likely altered those ecosystems as well. Such introductions of fish are suspected of being the primary factor in declines of native amphibian species in the Sierra Nevada (NPS 1994f; Drost and Fellers 1996).

The sensitive balance of aquatic ecosystems in Yosemite Valley has been disrupted by the presence of bullfrogs, which are voracious, non-native predators. The full impact of bullfrogs on native species in the park is unknown, but studies in other areas of California have concluded that bullfrogs prey on a wide variety of animals, including insects, fish, other amphibians, birds, reptiles, and small mammals. Bullfrog predation was probably a factor in the disappearance of California red-legged frogs and foothill yellow-legged frogs from Yosemite Valley. It is not known when bullfrogs were introduced, but recent observations suggest that they currently occupy standing and slow-moving water throughout the Valley.

Brown-headed cowbird populations in the Sierra Nevada have recently increased (Verner and Ritter 1983), threatening native bird species. Cowbirds are nest parasites that lay their eggs in the nests of other birds, usually songbirds. Cowbird eggs hatch before the eggs of host species, and the larger, more vigorous cowbird young eject the eggs or young of the host species or out-compete the host's young for food. This parasitism can have a devastating effect on the populations of some songbird species. Cowbirds have been implicated as a factor in the disappearance of willow flycatchers from Yosemite Valley. The spread of cowbirds into the Sierra Nevada has been associated with human disturbance and activities. Currently, brown-headed cowbirds are common in Yosemite and can be found in large numbers at the park's stables and corrals, campgrounds, and residential areas. A 1995-1996 study found relatively low rates of parasitism, but also found evidence that parasitism, based on the abundance of cowbirds in Yosemite Valley, may soon increase (Laymon and Halterman 1997).

The European starling and house sparrow are two non-native species found in El Portal that affect native bird species through competition for nest cavities, a limited resource. Both species are known to aggressively evict native bird species from occupied cavities. The existing development in El Portal has likely increased the abundance of both species by providing additional nesting sites and food sources.

Special-Status Species

Some species of plants and animals have undergone local, state, or national declines, which has raised concerns about their possible extinction if protective measures are not implemented. As a result, the U.S. Fish and Wildlife Service, California Department of Fish and Game, and Yosemite National Park have established categories of these species that reflect the urgency of their status, and the need for monitoring, protection, and implementation of recovery actions. Collectively, species in these categories are referred to in this document as "special-status species."

The Federal Endangered Species Act of 1973, as amended, requires federal agencies to consult with the U.S. Fish and Wildlife Service before taking actions that could jeopardize the continued existence of any listed plant or animal species (e.g., listed as threatened or endangered) or species proposed for listing, or that could result in the destruction or adverse modification of critical or proposed critical habitat. The first step in the consultation process is to obtain a list of protected species from the U.S. Fish and Wildlife Service.

In addition, *Council of Environmental Quality Regulations for Implementing the National Environmental Policy Act* (Section 1508.27) also requires considering whether an action may violate federal, state, or local law or requirements imposed for the protection of the environment. For this reason, species listed under the California Endangered Species Act (i.e., those considered endangered, threatened, rare, or of special concern) by the California Department of Fish and Game are included in this analysis.

The various federal, state, and National Park Service categories for special-status species are defined below:

- Federal endangered: Any species that is in danger of extinction throughout all or a significant portion of its national range.
- Federal threatened: Any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its national range.
- Federal species of concern: Any species that may become vulnerable to extinction on a national level from declining population trends, limited range, and/or continuing threats (note that this is no longer an official U.S. Fish and Wildlife Service category, but is still considered in this document because it contains many species that could become threatened or endangered).
- California endangered: Any species that is in danger of extinction throughout all or a significant portion of its range in the state.
- California threatened: Any species that is likely to become an endangered species with the foreseeable future throughout all or a significant portion of its state range.
- California species of special concern: Any species that may become vulnerable to extinction on a state level from declining population trends, limited range, and/or continuing threats; could become threatened or endangered.

- California rare (plants only): A native plant that, although not currently threatened with extinction, is present in small numbers throughout its range, such that it may become endangered if its present environment worsens.
- Park rare (plants only): Identified by the National Park Service based upon the following criteria:
- Locally rare native
- Listed by the California Native Plant Society
- Endemic to the park or its local vicinity
- At the furthest extent of its range
- Of special importance to the park (identified in legislation or park management objectives)
- The subject of political concern or unusual public interest
- Vulnerable to local population declines
- Subject to human disturbance during critical portions of its life cycle

Tables 3-6 and 3-7 present federally listed threatened or endangered species and species of concern (former federal category 2 species); state-listed threatened, endangered, and rare species, and species of special concern; and species that are locally rare or threatened. These species are known to be or could be present in Yosemite Valley, El Portal, or in proposed out-of-Valley parking areas at South Landing near Crane Flat, Foresta, Henness Ridge near Chinquapin, Hazel Green, and Badger Pass. Species that could occur in the areas surrounding entrance stations at South Entrance, Tioga Pass, and Big Oak Flat are also included. Species listed in the tables are those that could be affected directly, as well as species that could be affected by radiating impacts associated with changes in human activity. A Biological Assessment has been prepared, in accordance with Section 7 of the Endangered Species Act, that further details habitat requirements for the 52 special-status plant species (see Vol. II, Appendix K).

Wildlife

A total of 46 wildlife species that could be found in areas potentially affected by the proposed actions have special federal or state status. Only one species in Yosemite is listed as federally endangered: Sierra Nevada bighorn sheep. Three of these species are listed as federally threatened (bald eagle, Valley elderberry longhorn beetle, and California red-legged frog). Four species are state listed as endangered (peregrine falcon, bald eagle, willow flycatcher, and great gray owl). Three species are state threatened (limestone salamander, Sierra Nevada red fox, and California wolverine). Those listed as state or federal threatened or endangered are protected under the state and federal Endangered Species Acts. These and other species of concern are described, with current status and habitat types, in table 3-6.

The following species accounts give a brief overview of state and federal endangered and threatened species in Yosemite. More detailed information on these species is included in the Biological Assessment (see Vol. II, Appendix K).

Bald Eagle

The bald eagle suffered steep population declines from the effects of pesticides in its food chain; however, bald eagle populations rebounded after DDT was banned. This resulted in the recent federal reclassification from endangered to threatened, and the bald eagle is currently being considered for de-listing. The bald eagle is also state endangered.

Most bald eagles seen in the park are transients, seasonally hunting over lakes, rivers, and open terrain. Bald eagle sightings are rare in Yosemite, but most often occur in Yosemite Valley, El Portal, and Foresta. No bald eagles are known to have nested in Yosemite recently, but a pair regularly nests near the park border at Cherry Lake in Stanislaus National Forest and uses nearby Lake Eleanor inside the park for foraging.

Valley Elderberry Longhorn Beetle

The Valley elderberry longhorn beetle is an insect subspecies endemic to the San Joaquin Valley of California. It is found in riparian habitats and associated upland habitats where elderberry plants grow.

The Valley elderberry longhorn beetle is found in California up to elevations of 3,000 feet. It is most commonly found along the margins of rivers and streams in the lower Sacramento River and upper San Joaquin Valley, particularly in riparian elderberry savannah or moist valley oak woodlands. The species has also been observed in the Sierra foothills, particularly in Fresno, Madera, and Placer Counties, as well as the eastern Coast Ranges foothills. The Valley elderberry longhorn beetle is completely dependent on its host plant, the elderberry. Threats to the beetle arise from the loss or alteration of elderberry habitat through urbanization and agricultural use, the use of insecticides and herbicides, and fluctuations in streamwater levels. Grazing by domestic or wild herbivores and pruning or burning by humans are additional persistent threats to elderberry plants and the continued survival of the Valley elderberry longhorn beetle.

Because the Valley elderberry longhorn beetle is not known to occur above 3,000 feet in elevation, the only location within the areas considered in this *Final Yosemite Valley Plan/SEIS* where these insects are likely to occur is El Portal and its surrounding habitat in the Merced River canyon.

California Red-Legged Frog

This species has virtually disappeared from the Sierra Nevada, remaining in only a few locations. Possible causes for this disappearance include pesticides, and predation and competition from bullfrogs.

Records of California red-legged frogs are fragmentary, but the species is believed to have occurred in at least several locations in the park, including Yosemite Valley. The only recent records for Yosemite come from a lake at 6,000 feet in elevation in the northern portion of the park. Surveys at this location within the last five years have found no red-legged frogs remaining, only bullfrogs. California red-legged frogs are also a state species of special concern.

Peregrine Falcon

This species, recently removed from the federal endangered species list, is still listed by the state as endangered. The falcon disappeared from much of its North American range, including Yosemite, during the 1950s and 1960s, primarily due to pesticide contamination. Populations of peregrine falcons began to rebound after the use of DDT was banned in the United States in 1972. In 1978, a pair of peregrine falcons was discovered nesting on El Capitan in Yosemite Valley. This discovery was followed by intensive efforts by the National Park Service and other organizations to increase the number of peregrines in the park through introduction of captive-hatched birds. There are now four active peregrine falcon nest sites in the park, three of which occur in Yosemite Valley: Lower Cathedral Rock, Rhombus Wall (east of Indian Canyon), and on the northeast face of Glacier Point. (A fourth nest site is at Hetch Hetchy Reservoir.)

Peregrine falcons feed primarily on other birds that they catch along cliff faces, such as white-throated swifts and violet-green swallows. Prey remains recovered from nest sites, however, indicate that the falcons also prey on birds from forest, meadow, and riparian habitats, such as northern flickers, Steller's jays, band-tailed pigeons, and gulls.

Factors affecting peregrine falcons in Yosemite include disturbance from climbers and aircraft, and continued pesticide contamination from residual sources outside the park.

Great Gray Owl

The global range of the great gray owl reaches its furthest southern extent in the Sierra Nevada, with the total population in California estimated to be between 100 and 200 birds. Declines of great gray owls in California may be due to habitat degradation from logging, grazing, and development. Yosemite has the highest concentration of this species, probably because the park contains the most intact habitats.

Preferred breeding habitat of great gray owls is pine and fir forests near montane meadows. Nests are established in the tops of large-diameter broken snags. At the latitude of Yosemite, high summer temperatures are an important factor affecting nesting success, so suitable nest snags must have abundant shade. Hunting occurs in meadows where small mammals such as voles and gophers are taken. In winter the great gray owls descend to meadows as low as 2,000 feet in elevation.

Areas in Yosemite of known great gray owl breeding include Crane Flat and meadows along Glacier Point Road. Known wintering areas include Big Meadow in Foresta, and Wawona. Yosemite Valley appears to contain good wintering habitat, but observations of great gray owls in this location are rare. This may be due to the high level of human disturbance in the Valley.

Willow Flycatcher

The total population of willow flycatchers in California is estimated at around 200 pairs. This tenuous status is believed to be caused by destruction of the preferred habitat—willow thickets in meadow and riparian areas—from grazing and development. Other contributing

factors could include nest parasitism by brown-headed cowbirds, nest disturbance by grazing stock, and degradation of neotropical wintering grounds.

Willow flycatchers have not been observed nesting in Yosemite Valley for nearly 35 years, with habitat destruction, human disturbance, and cowbird parasitism likely factors. A greater factor, however, has probably been the Sierrawide decline of the species, which has limited the ability of park habitats to sustain a viable population.

Recent records of willow flycatchers in Yosemite include Wawona Meadow, Hodgdon Meadow near the Big Oak Flat Entrance Station, and Westfall Meadow near Badger Pass.

State Threatened

Limestone Salamander

The limestone salamander is found in a highly restricted range near Briceburg, Mariposa County. This area is protected by the 129-acre Limestone Salamander Ecological Reserve and the Bureau of Land Management's 1,600-acre Limestone Salamander Area of Critical Environmental Concern. The limited range of this species is natural, but Highway 140, running through potential habitat, has likely had a localized detrimental effect on limestone salamanders.

The species is found in limestone substrates in mixed chaparral habitats along the Merced River and its tributaries from 1,100 to 2,500 feet in elevation. It frequents limestone cliffs and ledges in talus, especially in areas overgrown with moss. During periods of surface activity (November to March), limestone salamanders may be found on steep north- and east-facing slopes. California buckeye may be an indicator species for optimal habitat.

No limestone salamanders have been seen in the park, with its closest occurrence 30 miles west of El Portal. Although the project area in El Portal lies within the elevation range of this species, and suitable vegetative habitat appears to exist, limestone salamanders are not expected to occur in this area due to the lack of limestone substrate.

Sierra Nevada Red Fox

The Sierra Nevada red fox prefers forests interspersed with meadows and alpine fell-fields between 3,900 and 11,900 feet in elevation, although a vast majority of records of this species are from above 7,000 feet in elevation. The low end of the elevation range is based on the historic collection of a pair of red foxes at Big Meadow near Foresta. All other specimens in the Museum of Vertebrate Zoology (10) were collected near Tioga Pass. Near the end of the 19th century, intensive fur trapping in the Sierra Nevada greatly reduced numbers of Sierra Nevada red fox. Today, the species is exceedingly rare. A photograph was taken of a red fox at Tioga Pass Resort in January 1991, but it could not be determined whether this individual was a Sierra Nevada red fox or an introduced eastern red fox.

Extensive suitable habitat for Sierra Nevada red foxes exists around Tioga Pass. If the identification of the red foxes collected at Big Meadow is valid, the species may have also existed down to relatively low elevations.

California Wolverine

The wolverine is exceeding rare in California, with its distribution scattered over wide areas. Optimal habitat for this species is in forests with large trees and moderate to dense canopy cover, in red fir, lodgepole pine forests, and in alpine meadows. Special habitat requirements are low human disturbance, and rocky areas, caves, logs, or snags as den sites. Prey includes a variety of rodents, birds, insects, and occasionally ungulates. Wolverines will also eat fruits.

Wolverines probably always occurred in low numbers in the Sierra Nevada, but trapping and human disturbance have likely reduced their population. Tioga Pass lies within the historical range of optimal habitat for wolverines, based upon the collection of specimens from nearby locations.

The remaining special-status species, federal species of concern and state species of special concern, are described in table 3-6 and in the Biological Assessment (Vol. II, Appendix K).

Table 3-6 Special-Status Species – Wildlife Species					
Species	Area[1]	Status[2]			Habitat Type/Occurrence
	BO, BP, E, F, HG, HR, S, SE, T, W, Y	USFWS	State	Park	
Invertebrates					
Merced Canyon (Yosemite) shoulderband snail *Helminthoglypta allynsmithi*	E	FSC			Found in rockslide habitat with shade and moisture. Recorded in Merced River canyon near El Portal.
Mariposa sideband snail *Monadenia hillebrandi*	E, Y	FSC			Occurs in rockslide habitat with shade and moisture. Reported in Yosemite Valley in the early 1900s.
Sierra pygmy grasshopper *Tetrix sierrana*	E, SE, W, Y	FSC			One record for El Portal (1953). Only other record is from Madera County.
Wawona riffle beetle *Atractelmis wawona*	E, W, Y	FSC			Limited distribution in the main stem and South Fork of the Merced River. Little known of exact distribution or habitat needs.
Valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	E	FT			Found in conjunction with its host plant, the elderberry (*Sambucus spp.*), below 3,000 feet in elevation.
Bohart's blue butterfly *Philotiella speciosa bohartorum*	E	FSC			An annual in the buckwheat family *(Chorizanthe membrane)* is the suspected preferred forage plant. It is found in association with serpentine soils. Last recorded in 1970 near Briceburg in the Merced River canyon.
Reptiles and Amphibians					
Limestone salamander *Hydromantes brunus*	E	FSC	CT		Very limited distribution along Merced River and its tributaries between elevations of 800 and 2,500 feet, usually in association with limestone outcrops. El Portal lies within elevational range, but not recorded there or elsewhere in park.
Mount Lyell salamander *Hydromantes platycephalus*	Y, T	FSC	CSC		Occurs in massive rock areas between 4,000 and 11,500 feet elevations, in rock fissures, seeps, shade, and low–growing plants. Two records in Yosemite Valley: base of Cathedral Rocks and base of Bridalveil Fall.
Yosemite toad *Bufo canorus*	BP, T	FSC	CSC		Restricted to areas of wet meadows in central Sierra Nevada between elevations of 6,400 and 11,300 feet.
California red–legged frog *Rana aurora draytonii*	F, W, Y, E	FT	CSC		Found in quiet pools in permanent streams in mixed conifer zones and foothills. Prefers riparian deciduous habitat. Many park museum specimens from one lake (6,000 feet elevation). Once found in Yosemite Valley but now apparently extinct due to loss of habitat and predation by bullfrogs and other species.
Foothill yellow–legged frog *Rana boylei*	E, F, W, Y	FSC	CSC		Formerly abundant, and found up to elevations of 6,000 feet, this species has virtually disappeared from its range in the Sierra Nevada from unknown causes. Preferred habitat was rocky streams and wet meadows. Historical records exist from Yosemite Valley, but none recent.
Mountain yellow–legged frog *Rana muscosa*	BP, T	FSC	CSC		A species of mountain habitats, occurring between elevations of 4,500 to over 12,000 feet; found in streams, lakes, and ponds in a variety of vegetation types.

1. Area of Potential Occurrence: BO=Big Oak Flat, BP=Badger Pass, E=El Portal (includes Merced River gorge), F=Foresta, HG=Hazel Green, HR=Henness Ridge, S=South Landing, SE=South Entrance, T=Tioga Pass Entrance, W=Wawona, Y=Yosemite Valley
2. Special–Status Species: FE=federally endangered, FT=federally threatened, FD=federally delisted (status to be monitored for at least five years), FSC=federal species of concern, CE=California endangered, CT=California threatened, CSC=California species of special concern, R=California rare, PR=Yosemite Park rare

Table 3-6 Special-Status Species – Wildlife Species					
Species	Area[1]	Status[2]			Habitat Type/Occurrence
	BO, BP, E, F, HG, HR, S, SE, T, W, Y	USFWS	State	Park	
Northwestern pond turtle *Clemmys marmorata marmorata*	E, F, W, Y	FSC	CSC		Found in the Sierra Nevada up to 6,000 feet elevation. Has decreased by up to 80% in numbers, probably due to habitat fragmentation and non–native predators. Habitat is permanent water in a variety of habitat types. Recent records include several from Crane Creek in El Portal and an unconfirmed report in Yosemite Valley in 1999.
Southwestern pond turtle *Clemmys marmorata pallida*	E, F, W, Y	FSC	CSC		Found in the Sierra Nevada up to 6,000 feet elevation. Has decreased by up to 80% in numbers, probably due to habitat fragmentation and non–native predators. Habitat is permanent water in a variety of habitat types. Recent records include several from Crane Creek in El Portal and an unconfirmed report in Yosemite Valley in 1999.
Birds					
Harlequin duck *Histrionicus histrionicus*	E, W, Y	FSC	CSC		Breeds along large, swift–moving mountain rivers. Was formerly found in every major watershed in the Sierra, but has disappeared, with no sightings in the last 20 years. Formerly nested in Yosemite Valley.
Cooper's hawk *Accipiter cooperi*	BO, BP, E, F, HG, HR, S, SE, W, Y		CSC		Found in wooded areas up to elevations of 9,000 feet in the Sierra Nevada. Numerous recent records for Yosemite, especially in Yosemite Valley. Habitat destruction in its range has led to population declines. Frequently hunts along wooded edges.
Northern goshawk *Accipiter gentilis*	BO, BP, HG, HR, S, SE, T, Y	FSC	CSC		Favors moderately dense coniferous forests broken by meadows and other openings, between 5,000 and 9,000 feet elevation. Typically nests in mature conifer stands near streams. Habitat destruction in its range has caused population declines. Has been recorded in the Valley, primarily between November and February.
Sharp–shinned hawk *Accipiter striatus*	BO, BP, HG, HR, S, SE, W, E, Y		CSC		Hunts in open coniferous forest and edges of meadows and clearings between 4,000 and 7,000 feet in the Sierra Nevada. Nest in forests. One 1930 nesting record for Yosemite Valley.
Golden eagle *Aquila chrysaetos*	E, F, T, Y		CSC		Found in a wide range of elevations in the park. Needs open terrain for hunting. Feeds primarily on small mammals. Nests on cliffs and in large trees in open areas.
Bald eagle *Haliaeetus leucocephalus*	E, F, W, Y	FT	CE		Forages over river, streams, and lakes. Primarily eats fish, also carrion, waterbirds, and small mammals. Transient in the park. No nesting in the park.
Merlin *Falco columbarius*	E, W, Y, F		CSC		Occurs mostly below 4,000 feet elevation, ranging from annual grasslands to ponderosa pine and California black oak woodland, but prefers open country. Feeds primarily on birds. Reduction in numbers over recent decades may be due to pesticides.
Prairie falcon *Falco mexicanus*	F, Y, T		CSC		Primarily associated with grasslands and meadows where it feeds on small mammals and birds. Nests on cliffs. Has declined in California from several probable factors, including nest robbing by humans, control of prey species, and pesticides. Many records of this species in alpine areas of Yosemite, but it is also occasionally seen in Yosemite Valley and Foresta.

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Table 3-6 Special-Status Species – Wildlife Species					
Species	Area[1]	Status[2]			Habitat Type/Occurrence
	BO, BP, E, F, HG, HR, S, SE, T, W, Y	USFWS	State	Park	
American peregrine falcon *Falco peregrinus anatum*	W, Y	FD	CE		Usually nests on high cliffs near water to search for prey. Three active nest sites in Yosemite Valley.
Long–eared owl *Asio otus*	BO, E, HG, HR, S, SE, W, Y		CSC		Requires riparian or other thickets with small, densely canopied trees for roosting and nesting. Proximity of this habitat to meadow edges for hunting also enhances quality. One nesting record in Yosemite Valley in 1915.
Great gray owl *Strix nebulosa*	BP, F, W, Y		CE		Entire California population of this species is restricted to the Yosemite region, where it reaches southernmost extent of its North American range. Breeds in mixed conifer/red fir forests bordering meadows. Winters in mixed conifer down to blue oak woodlands. Research suggests that human disturbance could affect foraging success of this species, which may explain its absence from Yosemite Valley.
California spotted owl *Strix occidentalis occidentalis*	BO, BP, E, F, HG, HR, S, SE, W, Y	FSC	CSC		Breeds in oak and ponderosa pine forests upslope to lower elevation red fir forests (up to elevations of 7,600 feet), with mixed conifer the optimum type. Presence of California black oak in the forest canopy also enhances habitat suitability. Confirmed sightings in Yosemite Valley near Happy Isles, Mirror Lake, Yosemite Chapel, and the base of Cathedral Rocks. Suitable habitat in or near all the project sites with the exception of Tioga Pass.
Willow flycatcher *Empidonax trailii*	BO, BP, F, W, Y		CE		Breeds in mountain meadows and riparian areas between 2,000 to 8,000–foot elevations in the Sierra Nevada, with lush growth of shrubby willows. Has disappeared from much of its range, due to habitat destruction and parasitism from brown–headed cowbirds.
Yellow warbler *Dendroica petechia*	BO, E, F, HG, HR, S, SE, BP, W, Y		CSC		Prefers riparian woodlands, but also breeds in chaparral, ponderosa pine, and mixed conifer habitats with sub–stantial amounts of brush. In recent decades, numbers of breeding pairs have declined dramatically in many lowland areas of California. A major cause of this decline has apparently been brown–headed cowbird parasitism.
Mammals					
Mount Lyell shrew *Sorex lyelli*	T	FSC			Favors riparian zones and other wet sites.
Pallid bat *Antrozous pallidus*	BO, BP, E, F, HG, HR, S, SE, W, Y		CSC		Primarily found below 6,000 feet elevation in a variety of habitats, especially oak, ponderosa pine, and giant sequoia. Roosts in rock outcrops, caves, and hollow trees. Known nursery colony in Yosemite Valley at The Ahwahnee. Population decline due to habitat destruction.
Townsend's big–eared bat *Corynorhinus townsendii townsendii*	BO, BP, E, F, HG, HR, S, SE, W, Y		CSC		Found in all habitats up to alpine zone. Requires caves, mines, or buildings for roosting. Prefers mesic habitats where it feeds on insects from brush or trees along habitat edges. Captured in Yosemite Valley during 1993 survey.

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Spotted bat *Euderma maculatum*	BO, BP, E, F, HG, HR, S, SE, W, Y, T	FSC	CSC		Rare throughout range. Uses crevices in rock faces for roosting and reproduction. Forages in a wide variety of habitats, primarily for moths. Surveys 1992–1997 in Yosemite located this species in numerous locations, including Wawona, Crane Flat, Tuolumne Meadows, and especially Yosemite Valley.
Small–footed myotis bat *Myotis ciliolabrum*	BO, BP, E, F, HG, HR, S, SE, W, Y	FSC			Usually found below 8,800 feet elevation and in wooded and brushy habitats near water. Forages among trees and over water. Breeds in colonies in buildings, caves, and mines.
Long–eared myotis bat *Myotis evotis*	BO, BP, E, F, HG, HR, S, SE, W, Y	FSC			Wide range from coast to high elevations in the Sierra Nevada, in montane oak woodlands. Roosts primarily in hollow trees, especially large snags or lightning–scarred live trees. Captured in Yosemite Valley in 1993.
Fringed myotis bat *Myotis thysanodes*	BO, BP, E, F, HG, HR, S, SE, W, Y	FSC			Found to elevations of at least 6,400 feet in the Sierra Nevada in deciduous/mixed conifer forests. Feeds over water, in open habitats, and by feeding on insects from foliage. Roosts in caves, mines, buildings, and trees, especially large conifer snags. Captured during surveys in Yosemite Valley in 1993 near Yosemite Creek.
Long–legged myotis bat *Myotis volans*	BO, BP, E, F, HG, HR, S, SE, W, Y	FSC			Found up to high elevations in the Sierra Nevada, in montane coniferous forest habitats. Forages over water, close to tree and cliffs, and in openings in forests. Roosts primarily in large–diameter snags. Forms nursery colonies numbering hundreds of individuals, usually under bark or in hollow trees. Captured in Yosemite Valley in 1993.
Yuma myotis bat *Myotis yumanensis*	BO, BP, E, F, HG, HR, S, SE, W, Y	FSC	CSC		Usually occurs below 8,000 feet elevation. Forages over open, still, or slow–moving water and above low vegetation in meadows. Roosts in caves, buildings, or crevices. Nursery colonies of several thousand individuals may be in caves, mines, or buildings. Captured during surveys in Yosemite Valley and Wawona in 1993 and 1994.
Greater western mastiff bat *Eumops perotis californicus*	BO, BP, E, F, S, SE, W, Y, T, HG, HR	FSC	CSC		Found in a variety of habitats to over 10,000 feet in elevation. Roosts primarily in crevices in cliff faces and occasionally trees. Detected most often over meadows and other open areas, but will also feed above forest canopy, sometimes to high altitudes.
Sierra Nevada snowshoe hare *Lepus americanus tahoensis*	BO, BP, SE, SL, T	FSC			Uncommon resident of upper elevations in the Sierra Nevada. Prefers the edges of forested habitats, heterogeneous habitats, and areas with dense understory, particularly in riparian habitats.
White–tailed hare *Lepus townsendii*	T		CSC		Suitable habitat is found in meadows, willow thickets, shrubby ridgetops, and open stands of lodgepole pines.
Sierra Nevada mountain beaver *Aplodontia rufa californica*	BP	FSC	CSC		Prefers willow–lined perennial streams through montane meadows, where it establishes a system of burrows, often with the stream running through them. Known population at Badger Pass.

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Table 3-6 Special-Status Species – Wildlife Species					
Species	Area[1]	Status[2]			Habitat Type/Occurrence
	BO, BP, E, F, HG, HR, S, SE, T, W, Y	USFWS	State	Park	
Sierra Nevada red fox *Vulpes vulpes necator*	BO, BP, F, HG, HR, S, SE, W, Y, T	FSC	CT		Primarily found in red fir, lodgepole pine, sub alpine forests, and alpine Sierra. Found mostly above 7,000 feet and rarely below 5,000 feet elevation. Five unconfirmed reports for Yosemite Valley, but these sightings could have been of eastern red fox, a non–native species that is present on the west slope of the Sierra Nevada.
California wolverine *Gulo gulo luteus*	T	FSC	CT		Found in a wide variety of mountain habitats. Needs water, caves, logs, or other cover for denning. No wolverine have been recorded within California since the 1970s.
American (pine) marten *Martes americanus*	BO, BP, HG, HR, S, SE, Y, T	FSC			Found in dense, complex coniferous forests with large trees and snags. Structural complexity near the ground is important for foraging and protection from predators.
Pacific fisher *Martes pennanti pacifica*	BO, BP, HG, HR, S, SE, F, Y, W	FSC	CSC		Occurs in coniferous forests and deciduous–riparian habitats with a high canopy closure, mostly above 6,000 feet elevation. Carnivorous, but may also eat fruit and fungi. Densities in the central Sierra Nevada appear to be very low, for unknown reasons; higher densities in both the northern and southern Sierra Nevada. Fishers have been seen within the last 10 years near Henness Ridge and Crane Flat.
Sierra Nevada bighorn sheep *Ovis canadensis sierrae*	T	FE	CE		High elevation species that was reintroduced to the park in 1986, Population numbers have fluctuated between a high of 85+ animals in 1991 to less than 20 today.

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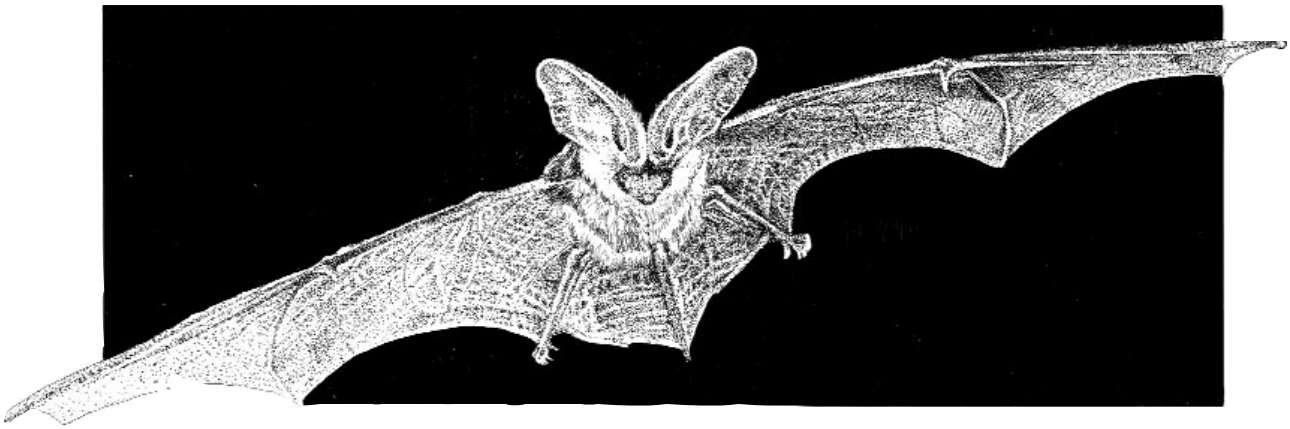

Vegetation

A total of 52 plant species that have special federal, state, or park status has been evaluated in this *Final Yosemite Valley Plan/SEIS*. Four of these species are classified as federal species of concern, four are listed as rare by the State of California, and the remaining 44 are listed by the park as rare.

The four federal species of concern (Congdon's lomatium, Tiehm's rock-cress, slender-stemmed monkeyflower, and Bolander's clover) are former category 2 species (species for which listing might be appropriate) under the Federal Endangered Species Act. The category was abolished in 1996; however, it continues to be evaluated and managed by the National Park Service.

Four state-listed rare species (Yosemite onion, Tompkin's sedge, Congdon's woolly-sunflower, and Congdon's lewisia) are evaluated. These are species that are considered restricted and limited throughout all or a significant portion of their range, and may represent disjunct populations at the extreme of their range. The NPS-28 *Natural Resources Management Guidelines* (NPS 1991a) state that the management of these species should, to the extent possible, parallel the management of federally listed species.

The remaining 44 species on this list are classified by the park as rare. These species are rare in the park but have no other status (either state or federal). They are included on this list because they could be affected (due to proximity to human use zones, or susceptibility of individual plants or populations to loss from natural or unnatural events), and their existence is considered by the National Park Service when evaluating consequences for any proposed management action. Many of these species have extremely limited distributions in the park and may represent relict populations from past climatic or topographic conditions, while other species may be at the extreme extent of their range in the park or represent changes in species genetics.

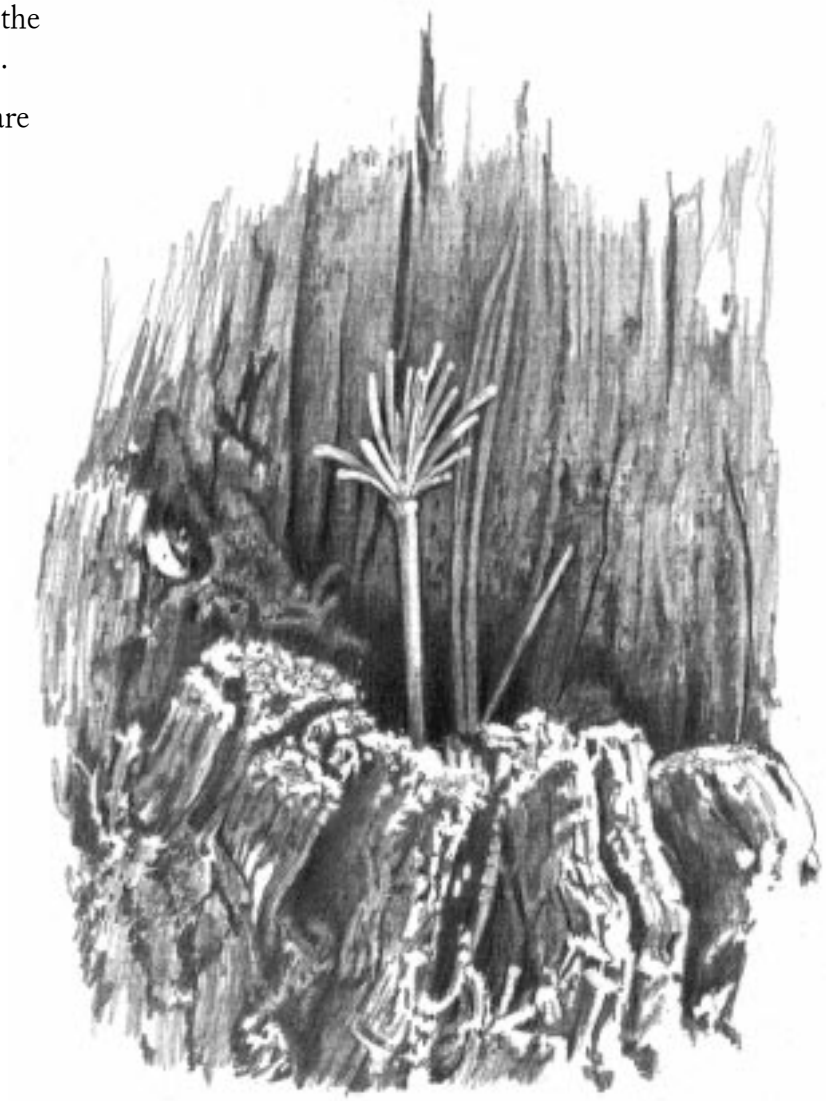

Table 3-7 Special-Status Species – Plant Species					
Species	Area[1]	Status[2]			Habitat Type/Occurrence
	BO, BP, E, F, HG, HR, S, SE, T, W, Y	USFWS	State	Park	
Yosemite onion *Allium yosemitense*	E, W		R		Confined to open metamorphic slabs, talus slopes, and scree. Restricted to the Merced River watershed.
Sugar stick *Allotropa virgata*	Y			PR	Confined to California black oak and mixed conifer forest areas.
Snapdragon *Antirrhinum leptaleum*	F, W			PR	Restricted to small washes and shallow ditches in disturbed areas.
Tiehm's rock–cress *Arabis tiehmii tiehmii*	T	FSC			Found in alpine fell–fields on the slopes of Mt. Dana above Tioga Pass.
Sweetwater Mountains milkvetch *Astragalus kentrophyta* var. *danaus*	T			PR	This strictly alpine species occurs on dry, exposed unglaciated ridges and slopes along the Sierra Nevada crest from 10,000 to 12,500 feet in elevation.
Black and white sedge *Carex albonigra*	T			PR	Locally rare in the Sierra Nevada on subalpine talus slopes and cliff bases in marshy areas and springs.
Capitate sedge *Carex capitata*	T			PR	Restricted in the Sierra Nevada; strictly alpine.
Congdon's sedge *Carex congdonii*	T			PR	Talus slopes.
Tompkin's sedge *Carex tompkinsi*	E		R		Limited to foothill oak woodland and chaparral areas and along lower talus slopes. Found sporadically from Arch Rock to El Portal in the Merced River canyon.
Indian paintbrush *Castilleja foliolosa*	E			PR	Found on dry, open rocky slopes on the edge of chaparral areas below 4,500 feet in elevation.
Alpine cerastium *Cerastium beeringianum*	T			PR	Infrequent in moist snowmelt or rivulets, mossy turf on lakeshores, and streambank overhangs above 9,500 feet in elevation.
Small's southern clarkia *Clarkia australis*	F, HG			PR	Confined to open ponderosa pine forests.
Sierra claytonia *Claytonia nevadensis*	T			PR	Endemic to California, limited to alpine fell–fields in perennially moist areas in granitic and metamorphic substrates.
Child's blue–eyed Mary *Collinsia childii*	W			PR	Endemic to central and southern Sierra Nevada, reaching the northern extent of its range in Mariposa County. Occurs on shaded slopes and in open oak and mixed coniferous woodlands.
Collinsia *Collinsia linearis*	E			PR	Restricted to dry, metamorphic rock outcrops along the metamorphic–granitic contact zone.
Draba *Draba praelta*	T			PR	Rare in steep springs with bunch grass hummocks above 10,000 feet in elevation along the Sierra Nevada crest in the Tioga Pass region.
Round–leaved sundew *Drosera rotundifolia*	Y, W			PR	Confined to sphagnum bogs.
Stream orchid *Epipactis gigantea*	Y			PR	Restricted to moist granitic ledges, and planted in landscaped areas.

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Table 3-7 Special-Status Species – Plant Species					
Species	Area[1]	Status[2]			Habitat Type/Occurrence
	BO, BP, E, F, HG, HR, S, SE, T, W, Y	USFWS	State	Park	
Desert fleabane *Erigeron linearis*	T			PR	Found in the granitic–metamorphic contact zone on the slopes of Mt. Dana.
Rambling fleabane *Erigeron vagus*	T			PR	Found in isolated populations on the slopes of Mt. Dana and adjacent alpine peaks.
Congdon's woolly–sunflower *Eriophyllum congdonii*	E		R		Restricted to dry, mostly south–facing metamorphic and metasedimentary outcrops. Occurs on dry ridges on metamorphic rocks, scree, and talus.
Fawn–lily *Erythronium purpurascens*	Y			PR	Known from riparian corridors in the eastern end of Yosemite Valley.
Northern bedstraw *Galium boreale* ssp. *septentrionale*	Y			PR	Found in wet lower montane meadows.
Dane's dwarf gentian *Gentianella tenella* ssp. *tenella*	T			PR	Occurs in high elevation meadows and moist seepage areas on rock and shaded cliff crevices above 10,000 feet in elevation.
Goldenaster *Heterotheca sessiliflora* ssp. *echioides*	F			PR	Limited to grasslands and open oak woodlands below 4,400 feet in elevation.
Yosemite ivesia *Ivesia unguiculata*	BP			PR	Endemic to montane meadows and forest edges.
Common juniper *Juniperus communis*	T			PR	Found infrequently along the crest of the Sierra Nevada near tree–line.
Pitcher sage *Lepechinia calycina*	E			PR	Found on rocky slopes within chaparral and canyon live oak woodlands.
Sierra laurel *Leucothoe davisiae*	Y			PR	Grows in wet areas and bogs in acid soil.
Congdon's lewisia *Lewisia congdonii*	E		R		Grows on moist, exposed metamorphic rock faces and slopes. Occurs in chaparral and mixed conifer forest on north–facing slopes in shade.
False pimpernel *Lindernia dubia* var. *anagallidea*	Y			PR	Occurs in wet meadows.
Congdon's lomatium *Lomatium congdonii*	E	FSC			Restricted to serpentine and metamorphic soils in canyon live oak woodlands.
Congdon's monkeyflower *Mimulus congdonii*	E			PR	Found in granitic soils in disturbed areas, seeps, runoff areas on slopes.
Slender–stemmed monkeyflower *Mimulus filicaulis*	HG	FSC			Found in vernally moist habitats, typically in gravelly soils in meadows and seeps in the lower to montane forest zone.
Inconspicuous monkeyflower *Mimulus inconspicuus*	F			PR	Found near hillside streams or seeps in partial shade.
Palmer's monkeyflower *Mimulus palmeri*	E			PR	Restricted to damp, shaded slopes under canyon live oaks.

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Table 3-7 Special-Status Species – Plant Species					
Species	Area[1]	Status[2]			Habitat Type/Occurrence
	BO, BP, E, F, HG, HR, S, SE, T, W, Y	USFWS	State	Park	
Pansy monkeyflower *Mimulus pulchellus*	F			PR	Found in vernally moist, open, gravelly places such as vernal pools.
Dwarf sandwort *Minuartia pusilla*	BP			PR	Confined to open pine forests and chaparral slopes.
Sierra sweet–bay *Myrica hartwegii*	SE, W			PR	Endemic to the northern and central Sierra Nevada. Restricted to stream banks, forming small thickets along the river.
Azure penstemon *Penstemon azureus* ssp. *angustissimus*	Y			PR	Generally found in moist woodlands and open forests.
Phacelia *Phacelia platyloba*	E			PR	Found in gravelly or rocky soils in chaparral and canyon live oak woodland.
Phacelia *Phacelia tanacetifolia*	Y			PR	Grows in moist sandy and gravelly open areas.
Snow willow *Salix reticulata*	T			PR	Reaches the westernmost extent of its range in wet areas and seeps within alpine fell–fields along the crest of the Sierra Nevada in Yosemite.
Wood saxifrage *Saxifraga mertensiana*	Y			PR	Endemic to northern and central Sierra Nevada. Grows on mossy rocks and moist cliffs.
Bolander's skullcap *Scutellaria bolanderi*	W			PR	Occurs in gravelly soils along stream banks and in oak and pine woodlands.
Groundsel *Senecio serra* var. *serra*	T			PR	In the park, this species is restricted to open coniferous forests or sagebrush scrub on the lower slopes of Mt. Dana and the slopes west of Tioga Pass.
Giant sequoia *Sequoiadendron giganteum*	W, Y			PR	Grows in three discrete groves in the park, has also been planted in historic and recent landscaped areas.
Ladies' tresses *Spiranthes porrifolia*	Y			PR	Found in wet meadows.
Bolander's clover *Trifolium bolanderi*	BP	FSC			Confined to wet montane meadows.
Trillium *Trillium angustipetalum*	W			PR	Found in moist meadow, montane coniferous forests, foothills, and chaparral.
Whitneya *Whitneya dealbata*	S			PR	Located in open montane forests and dry meadows and slopes.
Hall's wyethia *Wyethia elata*	W			PR	Endemic to the central and southern Sierra Nevada. Occurs in open deciduous woodlands and coniferous forests.

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Regulatory Overview

Yosemite National Park is classified as a mandatory Class I area under the Clean Air Act (42 USC 7401 et seq.). This most stringent air quality classification protects national parks and wilderness areas from air quality degradation. The Clean Air Act gives federal land managers the responsibility for protecting air quality and related values, including visibility, plants, animals, soils, water quality, cultural resources, and public health, from adverse air pollution impacts. Yosemite National Park is located in three California counties: Tuolumne, Mariposa, and Madera (see Vol. IC, plate B). Tuolumne and Mariposa Counties are within the Mountain Counties Air Basin, and Madera County is within the San Joaquin Valley Air Basin of the San Joaquin Valley Unified Air Pollution Control District. Yosemite Valley is in Mariposa County, which is regulated by the Mariposa County Air Pollution Control District.

National Ambient Air Quality Standards

The federal Clean Air Act, as amended in 1990, requires the U.S. Environmental Protection Agency to identify national ambient air quality standards to protect public health and welfare. Standards have been set for six pollutants: ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, lead, and particulate matter less than 10 microns (PM_{10}). The U.S. Environmental Protection Agency also promulgated a revised standard for ozone and a new standard for particulate matter less than 2.5 microns ($PM_{2.5}$). However, in the spring of 1999, a U.S. Court of Appeals panel remanded the standard to the U.S. Environmental Protection Agency for further consideration. These pollutants are called criteria pollutants because the standards satisfy criteria specified in the Clean Air Act. An area where a standard is exceeded more than three times in three years can be considered a nonattainment area. Nonattainment areas are subject to planning and pollution control requirements that are more stringent than in those areas where standards are met.

While air quality in an air basin is usually determined by emission sources within the basin, pollutants blown from upwind air basins may also affect air quality. For example, the California Environmental Protection Agency concluded that the ozone exceedances in 1995 in the southern portion of the Mountain Counties Air Basin (i.e., Tuolumne and Mariposa Counties) were caused by transport of ozone and ozone precursors from the San Joaquin Air Basin. Air Quality in the Mountain Counties Air Basin also is affected by pollutant transport from the metropolitan Sacramento and San Francisco Bay areas.

California Ambient Air Quality Standards

The California Air Resources Board has set ambient air quality standards to protect public health and welfare that are more strict than the national standards. Under the 1988 California Clean Air Act, air basins were designated as attainment, nonattainment, or unclassified.

Table 3-8 shows the California and federal air quality standards attainment designation for the counties containing portions of Yosemite National Park. Of the pollutants noted, only carbon monoxide and nitrogen dioxide are regulated from mobile sources. In addition, hydrocarbons, or volatile organic compounds, are regulated to address ozone emissions because volatile organic compounds, along with nitrogen dioxide emissions, are precursors to the formation of ozone.

Table 3-8
Federal and California Ambient Air Quality Standards

Pollutant	Averaging Time	Federal Standards		California Standards	Objective
		Primary	Secondary		
Ozone	1–hour	0.12 ppm (235 μg/m^3)	0.12 ppm (235 μg/m^3)	0.09 ppm (180 μg/m^3)	To prevent breathing difficulties, eye irritation, and biological effects to sensitive species
	8–hour	0.08 ppm (157 μg/m^3)	0.08 ppm (157 μg/m^3)	NS	
Carbon Monoxide	1–hour	35 ppm (40 μg/m^3)	35 ppm (40 μg/m^3)	20 ppm (23 μg/m^3)	To prevent carboxyhemoglobin levels greater than 2%
	8–hour	9 ppm (10 μg/m^3)	NS	9 ppm (10 μg/m^3)	
Nitrogen Dioxide	1–hour	NS	NS	0.25 ppm (470 μg/m^3)	To prevent breathing difficulties; reduce smog formation, and improve visibility
	Annual Average	0.053 ppm (100 μg/m^3)	0.053 ppm (100 μg/m^3)	NS	
Sulfur Dioxide	1–hour	NS	NS	0.25 ppm (655 μg/m^3)	To prevent increased respiratory disease, acid rain, crop damage, odor nuisance, and improve visibility
	3–hour	NS	0.5 ppm (1,300 μg/m^3)	NS	
	24–hour	0.14 ppm (365 μg/m^3)	NS	0.04 ppm (105 μg/m^3)	
	Annual Average	0.03 ppm (80 μg/m^3)	NS	NS	
Respirable Particulate Matter (PM_{10})	24–hour Average	150 μg/m^3	150 μg/m^3	50 μg/m^3	To prevent chronic diseases of the respiratory tract and improve visibility
	Annual Mean	50 μg/m^3 (arithmetic)	NS	30 μg/m^3 (geometric)	
Fine Particulate Matter ($PM_{2.5}$)	24–hour	65 μg/m^3 (arithmetic)	65 μg/m^3 (arithmetic)	NS	
	Annual Mean	15 μg/m^3 (arithmetic)	15 μg/m^3 (arithmetic)	NS	
Lead	30–day Average	NS	NS	1.5 μg/m^3	To prevent neurological system damage
	Calendar Quarter	1.5 μg/m^3	1.5 μg/m^3	NS	
Sulfates	24–hour	NS	NS	25 μg/m^3	To improve visibility and prevent health effects
Visibility–Reducing Particles	One Obervastion	NS	NS	No reduction in prevailing visibility to <10 miles when relative humidity <70%	To improve visibility
Hydrogen Sulfide	1–hour	NS	NS	0.03 ppm (42 μg/m^3)	To prevent odor nuisance

ppm=parts per million, μg/m^3=micrograms per cubic meter, NS=No standard

Table 3-9 Status of Ambient Air Quality Designations						
Pollutant	Tuolumne County		Mariposa County[1]		Madera County	
	California	Federal	California	Federal	California	Federal
Ozone (1-hour)	N	U/A	N	U/A	N	N
Carbon monoxide	A	U/A	U	U/A	U	U/A
Nitrogen dioxide	A	U	A	U	A	U/A
Sulfur dioxide	A	U	A	U	A	U
Particulate matter	U	U	N	U	N	N
Lead[2]	A	—[2]	A	—[2]	A	—[2]

A=Attainment, N=Nonattainment, U=Unclassified, NS=No Standard

1. Yosemite National Park portion of Mariposa County
2. EPA does not designate areas for the lead standard in the same manner as for other pollutants. However, no areas in California exceed the national standard for lead.

State Implementation Plan

The Mariposa County Air Pollution Control District is responsible for developing a state implementation plan for federal and state nonattainment pollutants in its jurisdiction (table 3-9). State implementation plans define control measures designed to bring areas into attainment. Basic components of a state implementation plan include legal authority, emissions inventory, air quality monitoring network, control strategy demonstration modeling, rules and emission-limiting regulations, new source review provisions, enforcement and surveillance, and other programs, as necessary, to attain standards. Currently, Mariposa County is in attainment or is unclassified for all national ambient air quality standards. Mariposa County exceeds two California ambient standards: ozone throughout the county and PM_{10} in Yosemite Valley.

Conformity Rule

In 1993, the U.S. Environmental Protection Agency adopted regulations implementing Section 176 of the Clean Air Act, as amended. Section 176 requires that federal actions conform to state implementation plans for achieving and maintaining the national standards. Federal actions must not cause or contribute to new violations of any standard, increase the frequency or severity of any existing violation, interfere with timely attainment or maintenance of any standard, delay emission reduction milestones, or contradict state implementation plan requirements. This requirement applies only in federal nonattainment areas. Conformity does not apply to activities in Yosemite Valley because Mariposa County meets all federal air quality standards at this time and is an attainment area. However, activities in Madera County must conform to state implementation plans. In addition, the California Air Resources Board indicates that Mariposa County, which includes the Valley, is likely to be declared a nonattainment area for ozone in the summer of 2000, at which time conformity with state implementation plans must be demonstrated.

Air Quality Monitoring

A number of air quality monitoring stations are located in and near the park. Monitors in the park include an ozone monitor and Interagency Monitoring of Protected Visual Environments (IMPROVE) site at Turtleback Dome, and a particulate monitor at the park headquarters near the visitor center in Yosemite Valley. Table 3-10 lists air quality monitors in and around the park.

According to the latest California Air Resources Board air monitoring data, summarized in table 3-11, ambient air quality at the Turtleback Dome monitoring station exceeded the state 1-hour ozone standard during three days in 1997, as compared to 11 days in 1995. In 1997, at the park headquarters station, the state 24-hour PM_{10} standard was exceeded on only one day, compared to five days in 1995. However, no exceedances of the federal 24-hour PM_{10} standard or state and federal annual standards were recorded that year at this station.

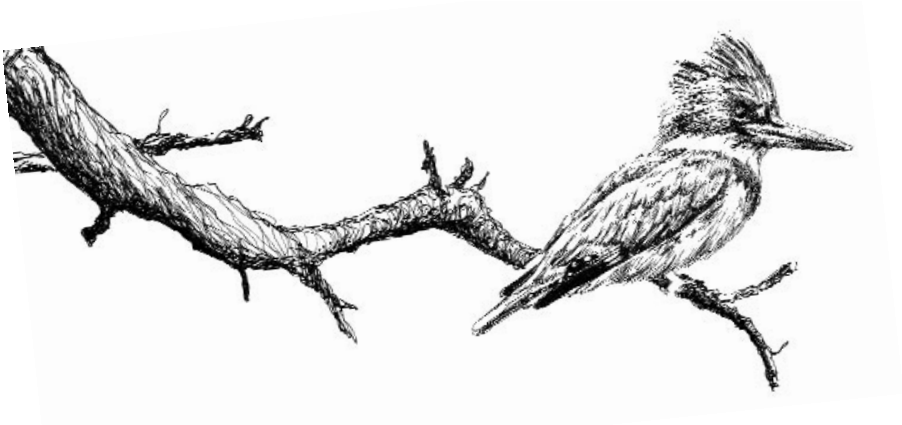
Table 3-10
Air Quality Monitoring in the Vicinity of Yosemite National Park

State	County	Community	Pollutant				
			PM	SO_2	O_3	CO	NO_2
California	Fresno	Clovis	x		x	x	x
		Fresno	x	x	x	x	x
		Parlier			x		x
		Shaver Lake			x		
	Madera	Madera			x		x
	Mariposa	Yosemite National Park	x		x		
		Jerseydale			x		
	Merced	Merced			x		x
	Mono	Lee Vining	x				
		Mammoth Lakes	x		x	x	
		Mono Lake	x				
	Tuolomne	Sonora			x	x	
Nevada	Douglas	State Line	x		x	x	x
		Minden	x				
		Gardnerville	x				

PM=total suspended particulate/PM_{10}, SO_2=sulfur dioxide, O_3=ozone, CO=carbon monoxide, NO_2=nitrogen dioxide

Table 3-11
Highest Ozone and PM_{10} Measurements at Yosemite National Park

Year	Highest		2nd Highest		3rd Highest		4th Highest		Days Exceeding California Standard
	Date	Level	Date	Level	Date	Level	Date	Level	
Ozone (parts per million)									
1995	Aug 15	0.114	Sep 09	0.104	Aug 09	0.100	Jul 16	0.100	11
1996	Aug 09	0.107	Oct 09	0.106	Jul 24	0.099	Jul 29	0.098	9
1997	Aug 08	0.111	Aug 07	0.107	Oct 19	0.098	Jul 26	0.091	3
Respirable Particulate Matter or PM_{10} ($\mu g/m^3$)									
1995	Oct 24	71	Sep 30	65	Nov	62	Aug 19	58	5
1996	Oct 17	106	Oct 12	96	Aug 31	82	Sept 29	52	4
1997	Dec 30	62	Feb 14	39	Nov	36	Aug 08	34	1



Yosemite Valley Inventory of Air Pollution Emission Sources

Air quality in the park is affected by internal and external air pollution sources. Internal air pollution sources include stationary sources such as furnaces, boilers, woodstoves, campfires, generators, barbecues, and emissions from prescribed fires. Motor vehicles are mobile sources, and emissions primarily include carbon monoxide, nitrogen oxides, and hydrocarbons (or volatile organic compounds). Estimates of criteria air pollutants from stationary, area, and mobile sources in the Valley for 1998 are summarized in table 3-12. Most of the stationary and area sources are associated with park operations (National Park Service and concessioner). Campfires and associated emissions, however, are typically generated by visitors. Vehicles and tour buses constitute the largest sources of mobile-source emissions in Yosemite Valley.

Table 3-12
1998 Estimated Air Emissions in Yosemite Valley

Source	Emissions (tons/year)					
	$PM_{2.5}$	PM_{10}	CO	SO_2	NO_2	VOC
Stationary Sources						
Fuel Oil Boilers/Furnaces	0.2	0.3	1.2	1.7	4.8	0.1
LPG Heating/Cooking	0.1	0.1	0.3	0.0	1.8	0.1
Generators	0.3	0.3	1.1	0.3	4.9	0.3
Fireplaces	1.4	1.5	11.1	0.0	0.1	10.1
Fuel Storage Tanks/Refueling	0.0	0.0	0.0	0.0	0.0	1.6
Subtotal	**2.0**	**2.2**	**13.7**	**2.0**	**11.6**	**12.2**
Area Sources						
Campfires	6.0	6.5	53.2	0.0	0.0	7.2
Subtotal	**6.0**	**6.5**	**53.2**	**0.0**	**0.0**	**7.2**
Mobile Sources						
Visitor and Employee Vehicles, Buses, NPS and Concessioner Vehicles	—	167.5[1]	568.2	6.3	84.2	50.9
Total	**8.0**	**176.2**	**635.1**	**8.3**	**95.8**	**70.3**

1. Includes 224.2 tons/year due to road dust
CO=carbon monoxide, SO_2=sulfur dioxide, NO_2=nitrogen dioxide, VOC=volatile organic compounds

Table 3-13 lists major external stationary air pollution sources within 60 miles of the boundary of Yosemite National Park.

Table 3-13 Major External Stationary Air Pollution Sources				
State	**County**	**Community**	**Source**	**Pollutant(s)**
California	Amador	Ione	Jackson Valley Energy Partners	VOC, PT
		Martell	Ampine Wheelabrator Martell, Inc.	PM, PT PM, PT, CO, NO_2
	El Dorado	Camino	Sierra Pacific Industries	VOC, PM, PT, SO_2, CO
	Fresno	Fresno	Ametek Microfoam Division Stewart & Nuss, Inc. PPG Industries, Inc.	VOC PT NO_2
	Madera	Madera	Madera Glass Company	NO_2
	Merced	Atwater	Western Stone (River Plant) Atwater Canning	PT NO_2
		Delhi	Foster Poultry Farms	PM, PT
		Merced	Merced Color Press Van Denbergh Foods Company Merced Milling Company	VOC SO_2, NO_2 PT
	Stanislaus	Modesto	Gallo Glass Co. Tri-Valley Growers #7 Modesto Irrigation	PM, PT, NO_2 SO_2, NO_2 NO_2
		Oakdale	Hunt-Wesson Inc.	SO_2
	Tuolumne	Jamestown	Sierra Rock Industries, Inc. Pacific-Ultrapower	PT NO_2
		Standard	Sierra Pacific Industries	PM, PT, NO_2
Nevada	Douglas	State Line	Harrahs Club, Inc.	PT
	Lyon	Yerington	Sierra Pacific Power Company	NO_2, SO_2
	Mineral	Hawthorne	Corona Gold, Inc. Aurora Partnership	PT PT

Note: Major pollution sources emit more than 100 tons per year of one or more regulated pollutants.
PM=PM_{10}, PT=total particulate, SO_2=sulfur dioxide, VOC=volatile organic compounds, CO=carbon monoxide, NO_2=nitrogen dioxide

Geologic Hazards

Rockfalls

Most rockfalls are associated with triggering events such as earthquakes, rainstorms, or periods of warming with rapid snowmelt. The magnitude and proximity of earthquakes, the intensity and duration of rainfall, the thickness of the snowpack, and warming patterns all influence the triggering of rockfalls (Wieczorek and Jager 1996). However, some rockfalls occur without a direct correlation to an obvious triggering event; these rockfalls are probably due to processes associated with gradual stress release and exfoliation of granitic rock (Wieczorek et al. 1995).

Rockfalls have left abundant deposits of talus around the base of almost all the walls of Yosemite Valley. In 1930, Matthes mapped the extent of talus around the edge of the Valley, which, in some places, is estimated to be greater than 300 feet thick (Wieczorek and Jager 1996). At some locations, such as below El Capitan, where large prehistoric rock avalanches have occurred, these deposits extend from the base of the wall about 1,400 feet across the Valley floor (USGS 1992). The talus slopes along the east side of the Valley provide better-drained soils and warmer microhabitats than are found on the adjacent Valley floor. There are also crevices and caves there that are home to many animal species. Continued rockfall affects the growth form of many individual plants, keeps large areas in the early stages of succession, and creates potentially hazardous conditions for humans.

Rockfalls in Yosemite range in size from small individual blocks of less than one cubic meter to rock avalanches of several million cubic meters. All such events pose a potential hazard; even a rapidly moving small boulder can cause serious injury to people, vehicles, or buildings. The massive rockfall in 1996 that occurred in the Happy Isles area resulted in one death and severe damage to some park facilities (NPS 1999a).

The U.S. Geological Survey and National Park Service have cooperated in documenting potential geologic hazards in Yosemite Valley, based on a review of archival records, aerial photographic interpretation, and field mapping completed by Wieczorek et al. in 1992. Additional fieldwork was conducted to assess earlier data and produce a report on the rockfall potential within the Valley, which was completed by Wieczorek et al. in 2000. This report identified two rings or zones of potential rockfall: the talus slope zone and the rockfall shadow line zone. During a rockfall, the majority of materials are deposited close to the Valley walls, in what is called the talus slope zone. The rockfall shadow line zone extends out from the talus slope and is defined as the area within which individual rocks could travel. Generally, people and development are in greater danger in the talus slope zone, closer to the affected Valley wall.

The talus slope and shadow line are illustrated in Vol. Ic, plate E. There are locations where the talus slope extends farther toward the river than the shadow line. These locations are usually areas of debris flow deposits. Debris flows can extend farther out onto the Valley floor than the shadow line because the shadow line is based on a mathematical calculation, and debris flows represent actual deposit events.

Scenic Resources

The scenery of Yosemite National Park is one of its most significant resources. From the first descriptions of Yosemite Valley by Euro-Americans in the mid-19th century, views of the pastoral valley juxtaposed with towering geologic features and dramatic waterfalls have been recognized as outstanding resources. Many of these views have become cultural icons of the American landscape experience, made timeless through the legacy of landscape documentation in Yosemite Valley. It is largely through the early writings, paintings, and photographs by visitors to the region, as well as nationally recognized artists, that the beauty of the landscape came to the attention of the nation, influencing legislation that led to the designation of Yosemite National Park.

Prior to the development of the 1980 *General Management Plan*, a study was conducted to analyze historic viewpoints—those features most visitors look for and can distinguish—and to identify existing viewing conditions within Yosemite Valley. First, the historic viewpoint analysis located places within Yosemite Valley that were consistently selected by eminent historic photographers as the best locations from which to photograph scenic features. Initially, five 19th century photographers were selected for the sample, and approximately 100

of their photos were mapped to show where they were taken and the extent of the view. Additional mapping was completed for 19th century paintings of Yosemite. However, because of the possibility that perspectives had been adjusted by the artists, less importance was placed on the paintings.

Next, a list of significant scenic features was developed. According to this study, the 11 most significant features within the Valley are Half Dome, Yosemite Falls, El Capitan, Bridalveil Fall, Three Brothers, Cathedral Rocks and Spires, Sentinel Rock, Glacier Point, North Dome, Washington Column, and Royal Arches. All points from which these 11 features were typically viewed (assuming that no vegetation or structures obstructed the view) were mapped to establish the scenic viewing possibilities from different locations on the Valley floor. Existing viewpoints were identified, and the quality of views and proximity to roads and trails were noted. Once the historic and existing viewpoints were established, views from these locations in the Valley were classified according to the criteria shown in table 3-14. As a result of the study, a Yosemite Valley Scenic Analysis graphic was developed (see Vol. Ic, plate F). This graphic is a compilation of the Yosemite Valley Historic Viewpoint Analysis and the Yosemite Valley Existing Viewpoint Analysis presented in the 1980 *General Management Plan*.

Using the Yosemite Valley Scenic Analysis graphic as a baseline, it is possible to define the extent of current impacts or visual intrusions within each of the scenic categories. Roads and traffic through Ahwahnee and Stoneman Meadows, for example, are a major visual intrusion when viewing Half Dome from the Yosemite Valley floor. Other major intrusions to the scenic beauty of Yosemite Valley from two popular vantage points (Upper Yosemite Fall and Glacier Point) include the National Park Service and concessioner maintenance and warehouse facilities, Camp 6 parking, Curry Village, and roads and traffic through Ahwahnee and Stoneman Meadows.

Inherent in the beauty of the 11 most significant features and other scenic resources are the foreground and mid-ground elements of the landscape. Particularly the Merced River and its ecosystem—a mosaic of aquatic, riverside, and meadow communities—and other characteristic features of Yosemite Valley's landscape, such as California black oak woodlands and its premier cultural features, contribute to the Valley's unique scenery.

Table 3-14
Classification Criteria for Scenic Category

Category	Criteria
A–Scenic	• Most commonly chosen by eminent early photographers and painters • Currently considered most significant scenic views • Includes all meadows and the Merced River
B–Scenic	• Less commonly chosen by historic photographers and painters • Compose less significant modern views
C–Scenic	• Currently considered of minor scenic quality • Areas that can accept visual intrusion without detracting from primary or secondary views

Overview of the Human Occupation of Yosemite Valley

AMERICAN INDIANS

Yosemite Valley was first inhabited between 4,000 and 6,000 years ago. Archeological sites in the vicinity of El Portal suggest that the Merced River canyon west of Yosemite Valley may have been inhabited as early as 9,500 years ago. The Yosemite Valley contains many archeological sites, manifesting thousands of years of human occupation. There is evidence of at least one population replacement, technological change through time, a highly developed trade network, and significant environmental manipulation through fire.

When Euro-Americans first entered Yosemite Valley in 1851, the American Indians living there were most likely a mixture of Southern Sierra Miwok, Mono Lake Paiute, and Central Sierra Miwok, as well as former Mission Indians likely from Yokuts, Plains Miwok, and Ohlonean groups. Their oral traditions and archeological evidence suggest that they had inhabited the Valley for centuries, perhaps as early as A.D. 500. Southern Miwok people called Yosemite Valley *awahni*, "place like a gaping mouth." The Miwok living in the Valley were known as the *awahnichi*, "people who live in *awahnii*." The American Indians wintered in villages at lower elevations along the Merced and Tuolumne Rivers and summered in Yosemite Valley. Some may have spent winters in the Valley, settling in sunny locations on the north side of the Merced River.

American Indian life was relatively stable in Yosemite from A.D. 1200 to 1800, though interaction with other Indian groups appears to have introduced new cultural and linguistic patterns. Trade with other groups was important both socially and economically for the Southern Miwok and the Paiute, taking place with groups living east of the Sierra Nevada crest and with people living west of Yosemite Valley.

The arrival of the Spanish in California in the late 18th century brought profound changes. Spanish soldiers and missionaries established a chain of missions and settlements along the Pacific coast, introducing European lifeways and converting native populations to Catholicism. Because Spain possessed neither the personnel nor the resources to engage in the widespread colonization of California, American Indians became the economic backbone of the mission system. While many Indians entered the missions voluntarily, induced by food, shelter, and clothing, many others were conscripted by Spanish soldiers.

After Mexico won its independence from Spain in 1821, the Mexican government passed legislation abolishing the mission system, and by 1834 all of the mission lands were secularized and opened to occupation. Because much of what was once American Indian land (mostly west of the Sierra Nevada) was occupied by Euro-Americans, many of the displaced Indian people migrated to the Sierra Nevada, aligning themselves with tribes living there. Then, between 1830 and 1840, epidemics brought by Europeans swept over California. In portions of central California, the American Indian population was decimated. Survivors fled to neighboring

villages and often into the Sierra Nevada. The American Indians living in Yosemite Valley almost certainly felt the impact of these events.

The Mariposa Indian War of 1850, triggered by a decade-long influx of Euro-American miners, ranchers, farmers, and merchants taking over what had been American Indian lands, resulted in a call for volunteers to pursue the American Indians in Yosemite Valley, capture them, and relocate them to a reservation on the Fresno River. The battalion formed was the first group of non-Indians to enter Yosemite Valley. Some American Indians were taken prisoner and led out of the Valley, but all seem to have escaped and returned to Yosemite Valley before reaching the Fresno River. Later expeditions proved no more successful, and the Indians remained in Yosemite Valley. Although federal Indian agents were authorized to negotiate treaties with American Indians in the Yosemite area, the treaty signed by the Yosemite Indians (as well as many of the other California Indian treaties) was never ratified by the U.S. Senate.

After 1855, as the fame of Yosemite Valley grew, hotels and other travel-related amenities eventually were constructed. The American Indian residents of Yosemite Valley sometimes found employment in these enterprises and lived in small settlements, generally out of the path of non-Indian travelers and settlers. Employment opportunities in Yosemite Valley also served to draw in Indian people from surrounding areas. The management of the Valley was taken on by Euro-American institutions, and American Indian interests were subject to decisions made without their influence. Traditional housing was replaced with nontraditional structures; old village sites were vacated, and new villages were built. Part of this was an effort on the part of Euro-Americans to centralize the Indian people as a tourist attraction and control the activities of Indian people. The small groups that came together in these latter settlements blended their cultural practices, traditional arts, and beliefs. National Park Service and concessioner-sponsored programs and practices, such as photography, basket sales, demonstrations of traditional crafts, and sponsored events such as the Yosemite Indian Field Days in the 1920s, directly influenced changes in traditional lifeways. The last Indian village in Yosemite Valley was closed in 1969, and the structures razed.

American Indians continue to live in Yosemite Valley and El Portal today, but generally only those employed by National Park Service, a concessioner, or a cooperating association. As with other residents, they live in employee housing.

American Indians from Yosemite Valley and their descendants settled in nearby areas in the Sierra Nevada foothills and eastern Sierra Nevada, as well as elsewhere throughout North America. Several have retained their association with the Valley, as employees and cultural demonstrators for National Park Service interpretive programs. They have worked with the National Park Service to build and maintain the Indian Village of Ahwahnee adjacent to the Yosemite Museum. Examples of traditional dwelling, utilitarian, and ceremonial structures in the village preserve and interpret past lifeways. American Indian people continue to work cooperatively with the National Park Service in management of resources important in traditional lifeways.

The American Indian Council of Mariposa County, Inc. recently entered into an agreement with the National Park Service to establish a cultural center at the location of the last occupied historic Indian village in Yosemite Valley, and to maintain aspects of the traditional landscape through resource gathering, indigenous management practices, and traditional ceremonies.

Euro-Americans

During the mid-1850s and 1860s, the natural scenery of Yosemite Valley was brought to America's attention through journal articles written by Thomas Starr King in the *Boston Evening Transcript* and James M. Hutchings in his *California Magazine*. A heightened awareness of the Valley landscape was also provided through the works of artists such as Thomas Ayers, Albert Bierstadt, and Carleton Watkins. Painted, photographic, and literary images of Yosemite's beauty drew people to the Valley.

Hutchings, who organized the first tourist excursions in 1855, became a permanent resident of Yosemite Valley in 1864. He constructed several structures, including a sawmill. Other early entrepreneurs built hotels, planted orchards, and developed homesteads, many of which were built in areas with outstanding views. In 1864, the U.S. Congress and President Abraham Lincoln set aside Yosemite Valley and the Big Tree Grove (Mariposa Grove) as a public park to preserve the monumental scenic qualities of the area. The act stated that the Valley and the Mariposa Grove were to be managed by the governor of California and his eight appointed Yosemite commissioners, chaired by Frederick Law Olmsted.

The first documented non-Indian to enter the El Portal area was James Savage, who established a trading post at the confluence of the main stem and South Fork of the Merced River, seven miles below present-day El Portal. Other miners and traders arrived in the area during the next several decades, and in the early 1870s, James A. Hennessey developed a small ranch and orchard in the present-day Trailer Village area. Barium deposits were found near present-day Rancheria Flat in the 1880s. In 1907, the Yosemite Valley Railroad completed its rail line to the park's western boundary, where the company established a railhead named El Portal. The rail line, which operated until 1945, resulted in the development of significant tourist, timber, mining, and cement industries in the area of El Portal.

By 1870, the establishment of hotels in Yosemite Valley had created a need for local fresh produce and livestock. James Lamon, Yosemite Valley's first white homesteader, became one of the largest producers of commercial agricultural products in the Valley. Lamon's gardens and orchards produced strawberries, raspberries, blackberries, apples, pears, and other fruits. Remnants of two of Lamon's orchards still exist. One, in the Curry Village parking area, has been altered and partially paved. The other, which retains much of its original character, is near the concessioner stable at the east end of Yosemite Valley.

With the introduction of crops and livestock came fences, outbuildings, and other developments that detracted from the beauty of Yosemite Valley. Introduced vegetation also became a concern. In 1888, Frederick Law Olmsted outlined a policy for managing the Valley in the *San Francisco Examiner*. Cultivation of crops was to be restricted to areas that had already been plowed,

natural meadows were to be preserved, and tree cutting was to be permitted only under the supervision of a landscape gardener.

During the mid- to late 19th century, there were mixed feelings about altering the natural beauty of Yosemite for human convenience. The single event with the biggest impact on the natural landscape of Yosemite Valley was the blasting of a portion of the moraine at the foot of El Capitan in 1879. This action forever altered the Merced River, the Valley stream system, and vegetation.

Major H.C. Benson, acting superintendent from 1905 to 1908 under the Department of the Army, stated in his 1907 annual report that "some definite general plan should be devised for the beautifying of the valley and making it the most beautiful park in the world. All bridges and buildings constructed in the future should conform to a definite plan, suited to existing conditions. All roads should be laid out according to a plan fully worked out by a competent landscape gardener, nothing should be done in the way of expending money which does not tend to carry out these ideas. All small buildings, practically shacks, should be replaced by stone buildings, and all bridges, when replaced, should be either of stone or concrete." Many bridges and roads were, in fact, built by the U.S. Army Corps of Engineers between 1905 and 1915 (Carr 1998).

By 1914, there were scattered substandard and unsightly structures throughout the Valley, many of which were built by the U.S. Army for seasonal use. Other structures were built by entrepreneurs in the Old Village. In 1916, when park operations were no longer under the auspices of the U.S. Army, all structures were given to the U.S. Department of the Interior.

In 1915, at the Panama Pacific Exposition, Mark Daniels, the first landscape architect hired by the Department of the Interior as superintendent of parks, discussed the philosophy that would be used to lay out the national parks. He created a master plan for Yosemite Valley, with roads, varied accommodations, stores, and utilities. He advocated the park village concept, a plan used throughout the National Park System during the 1920s and 1930s (Carr 1998).

Stephen T. Mather, the first director of the National Park Service in 1916, recognized the importance of the writings of Andrew Jackson Downing and the landscape architecture of Frederick Law Olmsted. Mather strongly advocated the subordination of the built environment to the natural environment and relied on landscape architects to ensure that buildings were compatible with their sites. Yosemite has been an important laboratory for the National Park Service philosophy on the built environment. Key figures in the history of National Park Service architecture completed much of their early work on projects in the park. Charles Punchard, the first head of the National Park Service Landscape Engineering Department, worked on laying out the current Yosemite Village. Daniel Hull, his successor in 1920, improved circulation. Thomas Vint (successor to Hull) introduced several key elements that are important to the character of Yosemite Village, including the low-density massing of housing, the careful selection of materials, curvilinear streets, detached houses with garages and service alleys, and the use of vegetation in landscape design. During these years, many important architects and landscape architects were influential in the park. Gilbert Stanley Underwood designed The Ahwahnee, and the Olmsted brothers' architectural landscape firm designed the hotel grounds.

By 1930, Yosemite's managers had outlined issues of particular concern, including activities that encroached on meadows, such as the race track for rodeo events at Leidig's Meadow and parking areas at Stoneman Meadow. The committee recommended that a landscape map record the areas occupied by forests, woodlands, chaparral, and meadows. They also wanted to document the historic distribution of natural landscape types from photographs and records.

Beginning in 1933, many of the people who had worked in Yosemite were producing designs used by the Public Works Administration under John Wosky, another prominent National Park Service figure. The creation of the Public Works Administration also made many individuals available for work in parks. The Civilian Conservation Corps completed a tremendous amount of work at Yosemite, including the construction of roads, trails, bridges, fire roads, fire buildings, fire lanes, fire trails, comfort stations, campgrounds, and a dam at Yosemite Creek. Additional projects included revegetation, extensive landscaping, and debris cleanup. Between 1950 and 1956, a second major building plan, called Mission 66, resulted in seven new structures in Yosemite Village. Only one was built in the rustic style; the others were built in the new Mission 66 style.

Yosemite Valley

Archeological Resources

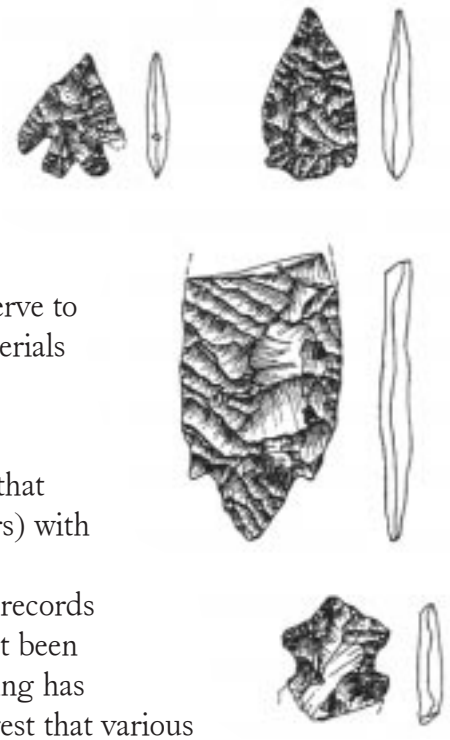
Yosemite Valley is designated an archeological district and is listed on the National Register of Historic Places. Early archeological surveys of the Valley focused on prehistoric or historic American Indian sites rather than historic-era resources representative of homesteading, visitor, or National Park Service facilities. The entire Valley has been surveyed except for wet meadows, areas of dense vegetation, and some talus slopes.

The archeological district in the Valley comprises more than 100 known sites, many of which are significant for their ability to yield important information about prehistoric lifeways. The prehistoric sites encompass milling stations (granite boulders with mortar cups or milling slicks, the most common feature documented to date); midden soils; artifact caches and scatters (including obsidian waste flakes, obsidian and ground stone tools, soapstone vessel fragments, and dietary faunal remains); rock shelters; pictograph panels; human burials; house floors; fire hearths; and rock alignments. Historic archeological sites encompass trash deposits, building foundations, privy pits, utilities, human burials, and landscape features such as ditches, roads, rock alignments, non-native plants, and trails.

Individual sites in the archeological district vary by type, size, depth, complexity, length of occupation, variety of remains, and potential to yield important scientific information. A parkwide archeological research design (Hull and Moratto 1999) provides guidance in assessing the research potential of these sites. Important questions are identified in the areas of paleoenvironment, cultural chronology, economic patterns, settlement patterns, demography, and social organization. Sites are considered significant when they contain important information that relates to questions in these areas of inquiry.

Sites with low data potential primarily encompass mortar sites lacking in any additional features or artifacts; sparse debitage scatters with low flake densities and lacking tools; and historic sites

with few artifacts and no distinct features. In addition, sites subject to previous evaluations through excavation that were found to have no data potential are included in this group. The near-absence of flaked-stone debris, lack of temporally diagnostic specimens, and apparent task-specific nature of many of these sites suggest that study of the deposits would contribute relatively little to the questions of interest in Yosemite. Subsurface evaluations, however, would serve to demonstrate whether subsurface deposits and more diverse materials are present, and such information might indicate greater data potential for some of these sites.



Sites with moderate data potential generally consist of deposits that exhibit multiple types of features (e.g., mortars and rock shelters) with or without lithic debris and tools; sites with numerous mortars, suggesting possible extensive use of the site; sites that previous records identified as containing substantial lithic scatters which have not been subsequently identified; and/or sites that archeological monitoring has demonstrated contain subsurface deposits. Such attributes suggest that various topics identified in the parkwide research design might be addressed, including cultural chronology, obsidian procurement, flaked-stone tool technology, subsistence, and settlement. The actual research potential of these sites might be considered more or less substantial if controlled subsurface evaluations were completed.

Sites with high data potential include deposits with a combination of features (e.g., mortars and rockshelters) in abundance; sites with denser concentrations of lithic debris; sites containing temporally diagnostic prehistoric or historic artifacts; deposits with dense historic debris scatters, historic features, and/or documented historic use; and sites with possible historic Miwok use dating to the late 1800s and early 1900s. These latter sites are particularly relevant to the qualities defining the significance of the Yosemite Valley Archeological District, while the other sites have evident potential to address diverse topics identified in the district nomination and the parkwide research design.

Sites with exceptional data potential combine all the attributes described for sites with high data potential, whose deposits are extensive and have already been determined to have a high degree of integrity. These sites usually contain subsurface features such as house floors and fire hearths that contain specific and unique information critical in addressing important questions identified in the parkwide research design.

While the majority of archeological sites in Yosemite Valley retain a relatively high degree of integrity, many have been disturbed by human activity and natural processes (Hull and Kelly 1995). Visitor use has the most widespread impact, although its effect is not as serious as other types of impacts. Several sites have been damaged by the construction of facilities and utilities. A significant number have been affected by ongoing natural processes such as tree falls, river migration, alluviation, and rockfall. Because Yosemite Valley is so geologically active, it has a high potential for buried archeological resources, especially in areas of alluviation and rockfall.

Ethnographic Resources

Ethnographic resources consist of features of the landscape that are linked by members of a contemporary community to their traditional ways of life. As more specifically defined in the NPS-28 *Cultural Resource Management Guidelines* (NPS 1991a), ethnographic resources are 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." A traditional cultural property is an ethnographic resource that is eligible for listing on the National Register of Historic Places.

An Ethnographic Evaluation of Yosemite Valley: *The American Indian Cultural Landscape* (Bibby 1994) identified and documented cultural and natural resources associated with American Indian occupation and use of the Valley. American Indians still living in the region provided oral history and assisted in the location of resources. The area evaluated extended from Pohono Bridge to Mirror Lake and Happy Isles, and included all historic areas of human habitation, sites of traditional and contemporary spiritual value, marked and unmarked graves, and areas of past and present resource gathering and food processing. Included were such features as bedrock mortars as well as plant materials such as California black oak stands and individual oak trees, grasses, mosses, sedges, and mushrooms. Most sites and features are historic, and tradition holds that many have long histories of use. The ethnographic evaluation recommended that Yosemite Valley be designated a traditional cultural property and listed on the National Register of Historic Places as a district.

In addition, the National Park Service has consulted with American Indian groups claiming affiliation with land and resources in Yosemite Valley and El Portal. These are primarily the Southern Sierra Miwok (American Indian Council of Mariposa County, Inc.) and the Mono Lake Paiute (Mono Lake Indian Community). Chukchansi Yokuts and Western Mono groups may have cultural ties to Yosemite Valley, while many Central Sierra Miwok individuals have some family ties.

As a result of the ethnographic evaluation and further consultations, over 104 sites, features, and plant species have been identified as having been used by American Indians. Forty-seven sites are either historic villages or other historic features. There are 16 sites with mythic or ceremonial value, 27 with food and water sources, 20 with plants used in making baskets or other utilitarian objects, and four with medicinal plants. Several village sites are also documented archeological sites and are contributing elements to the Yosemite Valley Archeological District: *Wahoga* (New Indian Village), *Yowatchke* (Old Village), *Loiyah*, *Hollow*, and *Ahwahnee*. Yosemite Valley is considered a traditional cultural property; *Wahoga*, because of its significance as the last occupied Indian village in Yosemite Valley, is considered an individually significant traditional cultural property.

Nine known historic American Indian burials are located in the Yosemite Cemetery. Two reburials of excavated remains were made in the cemetery in the 1970s. One burial site has been documented near the Museum/Valley District Building and another near Tenaya Creek in the eastern end of Yosemite Valley. An unmarked grave is reported to be in the area of El Capitan, and there is an early account of a cremation in the Valley. Other than the known historic and prehistoric burials in and near the Yosemite Cemetery, burials have no definable pattern and more likely occur throughout the Valley.

Cultural Landscape Resources

According to the NPS-28 *Cultural Resource Management Guidelines*, a cultural landscape is a reflection of human adaptation and use of natural resources. It is often expressed in the way land is organized and divided, patterns of settlement, land use, systems of circulation, and the types of structures that are built. The character of a cultural landscape is defined both by physical materials such as roads, buildings, walls, and vegetation, and by use reflecting cultural values and traditions.

Thus, cultural landscapes are the result of the long interaction between humans and the land, and the influence of beliefs and actions over time upon the natural landscape. Shaped through time by historical land use and management practices, as well as politics and property laws, levels of technology, and economic conditions, cultural landscapes provide a living record of an area's past, a visual chronicle of its history. The dynamic nature of modern human life, however, contributes to the continual reshaping of cultural landscapes. They are a good source of information about specific times and places, but at the same time, their long-term preservation is a challenge.

A determination of eligibility for listing the Yosemite Valley cultural landscape on the National Register of Historic Places is under way. The determination of eligibility provides an in-depth analysis of Yosemite Valley as a single entity, describes the Valley's cultural significance and characteristics, and lists historic resources that contribute to that significance. The boundaries of the Yosemite Valley cultural landscape extend from rim to rim and from Pohono Bridge to Mirror Lake and Happy Isles, including the Valley walls themselves and several historic trails. The cultural landscape of Yosemite Valley is considered to be of national significance, based upon the application of all four of the National Register's criteria of eligibility, as described below.

Criterion A — The area is associated with events that made a significant contribution to the broad patterns of our history.

- Yosemite Valley is nationally significant in the themes of outdoor recreation, tourism, and conservation and as an example of early state and national park development. Since 1864, Yosemite has been an archetype for the preservation of scenic places through their development as public parks. The first place created by Congress for the purposes of scenic preservation and outdoor recreation, Yosemite Valley then became the subject of Frederick Law Olmsted's earliest and most important contribution to national park development theory and practice.
- Yosemite Valley is significant as an American Indian traditional cultural property. Individual sites associated with traditional practices of hunting and gathering, with spiritual significance, and with occupation patterns have been identified. The fact that American Indian cultural practices have continued throughout the history of the Valley as a national park makes Yosemite Valley a unique cultural landscape.
- Yosemite Valley as a whole is nationally significant for its role in western expansion and exploration.

- Yosemite Valley is significant in the development of the environmental conservation movement. John Muir, who lived and worked in the Valley, began developing his philosophy of conservation in the Valley at that time. Muir was later a principal founder of the Sierra Club. The LeConte Memorial Lodge in the Valley is a tangible, early connection of the Sierra Club to the park.

Criterion B — The area is associated with the lives of persons significant in our past.

- Yosemite Valley is associated with a number of nationally significant figures in art, literature, design, and politics. These include the photographers Carleton E. Watkins and Ansel Adams, who made their careers and reputations through images of Yosemite scenery; the painter Albert Bierstadt, who established a new Rocky Mountain school of painting, in large part with canvases that depicted the Valley; the landscape architect Frederick Law Olmsted, who was influential in the Valley's early management; the author John Muir, a founder of the Sierra Club, who made preservation of the Valley a national cause and made important advances in the science of geology at Yosemite; the architects Myron Hunt and Gilbert Stanley Underwood, whose buildings are features of the cultural landscape; and National Park Service Director Stephen T. Mather, whose personal concern for Yosemite Valley made it the first national park to receive major attention from the new National Park Service.

Criterion C — The area embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguished entity whose components may lack individual distinction.

- Yosemite Valley contains nationally significant examples of architecture, including the Rangers' Club, The Ahwahnee, and LeConte Memorial Lodge, all of which are National Historic Landmarks. The historic designed landscape of Yosemite Valley is a nationally significant work of landscape architecture (though portions have been altered), specifically of early 20th century American town planning.
- The Rangers' Club is an outstanding example of Arts and Crafts design in the rustic manner, with its steeply pitched roofs and chalet-like detailing. The Ahwahnee and LeConte Memorial Lodge represent varying responses in two differently scaled structures to the use of native materials in building design. The historic stone bridges, which are collectively listed on the National Register of Historic Places, are also good examples of this response to the use of native materials in design, which set an example for designs in other parks. The Ahwahnee is also a superior example of a large resort hotel, with Art Deco interpretations of local American Indian design motifs. The design of residences in Yosemite Village, with low-pitched roofs, shingle and clapboard siding, and simple detailing, show the influence of the San Francisco Bay Area tradition of the Arts and Crafts movement. The NPS Administration Building, Valley District/Museum Building, and post office in Yosemite Village are examples of the rustic style associated with National Park Service structures.

- Individually developed areas within Yosemite Valley are historic designed landscapes of national or statewide significance. Yosemite Village is a nationally significant example of early National Park Service "park village" planning. Camp Curry is a rare example of a surviving tent cabin complex of the type that was once common in many parks. The roads, bridges, and trails, many of which are individually listed on the National Register of Historic Places, are significant examples of state and national park development dating from the 19th century to World War II. Numerous other buildings and structures in the Valley are currently entered on the National Register individually with a statewide level of significance.

Criterion D — The area has yielded, or may be likely to yield, information important in prehistory or history.

- Yosemite Valley is generally considered archeologically sensitive. Because of active geologic processes, many archeological sites and features are completely buried or capped by historic or modern development and have no surface manifestations. Historic sites often have visible components in the landscape. The entire Valley has not been inventoried for archeological resources, but many areas have been intensively surveyed. Of the known, documented archeological resources, some general observations can be made: prehistoric settlement patterns and land use are relatively consistent over time, more prehistoric sites occur on the north side of the Merced River than the south, distance or proximity to water is not a factor, and rock shelters occur in the talus slopes.
- The Yosemite Valley Archeological District is listed on the National Register of Historic Places and is a significant element of the landscape. More than 100 sites are significant for their ability to provide important information about prehistoric lifeways. These are generally comprised of milling stations, midden soils, artifact scatters, rock shelters, pictograph panels, human burials, artifact caches, house floors, fire hearths, and rock alignments.
- Although little effort has been directed to archeological resources associated with Euro-American settlement, such resources are considered to be potentially eligible. In addition to sites such as the Upper and Lower Villages, the remains of the Coffman and Kenney Stable, Hutchings and Leidig homesteads, and Yosemite Creek and El Capitan dumps, other above-ground features likely to yield information are building foundations, ditches, trail and road segments, abandoned utility systems, bridge abutments, and rock alignments. These have the potential to yield information about the use of the land, early tourism, and the locations of buildings and sites of activity.

The geophysical characteristics of Yosemite Valley have shaped patterns of human use since the earliest days of American Indian settlement. As a result, the Valley's cultural landscape is significant for its archeology, its role in the exploration and settlement of the west, and for its contribution to architecture, art, landscape architecture, recreation, and conservation. The unsurpassed historical significance of the Yosemite Valley landscape derives from the fact that countless generations of local tribal groups, and later untold millions of park visitors, have

infused the Valley's natural features with great cultural significance. Groups as different as the Miwok and the U.S. Congress have recognized and celebrated the value of Yosemite Valley. The cultural processes of defining sacred space, of turning land into landscape, and of making a wild place into a public park, have made Yosemite Valley one of the most culturally significant natural places in America.

Thus, the significance of the Yosemite Valley cultural landscape cannot be described or assessed apart from its significance as a natural landscape. Landscapes depend on unity for their emotional effect, and at Yosemite this unity combines the pastoral and the awesome, the natural and the cultural, the past and the present. The Valley's cultural landscape encompasses cliff walls, meadows, rivers and streams, as well as roads, trails, and buildings.

The following is a noninclusive list of resources that contribute to the significance of the Yosemite Valley cultural landscape.

Spatial Organization: Concentration of development in the east end of the Valley; cliff walls; open meadows and interspersed woodlands; the river corridor; and retention of the historic footprint of development in the Valley.

Natural Systems and Features: Mirror Lake, Merced River, Bridalveil Fall, Yosemite Falls (Upper and Lower), Glacier Point, North and Half Domes, Cathedral Rocks and Spires, Three Brothers, El Capitan, Royal Arches, Eagle Peak, and Washington Column.

Vegetation Features: Curry, Hutchings, and Lamon Orchards; Ahwahnee, Bridalveil, Lamon, Slaughterhouse, El Capitan, Sentinel, Cook's, Leidig, Royal Arches, and Stoneman Meadows; and California black oak woodlands.

Circulation Patterns: Northside and Southside Drive; Happy Isles and Old Folsom Bridge Roads; Mist, Yosemite Falls, Valley Loop, Four Mile, and Wawona Trails; trail to the base of Yosemite Falls; Indian Creek, Happy Isles, Bridalveil Creek, and Superintendent's footbridges.

Land Uses: Administrative and visitor services; circulation patterns; camping; housing; lodging; museum/interpretive facilities; stables/kennels; religious services; overlooks and viewpoints; open/undeveloped space and open/recreational space.

Views: From the Valley floor; from Sentinel Meadow; from parking area at Mirror Lake; from Northside and Southside Drives; from the intersection of Taft Toe Road and Southside Drive.

Archeological Sites: Remains of the Upper and Lower Villages, dumps, and homesteads.

Structures: The Ahwahnee and Ahwahnee Row houses; concessioner stable; Camp Curry cabins; tent cabins; NPS Operations Building (Fort Yosemite); Middle Tecoya residences; Yosemite Chapel; Yosemite Village residences; eight granite-faced, two-lane vehicular bridges.

Developed Areas: The Ahwahnee; Yosemite Village; Camp Curry.

Though many of the contributing elements mentioned above may not be individually eligible for listing on the National Register of Historic Places, collectively they contribute to the overall national significance of the Yosemite Valley cultural landscape.

Historic Sites and Structures

Many historic sites and structures within Yosemite Valley have been singled out for their significance, and are either National Historic Landmarks or are listed on the National Register of Historic Places. National Historic Landmarks are designated by the Secretary of the Interior and are structures of the highest national significance. Historic resources in Yosemite National Park were identified and evaluated in 1978 in the *Draft General Management Plan* (Cultural Resources Management Volume) and in the joint Memorandum of Agreement between the State Historic Preservation Office, the National Park Service, and the Advisory Council on Historic Preservation (see Vol. II, Appendix D). A historic resources study (NPS 1987a) and project-specific reports identified and evaluated structures and sites not addressed in those earlier documents.

The Yosemite Village Historic District consists of the J.M. Hutchings homestead, sawmill site, and orchard; John Muir cabin site; the Yosemite Cemetery; a National Park Service residential area with 68 predominantly rustic-style buildings erected between 1918 and 1951, including four early 1900s army buildings; the Rangers' Club (1921), a National Historic Landmark; an administration building (1924); a post office (1925); the Boysen Studio (c. 1925); The Ansel Adams Gallery complex (1925); and a museum building (1926). All phases of National Park Service architecture are represented in Yosemite Village, from structures designed and built by the U.S. Army to fine examples of rustic style, as well as examples of Mission 66 style. The Rangers' Club, an early example of the rustic style inspired by the Arts and Crafts movement, set the tone for future building in the area and the rest of the National Park System.

Yosemite Village's historic housing area retains substantial integrity, as do the Village's maintenance, service, and storage areas and the Lower Tecoya and Ahwahnee Row housing areas (all of which are contributing elements in the Valleywide cultural landscape). Modifications and new uses have not affected the integrity of the design from the period of significance (1924-1945). In addition, building configurations, color schemes, vegetation, circulation patterns, and street furniture have remained subordinate to the natural landscape over the past decades.

The Ahwahnee is both a National Historic Landmark and a property listed in the National Register of Historic Places. The facility was built in 1927 to provide luxury accommodations and attract wealthy and influential visitors to the Valley. The hotel was designed by Gilbert Stanley Underwood to harmonize with the nearby rugged Valley walls. The grounds were designed and landscaped by the Olmsted brother's firm. The firm's use of native vegetation to create a wildflower garden, the manipulation of landforms to give the hotel the appearance of being on a natural knoll, the views to Yosemite Falls, and the entry sequence are notable features of the original design. The Ahwahnee Meadow and surrounding natural landscape elements are also important to the setting of the hotel. While a nearby cluster of wood bungalows built in 1928 and

the employee dormitory are not considered to be individually eligible for listing on the National Register, they are contributing elements to The Ahwahnee National Register property.

The Camp Curry Historic District includes the Camp Curry Entrance Sign, Mother Curry's Bungalow (1917), and the Tresidder residence (1916); the original registration building (now used as a lounge); 48 bungalow units built between 1918 and 1922; and canvas tent cabins dating from the late 1920s and early 1930s. The tent cabins are the most significant and intact tent cabin complex left in the National Park System. The use of the orchard for parking was first proposed by the Olmsted brothers' firm in 1927. Other structures, such as Cabin 90A/B and Cottage 819, are considered contributing elements of the Yosemite Valley Cultural Landscape Historic District within the Curry Village developed area.

The Stoneman House (a late-1960s alteration of a 1913 auditorium/dance hall), the Huff House (a private residence built circa 1923), the original post office (now used as the registration office), restroom buildings, and other miscellaneous facilities within the historic district's boundaries are not considered to be contributing elements to the district's significance. However, the Stoneman and Huff Houses, the post office, and the restroom buildings are contributing elements to the Yosemite Valley cultural landscape.

West of Camp Curry is the LeConte Memorial Lodge, a National Historic Landmark. It was originally constructed in 1903, in the Curry Village area at the base of Glacier Point, and was moved to its current location in 1919. Its Tudor-revival architecture and strong European tendencies are found in no other buildings in the National Park System. It has served as a Sierra Club reading room and meeting place for naturalist activities.

Camp 4 (Sunnyside Campground) was recently determined eligible for listing on the National Register of Historic Places for its associations with the growth and development of rock climbing as a recreational activity in Yosemite Valley. While camping is important as a recreational activity and a land use in the historical context of the Yosemite Valley cultural landscape, the individual campgrounds do not retain historical integrity and therefore are not considered contributing resources. However, Camp 4 is significant as a historic site for other reasons. Camp 4 was a meeting ground and important focal point for climbers in Yosemite Valley from 1947 to 1970, serving as a place of training, ascent planning, information and equipment exchange, and comradeship. The approximately 10-acre site includes the open, boulder-strewn areas (adjacent to the Valley Loop Trail at the base of the talus slope) used as campsites by many early climbers; the parking area (important for equipment/expedition staging and preparation); and the more concentrated campground area containing the original restrooms, the rescue camp section, and other camp infrastructure elements.

The Yosemite Chapel, the oldest standing building in the Valley, was constructed in 1879 and moved to its current location in 1901. Like the LeConte Memorial Lodge, it was moved during the period of significance, and is the last remaining structure from the Old Village along the Merced River and south of the current Yosemite Village.

In addition, eight granite-faced, concrete-arched, two-lane vehicular bridges were constructed along the Valley Loop Road between 1922 and 1933. Six of the bridges—Ahwahnee, Clark's, Pohono, Sugar Pine, Happy Isles, and Stoneman—cross the Merced River, while two more—Yosemite Creek Bridge and Tenaya Creek Bridge—cross these creeks. Each bridge is listed on the National Register of Historic Places. Other historic structures in Yosemite Valley include road alignments and several early trails, such as the Valley Loop Trail, the Four Mile Trail, the Yosemite Falls Trail, and the Mist Trail. These trails follow earlier American Indian travel routes and contain sections of distinctive rockwork and features such as footbridges.

Out-of-Valley Resources

El Portal

Archeological Resources

The El Portal Archeological District, listed on the National Register of Historic Places, contains 17 known sites. Prehistoric and historic human burials in both isolated locations and in cemeteries have been identified in El Portal. El Portal may also contain the best-preserved archeological resources from the protohistoric and early historic periods associated with American Indian cultural change. Although modern development has significantly altered the landscape and destroyed archeological deposits in many places, much could be learned from these resources. Historic archeological deposits representative of the ranching, mining, and railroad history of the area are also present.

Recent investigations in El Portal have focused on a large historic American Indian family truck farm and adjacent cemetery (Davis-King 1998) situated on the south side of the Merced River in the Riverside area. The truck farm was established by Johnny Wilson in the late 1800s. It contains important archeological deposits directly associated with American Indians living today, but is not identified as a traditional cultural place. The adjacent cemetery contains graves of ancestors of living American Indian people.

Ethnographic Resources

A systematic evaluation or overview of ethnographic resources has not been undertaken for El Portal. However, information from ethnohistoric research (Bates and Wells 1981; Davis-King 1998) indicates that several individuals and families have traditional ties to this area. Redbud, willow, sourberry, and other plant materials are known to be gathered there. At least three cemeteries are known, two of which were used during historic times and are the burial places for ancestors of some local American Indian families.

Historic Resources

A comprehensive evaluation of historic resources at the El Portal Administrative Site was completed, based on National Register criteria and an El Portal historic base map, drawn from primary and secondary source documents (maps, photographs, oral histories, and memoirs). The evaluation documents the locations of ranches, facilities associated with the Yosemite Valley Railroad, American Indian homes, tungsten and barite mining resources and facilities, and commercial, resort, and lodging facilities. Many of these exist today as archeological sites or landscape features.

Structures in El Portal that are either listed on, or are eligible to be listed on, the National Register of Historic Places include the Bagby Station, water tanks, and turntable; Hetch Hetchy Railroad engine number 6; Yosemite Valley Railroad caboose number 15; Murchison house and office (Yosemite Research Center); three National Lead Company residences (Rancheria Flat); and a store, school, El Portal Market, El Portal Hotel, and three railroad residences, all in the Village Center.

Foresta

The Foresta tract was included in Yosemite National Park in 1890 and served primarily as a semi-active subdivision of summer homesites. The Big Meadow cemetery, established in 1894, contains the remains of five local residents. Additional, unmarked graves also are located in the Foresta area. Two Meyer barns (one from the early 1880s and one with a cribwork interior from the late 1870s) remain in the park, illustrative of vernacular building traditions; they are listed on the National Register of Historic Places. These resources are the only tangible remnants of grazing and ranching activities that began in the 1870s.

The old Coulterville Road, the first stage road reaching the floor of Yosemite Valley, passed through the Foresta area on its way from Coulterville to its eastern terminus at El Portal Road in the Merced River gorge, one mile below the Cascades. The segment of the Coulterville Road corridor within the park is listed on the National Register.

The Foresta tract has been systematically surveyed for archeological resources, but not for ethnographic resources or potential cultural landscapes. Foresta was an important prehistoric settlement area, as reflected in the 22 documented village and camp sites. No detailed information is available regarding the subsurface nature of the archeological deposits, but based on surface evidence, National Park Service has prepared a draft National Register nomination for a proposed Foresta Archeological District. The Programmatic Agreement developed by the National Park Service, the State Historic Preservation Office, and the Advisory Council on Historic Preservation provides an ongoing process for identifying, evaluating, and treating the park's cultural resources.

Henness Ridge

Part of the Henness Ridge area has been inventoried for archeological and historic resources. The Old Wawona Road, an 1875 stage road linking Wawona and Yosemite Valley, and remnants of the Yosemite Lumber Company railroad logging operations have been documented in this area. No inventory of possible ethnographic resources has been undertaken, and the resources that have been identified have not been evaluated under National Register criteria. However, the Programmatic Agreement provides an ongoing process for identifying, evaluating, and treating the park's cultural resources.

Wawona

The prehistory of the Wawona area is similar to that of the park as a whole, although occupation in Wawona seems to have occurred somewhat earlier than that of Yosemite Valley.

The Wawona area has been designated an archeological district, determined eligible for listing on the National Register of Historic Places. At least 72 historic and prehistoric resource sites are within the district boundaries. The significance of the district lies in its ability to provide information pertaining to subsistence strategies, seasonal use of specific ecological zones, demographic patterns, and both historic Miwok and pre-Miwok occupation of the area (NPS 1978).

American Indian people continue their traditional cultural associations with park lands and resources. Many places continue to be visited for traditional purposes; however, little formal

research has been conducted to inventory and document traditional resources important to American Indian people. No formal inventory for ethnographic resources has been undertaken for the Wawona area. A cultural affiliation study currently under way will identify places, tribal groups, and families associated with this area. It is likely that traditional plant-gathering occurs. As in El Portal and Yosemite Valley, ancestors of local American Indian people are buried in the historic cemetery at Wawona.

Galen Clark was a central figure in the history of Wawona. Clark homesteaded land in the Wawona basin and established Clark's Station along the Mann Brothers' Trail between Mariposa and Yosemite. Although never successful as a businessman (Clark's Station changed hands several times, and the land is now the site of the Wawona Hotel), Clark was influential in the early management of the Yosemite Grant. He served as the state-appointed guardian for 22 years, responsible for daily oversight of Yosemite Valley and the Mariposa Grove. The remains of his homestead are still evident in Wawona, adjacent to what is now the Wawona Golf Course.

With construction of the Mariposa Road, which was completed to the Yosemite Valley floor in 1875, Wawona became a major stop along the transit route to Yosemite Valley. The original Clark's Station was eventually purchased by the Washburn brothers, who developed the Wawona Hotel complex that stands today. This resort facility comprised cow and horse pasturage as well as a short-lived air strip in the Wawona Meadow; a laundry; a slaughterhouse; a barn; a water ditch system that diverted water from the South Fork of the Merced River for irrigation, domestic water supply, ice, and power generation; and recreational facilities such as a golf course and tennis court. The noted Yosemite artist Thomas Hill established a studio adjacent to the hotel complex. The Washburn Company holdings, including the hotel complex, were purchased by the National Park Service in 1932 and the facilities remain in use today, operated by the park's concessioner.

A cultural landscape study of the Wawona area, focusing on Washburn Company holdings, is under way. The most famous of the historic structures in Wawona is the Victorian hotel complex, which includes seven structures. It is significant for its architectural features as well as its historical associations with early California commerce and landscape painter Thomas Hill. The complex includes the Pavilion (former Hill's Studio), the Wawona Hotel, Little Brown (Moore Cottage), Long White (Clark Cottage), Little White (Manager's Cottage), and the annex. The complex was designated a National Historic Landmark on May 28, 1987. Also associated with the hotel complex is the Wawona Golf Course, overlying the eastern portion of the Wawona Meadow.

This resort complex once contained many other amenities necessary to support such a remote facility. Other structures include the Covered Bridge, the Gray Barn, the Slaughterhouse, and the Laundry (now used as a wagon repair shop). Other facilities exist today as archeological or landscape features, including the Washburn Ditch, the remains of Stella Lake, the foundations from Washburn Company employee residences, dumps, remains of cow and horse pasturage, a split-rail fence encompassing most of the southern Wawona Meadow, a remnant orchard, and many other features.

Also extant is the first wagon road into Wawona, the Chowchilla Mountain Road, originally constructed in the late 1800s. This road linked Wawona with the Mariposa area and followed earlier toll trails into the area.

The Pioneer Yosemite History Center, on the banks of the South Fork of the Merced River, contains many structures relocated from other areas of the park. Four of the buildings are listed on the National Register, including the Hodgdon homestead cabin, the Chris Jorgensen studio, the acting superintendent's headquarters, and the Yosemite Transportation Company office. Another, the George Anderson cabin, is eligible for listing.

Also extant in the Wawona developed area are several Civilian Conservation Corps structures and two government residences constructed immediately after the Wawona land purchase in 1932.

Badger Pass

The Badger Pass area has been inventoried for prehistoric archeological resources; none have been located. The potential for historic-era archeological resources to be present here is associated with early use of the ski area. No inventory for ethnographic resources has been undertaken.

No historic structures in the Badger Pass complex are eligible for inclusion on the National Register of Historic Places. The structures in this complex have been altered considerably and no longer retain historical integrity (NPS 1987a).

South Landing

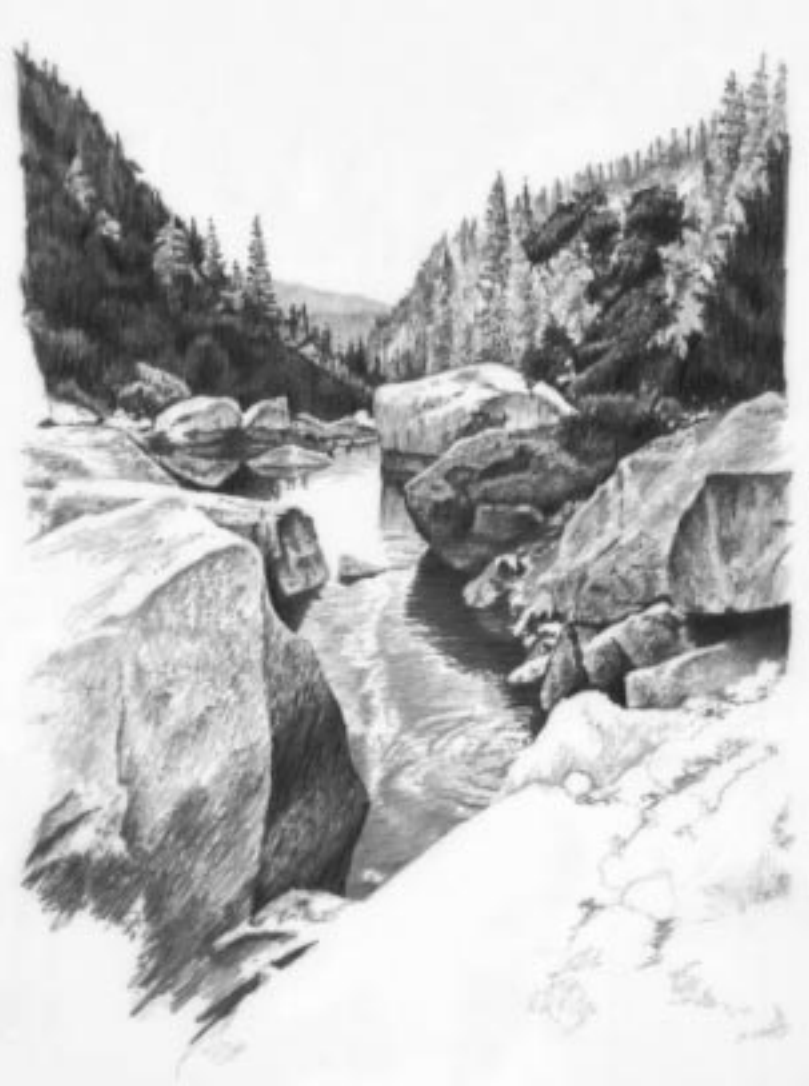
The South Landing area has not been inventoried for cultural resources. It is a known log-landing area associated with Yosemite Sugar Pine Lumber Company operations in the early to mid-1900s and may retain historic features and fabric associated with that operation. It has been used over the intervening decades by the National Park Service as a firearms practice range and for materials storage and staging.

Merced River Gorge

Archeological resources in the Merced River gorge include historic and prehistoric sites. Historic sites are associated with the development and use of this canyon as a travel corridor. They include rock quarries, dumps, the remains of two work camps, a few unidentified structural foundations, and the Coulterville Road blacksmith shop in the talus west of Cascades, where a forge was built to serve travelers along this road. Four prehistoric American Indian archeological sites are located in and adjacent to the Cascades area. These sites are likely seasonal villages and contain features such as mortar rocks, midden soil, lithic scatters, and rock shelters.

American Indian people continue their traditional cultural associations with park lands and resources. Many places continue to be visited for traditional purposes, although little formal research has been conducted to inventory and document traditional resources important to American Indian people. While there is no ethnographic information or direct historical data related to the American Indian occupations in the Cascades area and near Pohono Bridge, these sites were not locales of isolated human activity. The people using these sites would most likely have traveled through these areas between Yosemite Valley and the lower elevations of the Merced River canyon. In the 1980s, a fragment of a Miwok basket was discovered in the rock talus above Cascades. At the western extent of Cascades is a large boulder that figures in a Miwok-origin story (NPS 1998d). Human remains have also been recovered from this area.

The Euro-American history of the Merced River gorge began in the 1870s, when James Hennessey of El Portal built and maintained a trail between El Portal and Yosemite Valley through the gorge. The Coulterville and Yosemite Turnpike Company constructed the Coulterville Road, which entered the Merced River canyon just west of the Cascade area and continued east to Yosemite Valley. In 1907, after two years of construction, the Yosemite Valley Railroad Company completed the El Portal Road between the rail terminus at El Portal and Yosemite Valley.



The Yosemite Hydroelectric Power Plant and associated structures (including the diversion dam, intake, screens and screenhouse, penstock, surge tank, and transmission line) were constructed in 1917-1918 to provide electrical power to Yosemite Valley. Water from the Merced River was diverted into a wooden penstock that paralleled the El Portal Road and dropped into the power plant for electricity generation. The electricity was conducted along 11-kilovolt overhead powerlines to the Valley. This property was determined eligible for inclusion on the National Register of Historic Places. The hydropower system is no longer in use, and in consultation with the State Historic Preservation Office and the Advisory Council on Historic Preservation (NPS 1986), many elements have been removed. The four Cascades residences, constructed between 1917 and 1924 to provide housing for individuals maintaining and operating this system, are also contributing elements of this historic resource.

The El Portal Road was substantially reconstructed in 1925, and when linked with Highway 140 through the lower Merced River canyon, it became known as the All-Year Highway (Quinn 1991; NPS 1997c). At the same time, the Arch Rock Entrance Station complex was constructed to serve increased visitation. This complex includes a ranger station/residence and a check station; a parking area, restrooms, and an additional entrance station kiosk were added later. The area is highlighted by the drive-through rock formation known as Arch

Rock and the famed views of the Merced River canyon. The complex is listed on the National Register of Historic Places (NPS 1987a).

Based on a cultural resources inventory completed for the reconstruction of the El Portal Road, the National Park Service, in consultation with the State Historic Preservation Office, determined that the Merced River canyon travel corridor is a significant historic property, eligible for listing on the National Register of Historic Places (significant structures and features include hand-laid stone parapet guardwalls and drainage catchment structures). Following consultation with the State Historic Preservation Office and the Advisory Council on Historic Preservation, a majority of these features were removed as part of the road's reconstruction. Other properties include the Arch Rock Entrance Station complex (eligible for the National Register as an individual property), rock quarries, historic trash scatters, sections of pre-1925 roadbed, historic work camp sites, and remains of the 1850 Coulterville Free Trail, which linked the foothill town of Coulterville with Yosemite Valley.

The Merced River canyon travel corridor determination of eligibility document (NPS 1997c) describes the important landscape characteristics of this property. They include views of the Merced River canyon, the use of natural materials, and purposeful design of situating the travel corridor to harmonize with the natural landscape.

Hazel Green

Prehistoric and historic archeological sites are found in the Hazel Green area (Napton 1998, 1999). Six prehistoric American Indian archeological sites are located at Hazel Green. Mortar rocks with pestles, lithic debitage, and flaked-stone tools are common site constituents, likely representing seasonal villages.

Historic sites are associated with early travel through the area and include portions of historic roads, the location of the former stage stop, and sparse deposits of historical artifacts. Most prominently, a portion of the old Coulterville Road, the first road to reach Yosemite Valley in 1874, traverses the area. Leaving Hazel Green, the road winds into Yosemite Valley via the Merced Grove and Foresta. The Yosemite section of Coulterville Road is considered an important historical resource and, as such, is listed on the National Register of Historic Places.

The other historic road in the Hazel Green area is a section of the Crane Flat Road. This road represents a remnant of the original Coulterville Road, built between Hazel Green and Crane Flat in 1872. Following construction of this segment, work on the road ended due to financial constraints. In reviving the project, the portion of the road to Crane Flat was abandoned and rerouted through the Merced Grove.

Yosemite Museum Collection (including Archives and Research Library)

Historical Context

The Yosemite Museum collection and archives began as an element of the first museum founded in Yosemite Valley in 1915. It was the first officially designated museum in the National Park System. The new museum building, opened in 1926, was a cornerstone in the design of the Yosemite mall area and the focal point of the new National Park Service concept of park education and naturalist programs.

Yosemite's library was established in 1926 by the Yosemite Museum Association in the museum building, where it remains. It served the Valley community as a general library until the 1930s, when it began to serve the visiting public, scholars, and park staff as a research library.

The slide archive began as an outgrowth of the early park naturalists' programs to provide projected images for educational programs, first in lantern slide formats, then, in the mid-1930s, using 35-millimeter format to take advantage of new color films.

Museum Collection

The National Park Service manages and preserves museum collections to the standards outlined in the NPS-28 *Cultural Resources Management Guidelines* and the NPS *Museum Collections Management Guideline* (DO 24, Final). These irreplaceable collections are part of the nation's natural and cultural heritage.

The Yosemite Museum collection includes objects and specimens relating to natural history, flora, fauna, geology, history, fine arts, photography, prints, decorative arts, uniforms and clothing, archeology, and ethnography. Some 1.7 million museum objects have been catalogued. This collection is the documented history of all human and resource interactions within Yosemite National Park, both natural and cultural, and it provides a baseline for resource studies. The ethnographic collection is the largest in the National Park System. The archeology collection serves as the repository for archeological materials excavated in the park. The museum collection has significant value for comparative research purposes.

Individual collections of special significance include:

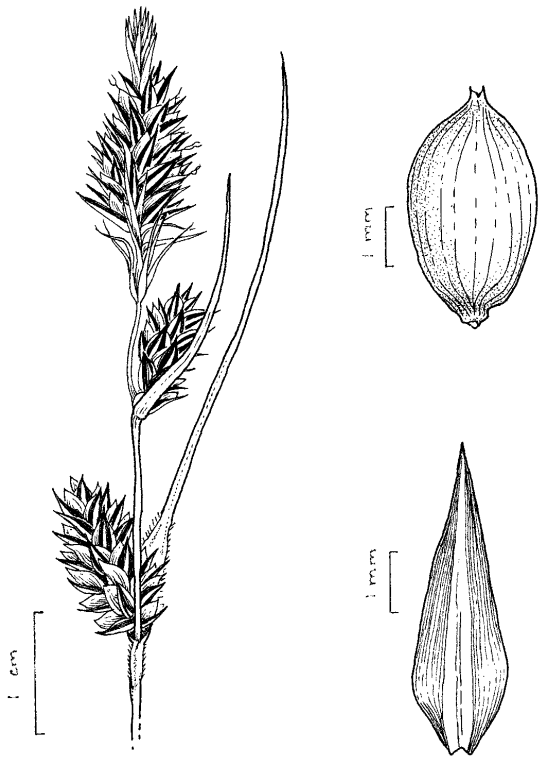
Photography: This collection includes more than 50,000 images, with an unbroken record from 1859 to the present. They document both the natural and cultural environment and include the works of significant photographers such as Ansel Adams, Carleton Watkins, and Eadweard Muybridge.

Paintings and Prints: The first images of Yosemite Valley seen by the American public, which were done by Thomas Ayres in 1855, are included in this collection. It consists of over 600 paintings and prints and includes works by Thomas Moran, Albert Bierstadt, Thomas Hill, and William Keith, along with contemporary interpretations of Yosemite.

Ethnography: The largest and most well-documented collection of its type within the National Park System includes the Schwabacher Collection of Yosemite-area basketry. It also includes an excellent collection of utilitarian baskets, clothing, and hunting and gathering implements.

Specimen Collections: Entomology, herbarium, and faunal collections from 1916 to the present are included in this collection. These help establish a baseline for species and geographic distribution within the park.

Archives: Original documents, unpublished manuscripts, and other materials that document the resources and work of the U.S. Army, State of California, National Park Service, and various park concessioners constitute this collection, along with private and corporate papers of individuals and groups important in park history. This collection is used extensively by researchers.



Research Library: The library includes scientific and general works on natural and cultural resources, recreation, and planning. Its history collections are extensive and contain materials on ethnography, the Army's administration, park operations, innkeepers, concessioners, early settlers, buildings, the Hetch Hetchy Dam, Wawona, the Mariposa Big Tree Grove, roads, trails, place names, geology, plants, animals, boundaries, famous visitors, and American Indians. Early accounts and descriptions are also available, as are guide maps, entrance folders, and information circulars from 1912 to the present. The library has special collections of the Yosemite Nature Notes (1921-1961, 1977-1978) and the American Alpine Club (climbing and mountaineering). There is a large collection of periodicals. The photography collection consists of approximately 18,000 black-and-white photographs and is exceptional for its documentation of Yosemite's natural, cultural, and scenic resources over time. The natural history observation file records sightings of birds and mammals dating back to 1909. Also included are clipping files, microfilm records, and maps.

Slide Archives: The collection includes a wide variety of subjects such as scenic features, pictorials, physiography, animals, plants, ethnography, history, program aids, studies, and collections over a 60-year time span. It contains 90,000 original images from 1938 to the present. It is used primarily by researchers, park interpreters, and other park staff in preparing programs and doing research.

Wild and Scenic Rivers Act

The Wild and Scenic Rivers Act (Public Law 90-542, as amended) states the following:

> It is hereby declared to be the policy of the United States that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. The Congress declares that the established national policy of dam and other construction at appropriate sections of the rivers of the United States needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes.

Outstandingly Remarkable Values are defined by the Wild and Scenic Rivers Act as those resources within a river corridor that are worthy of special protection. These are the values for which a river is added to the National Wild and Scenic Rivers System. The Wild and Scenic Rivers Act stipulates that these values are to be "protected and enhanced." The Wild and Scenic Rivers Act directs that "the agency charged with the administration of each component of the National Wild and Scenic Rivers System shall establish detailed boundaries thereof (which boundaries shall include an average of not more than 320 acres per mile on both sides of the river)."

The Wild and Scenic Rivers Act directs that "the Federal agency charged with the administration of each component of the National Wild and Scenic Rivers System shall prepare a comprehensive management plan for such river segment to provide for the protection of the river values. The plan shall address resource protection, development of lands and facilities, user capacities, and other management practices necessary or desirable to achieve the purposes of this Act." The *Merced Wild and Scenic River Comprehensive Management Plan/Final Environmental Impact Statement* fulfills this requirement.

The Outstandingly Remarkable Values for segments of the Merced River administered by the National Park Service are listed in Vol. II, Appendix B.

The Wild and Scenic Rivers Act directs that designated rivers will be "classified … and administered as one of the following:"

Wild river areas: Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shoreline essentially primitive and waters unpolluted. These represent vestiges of primitive America.

Scenic river areas: Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

Recreational river areas: Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

The classifications for segments of the Merced River administered by the National Park Service under the Wild and Scenic Rivers Act are discussed below.

1987 Designation of the Merced Wild and Scenic River

Public Law 100-149 (1987) and Public Law 102-432 (1992) placed 122 miles of the Merced River into the National Wild and Scenic Rivers System. A total of 81 miles of the Merced River is administered by the National Park Service. (This portion of the Merced River is referred to hereafter as the Merced Wild and Scenic River.) The Merced Wild and Scenic River is divided into nine segments, some of which are within the *Final Yosemite Valley Plan/SEIS* study area, as discussed below. The main stem of the Merced Wild and Scenic River passes through Yosemite Valley (segment 2), through the gorge downstream of Yosemite Valley to the park boundary (segments 3A and 3B), and through the El Portal Administrative Site (segment 4). The Merced Wild and Scenic River South Fork passes through Wawona (segment 7).

Unlike the segments of the Merced Wild and Scenic River, the El Portal segment flows through an area that is managed for different purposes. The El Portal Administrative Site (72 Stat. 1771) was set aside by Congress in 1958 to:

> . . . enable the Secretary of the Interior to preserve the extraordinary natural qualities of Yosemite National Park, notwithstanding its increasing use by the public, the Secretary is hereby authorized to provide in the manner hereinafter set forth an administrative site in the El Portal area adjacent to Yosemite National Park, in order that utilities, facilities, and services required in the operation and administration of Yosemite National Park may be located on such site outside the park.

It was the intent of Congress that these lands be used for administrative and operational purposes to relieve the park of these burdens. Accordingly, the 1980 *General Management Plan* and the *Merced Wild and Scenic River Comprehensive Management Plan/Final Environmental Impact Statement* took the El Portal legislation into consideration in developing goals and management zones for the El Portal Administrative Site.

In January 2000, the National Park Service released the *Draft Merced Wild and Scenic River Comprehensive Management Plan/Environmental Impact Statement*; a final document was released in June 2000. This plan revises Outstandingly Remarkable Values, boundaries, and classifications for the Merced Wild and Scenic River based on the application of new scientific information and changed ecological and hydrological conditions in the river corridor.

Merced Wild and Scenic River Comprehensive Management Plan/Final Environmental Impact Statement

The *Merced Wild and Scenic River Comprehensive Management Plan* is collectively referred to as the *Merced River Plan*. The purpose of the plan is:

> . . . to provide direction and guidance on how best to manage visitor use, development of lands and facilities, and resource protection within the river corridor. The National Park Service has developed a series of planning goals to guide management decision-making in these areas. Once completed, the *Merced River Plan* will be used as a template against which future project implementation plans will be judged to determine whether such projects will protect and enhance the river's Outstandingly Remarkable Values. As a result, the *Merced River Plan* provides general direction and guidance for future management decisions; it does not address the specific details of future projects.

Merced Wild and Scenic River Management Elements

As a programmatic plan, the *Merced River Plan* does not specify detailed actions. Instead, it applies management elements to prescribe desired future conditions, typical visitor activities and experiences, and allowed park facilities and management activities in the Merced River corridor. The *Merced River Plan* applies a consistent set of decision-making criteria and considerations, composed of seven management elements: boundaries, classifications, Outstandingly Remarkable Values, the Wild and Scenic Rivers Act Section 7 determination process, the River Protection Overlay, management zones, and the Visitor Experience and Resource Protection framework. These management elements are described briefly below, and in more detail in Vol. II, Appendix B.

The criteria and considerations provide an umbrella management framework for the seven management elements. To apply the management framework to future decisions on specific actions, the National Park Service would use the management elements as a set of decision-making criteria with which to evaluate projects in terms of visitor use, facility siting, and design, and other potential actions in the Merced River corridor. For actions that meet certain mandatory criteria (see Vol. II, Appendix B), the National Park Service would apply additional considerations to further evaluate potential actions.

Boundaries

A quarter-mile boundary is applied to the entire corridor, except in the El Portal Administrative Site. In the El Portal Administrative Site segment (segment 4), the boundary is the 100-year floodplain or the extent of the 100-foot River Protection Overlay (whichever is greater), from the park boundary downstream to the administrative site boundary (see Vol. Ic, plate G-2). (Note: This applies only for lands under National Park Service jurisdiction. The U.S. Forest Service has not delineated a boundary on lands under its jurisdiction along the El Portal segment of the Merced River.)

Classifications

East Yosemite Valley (Nevada Fall to Sentinel Beach), El Portal, and Wawona are classified as "recreational." The recreational classification reflects the current extent of developed areas and facilities in these segments. The impoundment segments (very short segments between Yosemite Valley and the gorge, and on the South Fork above Swinging Bridge) are classified as recreational due to the presence of small dams that interfere with the free-flowing condition of the river. The west Valley and the gorge segments are classified as "scenic."

Outstandingly Remarkable Values

As described in the Wild and Scenic Rivers Act section above, Outstandingly Remarkable Values are the river-related values that make the river segment unique and worthy of special protection. The Outstandingly Remarkable Values are listed in Vol. II, Appendix B.

Wild and Scenic Rivers Act Section 7 Determination Process

The Wild and Scenic Rivers Act Section 7 determination process is a procedure to ensure that water resources projects do not directly and adversely affect the values for which the river was designated Wild and Scenic. "Water resources projects" are those that are within the bed or banks of the Merced River, and the National Park Service must carry out a Section 7 determination on all proposed water resources projects to ensure that they do not directly and adversely affect the values for which the river was designated. The requirements of the Section 7 determination process can be found in Vol. II, Appendix B.

River Protection Overlay

The Merced River Plan establishes a River Protection Overlay to:

> . . . ensure that the river channel itself and the areas immediately adjacent to the river are protected. The River Protection Overlay would provide a buffer area for natural flood flows, channel formation, riparian vegetation, and wildlife habitat and would protect riverbanks from human-caused impacts and associated erosion.

Above 3,800 feet, the River Protection Overlay is 150 feet on both sides of the river, as measured from the ordinary high water mark (defined as the 2.33-year floodplain). Below 3,800 feet, the River Protection Overlay is 100 feet on both sides of the river, as measured from the ordinary high water mark. An illustration of the River Protection Overlay can be found in Vol. IA, Chapter 2, Alternatives, Actions Common to All Action Alternatives. Prescriptions for the River Protection Overlay can be found in Vol. II, Appendix B, and a graphical depiction of the River Protection Overlay can be found in Vol. IC, plates G-1, G-2, G-3, and action alternative plates.

Management Zones

The Merced River Plan defines management zones, delineates zone boundaries, and establishes prescriptions for zones within the Merced River corridor. Management zoning is:

> . . . a technique used … to classify park areas and prescribe future desired resource conditions, visitor activities, and facilities … zoning seeks to protect and enhance the Outstandingly Remarkable Values of the Merced River corridor … and provides opportunities for restoration of Outstandingly Remarkable Values in areas where lower use and facility levels are prescribed. Management zoning protects the spectrum of recreational opportunities (an Outstandingly Remarkable Value) by allowing for visitor access and use of facilities in more resilient locations, and different intensities of use along the corridor.

The prescriptions for the management zones can be found in Vol. II, Appendix B. The graphical depiction of management zoning for the Merced River Plan can be found in Vol. IC, plates G-1, G-2, and G-3.

Visitor Experience and Resource Protection Framework

The Visitor Experience and Resource Protection (VERP) framework is a tool developed by the National Park Service to address user capacities and is adopted by the Merced River Plan to meet the requirements of the Wild and Scenic Rivers Act. The VERP framework protects both park resources and visitor experience from impacts associated with visitor use, and helps managers address visitor use issues. The VERP framework (see Vol. II, Appendix B) is an ongoing, iterative process of determining desired conditions,[1] selecting and monitoring indicators and standards that reflect these desired conditions, and taking management action when the desired conditions are not being realized. The implementation of the VERP framework for the Merced River corridor would focus on protecting the Outstandingly Remarkable Values and would dovetail with future implementation of the VERP framework outside the river corridor.

1. "Desired conditions" encompasses desired cultural resource conditions, desired natural resource conditions, and desired visitor experiences.

Visitor Experience

Yosemite National Park, as guided by its enabling legislation and the National Park Service Organic Act of 1916, has two interwoven purposes:

> The first is the preservation of the resources that contribute to Yosemite's uniqueness and attractiveness – its exquisite scenic beauty; outstanding wilderness values; a nearly full diversity of Sierra Nevada environments, including the very special sequoia groves; the awesome domes, valleys, polished granites, and other evidences of the geologic processes that formed the Sierra Nevada; historic resources, especially those relating to the beginnings of a national conservation ethic; and evidences of the Indians who lived on the land. The second purpose is to make the varied resources of Yosemite available to people for their individual enjoyment, education, and recreation, now and in the future. (1980 *General Management Plan*)

Visitor Use

While the 1980 *General Management Plan* was being developed, about 2.4 million people were visiting Yosemite National Park each year. Now, visitation approaches 4 million people annually, each person looking for individualized enjoyment, education, and/or recreation in an increasingly crowded park. In 1998, an estimated 2.1 million visitors entered Yosemite Valley.

To evaluate how successful the park is in achieving its purposes, a comprehensive survey of park visitors was undertaken in 1990 and 1991, in the midst of this period of extraordinary growth in visitation (Gramann 1992). That survey indicated that 73.7% of summer visitors traveling in their own vehicles visited Yosemite Valley; during other seasons this number climbed to 96%. Almost every bus (bringing about 8.5% of all 1990-1991 visitors) visited the Valley. Another survey of park users arriving by automobiles was conducted throughout 1998 by the Yosemite Area Regional Transportation Strategy (Nelson\Nygaard 1998b). Though conducted for different purposes, this study confirmed that the 1990-1991 visitation patterns are still accurate today. In 1998, about 80% of all visitors to Yosemite National Park traveling in their own vehicles visited Yosemite Valley.

Day visitors coming to Yosemite Valley by private vehicle stayed an average of 4.2 hours, while visitors with overnight accommodations stayed an average of 2.7 days (Gramann 1992). The lengths of stay were not found to be significantly different among weekday or weekend visitors. Campground and lodging room stays are limited to 7 days in Yosemite Valley, and many campers stay the full 7 days.

A free shuttle bus service is provided in the east Valley and served about 2.6 million riders in 1998. Twenty-one stops provide access to lodging, camping, and principal features and use areas. Camp 4 (Sunnyside Campground) is the westernmost stop on Northside Drive, and Sentinel Bridge is the westernmost stop servicing the south side of the Merced River. About 45% of Valley visitors reported using the shuttle buses, and over 90% of those visitors reported a satisfactory experience (Gramann 1992). No shuttle service is provided to west Valley locations. The park concessioner offers scheduled one-way or round-trip shuttle/tours in Yosemite Valley and to Tuolumne Meadows, the Mariposa Grove of Giant Sequoias, and Glacier Point (convenient for hikers wishing to hike one way to or from Yosemite Valley). No other in-park

shuttle service from Yosemite Valley is available in summer. The park concessioner offers a free shuttle to the Badger Pass ski area from Yosemite Valley in the winter.

Only a small number of Yosemite Valley shuttle buses are outfitted to accommodate visitors with mobility impairments, particularly wheelchair users. Approximately 4% of visitor groups arriving by private vehicle included a person with impaired mobility, compared to nearly 14% of those arriving by bus (Gramann 1992). To provide maximum accessibility, visitors with mobility impairments arriving by private vehicle may obtain a vehicle placard at visitor centers and entrance stations that authorizes their use of designated parking spaces at major features and facilities in the Valley. The placard also permits limited use of the Happy Isles Loop Road and the Mirror Lake Road to gain access to designated parking spaces at Mirror Lake and Happy Isles.

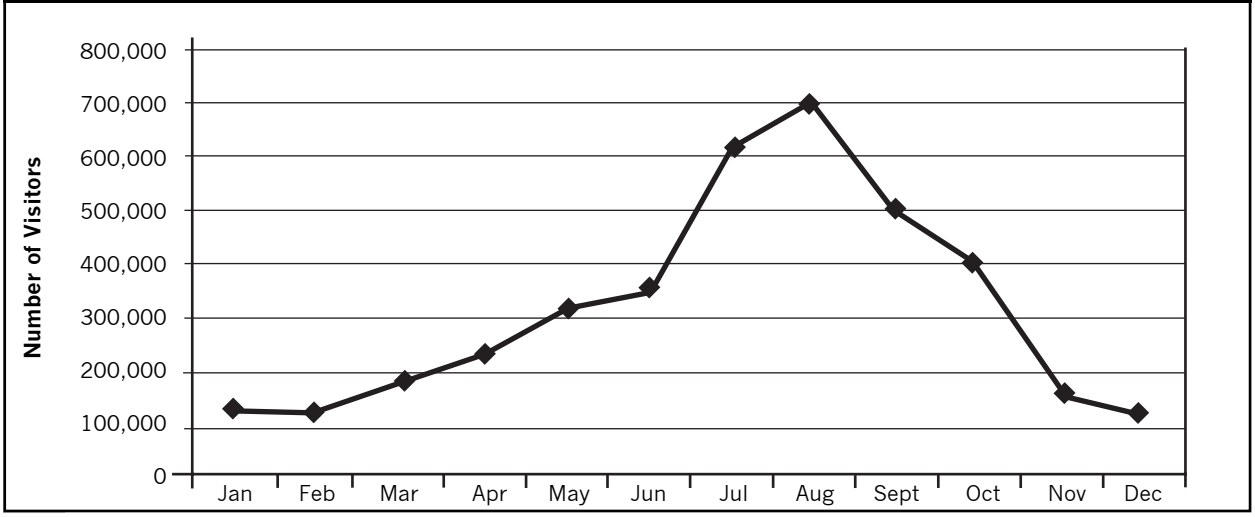
Due to characteristics inherent in the natural environment and the desire to maintain natural areas free of development and roads, all-inclusive access to Yosemite Valley features is not available. Even the closest parking spaces and shuttle bus stops are often some distance from popular vistas or pedestrian destinations. The Americans with Disabilities Act Accessibility Guidelines for natural areas are still under development. When available, these guidelines would be used to direct specific actions implemented under the proposed alternatives. All buses acquired for use in park shuttle services in the future would meet existing guidelines for accessibility.

Park Visitation

Visitation to Yosemite increased steadily from 1990 through 1996. As a result of the January 1997 flood, which disrupted access to the park and damaged many overnight lodging and camping facilities, visitation decreased. Approximately 3.8 million visitors entered Yosemite National Park in 1998, and 3.6 million in 1999.

Figure 3-1 shows visitation to Yosemite National Park during 1998. To represent variations in seasonal use of the park, two months were selected for more in-depth analysis. April was chosen to represent typical off-peak season demand, when there are fewer visitors and less traffic in the

Figure 3-1
1998 Monthly Visitation to Yosemite National Park



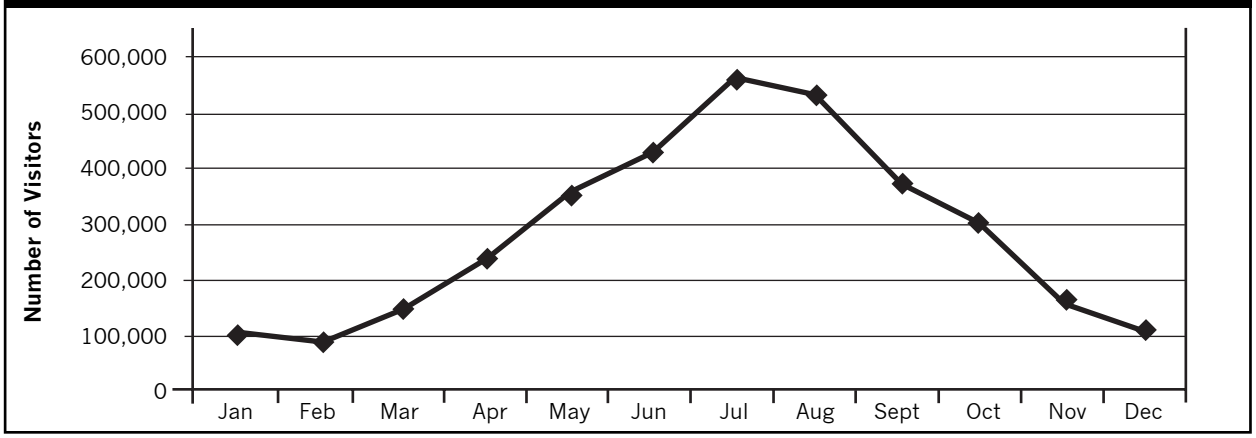
Source: Monthly Use Report, NPS

park; August was chosen to represent peak-season demand. Roughly half of park visitors arrive during July, August, and September. The increased number of both day and overnight visitors creates the year's highest demand for private vehicle circulation and parking.

Valley Visitation

In 1998, an estimated 2.1 million visitors came to the Valley. The number of visitors varied by month in a pattern similar to parkwide visitation, as shown in figure 3-2. More than 50% of the total annual visitors came to the Valley in July and August.

Figure 3-2
1998 Monthly Visitation to Yosemite Valley



April was selected as a representative month for the off-peak season because it has a moderate level of visitation. Daily visitation in April averaged 7,624, substantially lower than in the peak season. July and August were selected to represent typically busy months for the peak season. Daily visitor use in Yosemite Valley averaged 17,496 in August 1998. On an average day during the Valley's peak visitation season, an estimated 10,950 day visitors and 6,383 overnight visitors were in the Valley for at least a portion of the day.

A significant number of past visitors to Yosemite National Park no longer visit Yosemite or have changed the timing of their visits to avoid the busiest summer season. As part of the 1990-1991 visitor survey, a telephone survey of Californians was conducted (Gramann 1992). About 43% of respondents who had previously visited Yosemite said that crowding was a deterrent to a future visit to Yosemite. Of visitors surveyed in the park, more than 60% of off-season visitors arriving in private vehicles responded that they had planned Yosemite trips to avoid crowds; about 41% of off-season bus passengers reported the same motivation. Other park visitors responded that they avoid Yosemite Valley during busy periods.

The Yosemite Experience

For many visitors, driving through the park is the primary means for experiencing the spectacular views. Even during the peak visitation season, travelers on park roads outside Yosemite Valley encounter only minor congestion, except at key activity areas and at park entrance stations. As a result, driving into the park is usually a pleasurable experience,

contributing to visitors' enjoyment of the park. The ability to make informal stops along park roads to take advantage of the unique and varied scenery contributes to each visitor's opportunity to experience the park on his or her own terms. Some visitors, depending on season and arrival time, have had opportunities to stop en route at small visitor contact stations, or if entering via the Tioga Road and Highway 120 from the east, at the Tuolumne Meadows Visitor Center.

From the Big Oak Flat and South Entrance Stations, the drive into the park has a dense forest setting broken by occasional views to the west and clearings caused by recent forest fires. From the Arch Rock Entrance visitors travel through the narrow canyon of the Merced River along a winding road. The trip is highlighted by large granite boulders and views of the river. Tioga Road offers broad alpine views of meadows, domes, distant peaks, and Tenaya Lake. Exfoliating granite surfaces along the Tioga Road provide a unique view of the geologic processes at work in Yosemite. Approaching Yosemite Valley from the north and south, visitors are afforded views from above the lower canyon of the Merced River. Tunnel View is a major viewpoint of Yosemite Valley located at the east end of the Wawona Tunnel on Wawona Road. Because the tall, dense trees in the Valley hide the ribbon-like roads from Tunnel View, there is little or no evidence of human influence. Tunnel View also offers a spectacular panorama, with Bridalveil Fall and El Capitan in the foreground and the granite domes and cliffs of the east end of the Valley in the background.

The Yosemite Valley Experience

Visitor experiences in Yosemite Valley are highly individualized. Some come simply to see Yosemite's icons – its waterfalls and geologic features. Others visit to experience a place they've found unique, for personal challenges, timelessness, a place and pace different from their day-to-day experiences, or a personal connection with the grandeur or intricacies of Yosemite Valley. The Valley provides a transition zone – a place neither urban nor wilderness, but with elements of both. The continuum of visitor experiences extends from highly social to isolated, from independent to directed, from spontaneous to controlled, from easy to challenging, and from natural to more urban.

Because of its limited facilities and access, many of the Valley's more natural experiences are found in the west Valley. Except for roads and turnouts, visitor facilities in most of the west Valley are sparse compared to the east Valley. A hiking and stock trail loops around the Valley perimeter, but bicyclists have access to the west Valley only by sharing roads with motor vehicles (see Vol. Ic, plate 1-1). A concessioner-operated tram/bus tour provides narrated tours of the entire Valley for a fee, but the free shuttle bus system serves only the east Valley. Quiet, an important characteristic of a quality visit for many visitors, is sometimes difficult to find, as roads carry traffic on both sides of the Merced River for nearly the entire length of the Valley. As the number of park visitors and cars decreases in the off-season, it becomes easier to find quiet and solitude in the Valley.

When they reach the Valley floor, many visitors experience a sense of arrival as they pass through the Bridalveil Fall area on Southside Drive, where they encounter spectacular views of the sheer walls of El Capitan. Beyond this point, visitors making through-trips from south to north, turn back to the west across El Capitan crossover to reach the Big Oak Flat Road beyond the west end of the Valley. The sense of arrival that some visitors associate with a visitor center is not easily available due to the visitor center's east Valley location and lack of adjacent parking. Limited roadside parking is provided at popular views and adjacent to many features along Southside Drive, the route to the east Valley. During heavy use periods, these parking areas may fill by midday.

First-time visitors are likely to follow road signs to the primary day-visitor parking area at Camp 6. Many visitors drive directly to desired destinations in anticipation of finding parking nearby, and from there proceed to the next desired location, creating their own driving tour of the Valley. Other visitors find it convenient to park adjacent to the east Valley shuttle bus route and continue on to various destinations by shuttle and on foot. Some visitors tour all of Yosemite Valley by car, using turnouts and parking areas for viewing, but park only at one or two locations to use facilities or walk to get a closer look at a feature. Many visitors, particularly first-time visitors, seek out the visitor center in Yosemite Village as a place to plan the remainder of their Valley or park recreational experience.

Once in the Valley, drivers often spend time negotiating the road system, searching for parking, and maneuvering through congested areas. The vehicle-dominated character of much of the developed portion of the Valley can detract from scenic views and the natural environment that visitors come to Yosemite to enjoy. Once out of their cars, the sight and sound of vehicles continue to affect visitors' experiences.

Visitors arriving by commercial bus are often provided a bus tour of the Valley and an opportunity to get off the bus and explore, on their own or as a group. Buses use many of the same turnouts and parking areas as private vehicles. Buses park at the Lower Yosemite Fall parking area when they are empty.

A Restricted Access Plan has been occasionally implemented on the heaviest visitation days. When certain criteria (lack of parking spaces, long delays at intersections, etc.) are met and adequate staff are available, access to the Valley is temporarily restricted on Southside Drive at El Capitan crossover. Day visitors are directed to continue out of Yosemite Valley via the one-way loop using Northside Drive. When criteria indicate that the displacement of these visitors from Yosemite Valley would create crowding at other park destinations, the Restricted Access Plan is implemented parkwide. In this case, day visitors are turned around at park entrance gates and suggested to return in several hours. In 1995, access was restricted on all weekend days but one between May 20 and July 2. Because personnel were not available, access was not restricted in late July and August, despite higher traffic volumes (also see the discussion of the Restricted Access Plan under the Transportation section in this chapter).

Orientation and Interpretation

Visitors to Yosemite National Park can use park and other information resources to plan their visits. Yosemite's web site provides information about park lodging and activities, and the park's public information office mails pre-visit materials to those requesting them by phone or mail. The Yosemite Association also offers an interactive web site, allowing more in-depth orientation, and sells other interpretive resources. The park also provides assistance (updated information, publications, and seasonal staffing) to local, multi-agency visitor centers where visitors can stop en route. Once at park entrance stations, visitors receive free park publications with trip and activity planning information. During the busiest visitation periods, contact stations in Wawona and Big Oak Flat are staffed to provide additional assistance. A small visitor center is open during the summer in Tuolumne Meadows to introduce the area to visitors traveling on Tioga Road. Each of these facilities provides a selection of helpful park guidebooks and other resources sold by the Yosemite Association.

The park's principal visitor center is located in Yosemite Valley. Built during an era when most Yosemite visitors spent at least one night in Yosemite Valley, it is situated in Yosemite Village at the eastern end of the Valley, where it is most easily used by the Valley's overnight guests. It is here that many first-time visitors expect to find assistance in planning their visits. However, the Valley Visitor Center is a mile from one of the day-visitor parking areas used by many first-time day visitors. This visitor center is the only venue for the parkwide orientation audiovisual program.

Wilderness users find information and trip planning assistance at wilderness centers in Tuolumne Meadows and in Yosemite Valley near the visitor center.

Wayfinding methods for visitors in the Valley are limited. Road signs lead to the day-visitor parking area at Camp 6. From there, visitors may board a shuttle bus, rely on maps received at the park entrance station, or get information from a small seasonal information station. A shuttle bus stop is nearby, but this stop and others throughout the Valley are not easily found. Many trails in the Valley are marked with directional and mileage signs, but a general knowledge of the locations of these destinations is often necessary to use them. Elements of a new road and trail sign system have been installed and are being tested in the Upper and Lower Pines Campgrounds area.

Interpretive Facilities

Interpretation is provided to park visitors in the form of walks, talks, evening programs, exhibits, school programs, etc. Several interpretive facilities are located in Yosemite Village. The Valley Visitor Center offers a parkwide orientation audiovisual program; exhibits on geology, waterfalls, history, and wildlife; and an interpretive publications sales outlet operated by the Yosemite Association. In the visitor center's auditoriums, the Yosemite Association offers interpretive "Yosemite Theater" performances, and other interpretive partners (the Yosemite Institute and The Ansel Adams Gallery) conduct programs for school groups and other visitors.

The Yosemite Museum (with an Indian cultural exhibit, changing art exhibits, and a museum shop), the re-created Indian Village of Ahwahnee (with demonstrations and exhibits), and a

small informal amphitheater/gathering area are situated near the visitor center. The Yosemite Cemetery, near the museum, provides an opportunity to interpret the early history of Yosemite through tours and publications. The park's research library and portions of the museum collection storage are located in the Museum Building. The research library is open to the public and is used by visitors as well as park staff and professional researchers. The Wilderness Center, where visitors can learn about Yosemite's wilderness and plan backpacking trips or day hikes, and the Art Activity Center, where visitors can take free art classes with visiting artists (in summer), are also located in Yosemite Village. The Art Activity Center is operated jointly by the Yosemite Association, Yosemite Concession Services Corporation, and the National Park Service. The Ansel Adams Gallery also offers Yosemite-related art exhibits.

Outside Yosemite Village, interpretive facilities include amphitheaters at Yosemite Lodge, Curry Village, and Lower Pines Campground, where interpreters provide evening programs. An amphitheater in the former Lower Rivers Campground is no longer used. Two smaller, informal amphitheaters are located at the LeConte Memorial Lodge and near Happy Isles. The LeConte Memorial Lodge amphitheater has fallen into disrepair. The Junior Ranger firecircle near Happy Isles is used primarily for the Junior Ranger program along with Yosemite Institute and Yosemite Association evening interpretive programs. Indoor facilities are used for interpretive programs at Yosemite Lodge and The Ahwahnee, which also houses exhibits on Yosemite's recreation history and American Indian culture.

The LeConte Memorial Lodge, near Housekeeping Camp, is operated by the Sierra Club in partnership with the park's Division of Interpretation. The memorial lodge has exhibits on Joseph LeConte, John Muir, and the Sierra Club, plus children's exhibits and a library.

The Nature Center at Happy Isles offers hands-on exhibits for children and adults on the lesser-seen aspects of Yosemite Valley, particularly its wildlife and river environment.

Outside exhibits are provided on trails, at features, and at roadside turnouts throughout Yosemite Valley. They are clustered in developed areas such as Happy Isles and along accessible trails such as Mirror Lake. About 25% of visitors reported using exhibits or museums during their visit (Gramann 1992).

Interpretive Programs

Interpretive programs are offered to the public by a number of organizations in partnership with the National Park Service. Park rangers offer free walks originating near the visitor center, Happy Isles, at shuttle bus stops, and in the Indian Village of Ahwahnee; evening programs at campground and lodging amphitheaters; school group programs; and talks at popular features such as the trail to Lower Yosemite Fall. The Yosemite Association offers an annual series of in-depth seminars about Yosemite's natural features and history, theater presentations, information desk assistance, and sales of interpretive publications. The Yosemite Institute offers week-long residential field science programs in the Valley for schools, and environmental education programs for other organizations. Yosemite Concession Services Corporation, the park's primary concessioner, offers motorized tours of Yosemite Valley and the park, guided equestrian rides, free evening amphitheater programs, and interpretive walks. It also operates a mountaineering

school. The Sierra Club offers walks and children's programs from LeConte Memorial Lodge. The Ansel Adams Gallery offers photography walks, tours of the gallery, and a film.

About 75% of auto passengers and 61% of bus users reported that they were aware of these programs. While 85% of these expressed interest in attending interpretive programs, only about 15% actually did. Another or overlapping 10% of visitors arriving by private vehicles also took a bus tour in the park. Only 4% of day visitors who knew about the programs actually attended. Those surveyed who were unable to attend a program reported that they did not have time or were not in the Valley when evening programs were given (Gramann 1992).

Recreation

Most visitor activities in Yosemite Valley take place in the developed eastern end and along trails leading from these areas to features above the Valley floor. The east Valley is the location of all Yosemite Valley visitor accommodations, campgrounds, and major facilities and services provided by the National Park Service and concessioners. Many visitors drive along the Southside Drive/Northside Drive loop to tour the features of the west Valley, and some visitors bicycle or walk to west Valley destinations. Picnic facilities in the mid- and west Valley are also popular destinations.

Many recreational opportunities are directly dependent on the attributes of the Valley; others can be experienced in many other places. In the 1990-1991 visitor study, respondents were asked to identify the activities that any party member had participated in while in the park. (The survey solicited responses specifically regarding the most popular recreational activities and provided an opportunity to add "other" activities to the list. Other activities were not listed in quantities large enough to make the data meaningful, and no percentage of participation by visitors was provided for those activities.) The ability to sit or stand quietly is basic to the park experience. Artistic pursuits are also fundamental to the enjoyment of Yosemite Valley. Bird and animal observation and nature study are also popular (Gramann 1992).

Sightseeing

About 90% of visitor groups reported sightseeing as a popular activity. Approximately 60% of visitor parties took photographs, and more than half reported nature study as an element of their trips. Many park visitors not actually visiting the Valley come into contact with its scenery, particularly those sightseeing at Glacier and Washburn Points and from viewpoints along the Wawona and the Big Oak Flat Roads.

Walking, Hiking, and Bicycling

Walking and hiking are popular activities in the Valley, from a short stroll to the base of Yosemite Falls to a 17-mile round-trip day hike to the top of Half Dome. About 35 miles of hiking trails are available on the Yosemite Valley floor; approximately 22 miles are shared with horseback riders and 12 miles are shared with bicyclists. A leg of the Valley Loop Trail between Curry Village and Sentinel Bridge is shared with both bicyclists and horseback riders. There are several walking loops in the eastern end of the Valley, and two loops in the western end: between Swinging Bridge and the El Capitan Bridge, and between El Capitan Bridge and Pohono

Bridge. In the summer, 44% of visitors arriving in their own car (and 32% of bus passengers) reported that they took day hikes.

Multiple trails lead from the Valley floor to wilderness areas above, the most popular being the Mist and John Muir Trails alongside the Merced River; the Upper Yosemite Fall Trail; and the Four Mile Trail to Glacier Point. Each of these is also popular for backpackers starting multi-day trips into Yosemite's wilderness and beyond. More than 6% of summer visitors backpack during their visit. Additional trails skirt the rim of Yosemite Valley above the Valley floor. Trailheads in the Valley are crowded, and backpackers must wait until they move beyond the range of day hikers to experience solitude and views. Even then, the human-made environment dominates many views into the Valley. Except for the Four Mile Trail, day visitors begin to thin as the trails switch back beyond the lowest elevation features.

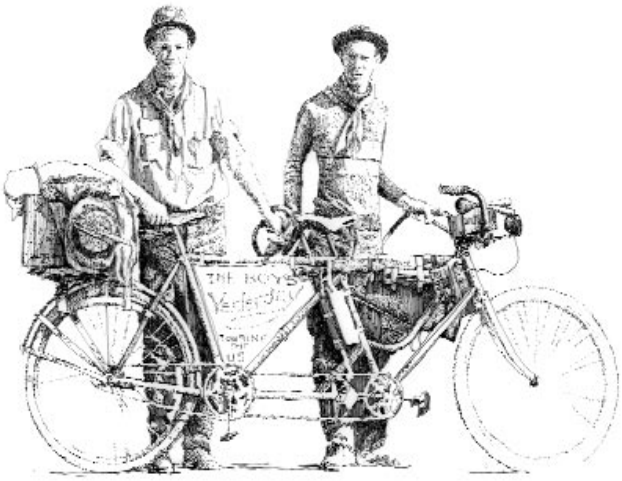
Walkers and day hikers can circumnavigate the Valley using the Valley Loop Trail. A trail network provides multiple routes between the Happy Isles/Mirror Lake area and Yosemite Village. Self-guiding interpretive trails are at Mirror Lake, Cook's Meadow near Yosemite Village, and in the Indian Village of Ahwahnee. A multi-use (bicycle and pedestrian) trail links Yosemite Lodge to the Happy Isles area on both sides of the Merced River. Paved trails are approved for use by visitors with pets. Fewer than 2% of visitors traveling in their own vehicles travel with pets. Multiple uses on paved trails often result in congestion, especially in Yosemite Village.

No specific trail guides are provided for Valley floor trails, except for the self-guiding trails in Cook's Meadow and the Indian Village of Ahwahnee. Several other trails have outdoor exhibits to interpret features along the way.

Bicycling

Bicycling is a common means for enjoying and exploring Yosemite Valley. About 11% of visitor parties included bicycling in their activities while in the park, mostly in Yosemite Valley. The park concessioner rents bicycles and trailers by the hour and day. About 45,000 bicycles were rented in 1998. Many visitors, particularly overnight users, bring their own bicycles to the Valley. No publications are available for bicycle touring; however, a few outdoor exhibits are available along some trails and at popular destinations.

Bicycles are allowed only on paved trails and roads. More than 12 miles of multi-use bicycle trails have been constructed in Yosemite Valley. All of these trails are shared with hikers, and a few small segments are also shared with horseback riders. Some road segments, such as Happy Isles Loop Road and Mirror Lake Road, are closed to most vehicle traffic and provide relatively safe bicycle access. No bicycle trails exist in the west Valley; bicyclists must share the narrow and often-crowded Northside and Southside Drives with motor vehicles.



Lower Yosemite Fall

Yosemite Falls is the most famous, most accessible, and most popular destination in the Valley. The falls are visited by more than 2 million people each year. Two trails lead from the Lower Yosemite Fall parking area to the base of the lower fall. The most direct route is paved, wide, and generally straight. The second is less known, unpaved, and winds through the wooded area between the main trail and the National Park Service housing area to the east, crossing the braided stream via several bridges, and joining the Valley Loop Trail just before it reaches the bridge at the base of Yosemite Falls. An additional trail segment—part of the Valley Loop Trail—veers west from the main trail and leads to the Upper Yosemite Fall Trail trailhead. While the main trail leads directly to the falls, wayfinding along the eastern trail to the base of the falls is poor. A few outdoor exhibits discuss the falls and American Indian history associated with the area. Accessibility to the base of the falls for visitors in wheelchairs does not meet standards in the Americans with Disabilities Act Accessibility Guidelines for Buildings and Facilities on either trail. At the base of the fall, a platform and bridge crossing Yosemite Creek are used for viewing. A 1998 study of the Lower Yosemite Fall Trail and viewing area assessed visitors' perceptions and tolerance of crowding. While the number of people on the trail was not seen as a major problem, respondents were less tolerant of the number of people they encountered at the viewing area.

Climbing

Yosemite Valley's granite walls draw thousands of climbers from around the world each year. Climbing in the Valley includes wilderness/adventure climbing, traditional climbing, big wall climbing, recreational climbing, sport climbing, speed climbing, bouldering, big drop rappelling, and free solo climbing. The concessioner offers a mountaineering school in the Valley. Camp 4 (Sunnyside Campground), near popular climbing routes and features, serves as an unofficial climbers' camp. The camp is also shared by other campers and is the Valley's only first-come, first-served campground. Climbers often stage their trips (equipment preparation and parking) in turnouts near the start of their climbs. Because of the proximity of popular climbing walls to Valley roads and turnouts, climbing observation has also become a popular visitor activity.

Stock Use

Horse use in Yosemite Valley includes private stock users and concessioner trail rides. Many private stock users stage their activities from the concessioner stable, where they can also board their stock overnight. There is no horse camp in Yosemite Valley, but camps are available seasonally in Tuolumne Meadows, Wawona, Bridalveil Campground, and Hetch Hetchy. About 14,000 visitors take concessioner-guided trail rides originating at the Yosemite Valley stable each year. The great majority of these are two-hour trips in the eastern end of the Valley, while about 2,500 trips are led up the Vernal and Nevada Falls corridor. These rides also offer an opportunity for individuals with mobility impairments to experience the wilderness, starting from Yosemite Valley. In the 1990-1991 visitor survey, about 9% of summer parties arriving in private vehicles and about 3% of summer bus riders rode horses while in the park. Guided horse trips are also available in Tuolumne Meadows and Wawona.

Picnicking

Picnicking is popular in Yosemite Valley. This includes tailgate picnics at parking spots, lunch on riverside boulders or a bench near the visitor center, and automobile-based picnicking with grills, charcoal, and coolers. Nearly 20% of 1990-1991 study respondents reported that their parties picnicked in a picnic area during their visit. There are four formal picnic areas in Yosemite Valley: Cathedral Beach, Sentinel Beach, El Capitan, and Swinging Bridge (see Vol. Ic, plate 1-1). Church Bowl, near Yosemite Village, is also outfitted with picnic tables. Some picnickers also use outdoor seating associated with concessioner food service facilities. Many easily accessible stretches of the Merced River in the Valley, especially if there are turnouts or wide shoulders for parking nearby, have become informal but heavily used picnic areas.

Other Activities

Tennis is available on the courts at The Ahwahnee.

Winter activities include, but are not limited to, cross-country skiing and snowshoeing. Most ski routes follow summer trails or traverse the Valley's open meadows. The Valley sometimes has little or no snow for long periods. Ice-skating is available at a concessioner-operated rink at Curry Village and is popular in the winter among both visitors and residents. Skate rentals and lessons are available, as are cross-country ski rentals. Yosemite Valley also serves as a primary lodging center for visitors pursuing winter recreation in other park areas, particularly the Badger Pass downhill and cross-country ski area.

Rafting on the Merced River has grown in popularity with Valley visitors since the early 1980s; in the mid-1980s, the concessioner was authorized to rent rafts and provide transportation for rafters. About 10% of summer visitor groups who arrived in a private vehicle rafted during their visit. The Merced River is closed to rafting when water volume presents a greater than normal hazard. Due to both safety and resource degradation concerns, rafting use has been restricted to limited sections of the Merced River in recent years. Kayaks are also occasionally used on the river. A substantial amount of rafting and kayaking also takes place on the Merced River adjacent to the El Portal Administrative Site.

Swimming in the Merced River, Tenaya Creek, and Mirror Lake is popular among summer visitors in Yosemite Valley. About 25% of summer parties swam during their visit. Sections of the river with easy access from lodging areas, campgrounds, and day-visitor areas are most often used. Two public pools, at Yosemite Lodge and Curry Village, and a guest pool at The Ahwahnee, are also popular.

Fishing requires a state license, available in shops in the Valley, and is popular during the state's season from April through mid-November. The Merced River in Yosemite Valley is a "Special Regulation Area," allowing only catch-and-release fishing for rainbow trout (normal limits on brown trout) and no bait fishing. About 10% of summer visitor groups who arrived in a private vehicle (compared to 0% of bus riders) reported fishing while in the park.

Tours

A variety of tours is available for visitors choosing to explore Yosemite by means other than private vehicles. Services are provided by Yosemite Transportation System, which is operated by the park concessioner. Several tour routes originate from lodging facilities in Yosemite Valley. Brief descriptions of these services are included below:

Valley Floor Tours: Two-hour tours are available throughout the day for visitors seeking an informative and scenic experience in Yosemite Valley. In summer, open-air trams are used to carry visitors along the Valley Loop and to Tunnel View on Wawona Road above the west end of the Valley. Tours offer viewing opportunities and interpretation of the Valley's most prominent features. A tour guide is assigned to each tram to provide narration throughout the trip. The trams are usually at capacity from mid-morning to late afternoon. An average of 564 people per day took Valley tours in August 1998.

Glacier Point Tour: Daily bus tours to Glacier Point are offered where visitors can view Yosemite Valley from more than 3,000 feet above its floor. The tour involves a 32-mile, one-way trip from Yosemite Valley over Badger Pass to the end of Glacier Point Road. Time is allowed for sightseeing and photographing the scenery from viewpoints along the route. Over-the-road motor coach buses are used for the four-hour tour. A one-way option is offered for visitors wishing to hike the Four Mile Trail between Glacier Point and the Valley floor. An average of 177 people per day rode Glacier Point tours in August 1998.

Big Trees Tour: Tours are offered daily (in the summer) from Yosemite Valley to the Mariposa Grove of Giant Sequoias, stopping at Glacier Point on the return trip. Visitors are transported on a over-the-road motor coach bus to the grove, where they can take the tram tour or a self-guided walk through the trees. The buses make a stop at the Wawona Hotel and also allow passengers to transfer buses at Chinquapin if they choose not to travel to Glacier Point on the return trip. The tour takes approximately five hours. Monthly ridership on the Big Trees Tour ranged from 86 to 372 in the summer of 1998.

Grand Tour: A full-day trip is offered for visitors wishing to see many of the major attractions in Yosemite National Park without driving. This tour combines the Glacier Point and the Big Trees Tour with a lunch stop in Wawona. This tour allows visitors with limited time to see a large portion of the park in one day. Daily ridership on this tour averaged 30 people in August 1998.

Badger Pass Shuttle: A special shuttle service is provided during the ski season for visitors desiring transportation between Badger Pass Ski Area and lodging facilities in the Valley. The ski area shuttle system transports about 25,000 passengers seasonally. The cost of this shuttle is included in the ski pass fee.

Yosemite Valley to Tuolumne Meadows (Hiker Bus) This for-fee service carries visitors between Yosemite Valley and Tuolumne Meadows.

Visitor Services

Overnight Use

Table 3-15 presents a summary of existing campsites in Yosemite Valley, and table 3-16 presents a summary of existing lodging units in the Valley.

The number of overnight visitors in the Valley on peak-season weekends can be estimated by applying an average party size to the available overnight accommodations. The 1980 *General Management Plan* applied an average party size of 3.17 people for lodging rooms and 4 people for regular campsites. An estimated 348 backpackers use Yosemite Valley as a base for wilderness trips on a typically busy day. This total includes backpackers beginning or ending a trip in the Valley, and those that are in wilderness areas reached from the Valley. Including backpackers, the total overnight population of the Valley and its related wilderness areas on typically busy days is estimated to be 6,731 people.

Table 3-15
Campsites in Yosemite Valley

Location	Number of Sites
Upper Pines Campground (drive-in)	240
Lower Pines Campground (drive-in)	78
North Pines Campground (drive-in)	86
Backpackers (walk-in)	30
Camp 4 Campground (Sunnyside Campground) (walk-in)	37
Yellow Pine Campground (volunteer group walk-in)	4
Total Campsites	**475**

Note: The National Park Service uses some of these sites for administrative purposes, particularly for park volunteers.

The average length of stay for overnight visitors is estimated to be 2.7 nights. As a result, on an average day about 37% of the rooms and campsites turn over, and about 37% of the backpackers leave and are replaced by new backpackers. On a typically busy day, about 2,363 new overnight visitors arrive and begin their stay in the Valley.

The 1980 *General Management Plan* established a level of 10,530 day visitors to the Valley and 7,711 overnight visitors, for a total of 18,241 visitors per day. Based on 1998 traffic counts and estimates of the share of traffic represented by visitors, the number of day visitors during the busiest July and August weekends in 1998 exceeded that level; overnight use was less because fewer campsites and lodging units are available in the Valley than were available before the 1997 flood.

Table 3-16
Accommodations In Yosemite Valley By Room Type

Location	Rustic Units	Economy Units	Mid-Scale Units	Deluxe Units	Total
Housekeeping Camp	264				**264**
Curry Village	427	181	20		**628**
Yosemite Lodge			245		**245**
The Ahwahnee				123	**123**
Total Rooms	**691**	**181**	**265**	**123**	**1,260**

Camping

Camping in Yosemite Valley is provided in six campgrounds with a total of 475 campsites. Three campgrounds are on a reservation system through the National Park Reservation Service; one (Camp 4 [Sunnyside Campground]) is a first-come, first-served campground. Backpackers Campground is reserved for pre- and post-trip nights for wilderness permit holders, and Yellow Pine is a National Park Service volunteer campground. Camping demand is high, and campgrounds are full most days between May and September. No group camp is available in Yosemite Valley. (Prior to the January 1997 flood, when flooding and subsequent cleanup actions removed 374 campsites, a total of 849 campsites, including group sites, were available in Yosemite Valley. These campsites were usually full from May through September.)

About 37,000 reservations are made for Valley campgrounds each year, 33,000 for dates between May and September. About 27% of the 1990-1991 parties arriving by private vehicle in the summer reported camping while in the park (Gramann 1992). Of these, about 15% were recreational vehicle users. Tent camping decreased and recreational vehicle camping increased slightly in other seasons.

Each public campground (except backpackers) has a check-in station. Except for Backpackers Campground and Camp 4 (Sunnyside Campground), which accommodate only walk-in campers, little segregation of user types occurs in the campgrounds. Recreational vehicle users, car/tent campers, and others are adjacent to each other in closely spaced sites. Site boundaries are generally not designated, resulting in little separation between campers.

The Valley campgrounds have no public recreational vehicle hookups. The recreational vehicle dump station is located at the Upper Pines Campground entrance. At Camp 4 (Sunnyside Campground), to accommodate the first-come, first-served demand, campers share with other parties up to the maximum of six people per campsite. Pets are allowed in the Lower Pines, North Pines, and Upper Pines Campgrounds. Upper Pines Campground, along with Camp 4 (Sunnyside Campground), is open all year. Two vehicles per campsite are allowed for each of the drive-in campgrounds. Three vehicles per site are estimated for Camp 4 (Sunnyside Campground), and one vehicle per site for Backpackers Campground. Showers are available to campers for a fee at Curry Village. There is a 30-day annual limit on camping in the park, and a seven-day limit in Yosemite Valley from May to mid-September.

Lodging

A total of 1,260 lodging units are provided at Yosemite Lodge, The Ahwahnee, Curry Village, and Housekeeping Camp (see table 3-16). A full range of lodging accommodations are provided (as prescribed in the 1980 *General Management Plan* and the 1992 Concession Services Plan), from both experiential and economic perspectives. A total of 691 units are rustic, 181 are economy, 265 are mid-scale, and 123 are deluxe. No pets are allowed in concessioner lodgings units.

Reservation requests, occupancy rates, and requests for changes in units have indicated a strong visitor preference for units with private baths.

Housekeeping Camp

All units at Housekeeping Camp are rustic. Housekeeping Camp offers 264 tent cabin units, a small camp store, and a laundry and shower facility. Unlike other Valley lodgings, food preparation is allowed in these facilities.

Curry Village

Historic Curry Village offers cabins with and without private baths, tent cabins, and lodge units in Stoneman Lodge, for a total of 628 rustic, economy, and mid-scale units. Food service is offered in the cafeteria and fast-food outlets. Other facilities include a small grocery store with camping supplies and gifts, bike rental, swimming pool, ice-skating rink, post office, a mountain sport shop, information and reservations buildings, and employee housing.

Yosemite Lodge

Yosemite Lodge currently contains 245 mid-scale motel and cottage units (units damaged by the January 1997 flood have been removed). In addition, there is a registration center, two restaurants, a cafeteria, a bar, a gift and general merchandise store, a specialty gift shop, bike rental, swimming pool, post office, and post-flood temporary employee housing.

The Ahwahnee

The Ahwahnee, a National Historic Landmark, provides 123 deluxe hotel rooms and cottages. Visitor services include a dining room, a snack shop, a gift shop, and a bar. Adjacent are employee tent cabins and a dormitory.

Day Visitors

The number of day visitors in the Valley varies more than the number of overnight visitors. On a typically busy day, an estimated 13,950 day visitors come to the Valley. Day visitors are not all in the Valley at one time. Visitor surveys indicate that day visitors stay an average of 4.2 hours (Gramman 1992). About 4,677 day visitors are estimated to be in the Valley at one time on busy summer weekends, based on traffic counts for cars entering and exiting the Valley. In contrast to peak visitation days, the estimated average number of day visitors to the Valley in July and August is 10,950 per day, or about the same as the day-visitor limit set in the *General Management Plan*. About 4,022 day visitors are in the Valley at one time on the average day.

On the busiest summer weekends, an estimated total of 20,337 people visit Yosemite Valley. This includes an estimated 13,950 day visitors and 6,387 overnight visitors. On average summer days, the estimated total visitation to the Valley is 17,337 people. This includes about 10,950 day visitors and 6,387 overnight visitors. Visitation to the Valley declines significantly in the off-season. On average days in April, an estimated 6,940 visitors come to Yosemite Valley. Of the total, 4,400 are estimated to be day visitors. About 4,400 visitors enter the Valley for the first time on an average day in April, while 941 have stayed overnight in the Valley.

Other Facilities and Services

While in the park, about 35% of visitors arriving by private vehicle eat at a sit-down restaurant, 30% eat at a fast-food establishment, 30% buy groceries, 15% purchase books, 30% shop for souvenirs, and 15% shop for clothes. Except for grocery shopping, these percentages all increase for bus passengers (Gramann 1992).

Yosemite Village is the core area for most of the development and day use in the Valley. In addition to National Park Service and concessioner interpretive, housing, administrative, and maintenance facilities, the Village includes The Ansel Adams Gallery, the Art Activity Center, the main Yosemite National Park post office, Degnan's delicatessen (and gift shop), the Village Store complex, an ATM and check-cashing facility, and the Village Garage, which is open to visitors.

There is no service station in the Valley. The service station near Yosemite Lodge was removed after the January 1997 flood in anticipation of Yosemite Lodge redevelopment.

A medical and dental clinic is located near Yosemite Village. The clinic operates an ambulance service and provides general and emergency medical service to visitors and residents. At Happy Isles, a snack stand is operated out of a temporary facility near the shuttle bus stop and restrooms during the busy season. A previous snack stand was located closer to the nature center, but was destroyed by the rockfall of 1996.

The concessioner stable occupies seven acres between the Merced River and Tenaya Creek, adjacent to North Pines Campground. The facility includes a harness shop, blacksmith shop, corral, dog kennel, and employee housing.

Night Sky

Natural darkness and the night sky play an important part in the overall visitor experience. The natural darkness of Yosemite Valley provides outstanding opportunities for stargazing and observing the moon and star light by the Valley's walls. However, visitor safety and security in the park after dark are also accommodated. The National Park Service provides lighting in developed areas to assure a safe and healthful environment for visitors and employees.

The Valley floor is extremely dark at night, largely due to the Valley walls and limited sky exposure. Unlike urban or suburban settings, there is essentially no ambient light. Other locations, such as Wawona, share this low level of ambient lighting. There is no lighting for roads in the Valley other than car headlights.

Those who are wayfinding at night must rely upon signs and prominent natural features, as there are no poles or "beacons" of light to delineate roads or parking areas.

Developed areas in Yosemite Valley lighted at night are Curry Village, Yosemite Village, The Ahwahnee, and Yosemite Lodge. Other lighting is incidental and very specific, such as at restroom doors in campgrounds or to illuminate an exhibit at the Nature Center. El Portal, Wawona, and Foresta are small rural communities, intermittently equipped with night lighting, with the greatest extent being at the Wawona Hotel. There are a handful of lighting situations in Yosemite Valley that introduce light trespass (i.e., where light intended to illuminate one area illuminates other areas nearby) and light pollution (i.e., outdoor lighting that emits stray light upwards, illuminating clouds, dust, and other airborne matter and obscuring the night sky) (Pacific Lightworks 1997).

Highway Access to Yosemite

Private or rental vehicles and chartered tour buses are the major modes of transportation to the park, through one of four primary entrance routes (see Vol. IC, plates A and B). Highways 140 and 120 provide access from the west. Highway 140 connects to Highway 99, a principal north-south highway about 70 miles from the park at Merced, and travels through the gateway community of Mariposa on its route to the park. San Francisco and Sacramento lie within three to four hours travel time of Yosemite, with the most direct access via Highway 120, which intersects with Highway 99 north of Modesto. Travelers on Highway 120 pass through the gateway community of Groveland en route to the park. The most direct southern access to the park is from Fresno along Highway 41. Travel time from Fresno to the park entrance is approximately 90 minutes. Travelers along Highway 41 pass through the gateway communities of Oakhurst and Fish Camp en route to Yosemite. Travelers from the east rely on Highway 120 as the exclusive access route. Highway 120 connects to Highway 395 at Lee Vining, about 15 miles from the Tioga Pass Entrance Station. This eastern access route is closed during the winter. Reno, Nevada is the closest major city to the park along Highway 395.

Each state highway leading into Yosemite is a paved, primarily two-lane road originally built to carry traffic over mountainous terrain at moderate to high speeds. All of the park entrance routes are characterized by segments of steep grades, winding curves, and narrower sections as they approach the park. Outside the park boundary, Highway 140 passes through Mariposa, where narrow lanes and crossing traffic can cause congestion. The town of Oakhurst has historically been a congestion point for traffic along Highway 41, south of Yosemite. Proposals have been presented for widening the road to four lanes from north of Fresno to Oakhurst. The proposed improvements would have little impact on road capacity to the park, because significant speed and capacity constraints exist along the section of road between Oakhurst and the park entrance. As it approaches the west side of the park, Highway 120 passes through the historic town of Groveland; narrow lanes and local traffic cause some congestion on the highway. The east entrance into the park from Highway 120 East offers relatively efficient access for traffic.

Congestion is a recurring problem at all of the park entrance gates during high visitation days. The Big Oak Flat Entrance could be expanded at its present location, but the Tioga Pass, Arch Rock, and South Entrances could probably not be expanded at their existing sites, and would likely require relocation if expanded.

Mode of Access

Most visitors to Yosemite travel by private vehicle, but tour buses accommodate a significant percentage of visitors (table 3-17). In addition, a small number of visitors use regional transit buses operated by VIA Adventures, Inc./Grayline of Yosemite (VIA) and the Yosemite Area Regional Transportation System (YARTS). An average of 73 visitors per day rode to Yosemite Valley on the 15 to 17 daily round-trips operated by VIA and YARTS in June and July 2000.

In August, an average of 63 daily commercial tour bus trips enter Yosemite. It is assumed that all tour buses visit the Valley during their stay in the park. Tour buses carry an average of 1,673 visitors per day into the Valley. This represents about 12% of the 13,742 visitors that are estimated to enter the Valley on an average day in August.

Table 3-17
1998 Travel Modes of Visitors Entering Yosemite Valley

Description	August Average
Total number of visitors	13,742
Number of tour bus passengers	1,673
Percentage of visitors traveling by bus	12%
Total number of vehicles	4,184
Number of buses entering	63
Percentage of buses compared to all vehicles	1.5%

Source: Yosemite National Park, Visitor Survey (NPS 1998f)
Note: Entering visitors do not equal total visitors

Regional Transit

Regional transit operators provide bus service several times daily between gateway communities and Yosemite Valley year-round, with more frequent service in the summer.

In 2000, YARTS began a demonstration program that provided public transit service from Wawona, Mammoth Lakes, Coulterville, and along the Highway 140 corridor from Merced to Yosemite Valley. Including transit service provided by VIA and YARTS, 15 round-trips were provided on weekdays and 17 round-trips were provided on weekend days in May, June, and July 2000. In 2000, YARTS was in the first year of a two-year demonstration project to determine the need for voluntary transit service in the region.

Tour and Charter Buses

During the summer, an average of 63 tour buses enter the park each day. On typically busy summer days, an estimated 76 tour buses enter the Valley. All tour buses eventually make their way to Yosemite Valley. Tours include day-visitor itineraries and overnight stays. Many tour itineraries include Yosemite as one of several destinations on a multi-day route. Charter bus activity has developed into a major component of visitor access. Many gateway communities are aggressively attempting to capture the business that tour buses can generate.

A large number of buses arriving and departing simultaneously at entrance stations can be a problem. Some entrance stations are not designed for tour buses (for example, restroom facilities that accommodate 40 to 50 people at one time are not available). As many as 10 buses can make up one tour group, and currently there are no regulations to manage the resulting overload.

The primary destination for charter tours, and the only formal bus parking historically provided in Yosemite Valley, is at Lower Yosemite Fall, where 23 bus stalls are provided. Loading and unloading areas at Lower Yosemite Fall are insufficient for the volume of buses entering the park on busy summer days. A large proportion of bus passengers go to Yosemite Lodge for overnight accommodations or meals. The absence of any designated bus staging area at the Lodge forces buses to share shuttle service lanes and private vehicle parking areas.

Special use permits are issued to tour group operators. Tour companies typically arrange tours with bus operators for access to the park. Some tours are one-time tours, while others are scheduled daily tours of the park and Yosemite Valley. There are approximately 400 bus

operators on file, and there are no limits on the number of special use permits that can be issued each year. For those operators unfamiliar with permitting regulations, one-time free access into the park is provided. Tour operators who attempt to enter the park without a permit more than once are turned around at the gates; however, records on bus tours in the park are incomplete. Tour buses are inspected on a regular basis to ensure passenger safety.

Recent survey results indicate that typical operators are commercial and school bus companies. There are 285 additional surveys on hand for 1999 that will provide further information on the types and numbers of operators obtaining special use permits. Unlike commercial operators, school bus operators are not required to register for special use permits.

Several tour bus companies in the region transport both employees and visitors to Yosemite Valley. Tour bus companies include Bass Lake Tours, Scenic Air, Groveland, and Yosemite Pines RV Park. Some tour groups encourage visitors to use the Valley's shuttle bus system, indicating that not all tour companies have a source of transport available for their customers. Backpacking and hiking tours are also available. These tours typically use vans when offering transportation service to visitors, and a fee is charged for each person.

Buses have maximum length restrictions that differ according to their travel itinerary. The normal maximum length of vehicles permitted into the park is 45 feet; at Glacier Point, the maximum length is 30 feet (not including concessioner and school buses).

Park Entrances

Visitors enter the park through four primary locations: the South, Big Oak Flat, Arch Rock, and Tioga Pass Entrance Stations. The South Entrance, connecting to Highway 41 from Fresno, receives the greatest amount of visitor traffic, followed closely by the Arch Rock Entrance to the west. The Arch Rock Entrance is used not only by visitors, but by the majority of park employees who commute to the Valley (most workers who do not live in the Valley live in El Portal and to the west along Highway 140). Tioga Pass is open only during the summer and early fall and is used most commonly by visitors making a trans-Sierra trip.

Table 3-18 shows average daily vehicle entrances through Yosemite entrance stations throughout the year, illustrating the seasonal fluctuations in visitor traffic at the four entrance stations.[2]

Because Tioga Pass is closed during the winter, the Big Oak Flat, South, and Arch Rock Entrances carry the highest percentage of overall annual traffic. However, during the peak season, traffic is more evenly distributed among the four entrances. The 1998 peak season distribution was as follows:

- South Entrance 28%
- Big Oak Flat Entrance 24%
- Arch Rock Entrance 22%
- Tioga Pass Entrance 25%

2. There is also an entrance station at Hetch Hetchy, but it is not located along one of the primary access roads to the park.

Table 3-18 1998 Average Daily Vehicles Through Yosemite Entrance Stations					
Month	**South**	**Big Oak Flat**	**Arch Rock**	**Tioga Pass**	**Total**
January	555	383	502	0	**1,440**
February	513	383	538	0	**1,434**
March	665	415	673	0	**1,753**
April	991	539	960	0	**2,490**
May	1,312	1,247	1,199	0	**3,758**
June	1,427	1,325	1,224	0	**3,976**
July	2,059	1,744	1,602	1,832	**7,237**
August	2,119	1,785	1,608	1,853	**7,365**
September	1,583	1,521	1,386	1,485	**5,975**
October	1,479	1,098	1,060	797	**4,434**
November	774	469	598	0	**1,841**
December	633	287	482	0	**1,402**
Total	**14,110**	**11,196**	**11,832**	**5,967**	**43,105**
Vehicles using each entrance station	**33%**	**26%**	**27%**	**14%**	**100%**

Note: Some data for summer months at Tioga Pass are missing because the Tioga Road was closed through part of June. It is also generally closed from mid-October through May
Source: NPS 1998f.

Because Arch Rock Entrance is used by many employees, it serves a lower share of visitors than indicated by the traffic counts.

In 1993, approximately 3,200 visitors were surveyed as they departed through park entrance stations. They were asked how long they had stayed in the park, what entrance station they had used to enter the park, and whether they had visited Yosemite Valley and three other activity areas. This survey was used, along with the traffic count data, to determine how many visitors to the Valley left via each entrance station, and the entrance stations these visitors used to enter the park.

Overall, 25% of Valley day visitors entered the park at Arch Rock Entrance, 26% at South Entrance, 29% at Big Oak Flat Entrance, and 21% at Tioga Pass Entrance. Table 3-19 shows the exit location of day visitors and overnight visitors to the Valley. The highest proportion of overnight visitors exited at the South Entrance.

The highest percentage of Valley day visitors exited by Arch Rock Entrance, which is the closest entrance station to the Valley. The South Entrance was also the exit route for a high percentage of day visitors, as well as the greatest number of overnight visitors. Tioga Pass served the lowest percentage of both day and overnight Valley visitors.

Traffic counts and exit survey results were used to determine the share of Valley day visitors who enter through each station. Day visitors are of special interest because of their large numbers and the disproportionate share of traffic associated with their travel to and from the Valley.

Table 3-19 Share of Yosemite Valley Visitors Exiting by Station		
Entrance Station	**Day**	**Overnight**
Arch Rock	32.2%	21.5%
South	31.7%	35.6%
Big Oak Flat	23.6%	26.2%
Tioga Pass	12.6%	16.8%

Source: NPS 1998 Entrance Station Traffic Counts; BRW, Inc., 1993 Visitor Use Survey.

Table 3-20 shows the proportion of day visitors who enter and exit the park through different stations, compared to the visitors who use the same station for their access to and from the park.

The table shows that 15% of all Valley day visitors entered at Arch Rock and left the same way. The South Entrance also accommodated 15% of Valley day visitors as an entrance and exit route. The Big Oak Flat Entrance was used as an entrance and exit station by 14% of Valley visitors. A much smaller share (3%) of Valley day visitors entered and exited the park at Tioga Pass. Overall, 47% of the day visitors to Yosemite Valley entered and exited the park through the same station.

Table 3-20
Entry/Exit Travel Patterns of Yosemite Valley Visitors

From Entry Location	To Exit Location				
	Arch Rock	South	Big Oak Flat	Tioga Pass	Total
Arch Rock	15%	5%	5%	7%	**32%**
South	4%	15%	6%	7%	**32%**
Big Oak Flat	3%	3%	14%	4%	**24%**
Tioga Pass	3%	3%	4%	3%	**13%**
Total	**25%**	**26%**	**29%**	**21%**	**100%**

Note: Totals may not add up exactly due to rounding. Source: 1998 National Park Service (NPS) Traffic Counts and Visitor Survey.

Park Roads

The highways that lead into Yosemite change into the internal parkwide road system at the entrance stations (except for Highway 140 which becomes part of the park road system at the park boundary at the El Portal Administrative Site). California has no rights-of-way through the park, so there are no state highways within its boundaries; however, state route numbers are used on park signs to help orient visitors. Additional transportation facilities within the park consist of a series of spur roads, access drives, and parking areas leading from the main roads.

The major intent of roadway design in Yosemite has been to provide views and enhanceenjoyment of the park while accommodating safe travel. Slower travel speed is necessary and advantageous to visitors. Shuttle buses and park concessioner tours share certain roadway segments with private vehicles as part of the continuing effort to reduce impacts associated with private vehicle use in the park.

While the park has several special purpose roads that provide access to public use areas (referred to as class III roads) and administrative roads that connect to the main roads, this discussion is limited to the five primary park roads within Yosemite. They are all paved roadways, and all are designated as main routes, tour routes, or thoroughfares (referred to as class I):

El Portal Road – west park boundary to Valley floor (7.75 miles)

Big Oak Flat Road – west park boundary to Valley floor (17.84 miles)

Wawona Road – South Entrance to Valley floor (26.86 miles)

Tioga Road – Crane Flat to Tioga Pass Entrance (46.73 miles)

Glacier Point Road – Chinquapin to Glacier Point (15.80 miles)

El Portal Road

The El Portal Road connects to Highway 140 at the western park boundary in El Portal. It is open year-round and provides snow-free access to Yosemite Valley throughout most of the year; it was historically called the "All-Year Highway." The road is characterized by steep, rocky canyon walls with small river flats and terraces. A construction project to improve the road from the intersection of the Big Oak Flat and El Portal Roads west to the park boundary was started in 1999. The road improvement project was designed to repair flood damage and improve safety. Prior to improvements, the El Portal Road had a typical pavement width of 19 feet, with sharp curves and rock outcroppings adjacent to the road edge, making the route challenging to drive and unsafe for large and oversized vehicles. The El Portal Road enters the park at the El Portal Administrative Site, passes through the Arch Rock Entrance, and joins the Big Oak Flat Road one mile west of Pohono Bridge in Yosemite Valley. The road serves as a through route by means of connections to other principal park roads.

The improvement project did not include one section of the road (known as Segment D) from the intersection of the El Portal/Big Oak Flat Roads east to Pohono Bridge. This roadway section, similar to other portions of El Portal Road, is characterized by narrow travel lanes, minimal shoulders, and tight curves. These elements combine to create an unsafe environment for vehicle travel, especially large vehicles. The narrow lane widths (9.5 feet) create a hazardous condition for buses and other large vehicles that average 8.5 feet in width.

The intersection of the El Portal Road and Big Oak Flat Road has a high rate of accidents. Drivers turning left from the Big Oak Flat Road have to look back and to the right for vehicles on El Portal Road before turning. Right-turning vehicles from Big Oak Flat Road onto El Portal Road have to make a sharp turn, one that is too sharp for most large vehicles to complete in one movement.

Big Oak Flat Road

The Big Oak Flat Road is also maintained for year-round access and may be used as a through-route with other major park roads. This road connects to Highway 120. It leads from the Big Oak Flat Entrance through Hodgdon Meadow and Crane Flat and joins the El Portal Road about a mile downstream from Pohono Bridge. The topography changes from mountainous on the east end of the road to rolling on the west end. The paved roadway section ranges from 26 to 30 feet wide, and the road provides primary park access to Hodgdon Meadow, Merced Grove, Crane Flat, Foresta, and Yosemite Valley.

Wawona Road

This road provides principal access to Wawona, Mariposa Grove, Glacier Point Road, and the Valley floor. Throughout its length, the road crosses over mountainous terrain with steep grades surrounded by moderate to dense forest. The Wawona Tunnel, located just before the road's descent into Yosemite Valley, is a major feature. The pavement is 24 feet wide, and the road is maintained for year-round access. It connects to Highway 41 outside the southern park boundary and can be used as a through-route in conjunction with other major roads in the park. It joins Southside Drive near Bridalveil Fall. Visitors making connections to other park roads must travel along Southside Drive to El Capitan crossover and then exit the Valley on Northside Drive.

Tioga Road

Tioga Road provides the only access to the park from the east and accommodates trans-Sierra traffic while it is open during the summer and early fall months. No access is available during the winter. Outside the park to the east, Tioga Road connects to Highway 120. Inside the park, the road extends from the Tioga Pass Entrance on the east to the intersection with Big Oak Flat Road at Crane Flat on the west. The road provides direct access to the high Sierra Nevada, Tuolumne Meadows, White Wolf, Crane Flat, and the rest of the park via connections with other roads. The road has a nominal 20-foot pavement width and is characterized by rolling subalpine highlands, with sections of mountainous terrain, valley flats, and subalpine meadows. At 9,945 feet above sea level, Tioga Pass is the highest elevation traversed by any road in the park.

Glacier Point Road

The Glacier Point Road intersects Wawona Road at Chinquapin, serves the Badger Pass Ski Area, and continues to Glacier Point. It provides year-round access to Badger Pass, but is closed beyond the ski area in the winter. The primary summer destinations beyond the ski area include Bridalveil Creek Campground, the Taft Point and Sentinel Dome trailheads, and Washburn Point and Glacier Point lookouts, which provide views of Yosemite Valley and the surrounding cliffs and domes. Heavily forested mountainous terrain makes up most of the roadway topography. Pavement width varies along the route, becoming quite narrow over the last one to two miles. Steep grades and switchbacks make bus access difficult between Washburn Point and the Glacier Point parking area. Glacier Point Road is the only dead-end route of the five principal park roads.

Yosemite Valley Roads

One- and two-way roadways provide access to Yosemite Valley and allow for visitor and administrative circulation within the Valley (see Vol. Ic, plate 1-1). The roadways winding along the flat Valley floor are maintained year-round. Four bridges cross the Merced River connecting Southside and Northside Drives. One-way traffic flow is maintained along Southside Drive from Pohono Bridge at the west end of the Valley to Stoneman Bridge near Curry Village. Two segments of one-way operation are maintained on Northside Drive: one from Stoneman Bridge to Yosemite Village, the other from Yosemite Lodge to Pohono Bridge. Two-way traffic is allowed between Yosemite Lodge and Yosemite Village on Northside Drive. In addition to Pohono and Stoneman Bridges, connections between Northside and Southside Drives are provided at El Capitan Bridge near El Capitan, and at Sentinel Bridge near the Yosemite Chapel.

The main roadways in Yosemite Valley have two travel lanes and a pavement width of 21 feet. The roadway system can be confusing to first-time visitors because of the one-way circulation, limited opportunities to cross the Merced River, and circuitous travel routes. Excess vehicle circulation is common, as visitors seek the best routes to their destinations and search for limited parking spaces. Excess vehicle circulation and congestion are particularly common between Curry Village and Yosemite Village.

Visitors entering the Valley have a dramatic sense of arrival along Southside Drive in the Bridalveil Fall area, where there is a full view of the 3,000-foot face of El Capitan. The turnout

in this area is also the first location where visitors may feel the effects of crowding during busy summer months. Many cars are parked along the sides of the road from this location into the east end of the Valley.

Sentinel Meadow, about two miles east of El Capitan, provides an excellent view of Yosemite Falls from Southside Drive. The turnouts along the road in this area are heavily used. From this point east, visitors enter the developed portion of the Valley, and in peak season are exposed to generally crowded conditions and pockets of high levels of development and activity. Until 1999, the primary designated day-visitor parking area was at the far east end of the Valley in the Curry Orchard. It was remote from most of the visitor facilities and services, too small, unpaved, and visitors had to park among trees (see Vol. IC, plate 1-2). For the 1999 summer season, the Camp 6 area in Yosemite Village was reconfigured and organized to provide an efficient, easy-to-locate, and centralized parking area for day visitors. Between 285 and 450 parking spaces are provided, depending on parking management. Because Camp 6 is neither paved nor striped, parking efficiency is dependent on parking lot attendants. Additional parking for day visitors is provided near the Village Store, at Yosemite Falls, Curry Village, and at Yosemite Lodge.

Day and overnight visitors make numerous trips within Yosemite Valley. A variety of activity areas and features attract visitors for varying lengths of time. Visitors travel in private vehicles, on foot, on bicycles, and on the concessioner-operated Valley shuttles and Valley tours. Data about the movement of visitors within the Valley are generally not available, although the concessioner counts passengers that use the shuttle buses and Valley tour trams. High volumes of visitors can be observed using the hiking and bicycling paths, especially during the summer in the east end of Yosemite Valley. Because of the high parking demand on busy visitation days, visitors are encouraged to park their automobiles and use the free shuttle buses and trails in the Valley.

High traffic volumes within Yosemite Valley, along with inadequate parking and visitor confusion, can create congestion during the peak season. Highly congested locations include the intersections at Yosemite Village and at the entrance to the Yosemite Falls parking area along Northside Drive. Both of these intersections are on the two-way segment of the loop road system. Other congestion points include the four-way intersection near Curry Village and the intersection of Village Drive with Ahwahnee Road at the north end of Yosemite Village. Traffic congestion typically causes delays for visitors in private vehicles, leads to increased vehicle emissions, and disrupts the operation of the Valley shuttle system. Several traffic and parking management and visitor orientation improvements, including new signs, were implemented for summer 1999 to direct visitors to destinations via the shortest routes.

Valley Shuttle Bus

Shuttle bus systems in Yosemite Valley have operated in some form since the late 1960s. The current shuttle system operates year-round, offering service to the major developed areas at the east end of Yosemite Valley (see Vol. II, Appendix G). During the summer months, a fleet of 10 shuttles operates at five- to 10-minute intervals on an eight-mile loop with 21 stops. Fewer shuttles and a reduced schedule are operated for the remainder of the year.

Shuttle stops are adjacent to major destinations in the east end of the Valley, such as Yosemite Village, Yosemite Lodge, Curry Village, The Ahwahnee, and various campgrounds and trailheads. The entire route takes approximately one hour to travel, and shuttle arrivals are scheduled for five- to 20-minute intervals. A majority of shuttle service is provided with 40-foot diesel buses typical of urban transit systems. The buses have a normal capacity of 49 seats and 24 standees. The diesel fleet includes three buses equipped with wheelchair lifts, at least one of which is in service during the entire daily schedule. Smaller, battery-powered electric shuttle buses have been used in the Valley on an experimental basis for the past several years. Yosemite National Park planned to begin the process of acquiring new buses for the Valley shuttle system in 2000. Low noise, low emissions, cost-effectiveness, and use of clean fuels were the criteria identified for selecting new buses.

In summer, passenger loads frequently exceed the normal capacity of the buses. Crowding is a common occurrence, sometimes making travel conditions uncomfortable. Delays in service can be caused by the loading and unloading of overcrowded buses or by traffic congestion.

Drivers provide descriptions of activities available at each stop, but offer no interpretation of park resources. The drivers also indicate locations where transfers can be made to shorten a trip to a specific destination. Portions of the route are retraced by the shuttles during their loop, and stops are positioned across from each other for service in opposite directions. Most stops provide seating and trash receptacles.

The majority of the shuttle route follows public park access roads. Short segments of the route use restricted sections of roadway. Shuttle buses often encounter conflicts due to vehicle traffic, pedestrians, and bicyclists. Bus stop configurations at some locations interfere with the flow of traffic. In areas of high pedestrian activity, such as Lower Yosemite Fall, pedestrian and vehicle conflicts can create hazardous conditions.

Buses are maintained at the Village Garage located in Yosemite Village. The concessioner is responsible for all operating and maintenance costs, which are funded by surcharges on overnight accommodations. The National Park Service pre-approves annual refurbishment and any repairs costing more than $1,000. The budget for Yosemite Valley shuttle services in 1998 was $2.5 million, and ridership totaled about 2.6 million passengers. On an average summer day, ridership can reach nearly 16,800. The operating cost per rider in Yosemite Valley was $0.95, based on 1998 operations.

Parking

Visitor parking areas are dispersed at all the primary developed areas in the Valley and include a combination of day and overnight parking areas, roadside pullouts, shared-use areas, and employee parking. Many parking areas are shared by several types of users. Competition for limited parking is intense during the peak season.

Varying estimates of Valley parking spaces have been presented in previous studies. Because of the extensive use of road shoulders for overflow parking during periods of high demand, and because many parking areas are not paved and marked, it is difficult to identify a specific parking

supply. Some parking areas identified in previous studies are not located in areas of visitor use. An updated inventory of parking in areas used by visitors was conducted in February 1999.

Parking for up to 1,662 day-visitor vehicles is available in the Valley, primarily at the Yosemite Falls parking area, Village Store parking area, Camp 6, at various destination areas, and along Northside Drive and Southside Drive. Of the 1,662 day-visitor spaces available, up to 758 are west of Yosemite Lodge (on the north side of the Merced River) and Sentinel Bridge (on the south side of the river). An estimated 904 spaces are provided for day visitors in the most heavily visited eastern portion of the Valley. Most day-visitor parking spaces are also used by overnight visitors touring the Valley, as well as by residents and commuting employees. Many of the spaces are in informal pullouts and other areas that are best suited to short-term use associated with auto touring. Parking for overnight guest vehicles is available at lodging, campground, and wilderness areas. Table 3-21 outlines the general locations of existing Valley parking for visitor use.

Dedicated day-visitor parking is provided at Camp 6. The parking area was newly configured in 1999 to expand the available parking and make parking more efficient.

Table 3-21
Valley Parking Summary

Day-Visitor Area	Parking Spaces
Camp 6	450
Village Store	130
Curry Orchard	47
Yosemite Lodge	219
Yosemite Falls	50
The Ahwahnee	8
Subtotal – East Valley Day-Visitor Spaces	904
West Valley Roadside Spaces	654 to 758
Total Day-Visitor Spaces	**1,558 to 1,662**
Overnight Area	**Parking Spaces**
Housekeeping Camp	264
Curry Village	628
Yosemite Lodge	245
The Ahwahnee	123
Campgrounds	549
Wilderness Parking	120
Total Overnight Visitor Spaces	**1,929**
Total Valley Parking Spaces	**3,487 to 3,591**

Transportation Conditions

Traffic Volumes

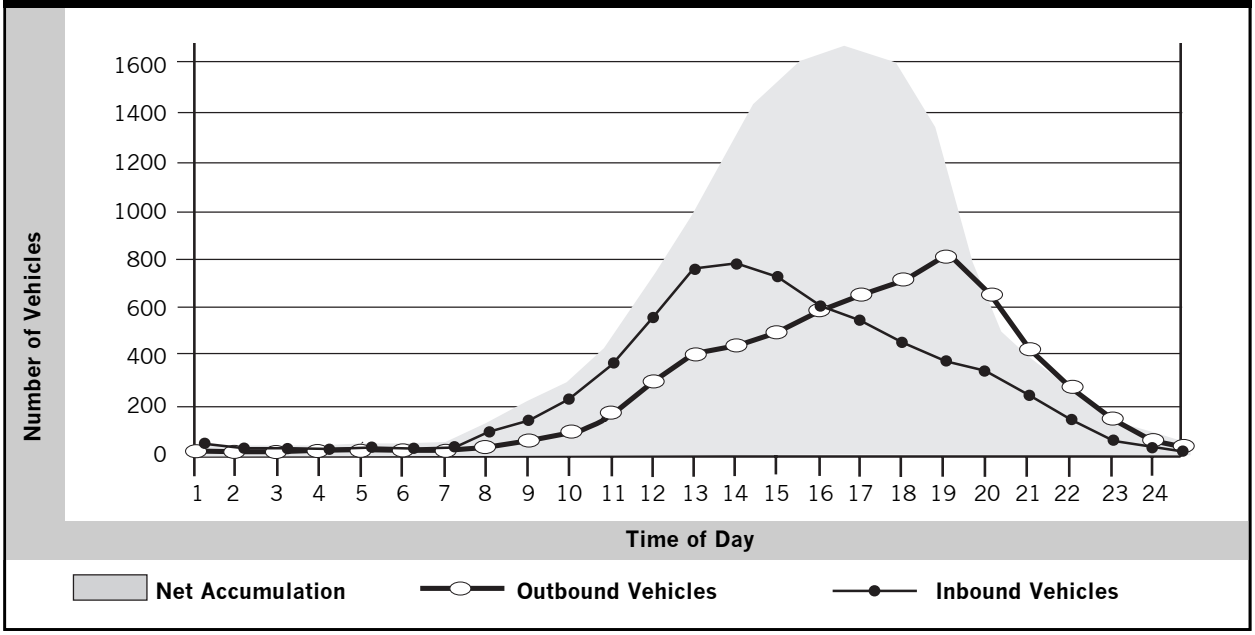
A design day was selected to represent typically busy conditions on summer weekend days in Yosemite Valley. (The design day is also referred to as the "typically busy summer day.") The design day was not defined to be the busiest day, since facilities sized for that day would be over-designed for all other days. To determine the design day, weekend traffic counts made in Yosemite Valley throughout the months of June, July, and August 1998 were analyzed. These months are considered the peak visitation season. Data on the number of vehicles entering and leaving the Valley were collected continuously near Yosemite Chapel on Southside Drive and near Camp 4 (Sunnyside Campground) on Northside Drive. The fourth highest traffic day was chosen to represent a typically busy summer day. Traffic volumes entering the Valley on each weekend in June, July, and August 1998 are shown in table 3-22. Seven of the top 10 traffic days fell on Saturdays.

Table 3-22 1998 Peak Season Weekend Traffic Entry Volumes			
Weekend	**Saturday (# of Vehicles)**	**Sunday (# of Vehicles)**	**Total (# of Vehicles)**
June 6–7	5,873	5,873	11,746
June 13–14	5,428	5,724	11,152
June 20–21	5,913	5,657	11,570
June 27–28	6,367	6,149	12,516
July 4–5	7,004 (5)	6,115	13,119
July 11–12	6,747 (7)	6,156	12,903
July 18–19	7,252 (3)	6,516	14,125
July 25–26	* 7,199 (4)	6,641 (10)	13,840
August 1–2	7,393 (1)	6,732 (8)	14,125
August 8–9	7,370 (2)	6,660 (9)	14,030
August 15–16	6,969 (6)	6,310	13,279
August 22–23	6,492	6,492	12,984
August 29–30	5,478	5,020	10,498

Note: ( ) Rank of traffic volume (top 10 days) *Design Day.

Figure 3-3 shows the hourly volumes of entering and exiting traffic on the design day (July 25, 1998).

Figure 3-3
Yosemite Valley Traffic and Vehicle Accumulation on a Typically Busy Day



Source: NPS 1998 Traffic Counts

Employee Travel

The number of concessioner and National Park Service jobs in the Valley exceeds the number of employee residents during the busy summer season and during the off-season. An estimated 1,655 jobs are filled in the Valley during the summer season. Housing (employee beds) is provided for only 1,277 of the employees filling these positions.

Because an estimated 1,655 jobs are filled in the Valley during the summer season, and beds are provided for only 1,277, about 380 employees commute to the Valley daily: about 220 commute from El Portal, and an additional 160 commute from communities west of El Portal or other areas. An estimated 620 vehicle trips to and from the Valley each summer day are made by commuting employees on job assignments. Approximately 130 trips are estimated to be made by employees, suppliers, and other administrative travelers. According to concessioner statistics, about 65% of concessioner employee work shifts begin at 8:00 A.M. An additional 31% of work shifts start at 3:00 P.M. Most work shifts for National Park Service employees begin at 8:00 A.M. It is estimated that 75% of employees working in the Valley are at work at any one time, considering that some employees would be out on personal leave or away for other reasons.

In the off-season, the number of jobs in the Valley declines, reflecting a reduced need for visitor services. An estimated 360 daily commuting employees make 311 vehicle round-trips to and from the Valley each day during the off-season. The total administrative and employee vehicle trip volume is estimated to be 342 vehicle round-trips per day in April.

Traffic Flow

Level of service is a measure of how well a roadway is operating under the analyzed traffic conditions. Level of service ranges from A to F are defined, with A being the best and F the worst. Typically, traffic flowing in the level of service A to D range has acceptable operations, depending on the setting. Level of service E and F indicate unacceptable operations.

The operations of Northside and Southside Drives were analyzed on weekends in June, July, and August 1998 using the 1997 *Highway Capacity Manual*. The manual calculates level of service by using information such as roadway geometrics, vehicle volumes, and the composition of the traffic stream. The following conclusions were developed from the data and analysis:

- The peak traffic hour on Southside Drive at Yosemite Chapel was about 770 vehicles, which occurred from 1:00 to 2:00 P.M.
- Southside Drive is operating at level of service D during the inbound peak hour near the Yosemite Chapel.
- The peak traffic hour on Northside Drive west of Camp 4 (Sunnyside Campground) was 910 vehicles, which occurred from 6:00 to 7:00 P.M.
- Northside Drive is operating at level of service E during the outbound peak hour between Yosemite Village and Yosemite Lodge.
- Segment D of the El Portal Road operates at level of service E during peak inbound and outbound hours.

The two-way operation of Northside Drive between Yosemite Village and Yosemite Lodge, and the very high volumes of traffic using this stretch of road to exit the Valley, lead to congested conditions. Traffic flow is further disrupted by high volumes of pedestrian traffic crossing the road to reach Lower Yosemite Fall. The narrow lanes, tight curves, and lack of shoulders on Segment D of the El Portal Road, and the high volumes of traffic from Arch Rock, Big Oak Flat, and Tioga Pass Entrances that use the segment to reach the Valley also lead to congestion.

Based on the calculated traffic conditions on Southside Drive and Northside Drive, traffic congestion is similar or worse in Yosemite Valley to that in other high-use parks and elsewhere on the Yosemite road system. Some of the major roads in heavily visited parks in the National Park System experience level of service D or worse during peak visitation periods. For example, the peak traffic flow on Going-to-the-Sun Road in Glacier National Park was estimated at level of service E from Logan Creek to Rising Sun in 1984. Most roads in the South Rim area of Grand Canyon National Park were estimated to operate at level of service D during peak periods in 1990. In 1996, the peak summer conditions on the main roads in Yellowstone National Park were estimated at level of service D.

Interruptions to traffic flow (such as accidents or vehicles stopping in the travel lanes to view features or wildlife) can affect traffic flow, causing higher levels of congestion than those indicated by the calculated level of service. Road conditions, including damage and weather-related hazards, can also cause increased congestion.

Restricted Access Plan

In Yosemite Valley, a Restricted Access Plan was implemented in 1995 to manage traffic on the busiest summer weekends when congestion was most severe. Using observations of traffic conditions and the judgment of park personnel, congestion was monitored using qualitative factors. When congestion reached unacceptable levels, access to the east end of Yosemite Valley was restricted, and on some occasions, visitors were turned away at the park entrance stations.

The Restricted Access Plan was implemented on all weekend days except one between May 20 and July 2, 1995. Despite higher traffic volumes in late July and August, the plan was not implemented after July 2.

The Restricted Access Plan provided a means of managing the effects of congestion in the Valley, but was not ideal. Problems with the plan included:

- Park visitors were not informed in advance when access was restricted.
- Some visitors who had traveled long distances did not get to see the Valley scenery, especially if they had limited time to visit the park.
- It was difficult or impossible to sort visitors who had reservations for campgrounds or lodging in the Valley from day visitors at the traffic control point.
- The plan might have increased traffic, congestion, and crowding in areas in the western part of Yosemite Valley as vehicles circulated to and from the control point at El Capitan crossover.
- Traffic congestion reached unacceptable levels well before the restrictions could be implemented.
- Parking areas were usually full before roadways became highly congested. As a result, visitor vehicles circulating in search of parking contributed to worsening congestion.
- The Restricted Access Plan is labor intensive. It diverts the limited numbers of park staff from important visitor safety and educational activities.
- News of restricted access may have caused some visitors to avoid the park, resulting in impacts to the local economy.

Estimated Parking Demand

Demand for parking in the Valley is affected by the number of people living and working in and visiting the area. Parking demand varies during the day, and from day-to-day, as the number of overnight and day visitors and the number of nonresident employees fluctuates. Summer Saturday nights in Yosemite Valley have the highest number of overnight visitors and Valley residents, when estimated demand for parking is 3,177 vehicles (see table 3-23).

Table 3-23
1998 Yosemite Valley Overnight Parking Demand

Vehicle Type	Number of Parked Vehicles
NPS and concessioner vehicles	60
Valley residents	1,022
Lodging guests	861
Campers	1,114
Wilderness campers	120
Total	**3,177**

Note: Represents Saturday nights in summer of 1998.

The accumulation of vehicles in the Valley over the course of individual days and on different days of the week was estimated by comparing inbound and outbound traffic counts for a week in summer 1998. The highest total accumulation of vehicles in the Valley occurs on Saturday afternoons. On Saturday, July 25, the maximum accumulation of 4,696 vehicles occurred at 3:00 P.M. The higher accumulation of vehicles during daylight hours can be attributed to the arrival of day visitors and commuting employees, who offset some overnight visitors leaving the Valley or making day trips to other parts of the park. Table 3-24 provides an estimate of the number of vehicles of each classification present in the Valley at the time of maximum vehicle accumulation.

Table 3-24
1998 Yosemite Valley
Maximum Vehicle Accumulation

Vehicle Type	Number of Parked Vehicles
NPS and concessioner vehicles	60
Valley residents	1,022
Lodging guests	774
Campground and wilderness campers	1,192
Overnight visitors on day trips out of the valley	(372)
Day visitors in parking areas	1,387
Day visitors driving on roads	350
Commuters/other non-visitors	283
Total	**4,696**

Note: Represents Saturday afternoons in summer of 1998.
( ) Indicates vehicles temporarily out of the valley (subtracted from the total)

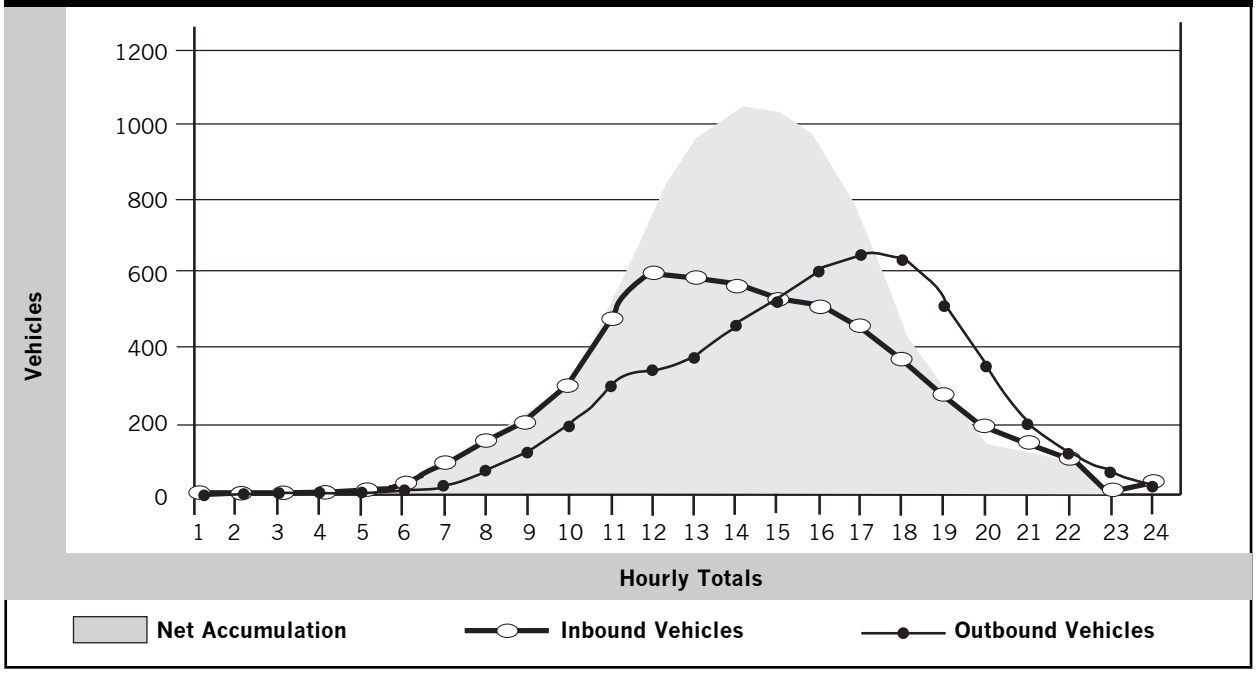
The net difference in vehicles in the Valley between Saturday night and the maximum accumulation during the day was 1,519 vehicles. Saturday had the highest vehicle accumulation, and it was the only day on which the accumulation exceeded 4,500 vehicles. Accumulation ranged between 3,500 and 4,000 vehicles for the remaining days of the week. The lowest accumulation occurred on Tuesday and Wednesday nights, when the number of vehicles in the Valley fell to 2,778.

Traffic volumes entering the Valley typically peak between 11:00 A.M. and 12:00 noon. The highest entering volume was 772 vehicles per hour on Saturday morning. Entering traffic exceeds exiting traffic until about 2:00 P.M. The maximum accumulation of vehicles typically occurs between 1:00 P.M. and 3:00 P.M. The peak in exiting traffic typically occurs at 5:00 P.M. or 6:00 P.M. The highest observed volume was 908 vehicles per hour exiting the Valley on Saturday afternoon.

Seasonal Traffic Volumes and Vehicle Accumulation

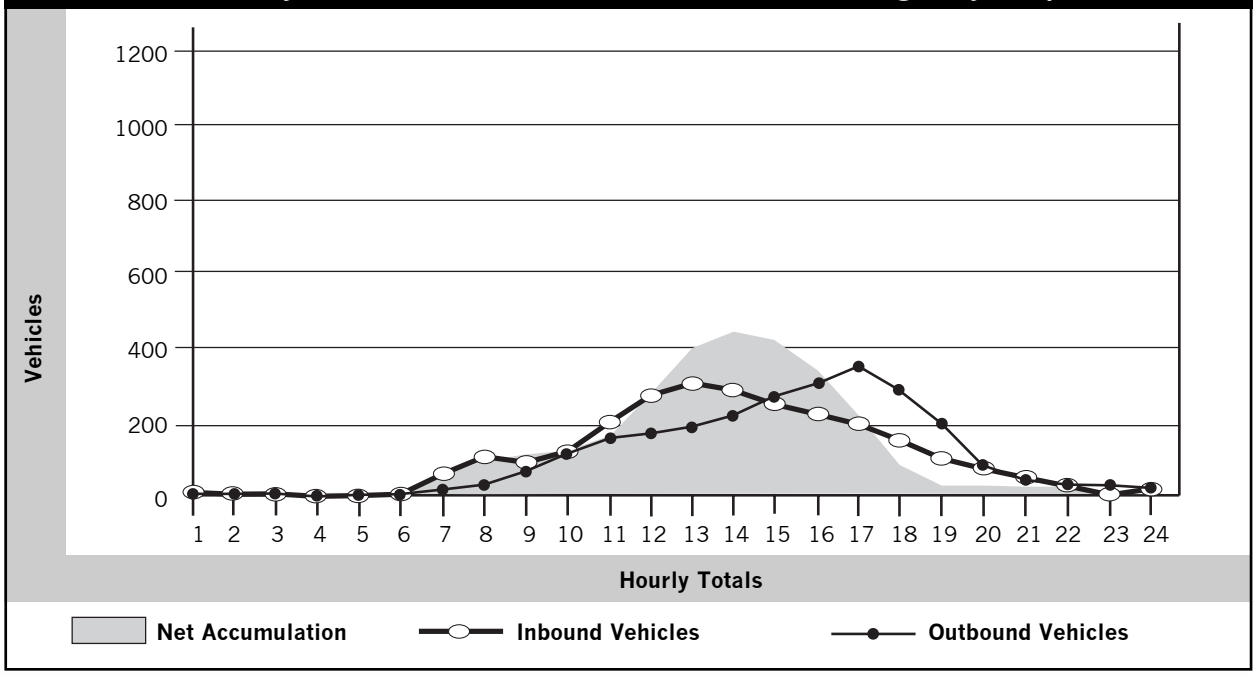
Figures 3-4 and 3-5 illustrate the difference between peak and off-peak season traffic volumes and vehicle accumulation in the Valley. On an average day in August (as compared to the design day), inbound traffic reaches a daily high of 586 vehicles around noon. Outbound traffic volumes peak around 6:00 P.M., at 647 vehicles. The chart illustrates that during the

Figure 3-4
Yosemite Valley Net Traffic and Vehicle Accumulation – Average Day in August 1998



Source: NPS 1998 Traffic Counts

Figure 3-5
Yosemite Valley Net Traffic and Vehicle Accumulation – Average Day in April 1998

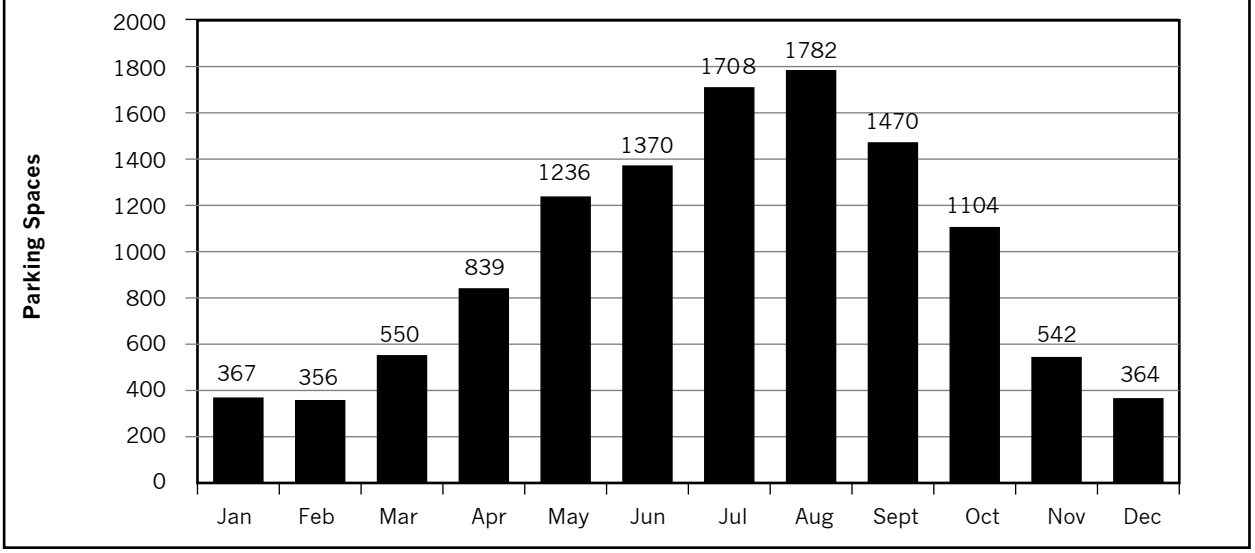


Source: NPS 1998 Traffic Counts

peak season average, daily net vehicle accumulation (the difference between overnight parking demand and the demand for parking during the afternoon) in the Valley exceeds 1,000 cars, primarily during the afternoon hours.

During the off-season, traffic volumes are significantly lower. Inbound traffic reaches an average high of only 311 vehicles around 1:00 P.M. Outbound vehicles peak at approximately 5:00 P.M., at 351 vehicles. Because of the length of stay of day visitors, the net accumulation of vehicles is highest during the afternoon hours, when it reaches 450 vehicles. Net accumulation levels decrease in the evening with the flow of outbound visitor traffic. Figure 3-6 shows the estimated number of parking spaces needed in Yosemite Valley to accommodate existing day-visitor use by month of the year.

Figure 3-6
Parking Needed for Day Visitors to Yosemite Valley



Parking Problems

On a busy day, most dedicated parking areas are fully occupied, with parking spilling onto the roadway shoulders throughout the east end of the Valley. This uncontrolled parking leads to pedestrian, bicycle, and vehicular conflicts; damage to vegetation and soils along the road edge; and the formation of social trails. Roadside parking also disrupts natural views and lends an urban character that is out of place in the Yosemite Valley setting.

Transit

Regional Transit

In 2000, the Yosemite Area Regional Transportation System (YARTS) operated demonstration transit service to Yosemite Valley. VIA Adventures, Inc./Grayline of Yosemite also provides regional transit service to the Valley. An estimated 131 riders per day, including employees, used the services provided by VIA and YARTS (assuming that each person made two trips per day). About 44% of the riders were employees.

Tour and Charter Buses

Tour and charter bus operators carried more than 314,700 passengers to Yosemite Valley in 1998. Table 3-25 presents total monthly passengers and buses from the multiple charter and tour service providers.

Table 3-25
Monthly Bus Passengers Entering Yosemite National Park

Month	Passengers	Buses
January	11,449	521
February	8,887	423
March	12,736	582
April	21,674	854
May	37,532	1,377
June	31,988	1,227
July	41,615	1,612
August	51,866	1,948
September	44,657	1,620
October	32,089	1,124
November	10,265	414
December	9,993	400
Total	**314,751**	**12,102**

Valley Shuttle System

According to visitor surveys, 48.7% of visitors traveling in private vehicles use the Valley shuttle bus service, as do 55.1% of bus travelers. Daily shuttle ridership averaged more than 17,850 passengers (ridership represents the total number of riders) during August 1998, with as many as 23,740 passengers using the system in a single day.

Annual ridership is about 2.6 million trips. During busy holiday weekends and other high-use days, buses operating on the shuttle system are often crowded to the point that no additional visitors can board. Visitors can wait for several buses to pass before space is available. The highest-volume stops include Yosemite Lodge, Yosemite Falls, Curry Village, Happy Isles, Mirror Lake trailhead, and all Yosemite Village stops. Locations that experience lower use include Sentinel Bridge and The Ahwahnee. Some visitors ride the shuttle system as a tour or attraction without a particular destination in mind. On rainy days, riding the shuttle is a popular way to spend time.

Pedestrians and Vehicles

Because of high traffic volumes during peak visitation periods and congestion at major intersections, conflicts occur between vehicles and pedestrians when pedestrians cross roads to reach Valley attractions. Traffic congestion and conflicts are continuing problems along Northside Drive. Pedestrians crossing from Yosemite Lodge to the Lower Yosemite Fall trail and from visitor parking at Camp 6 to Yosemite Village interfere with high volumes of traffic

leaving the Valley. Sentinel Bridge is another location of congestion and conflict due to the location of the multi-use trail connection on the south side of Southside Drive and popular views from the bridge.

NOISE

Noise is defined as human-caused sound. Whether a noise is considered unpleasant depends on the individual listening to the sound and what the individual is doing when the sound is heard (i.e., working, playing, resting, sleeping). When performing certain tasks, people expect and accept certain sounds. For instance, if a person works in an office, sounds from printers, copiers, and typewriters are generally acceptable and not considered unpleasant or unwanted. By comparison, when resting or relaxing, these same sounds may be undesirable. The desired sounds during these times are referred to as "natural quiet," a term used to describe natural sounds heard with little or no intrusion from human-caused sounds. Natural quiet can be essential for some individuals to achieve a feeling of peace and solitude.

Qualitative Description of Sound Levels

Current sound levels in Yosemite Valley vary by location and also by season (the volume of water in the waterfalls and rivers is lower in the fall and higher in the spring). Current noise levels are also influenced by the number of visitors to the park and by the proximity of mechanical noise sources.

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. Humans have a wide hearing range, from the threshold of hearing (0 dBA) to the threshold of pain (140 dBA). Environmental sound or noise levels typically fluctuate over time, and different types of noise descriptors are used to account for this variability. One of these descriptors is the energy-equivalent level (Leq), which is the equivalent steady-state level that reflects the same acoustic energy as the actual time-varying level during a stated period.

Table 3-26 shows some representative noise and sound sources, their associated dBA levels, and corresponding effects (see Vol. Ib, Glossary, for definitions of noise-level terms). Also listed is the relative loudness at which an average person would rate the sound sources, using a quiet urban daytime as a reference level. For the average human, a 10 dB increase in the measured sound level is subjectively perceived as being twice as loud, and a 10 dB decrease is perceived as being half as loud. The decibel change at which the average human will indicate that the sound is just perceptibly louder or perceptibly quieter is 3 dB.

Table 3-26
Qualitative Description of Typical Noise

Sound Level dBA	Type of Noise	Relative Loudness (Human Judgement) of Different Noise Levels	Subjective Impression of Noise
110	Disco dance floor	128 times as loud	Uncomfortably loud
90	Motorcycle at 25 feet	32 times as loud	Very loud
85	D8 Caterpillar dozer at 50 feet		
80	Diesel truck, 40 mph at 50 feet	16 times as loud	Loud
75	Average car, 40 mph at 25 feet		
70	Vacuum cleaner at 3 feet	8 times as loud	
65	Conversation at 3 feet		
60	Background music	4 times as loud	
55	Air conditioning unit at 15 feet		
50	Quiet residential	Twice as loud	
45	Bird calls		Quiet
40	Lower limit urban daytime ambient	Reference loudness	
30	Background quiet suburban at night	1/2 as loud	
20	Quiet whisper	1/4 as loud	Barely Audible
0	Threshold of hearing		

Existing Noise Sources

Natural Sounds

Natural sounds are not considered to be noise. These sounds result from sources such as waterfalls, flowing water, animals, wind, and rustling tree leaves.

Motor Vehicle Noise

Noise results from automobiles, recreational vehicles, commercial buses, shuttle buses, and trucks accessing the park via El Portal Road, Wawona Road, Big Oak Flat Road, and Tioga Road. Near the Valley Visitor Center, noise results from vehicles on Northside Drive, Southside Drive, and roadways to and from camping and lodging areas. Noise from motor vehicles is obviously loudest immediately adjacent to the roadways, but due to generally low background sound levels, can be audible a long distance from the roads. Atmospheric effects such as wind, temperature, humidity, topography, rain, fog, and snow can affect the presence or absence of motor vehicle noise. Logically, noise levels from motor vehicles will be loudest where and when activity levels are the greatest and nearest to the sources of noise.

The existing noise environment changes dramatically throughout the year directly in proportion to the level of use (i.e., the number of cars and buses that travel the various roadways in the park). Therefore, measurement of ambient noise levels is different during winter months than during busy summer months. Generally, summer ambient noise levels are higher than winter ambient levels.

To determine the winter ambient noise level, 24-hour A-weighted statistical noise surveys were performed at 10 locations. These locations and the measured noise levels are listed in table 3-27. Measurements were taken in Yosemite Valley from February 22 to 26, 1999. During the measurement period, daytime temperatures were 35-45 degrees Fahrenheit, and wind conditions were mostly less than 10 miles per hour.

For measurement locations near Yosemite Falls, Bridalveil Fall, and the Merced River, water rather than bus and car noise is a primary contributor to ambient sound levels. Additional real time (not averaged) noise measurements taken in the Curry Village, Yosemite Village, and Yosemite Lodge areas showed instantaneous ambient levels in the range of 63 to 69 dBA, depending on the level of human activity. In interpreting these winter ambient noise levels, it should be noted that these data are statistical averages over a 24-hour period.

Motor vehicle noise is most noticeable in Yosemite Valley, where there is a concentration of park visitors, vehicle traffic is heavy, and the topography places visitors in close proximity to roads. Motor vehicle noise in Wawona and El Portal is similar to the noise environment in Yosemite Valley, as described in table 3-27. In these communities, there are visitor accommodations and concentrations of residents affected by motor vehicle noise. Vehicle traffic in these areas is not as heavy as in Yosemite Valley. Motor vehicle noise in Foresta is associated primarily with the residential area, as there is no major road in Foresta, and vehicle traffic is light. Motor vehicle noise at Hazel Green, South Landing, and Henness Ridge is associated with major park roads that are nearby, but not immediately adjacent to these locations. Motor vehicle noise at Badger Pass in the summer is associated with Glacier Point Road traffic. In the

Table 3-27
Winter Ambient Noise Levels

Measurement Location	Distance from Roadway Centerline	A-Weighted Noise Metric				
		DNL[1]	L_{01}[2]	L_{10}[2]	L_{50}[2]	L_{90}[2]
Lower Yosemite Fall, Yosemite Valley	275 feet south	60	56	51	47	45
Devils Elbow, Yosemite Valley	50 feet south	61	60	47	38	39
Valley View turnout, Yosemite Valley	50 feet south	69	63	59	58	58
Bridalveil Meadow, Yosemite Valley	100 feet south	62	64	54	45	44
Bridalveil Fall, Yosemite Valley	100 feet east of parking area	65	64	52	48	47
Cathedral Spires, Yosemite Valley	100 feet south	65	67	53	48	36
Stoneman Meadow, Yosemite Valley	100 feet north of road	59	60	48	41	39
9003 Oak Lane in Historic District, Yosemite Valley	Next to residence	65	61	55	47	44
Glacier Point	Wilderness area	42	54	40	36	35
Taft Point	Wilderness area	40	53	31	27	25

1. DNL is the daytime and nightime noise level average.
2. L_{eq}=energy equivalent level; see Vol. IB, Glossary, for a definition of noise-level terms.

winter, it is associated with vehicles traveling to the Badger Pass Ski Area. When both the Badger Pass Ski Area and the Glacier Point Road beyond Badger Pass are closed, there is very little noise associated with motor vehicles.

Bus Noise

Noise emission levels from diesel and electric buses were measured for pass-by, arrival, and departing operations in Yosemite Valley. The results are listed in table 3-28. Multiple measurements were performed on several of the buses. These measurements were taken on a Sunday morning about 10:00 A.M., when other background noise was at a minimum. Measurements were performed at a distance of 25 feet and extrapolated to 100 feet. The operations are defined as:

Pass-by Bus or shuttle driving past the measurement site at posted speed limit

Arrival Bus or shuttle arriving at site and stopping; during arrival, bus engine revolutions per minute and loads are less than during departure

Departing Bus or shuttle leaving the site, air brake release, and acceleration

Table 3-28
A-Weighted Noise Levels for Buses

Vehicle Type	Bus Noise in dBA at:					
	100 Feet		200 Feet		400 Feet	
	Range*	Average	Range*	Average	Range*	Average
Diesel buses (8)	62–68	64	56–62	58	50–56	52
Valley Floor Tour (1)	NA	60	NA	54	48–58	53
Electric shuttle buses (2)	57–58	57	51–52	51	45–46	45

Note: ( ) depicts sample size. Range*= takes into account the mode of operation (arriving, departing, or passing-by). NA=Not Applicable.

Analysis of the bus noise data shows that diesel bus noise levels range from 62 to 68 dBA at 100 feet, with an average level of 64 dBA at 100 feet. The electric buses tested had an average noise level of 57 dBA at 100 feet.

Existing bus traffic in the Valley includes commercial tour buses (about 77 trips per day on a typically busy day), regional transit (15 to 17 trips per day mid-May through mid-September), Valley shuttle buses (about 10 trips per hour), and Valley tours (2 to 3 trips per hour). The highest volume of bus traffic occurs on Southside Drive at Sentinel Bridge, where up to 25 buses per hour may travel through the intersection. The noise data indicate that the instantaneous noise due to buses would be noticeable.

The average human would perceive a 10 dBA increase or decrease in the measured noise level as being twice or half as loud, all frequency information being equal. Therefore, subjectively, the electric buses would be perceived by park visitors as being about one-half as loud as the loudest diesel buses now used for shuttle and tour service. However, electric buses cannot presently be used beyond the floor of Yosemite Valley due to steep grades.

Bus noise is most noticeable in Yosemite Valley, which is the destination for most tour buses entering the park and has the highest concentration of park visitors. Bus noise in Wawona, El Portal, Foresta, South Landing, Hazel Green, Badger Pass, and Henness Ridge are similar to the noise environment in Yosemite Valley, as described in table 3-27. Major roads pass through El Portal and Wawona, while major roads pass near Badger Pass, South Landing, Hazel Green, and Foresta.

Aircraft Noise

As part of a report to Congress (NPS 1994b), the National Park Service conducted a visitor survey in Yosemite National Park. Of the visitors surveyed, 55% reported hearing aircraft sometime during their visit. The report notes that recognition of noise from aircraft was highly variable from location to location, and impacts to visitors were greater in areas with less vehicle noise and fewer people. In Yosemite, a majority of complaints came from wilderness users. Measurements made in 1993 at four locations within the park (Rafferty Creek and the Soda Springs area in Tuolumne Meadows, Mirror Lake in Yosemite Valley, and Glacier Point) indicated that aircraft were audible 30% to 60% of the time during each of the measurement periods (6 hours at each site). Most overflights are associated with high-altitude jet aircraft. The National Park Service also uses aircraft in its management activities. These aircraft are generally helicopters used for firefighting, search and rescue, medical evacuations, law enforcement, and other special operations (NPS 1993a).

Other Noise Sources

Sound-level measurements were obtained at various locations within Yosemite Valley and Wawona. Measurements were obtained using a Larson Davis sound-level meter (Model 700) calibrated with a Larson Davis sound-level calibrator. At each measurement, location observations of the background level were made over a period ranging from 1 to 5 minutes. In addition, observers noted the sources contributing to the background level and noted any sources that caused intrusive levels above the typical background level (NPS 2000c). Within Yosemite Valley, sound levels ranged from 44 to 47 dBA along the Lower Yosemite Fall trail, with maximum observed levels of 66 dBA when people passed the monitor on the trail. Notably, there was no water in Yosemite Creek when the monitoring was performed. At Swinging Bridge, sound levels measured 50 dBA, with noise from people constituting the greatest source of sound in the area.

Near Happy Isles, sound levels measured 59 dBA, with most of the sound resulting from people on the trails and using facilities nearby. Within the camping area (Upper Pines Campground), sound levels varied from 32 dBA when human activity levels were at the lowest (early in the morning) to 55 dBA when activity levels increased during the day. At El Capitan Meadow, sound levels measured 39 dBA while the river was calm and no people were present. At Devils Elbow, water was flowing through the river, but the sound of the river was minimal due to the absence of rocks and rapids in the area. Sound levels in the area were 44 dBA, with a maximum observed level of 67 dBA when a bus passed on nearby Northside Drive.

In Wawona, sound levels were measured in the middle of the old Wawona Bridge and west of the Covered Bridge near the Pioneer Yosemite History Center. Sound levels in these areas were 50 and 44 dBA, respectively, with maximum observed levels of 59 dBA near the old Wawona bridge.

In summary, measured sound levels indicate that the background (minimal) sound level in the study area is 31 to 32 dBA (measured near the Upper Pines Campground). In river areas where water flow is minimal, sound levels averaged 37 dBA. In areas with flowing water, sound levels averaged 44 dBA. In areas of cascading water, sound levels averaged 55 dBA. Finally, in waterfall areas, sound levels averaged 68 dBA. Logically, sound levels associated with the river itself increased as the flow of water increased and in areas where rocks and waterfalls were present.

Social and Economic Environments

This section examines the social and economic environments in the region affected by the alternatives. This region has been characterized in the context of its relationship to the changes proposed by each alternative. The discussion of the social environment covers local communities in the region and provides a description of current populations, community characteristics, housing, and commuting requirements. The discussion of the economic environment provides a description of current visitor populations, regional economies (Madera, Mariposa, Merced, Mono, and Tuolumne Counties combined), and concessioners and cooperators in the park and local communities.

A socioeconomic profile was prepared for each county in the affected region in order to provide a general characterization of recent demographic, infrastructure, and economic conditions in the counties, and to present the baseline statistics to be used in the impact analysis of the alternatives. The baseline serves as a measure of the region's social and economic environments and is used to evaluate the magnitude of potential impacts on the counties from implementation of the proposed alternatives. Unless otherwise noted, all figures are presented in 1998 dollars. (When necessary, the figures were adjusted into 1998 dollars using the U.S. Department of Labor, Bureau of Labor Statistics, Consumer Price Index for All Urban Consumers.)

The primary data source used to compile the economic baseline was IMPLAN, an economic model that estimates the effects on a specific economy from changes in spending. The Minnesota IMPLAN Group provides county-specific data on output, income, employment, and other economic variables as part of its input-output system. For information that is not provided by IMPLAN, such as forecasts of employment trends, population, and taxable sales, other data sources were used.

Regional Context

Yosemite National Park encompasses parts of three counties (Madera, Mariposa, and Tuolumne) and borders a fourth, Mono County. In addition to these four counties, Merced County is often considered a gateway to Yosemite National Park (see Vol. IC, plate B).

For the purposes of this analysis, the affected region is defined as the five-county area of Madera, Mariposa, Merced, Mono, and Tuolumne Counties. These counties provide services to visitors and employees, and receive tax revenue or benefits through retail and other trade. Consequently, these counties could be affected by visitor levels in the park and housing locations in the area.

Stanislaus, San Joaquin, and Fresno Counties were excluded from the impact analysis, because it is difficult to distinguish portions of the tourist economies that are associated with Yosemite visitation and not with other tourist destinations. Also, tourism is a relatively small component of these counties' overall economies.

Road access and proximity to Yosemite Valley were measured from major cities in central California to identify the counties to be included in the social and economic impacts analysis. Table 3-29 provides driving distances and estimated driving times from the park to neighboring Sierra communities and major cities in the San Joaquin Valley. Cities more than 100 miles or 2.5 hours driving time from the park were excluded from the impact analysis.

Table 3-29
Travel Distance and Time to Yosemite Valley

Town/City	County	Road Distance	Estimated Travel Time[1]
Northwest via Big Oak Flat Road and Highway 120			
Groveland	Tuolumne	50	0:54
Big Oak Flat	Tuolumne	52	0:55
Sonora	Tuolumne	75	1:26
Oakdale	Stanislaus	95	1:53
Modesto	Stanislaus	107	2:16
Manteca	San Joaquin	115	2:07
Stockton	San Joaquin	129	2:25
West via El Portal Road and Highway 140			
El Portal	Mariposa	14	0:42
Mariposa	Mariposa	44	1:08
Merced	Merced	83	1:51
Turlock	Stanislaus	105	2:17
South via Wawona Road and Highway 41			
Fish Camp	Mariposa	29	1:10
Oakhurst	Madera	41	1:23
Madera	Madera	82	2:18
Fresno	Fresno	89	2:22
East via Tioga Road and Highway 120			
Lee Vining	Mono	71	1:15
Bridgeport	Mono	96	1:41
June Lake	Mono	90	2:15
Mammoth Lakes	Mono	106	2:30
Bishop	Mono	136	2:27

1. Average travel speed factors were used on road distances and road types to develop travel time estimates. Driving time estimates do not account for the actual road and driving conditions such as poor weather conditions, road gradients, traffic congestion, and delays caused by rockslides.

Madera County

The central economic activity in Madera County is agriculture, which constitutes nearly one-third of the county's total wage and salary employment. The agricultural sector stimulates production in related sectors of the economy, including jobs in food processing, transportation, and wholesale trade (EDD 1995).

In 1996, Madera County had approximately 48,100 jobs, of which the agricultural sector accounted for nearly 14,000. The second largest sector in Madera County is the services sector, accounting for 17.5% of employment. Other important economic sectors in Madera County include government (14%), manufacturing (8%), transportation/public utilities (6%), and construction (5.5%) (EDD 1995). Total wage and salary employment in Madera County is expected to grow by approximately 22% from 1995 to 2002. Most of the new job growth will be in services and manufacturing (EDD 1995). Yosemite National Park is in the northeastern portion of Madera County, and all portions of the county within the park are designated Wilderness. Sierra National Forest to the south of the park provides additional recreational opportunities.

Mariposa County

Recreation and tourism are major industries in Mariposa County. The county's primary recreation area/tourist attraction is Yosemite National Park, part of which lies within the county. Other major recreation areas near Mariposa County include the Stanislaus and Sierra National Forests.

Lodging, food and beverage, and other service industries are central to the county's economy, accounting for nearly 50% of employment in Mariposa County. Government is also a major economic sector in the county, accounting for 23% of employment. Other industries, such as construction (5.7%) and manufacturing (4.4%), are relatively limited (MIG 1999).

Nonagricultural wage and salary employment in Mariposa County was projected to increase by 12.2% from 1995 to 2002. Over half the growth was expected to be in the service industry. Yosemite National Park is expected to provide the main catalyst for job growth, primarily in the recreation and tourism industries and in health services. Wholesale and retail trade are expected to create additional jobs in the county, primarily in food stores, gas stations, and eating and drinking establishments (EDD 1995).

During the 1997-1998 tax year, Mariposa residents and businesses paid approximately $10.5 million in secured property taxes (real estate tax) and $0.36 million in unsecured property taxes. Nearly 70% of these property taxes are distributed to county schools to pay for public education, and 25% goes to the Mariposa County General Fund to pay for other county services (5% is transferred to special districts such as the county hospital).

Overall, the Mariposa County General Fund received approximately $9.9 million in local taxes during the 1997-1998 tax year. Property taxes constituted just under 29% of the county's government revenues; transient occupancy taxes (hotel tax) constituted 57%; sales taxes constituted 12%, and other miscellaneous categories of local taxes constituted 2%.

Mariposa County assesses a possessory interest tax on employer-provided housing for employees residing in Yosemite National Park and the El Portal Administrative Site. The annual payment to the county is equal to 1% of the assessed value of the structures, as determined by the county assessor's office.

Approximately 300 concessioner employees and 180 National Park Service employees currently live in privately owned housing outside the park, primarily within Mariposa County. The county assessor's office estimates that the average price for a three-bedroom family home in the

county is $125,000, for which the annual property taxes would be $1,250 (i.e., 1% of the house's assessed value). However, many of these properties were probably purchased in earlier years at a lower price, so that their assessed value is less and owners pay lower property taxes. The exact amount of property tax paid by concessioner and National Park Service employees is not known, but based on average values of homes in the county, the tax rate, and the number of employees living in the county, it is conservatively estimated that park employees account for approximately $350,000 to $500,000 of the county's property tax revenues.

The federal government makes payment in lieu of taxes to Mariposa County in recognition of county tax revenue lost from federal land holdings within the county. This funding covers all federal lands within the county, including Yosemite National Park, El Portal Administrative Site, U.S. Forest Service lands, and other federal property in Mariposa. In 1997-1998, the federal payment in lieu of taxes contribution was $275,000.

All proposed employee housing changes presented in the proposed alternatives would be located on federal property in Mariposa County and would fall under the county's tax jurisdiction.

Merced County

Merced County has the largest economy in the affected region. Agriculture is the largest economic sector, accounting for over 20% of employment. More than 90 different crops are commercially produced in the county. The primary commodities include milk and milk products, chicken, and cattle. The economy has a light-industry component, much of which is geared toward agricultural products.

Major nonagricultural economic sectors in Merced County include services, government, and manufacturing, accounting for 16.6%, 16.4%, and 13.8% of employment, respectively. Other industries provide relatively little employment in Merced County, including food and beverages (8.3%), transportation/public utilities (6.6%), retail trade (6.3%), finance, insurance, and real estate (4.9%), construction (4.1%), and wholesale trade (2.4%) (MIG 1999). All industrial sectors are projected to experience growth from 1995 to 2002, with the greatest growth expected in the communications and public utilities sector as the facilities at a former U.S. Air Force base are privatized. The government sector is projected to grow by 21.5% from 1995 to 2002, driven by increasing demand for educators and related staff. Further education-related positions will be generated by the establishment of a University of California campus, which may also spur some development in other counties (EDD 1995).

Merced County's primary tourist attraction, particularly for the city of Merced, is Yosemite National Park, which is located over 50 miles from the county's eastern boundary. Other recreation resources in Merced County include Lake McSwain, Barrett Cove, and Lake McClure, where camping is available.

Mono County

Lodging, food and beverages, and services are central to Mono County's economy, which is also bolstered by extensive natural resource and recreational opportunities. Approximately 50% of employment in the county is provided by hotels and lodging, food and beverages, and other service

industries (MIG 1999). Mammoth Lakes (located in the southern part of the county) is the center of its winter tourism industry and is the fastest growing community in the county. Related employment is erratic because it depends heavily on the snowfall at Mammoth Lakes ski resort.

Government is the other major employer in Mono County, accounting for approximately 16.4% of county employment. Other industries employ few county residents. Employment in all county industrial sectors is projected to experience growth from 1995 to 2002, with the exception of the communications and public utilities sector, which is projected to decline by approximately 14.3%. Overall, nonagricultural employment is projected to increase by 14.7% from 1995 to 2002. Over half the growth is expected to occur in the hotel and lodging industry (EDD 1995).

Yosemite is located west of the Mono County border. Access into the park (via Tioga Road) is typically closed between November and late May due to snowfall.

Tuolumne County

The services sector, accounting for 24.4% of employment, is the largest employer in Tuolumne County, followed by government (19.6%), food and beverages (11.2%), retail trade (10.2%), construction (8.8%), finance (6.4%), and hotels and lodging (2.4%) (MIG 1999).

Nonfarm employment in Tuolumne County is projected to grow by 15% from 1995 to 2002 as the local economy experiences continued population growth. Most of the job growth is expected in the services, retail trade, construction, and manufacturing sectors. The services sector is expected to create the greatest number of new jobs, reflecting an increased demand for business, health, personal, and hospitality services (EDD 1995).

Yosemite National Park is in the southeastern portion of Tuolumne County. Columbia State Park, Stanislaus National Forest, Dodge Ridge Ski Area, and Leland Meadows are among the many other state and federal parks and recreational areas in the county.

Population

In 1997, the total population of the affected region was approximately 390,085. Merced County is the most populated county, with approximately 196,123 residents. Mono County has the smallest population of the five counties (approximately 10,535), despite having the greatest land area. Table 3-30 provides population figures for the five counties.

The populations of all five counties are predicted to grow through the year 2040 (see table 3-31). The per-decade rate of population growth is expected to steadily decline for all the affected counties except Mono, which is forecasted to increase during the first decade of the 21st century before declining.

Table 3-30
County Populations

County	Population (1997)
Madera	114,307
Mariposa	15,752
Merced	196,123
Mono	10,535
Tuolumne	53,368
Total	**390,085**

Source: U.S. Bureau of the Census, Population Estimates Program, Population Division (Internet). Release date: March 17, 1998.

Table 3-31 County Population Projections, 1990-2040						
County	**1990**	**2000**	**2010**	**2020**	**2030**	**2040**
Madera	89,800	134,000	171,800	214,100	262,900	317,900
Mariposa	14,500	20,100	24,900	29,600	34,200	38,700
Merced	180,600	239,000	313,600	401,900	506,300	626,900
Mono	10,200	12,200	15,300	18,700	22,200	25,800
Tuolumne	49,000	65,800	81,200	97,100	113,400	130,100
Total	**344,100**	**471,100**	**606,800**	**761,400**	**939,000**	**1,139,400**

Sources: "Projected Total Population of California Counties: 1990 to 2040," Report 93 P-3, State of California, May 1993, and Dornbusch & Company, Inc.

Economic Output

Economic output is a measure of productivity that is calculated differently depending on the type of goods in question. For the agricultural sector, output is measured by the value of products sold. In the manufacturing sector, output is a measure of the value added by the manufacturer or the value of shipments. In the wholesale trade and retail trade sectors, output is the value of sales. In the service sector, output is measured as receipts in dollars.

The estimated total output of goods and services for the five counties in 1996 was almost $13.1 billion (1998 dollars). Merced County's output represents more than half this total, at $7.0 billion (1998 dollars). Mono County's population and civilian labor force are smaller than Mariposa County's, but Mono County's output was higher in 1996 – $554 million compared to $529 million (1998 dollars; see table 3-32). The manufacturing sector is the largest economic sector (according to output) in the five counties.

Table 3-32 1996 Industry Output by County by Sector (in Millions of 1998 Dollars)						
Industry Sector	**Madera**	**Mariposa**	**Merced**	**Mono**	**Tuolumne**	**Total**
Agriculture	$798.1	$22.3	$1,385.5	$14.8	$33.3	**$2,254.0**
Mining	$14.0	$5.5	$1.1	$5.2	$19.9	**$45.7**
Construction	$224.2	$37.1	$265.1	$66.8	$156.1	**$749.2**
Manufacturing	$730.5	$41.7	$2,292.2	$9.4	$259.6	**$3,333.4**
Transportation, public utilities	$321.1	$51.6	$718.5	$27.3	$150.0	**$1,268.5**
Wholesale trade	$125.0	$4.5	$150.7	$7.4	$22.3	**$310.0**
Retail trade	$82.5	$9.5	$155.4	$19.7	$69.7	**$336.8**
Food stores/eating & drinking	$109.6	$21.8	$242.3	$44.4	$84.9	**$502.9**
Finance, insurance, real estate	$365.4	$81.2	$680.0	$128.5	$237.4	**$1,492.4**
Hotels & lodging	$31.1	$136.3	$13.3	$117.6	$23.1	**$321.4**
Services	$428.0	$46.6	$621.2	$48.5	$279.1	**$1,423.4**
Government	$268.6	$70.4	$521.6	$64.9	$183.0	**$1,108.5**
Total	**$3,498.0**	**$528.6**	**$7,046.7**	**$554.4**	**$1,518.4**	**$13,146.1**

Sources: Minnesota IMPLAN Group (MIG), Input-Output System B IMPLAN, and Dornbusch & Company, Inc.
Note: Totals may not add up exactly due to rounding.

Local Communities

The current social environments in the five communities of Yosemite Valley, El Portal, Foresta, Wawona, and Yosemite West are described to further refine the study area where impacts would be likely to occur.

This description is derived partly from a sociological evaluation conducted in the summer of 1990 that focused on park concessioner employees. Subsequent analysis was completed in 1998 by the National Park Service and sociology consultants.

Sociological studies indicate that factors with the potential to affect the social environment of Yosemite National Park employees are population, housing location, types and condition of housing, distance of employee commutes from outlying areas, community amenities, and community structure. For the purposes of this evaluation, amenities are defined as opportunities that increase physical or social comfort beyond basic living needs.

Yosemite Valley

Population

The Yosemite Valley residential population during the peak season is approximately 1,500 (includes employees and their families).

Housing

Most employees housed in Yosemite Valley work for the primary concessioner (89% during summer months), and a much smaller percentage work for the National Park Service (8%) or one of the other employers (3%). Between summer and winter months, the number of primary concessioner employees housed in the Valley fluctuates from a high of approximately 1,165 to a low of approximately 800. While there is a corresponding seasonal fluctuation of National Park service and other employees, it is not as extreme. There are 1,277 bed spaces managed by the National Park Service and concessioners in Yosemite Valley (see Chapter 2, Alternatives, under Alternative 1, Housing).

Demographics of the primary concessioner summer employee workforce are summarized in table 3-33. Similar demographic data for National Park Service and other Valley employers are not available and were not collected for this analysis.

In the 1990 sociological survey, concessioner employees indicated that they were relatively satisfied living in Yosemite Valley. Most employees

Table 3-33
Yosemite Concession Services Corporation Employee Demographics

Age	Range: 18 to 77 years Average: 32 years (winter) 23 years (summer)
Gender	58% male 42% female
Position status	12% managerial 88% non-managerial
Marital status	10% married 90% single
Spouse's employment	94% employed 6% unemployed
Years of residence in Yosemite Valley	Range: 2 weeks to 35 years Average: 3.7 years
Education	Average: 13.5 years

Source: U.S. Bureau of the Census, Population Estimates Program, Population Division (Internet). Release date: March 17, 1998.

valued the scenery and outdoor activities such as hiking, climbing, and bicycling. Negative social aspects experienced by some employees included noise, crowding, lack of privacy, poor roommate relations, poor or no cooking facilities, and insufficient shower and restroom facilities. A factor contributing to these negative social aspects is related to the fact that a majority of primary concessioner employees are housed in communal settings. Seasonal employees make up the majority of this group; most reside in dormitories or camps of tent cabins. In summer, approximately 1,075 primary concessioner employees are housed in tent cabins, dormitories, temporary cabins, or modular units, and 88 in houses or apartments.

The National Park Service and other concessioner employees generally are housed in single-family units or apartments. Generally, these housing units are in relatively good condition, though many are too small for the number of occupants, and most lack sufficient storage space.

Most tent cabins are double-occupancy canvas structures supported on wood-frame platforms. Although some have heating stoves, temperatures are difficult to regulate. They are hot during summer days and cold during most nights. Tents are densely packed and have thin walls, so they afford little privacy. Televisions, radios, and even conversations in one tent can be heard in the next. Kitchen, bathroom, and laundry facilities are centrally located and communal. There is a great deal of congestion and frequent competition for use of facilities.

Dormitories and temporary cabins provide four solid walls and some measure of climate control, but also have privacy problems, as well as competition for kitchen, bathroom, and laundry facilities.

Apartments and single-family houses are provided to some employees. These units are small, but they afford privacy not found in the communal living areas.

Commuting and Traffic

The commute time along El Portal Road from El Portal to Yosemite Valley is about 30 minutes. Commuting from Mariposa to Yosemite Valley is approximately 60 minutes. The commute between Wawona and Yosemite Valley along Wawona Road requires about 53 minutes under good driving conditions. It takes approximately half that time to commute from Yosemite West to Yosemite Valley. During the winter, the roads are often snow-covered and hazardous. The commute from the Valley to the closest communities south of the park is 68 minutes to Fish Camp, 73 minutes to Sugar Pine, and 83 minutes to Oakhurst. The commutes from communities to the northwest on Highway 120 and Big Oak Flat Road are approximately 55 minutes from Buck Meadows and 75 minutes from Groveland (see table 3-29).

Commuting time varies with the season and with traffic conditions. Heavy visitor traffic on El Portal and Wawona Roads increases commuting time. There is limited transit to serve employees traveling to or from the Valley.

Community Life

Yosemite Valley is one of the most scenic environments in the National Park System. Employees who reside in Yosemite Valley are situated near park visitors and spend much of

their time in the public eye. Employees must deal with visitors' questions on their personal time, and must monitor their behavior to avoid offending park visitors.

Yosemite Valley has an elementary school that includes kindergarten through 8th grade. Most high school students are bused more than one hour each way to and from Mariposa.

Several stores are located in the Yosemite Lodge, Yosemite Village, and Curry Village areas. Each store is within walking distance of a major housing area and offers relatively convenient shopping. Other amenities within easy access for residents include laundry facilities, hair care, uniform service, and entertainment. Also, security systems and personnel are available.

Visitor cafeterias are available for employee use in Curry Village and the Yosemite Lodge area. Most concessioner housing areas have limited kitchen facilities. Restaurants are available in Curry Village, Yosemite Village, Yosemite Lodge, and The Ahwahnee. During winter months, an employee café and social area is established.

Recreational amenities in Yosemite Valley include rock climbing, hiking trails, bicycle paths, basketball, volleyball, baseball, and a wellness center/weight room. During the summer, two swimming pools and the Merced River provide water-based recreational opportunities. A repeater provides television and radio, and Internet access is available from local online service providers.

A noticeable segregation among employees based on employers (concessioner, National Park Service, others) was noted in the 1990 social survey. This was attributed in part to the difference of functional missions among the employers; dissimilarity of backgrounds and demographic characteristics; spatial segregation of housing; and perceptions by concessioner employees that they are treated differently than visitors by National Park Service law enforcement rangers.

To some degree, employees are also segregated into management and nonmanagement communities. In the management segment, social ties can be strong, and there can be more frequent interaction among its members. This segment, made up mostly of permanent employees, is largely responsible for planning and hosting community events and for supporting church, school, and other community institutions.

The nonmanagement community segment comprises a proportionally higher number of seasonal employees who spend much of their free time socializing with roommates and co-workers. Many spend their time participating in recreational activities such as hiking or climbing. As a result of high employee turnover, the nonmanagement community is more dynamic and diffuse than the management community.

El Portal

The El Portal Administrative Site was established by Congress in 1958 (Public Law 85-922). The act stated that the site would "not become part of Yosemite National Park, nor be subject to the same laws and regulations governing said Park."

The community of El Portal is generally considered to extend west from the Yosemite View Lodge near the Yosemite National Park boundary to Savage's Trading Post near the South

Fork of the Merced River. Technically, the area under jurisdiction of the El Portal Town Planning Advisory Committee is limited to that owned by Yosemite Motels, Inc. Unofficially, however, this group represents the community concerns and issues raised by residents throughout the entire El Portal area. The El Portal Town Planning Advisory Committee is an official body sanctioned by Mariposa County ordinance and is appointed by the Mariposa County Board of Supervisors. As such, the National Park Service recognizes the committee as the official representative to Mariposa County for residents of El Portal.

Residents of Old El Portal and Abbieville, who own homes located on federal lands, are also represented by the El Portal Homeowners Association. This group facilitates communications between homeowners in El Portal, with the objective of presenting a unified position to the National Park Service regarding property lease and other land-use issues. Homeowners in El Portal must comply with State of California building codes adopted and administered by Mariposa County and must pay Mariposa County property taxes.

Population

El Portal is a small community of approximately 700 people. Like Yosemite Valley, most El Portal residents work for the National Park Service or concessioners. For families of National Park Service employees living in both private and government housing, there is little difference in family income compared to their counterparts in Yosemite Valley.

The social environment of El Portal is generally similar to that of the Valley, with several notable differences:

- El Portal residents have more autonomy from the National Park Service and concessioner than employees living in the Valley. They are not as dependent on primary concessioner facilities and are not as restricted by policies and regulations.
- A greater proportion of El Portal residents are married, have children, and do not live in government- or concessioner-owned housing.
- Concessioner employees living in El Portal are generally permanent, long-term, mid-level employees. Most upper-level managers and seasonal concessioner employees live in Yosemite Valley.

Housing

El Portal has a mixture of housing types to accommodate an approximately equal number of National Park Service and concessioner employees. A majority of housing units are privately owned or rented, with the exception of the National Park Service units in the Rancheria Flat area and a few units in Old El Portal. The sizes and conditions of these homes vary. A total of 18 National Park Service and 37 concessioner employees are housed in the El Portal Trailer Village, which has space for approximately 67 trailers.

Commuting and Traffic

The commute from El Portal to Yosemite Valley is about 30 minutes under good conditions and without congestion. Many commute trips are affected by high volumes of visitor vehicles. An estimated 220 employees commute from El Portal to the Valley in summer, with fewer employees commuting in winter. Limited van and bus service is provided by VIA Adventures, Inc./Grayline of Yosemite and the Yosemite Area Regional Transportation System (YARTS). An estimated 72% of commuters drive alone; a relatively small number carpool or use the VIA bus or van service.

Conditions in El Portal are affected by the presence of Highway 140 and the volumes of traffic that use it and El Portal Road to reach Yosemite. Most of the 63 daily tour bus trips into the park enter and leave via Highway 140. Since the highway is the only means of access to the Valley for most commuting employees, commuters also contribute to the relatively high volumes of traffic. National Park Service and concessioner employees living in El Portal must traverse the community's local roads to reach the highway.

Community Life

El Portal is in a narrow canyon downstream from Yosemite Valley. The location is hotter than Yosemite Valley during the summer and warmer in the winter. Because it is somewhat isolated from park visitors, it provides residents with more privacy and less visitor intrusion than Yosemite Valley.

El Portal is an established community with limited amenities. It has a day-care facility, an elementary school with kindergarten through 6th grades, a small high school, a small grocery store, a library, and a gas station. A seasonal restaurant and a bar are within two miles along Highway 140. Steep terrain, dense vegetation, hot summers, and other factors limit recreational opportunities to established trails, roads, the Merced River corridor, a sports field, swimming pool, and tennis courts.

The Merced River is a seasonal focus for many El Portal residents and visitors. When the spring high water in the Merced River drops, both commercial and private rafting and kayaking trips begin. The swimming pool and the Merced River provide recreational opportunities during summer months. Opportunities for mountain biking are available nearby. Cable television, radio, and local Internet access are also available.

Most El Portal residents are National Park Service, concessioner, and park partner employees. Many of them are families with children. Consequently, El Portal is a slightly more family-oriented community than Yosemite Valley. Because they depend less on National Park Service and concessioner facilities, residents in El Portal experience more independence in their home lives than they would living in the park.

Foresta

The community of Foresta is generally considered to extend from near the Foresta Road/Old Coulterville Road junction (near the Foresta wood lot), west to a location near the McCauly Ranch. The Foresta Preservation Association represents Foresta property owners. This group facilitates communications between Foresta property owners, with the objective of presenting a unified position to the National Park Service regarding land-use issues.

Population

Currently, 12 homes located in Foresta are occupied by approximately 25 to 50 residents. Before the 1990 A-Rock Fire, the population of Foresta was made up mostly of individuals who were not employed by the National Park Service or concessioners. In addition to year-round residents, some Foresta homeowners use their residences as vacation homes.

Housing

Foresta provides a small amount of housing for National Park Service, concessioner, and Yosemite Institute employees. All houses in Foresta are small single-family units. In the summer of 1990, a wildland fire destroyed many of the homes in Foresta. Most of these were vacation homes, rental units, and houses that were occupied on a seasonal basis. A number of the homes have been rebuilt since the fire, and there are now about 45 homes in Foresta. The National Park Service owned 15 houses in 1990, 14 of which burned.

Commuting and Traffic

The commute from Foresta to Yosemite Valley is about 20 minutes, which varies by season and traffic conditions. Visitor traffic on the Big Oak Flat Road can be heavy, but road conditions are relatively safe.

Community Life

Foresta is predominately a residential community with no services.

Foresta is located to the west of Yosemite Valley and north of El Portal at approximately 5,000 feet in elevation. Most housing is located on the slopes surrounding Big Meadow, which is a focal point for the residential community. Residents are generally long-term property owners, and most live in Foresta year-round, creating a strong, tightly knit community. Some of Foresta's seasonal residents live in privately owned rental properties or other houses managed by Yosemite Institute. Community activities focus on outdoor recreation, including hiking, bicycling, bird watching, and swimming. The Stanislaus National Forest is immediately adjacent to Foresta. Its location, nearly three miles from of the Big Oak Flat Road, provides residents with a sense of privacy and isolation.

WAWONA

The town of Wawona is generally considered to encompass all developed areas within Section 35. Technically, the area under jurisdiction of the Wawona Town Planning Area is limited to private lands owned within Section 35. The Wawona Town Planning Advisory Committee is an official body sanctioned by Mariposa County ordinance and is appointed by the Mariposa County Board of Supervisors. Unofficially, this committee represents the community concerns and issues raised by residents throughout the entire Wawona area. The National Park Service recognizes the committee as the official representative to Mariposa County for residents of the Wawona area.

The Wawona Property Owners Association also represents owners of private lands in Wawona. It facilitates communications between Wawona property owners, with the objective of presenting a unified position to Mariposa County and the National Park Service regarding land-use issues. Private property and homeowners in Wawona must comply with provisions of the Mariposa County – Wawona Town Plan and State of California building codes adopted and administered by Mariposa County, and must pay Mariposa County property taxes.

Population

Wawona has both permanent and seasonal residents. The population of Wawona varies from a summer high of approximately 1,000 to a winter low of about 160. The summer population estimate includes individuals who are occupying the transient rental units and other lodging in the area. The annual average population is about 350 people. A relatively large number of individuals living in Wawona do not work for the National Park Service or the concessioner. Many are retired, have an external income, and are seasonal residents. However, approximately 50 National Park Service and 62 concessioner employees live in government housing in Wawona seasonally or year-round.

Housing

Housing types range from old, modest-sized cabins to large modern homes. Of the 300 homes in Wawona, 34 are owned and used by the National Park Service. An additional 38 are owned by the National Park Service and leased back to individuals under a fixed-term or lifetime lease. The remaining 228 are owned privately. All of the privately owned properties and most properties owned by the National Park Service lie within Section 35. This one-square-mile section straddles the South Fork of the Merced River, demarcates the "township of Wawona," and contains intermixed parcels of private and National Park Service lands.

Commuting and Traffic

The commute from Wawona to Yosemite Valley is about 53 minutes under good conditions and without congestion. Heavy visitor traffic on Wawona Road often increases commuting time in summer. During winter, the road is often snow-covered, and commuters encounter traffic congestion associated with the Badger Pass downhill and cross-county ski operations, both of which create difficult driving conditions.

The commute from Wawona out of the park is approximately 15 minutes to Fish Camp, 20 minutes to Sugar Pine, and 30 minutes to Oakhurst. The road between Wawona and these communities can be snow-covered, particularly the section from the South Entrance to Fish Camp, which is at an elevation of over 5,000 feet. In 2000 from mid-May to mid-September, YARTS provided one round-trip from Wawona to Yosemite Valley.

Because of its location on the route from the park's South Entrance, Wawona is affected by high volumes of visitor traffic. The Wawona Store parking area is used as a staging area for shuttle bus trips to and from the Mariposa Grove of Giant Sequoias. Most of the residential development in Wawona is at a distance from the highway, mitigating the noise and visual effects of traffic.

Community Life

The Wawona area consists of a relatively large valley at approximately the same elevation as Yosemite Valley. Although Wawona lacks the grand scenic quality of Yosemite Valley, it has similar climate and vegetation. Because it is more isolated and less visited by park visitors, it provides residents with a greater sense of privacy.

Wawona is a small community and has an elementary school with kindergarten through 6th grade, two small grocery stores, and a concession-run restaurant and gas station. There is also a baseball field, library, golf course, and tennis courts. Cable television, radio, and local Internet access are also available. The town of Oakhurst, approximately 20 miles south of Wawona, offers restaurants, theaters, a bowling alley, urgent-care medical facility, supermarkets, and hardware stores.

Wawona is an established community dominated by transient residents who spend weekends and summers there. Many houses are available for short-term rental, creating large population changes between mid-week and weekends during most of the year. Wawona property owners have formed the Wawona Property Owners Association.

Yosemite West

Yosemite West is located immediately outside the park boundary and is accessed from the Wawona Road via Henness Ridge Road. The Yosemite West Town Planning Advisory Committee represents the community concerns and issues raised by residents throughout the entire Yosemite West area. The committee is an official body sanctioned by Mariposa County ordinance and is appointed by the Mariposa County Board of Supervisors. As such, the National Park Service recognizes the Town Planning Advisory Committee as the official representative to Mariposa County for the residents of the Yosemite West area.

Yosemite West is an established subdivision made up of permanent residents, including National Park Service and concessioner employees, retirees, transient rental owners and their employees, and second homeowners who spend weekends and summers there. Yosemite West property owners have formed the Yosemite West Property and Homeowners, Inc.

Population

Yosemite West is located just outside the boundary of Yosemite National Park and has both permanent and seasonal residents, with a summer population that rarely exceeds 500. This population could increase significantly if private lands near Yosemite West were developed. Currently, in the immediate area of Yosemite West, only about half of the developable lots are built on. Most individuals living in Yosemite West do not work for the National Park Service or the concessioner. Many are retired, have an external income, and are seasonal residents. Others are home-based business owners. Though outside the park boundary, Yosemite West can be reached only by traveling through the park. Access into and out of the area is available via one road, essentially making the area a cul-de-sac.

Housing

Housing types range from older, modest cabins to condominiums and large, modern homes. All homes in Yosemite West are privately owned, and many are managed as transient rental properties or as "bed and breakfast" inns. For this reason, many residents act as onsite business owners/operators. Currently, the California Water Resources Control Board has placed a moratorium on building additional housing in Yosemite West until substantial improvements are made to the community wastewater treatment system.

Commuting and Traffic

The commute from Yosemite West to Yosemite Valley is about 25 minutes under good conditions. Heavy visitor traffic on the Wawona Road often increases commuting time in summer. During winter, the road is often snow-covered and hazardous. Because of its location just off the Wawona Road, Yosemite West can be affected by high volumes of visitor traffic, although traffic within the community is generally light. Most of the residential development in Yosemite West is at a distance from the highway, mitigating the noise and visual effects of traffic.

Community

Yosemite West is located above 6,000 feet in elevation on the northwest slope of Henness Ridge. During the winter months, some locations in Yosemite West can experience heavy winter snow. Most homes in Yosemite West are located within the mixed coniferous forest and have views of the Merced River canyon. Forest fire danger can be extreme in some years. Because it is somewhat isolated, Yosemite West provides residents with a greater sense of privacy from park visitors than that experienced by residents of Yosemite Valley.

Yosemite West is a small community with few amenities. It does not have a school, stores, restaurants, or a gas station. The town of Oakhurst, approximately 35 miles south of Yosemite West, offers restaurants, theaters, a bowling alley, urgent-care medical facility, supermarkets, and hardware stores. Amenities within Yosemite Valley or Wawona are within a 25-minute drive.

Education

The Mariposa County Unified School District is responsible for administering public education within the county. While the school district operates independently of the Mariposa County government, it receives the majority of its funding from county property taxes.

The Mariposa County Unified School District provides public education for children of Yosemite National Park employees. These children are educated at Yosemite Valley Elementary School, El Portal Elementary School, Mariposa Middle School, and Mariposa County High School. In Wawona, the elementary school is operated by the Bass Lake Unified School District in cooperation with the Mariposa County Unified School District. The majority of students who attend the Yosemite Valley and El Portal schools are children of park employees.

Yosemite Valley Elementary School offers kindergarten to 8th grade education. Enrollment at the Yosemite Valley Elementary School was fairly stable at approximately 60 students until the 1997 flood, when reductions in the concessioner's middle management staff resulted in a decrease in school enrollment to approximately 50 students. The school facilities within Yosemite Valley have adequate physical capacity to serve approximately 100 students.

The El Portal Elementary School provides kindergarten to 6th grade education. In 1997, additional school facilities were constructed, thereby expanding its capacity. Current enrollment is approximately 60 students, but the school has adequate physical capacity to serve up to an additional 60 to 90 students (although this would require displacement of the school's current art and computer laboratory). According to the Mariposa County Unified School District superintendent, approximately three-quarters of the current student enrollment are children of park employees.

The Wawona Elementary School provides kindergarten to 6th grade education. Recently, a new schoolhouse was constructed, expanding and improving school facilities for Wawona.

The majority of National Park Service and concessioner employees' children in grades 7 through 12 are bused daily to Mariposa. Approximately 10 students attend Yosemite Park High School, which operates in the elementary school building in El Portal. The enrollment at Mariposa Middle School (grades 7-8) is approximately 300, and the high school (grades 9-12) has approximately 800 students. The school facilities in Mariposa are operating at full capacity. Two recent bond initiatives to fund construction of a new high school in Mariposa were unsuccessful, and, as result, the county has applied for state funding assistance to improve the existing high school.

Under the funding regulations of the State of California's Necessary Small Schools Program, the district qualifies for funding for another teacher after enrollment reaches 25 students. In addition, the recent Class Size Reduction Program requires that kindergarten to 3rd grade classrooms each have no more than 20 students per teacher. This requirement can have a major effect on small elementary schools such as Yosemite Valley and El Portal. Funding for these schools is received through a combination of local property taxes, state funds, and strong

parental/community support. If local property tax revenues increase, the state reduces its contribution. As a result, increases in local property tax revenues have no effect on the schools' annual budgets.

Child Care Facilities

Two childcare facilities operate for park employees. The Yosemite Valley Daycare Center currently operates at full capacity. Fifty-two children are enrolled in the program, and it can accommodate approximately 30 children at any one time. The Yosemite Valley facility offers programs for infants to school-age children, and many parents commuting into the Valley bring their children to use the childcare facilities. Approximately 30% of the children's parents are National Park Service employees. These facilities have no capacity to serve additional children. The El Portal Child Development Center also offers programs for infants through school-age children. The center now serves 15 to 20 children and has sufficient capacity to serve up to 40 children.

Law Enforcement

Within the boundaries of Yosemite National Park, the National Park Service has exclusive law enforcement jurisdiction. As a result, the National Park Service has (with a few limited exceptions) primary authority and responsibility over property and individuals within the park. State and county agencies and authorities have no legal jurisdiction in Yosemite, and their officers have little involvement within the park, generally providing assistance only during the most serious incidents. In Wawona and Foresta, the Mariposa County Sheriff participates in civil cases that occur on private property.

At El Portal, the National Park Service operates its property as proprietary interest lands. As such, the El Portal Administrative Site and residents are under greater state and county jurisdiction than park residents. The operating procedures and division of responsibilities between the National Park Service and Mariposa County are specified and agreed upon under the terms of a Memorandum of Understanding.

The National Park Service provides the primary law enforcement presence for the El Portal area. Park rangers generally provide the first response to any incidents in the area on either federal or nonfederal land. Park rangers also deal with most minor incidents on federal property in El Portal. However, county law officers have responsibility for enforcement of state law, which is estimated to represent approximately 80% of the incidents involving criminal prosecution. As a result of this arrangement, the county dispatches its officers on an on-call basis to provide necessary law enforcement presence.

The Bureau of Land Management and U.S. Forest Service provide annual funding to the county to ensure a greater patrol presence on their federal lands.

Fire Protection

The National Park Service has exclusive jurisdiction and sole responsibility for fire protection within Yosemite National Park. The Mariposa County Fire Department has little

involvement, except to provide assistance during the most serious fires within the park. The National Park Service provides equipment and training, and fire response comes from employee and volunteer members in the Valley, Foresta, and Wawona. In El Portal, the federal land is proprietary interest land, and the National Park Service cooperates with the county to provide area fire protection services under a similar arrangement to that used for local law enforcement. Through a multi-agency agreement, the National Park Service provides first response assistance to any fire in the area. The county also operates a volunteer fire protection squad and provides firefighting equipment at El Portal.

Emergency Medical Services

The National Park Service has a concession contract with Doctors Medical Center to provide medical services within the park. A medical clinic is staffed in Yosemite Valley to provide basic medical attention for minor medical conditions, and initial first aid for incidents within the park. For more serious medical conditions, patients are sent to Mariposa or elsewhere for treatment. Rangers, emergency response volunteers, and the Yosemite Medical Clinic generally provide the first response to medical incidents within Yosemite National Park and the El Portal area (including nonfederal lands). However, at this time, the county is primarily responsible for providing ambulance services. Mariposa County pays the National Park Service $22,000 a year for training to provide medical first responses to the local area outside the park.

Animal Control

The National Park Service and California Department of Fish and Game have responsibility for managing wildlife in the park and in El Portal, respectively. Mariposa County has responsibility for control of domestic pets in El Portal, but the National Park Service is responsible for implementing county regulations for managing domestic pets on the federal lands at El Portal. The National Park Service generally handles minor incidents, and the county's animal control staff respond to more serious incidents.

Road Maintenance

The National Park Service is responsible for all roadways exclusively on federal property, including most of the access roads within El Portal. The California Department of Transportation (Caltrans) is responsible for the maintenance of Highway 140. Mariposa County is responsible for maintaining paved roads within Section 35 in Wawona. In Foresta, roads are maintained by both the county and National Park Service. The National Park Service retains responsibility for the first mile of paved road leading off of Big Oak Flat Road and for all dirt roads in the community. The county maintains the paved Foresta Road beyond this one-mile mark though Foresta and the dirt continuation of this road down to El Portal.

Besides Foresta Road (noted above), the only roadway in the El Portal area under county jurisdiction is the section of Foresta Road from Clark Community Hall east to the boundary of the El Portal Administrative Site. This roadway is approximately one mile long, narrow, and in poor condition. (Also see Park Operations, Infrastructure and Facilities, under Roads, in this chapter.)

Electricity, Sewer, and Water

Mariposa County has no significant involvement in the provision of electricity, sewer, or water services within El Portal. Pacific Gas and Electric Company provides electrical service to the area. The National Park Service El Portal Wastewater Treatment Plant currently provides wastewater treatment for both Yosemite Valley and El Portal. (Also see Park Operations, Infrastructure and Facilities, under Utilities, in this chapter.)

Library and Recreation Services

Mariposa County currently maintains a public swimming pool (summer only), two tennis courts, and open spaces in El Portal for recreational use by local residents. The county also operates public libraries within the El Portal school building, in the Bassett Memorial Library in Wawona, and in the Yosemite Valley Girls Club used by local residents.

Visitor Population

Each year, several million people visit Yosemite National Park. These visitors spend millions of dollars on lodging, food and beverages, transportation, and other items while in the area. Much of this spending occurs inside Yosemite, but a major portion of Yosemite visitors' expenditures are made outside the park. As a result, Yosemite visitor spending is an important source of income and employment for many of the small communities nearby.

Three categories of visitors can be identified among park visitors: park overnighters, local overnighters, and day visitors. Park overnighters are park visitors who lodge or camp overnight within the park. Overnight visitation in the park is controlled by the National Park Service and limited by the availability of lodging and camping facilities. Local overnighters are park visitors who lodge or camp within the Yosemite region during their trip. Typically, these visitors spend several days visiting the park. Day visitors are park visitors who either do not lodge or camp overnight in the region, or who are local residents.

In the National Park Service's visitation counts and statistics, both local overnighters and day visitors are recognized as day visitors, since they travel daily in and out of the park during their trip. Day visitors and park overnighters are referred to as day visitors.

Some visitors fall into two categories. For example, park visitors may stay overnight both inside and outside the park during their visit. For the purposes of the impact analysis, distinct visitor population estimates were developed to account for these overlaps.

The 1997-1998 Yosemite Area Regional Transportation Strategy visitor survey provides the most recent and reliable survey information on Yosemite visitation. According to the survey results and the population definitions described above, it is estimated that park overnighters constitute about 20%, local overnighters 40%, and day visitors 40% of the park visitor population. In National Park Service terms, day visitors total 80% of the visitor population and overnight visitors 20%.

These results are comparable to those from the *Draft Yosemite Valley Implementation Plan/SEIS* (NPS 1997c) visitor analysis based on the 1992 Gramann visitor survey, which also estimated

that overnight visitors accounted for approximately 20% of the park visitor population. However, the 1992 analysis estimated that local overnighters accounted for 30% of park visitation, while day visitors accounted for 50% of Yosemite visitors. The greater proportion of local overnighter visitation probably reflects changes in visitor behavior due to the significant growth in local lodging capacity from new hotel construction, since the Gramann survey was conducted in 1990-1991.

Total annual visitation estimates in each visitor population category were developed from National Park Service monthly public use reports. The analysis indicates that annual recreational visitation increased from 2.55 million in 1981 to 4.05 million in 1996. This corresponds to an average annual increase of 3.3%.

During this period, overnight visitation within the park was relatively unchanged, at 2.1 million overnight stays per year. Day visitation growth was therefore responsible for the entire increase in park visitation between 1981 and 1996. This growth is equivalent to an average annual increase of 4.35%. Between 1990 and 1996, day visitation grew at an even higher rate, averaging more than 6% per year.

After the January 1997 flood, total recreational visitation to Yosemite dropped from 4.05 million in 1996 to 3.67 million in 1997 – a 9.3% decrease. In 1998, annual park visitation was relatively unchanged from the 1997 levels. Of the 380,000 fewer visitors, 170,000 would have been park overnighters. While day visitation decreased by 6.3% in 1997, overnight visitation decreased by 22% (primarily due to the loss of Valley campsites and motel rooms from the 1997 flood).

Past visitation trends suggest that demand for Yosemite visitation was strong and growing before the flood. Furthermore, the limits to the park's lodging capacity have increasingly required individuals to stay overnight outside the park and visit Yosemite as day visitors.

Day Visitors

Current park day visitation on an average summer day is estimated at 10,950.

Overnight Visitors

Approximately half of Yosemite day visitors lodge or camp overnight in the five-county region. The visitors are categorized as local overnighters in the impact analysis. Other day visitors stay overnight outside the affected regions (either at their homes or other accommodations) and are identified as day visitors.

Table 3-34 shows the locations where local overnighters visiting Yosemite during the summer reported staying overnight in the region. According to

Table 3-34
Local Overnight Visitors' Lodging Locations (Summer)[1]

County	Percentage Staying Overnight[2]
Madera	32.6%
Mariposa	25.6%
Merced	1.8%
Mono	28.4%
Tuolumne	10.5%

1. Summer overnight lodging patterns are most relevant, as future impacts to Yosemite visitation will predominantly occur during the summer months when visitation peaks.
2. Percentages have been adjusted to account for respondents reporting lodging at "other" locations outside the affected region.

the survey results, the greatest percentage of local overnight visitors stay in Madera County, followed by Mono County and Mariposa County.

The most recent information on the overnight accommodation capacities of the surrounding counties is provided by the 1997-1998 visitor survey. As part of YARTS' recent planning efforts, Nelson\Nygaard identified and inventoried the existing lodging and campground facilities in the region along the main highway corridors and in close proximity to the park. Although the inventory was performed during the winter and closed facilities were not surveyed, Nelson\Nygaard concluded that the inventory represents a reasonable estimate of the region's lodging and camping capacity.

Table 3-35 presents the results of their analysis, adjusted to show overnight accommodation capacities by county. Length of stay is an important factor in determining the magnitude of visitor impacts on the park, the concessioner, and the surrounding counties. For the purposes of this analysis, it is assumed that the average length of stay for both local and park overnighters was 2.7 days. An average length of stay of 4.2 hours was used for day visitors.

Table 3-35
Existing Lodging and Camping Capacity Estimates in the Yosemite Region
(Excluding NPS Facilities)

County[1]	Lodging Capacity (units)[2]	Camping Capacity (sites)	Total Overnight Capacity
Madera	694	292	986
Mariposa	1,182	246	1,428
Merced[3]	350	—	350
Mono[4]	467	348	815
Tuolumne[5]	118	502	620
Total	**2,811**	**1,388**	**4,199**

1. Capacity estimates are for accommodations that are either adjacent to Yosemite or on primary park access routes (and excluding Yosemite Valley lodging and campsites).
2. A typical lodging unit can provide overnight accommodations for up to four adults.
3. Capacity estimate represents locations identified during YARTS stakeholder interviews and sites adjacent to Highway 140 and 16th Street.
4. Lodging and camping at Mammoth Lakes were not included in this capacity estimate.
5. Estimate does not include lodging and camping facilities in Tuolumne County's Gold Country region.

Environmental Justice and Minority and Low-Income Visitors

Limited demographic information on the Yosemite visitor population is available from past Yosemite visitor surveys. The 1990-1991 Gramann survey of Yosemite visitors provides the most recent information on the ethnic background of Yosemite visitors, and its findings are presented in table 3-36. As the table shows, minority visitors to the park are underrepresented.

Gramann suggested that the lack of ethnic diversity in Yosemite visitation is common to most rural national parks and was probably the result of a "combination of economic constraints among ethnic minorities, differences in cultural preferences, and fears of discrimination among some ethnic groups."

As shown in table 3-37, the largest percentage of visitors to Yosemite National Park (26%) have an annual household income greater than $100,000 (Gramann 1992). The smallest proportion of visitors (5%) have an annual household income of less than $20,000. By contrast, in the State of California,

the largest percent of the population (37%) has an annual household income below $20,000. The data illustrate that people from low-income households are largely underrepresented in the population of visitors to Yosemite National Park. This is true on both a statewide and regional basis.

Table 3-36
Ethnicity of Yosemite Visitors, California Residents, and Yosemite Area Residents

Ethnic Background	Yosemite Auto Travelers	Yosemite Bus Travelers	California Residents	Yosemite Region[1] Residents
Caucasian	86.6%	80.6%	57.4%	62.7%
Hispanic	3.6%	4.5%	11.6%	11.0%
Asian	3.3%	5.8%	9.6%	5.0%
Native American	1.4%	2.4%	0.8%	1.5%
African American	0.4%	3.8%	7.4%	3.8%
Other	4.7%	2.9%	13.1%	16.1%

1. Yosemite Region includes Madera, Mariposa, Merced, Mono, and Tuolumne Counties.

Table 3-37
Annual Household Income of Yosemite Visitors, California Residents, and Yosemite Region Residents

Annual Household Income Category	Yosemite Visitors	California Residents	Yosemite Region[1] Residents
Less than $20,000	5%	37%	26%
$20,000 to $39,000	14%	34%	29%
$40,000 to $49,000	21%	10%	12%
$50,000 to $59,000		13%	18%
$60,000 to $69,000	19%		
$70,000 to $79,000	1%	6%	15%
$80,000 to $99,000	14%		
More than $100,000	26%		
Total	**100%**	**100%**	**100%**

1. Yosemite region includes Madera, Mariposa, Merced, Mono, and Tuolumne Counties.

Regional Economies

Visitor Spending

Average visitor spending estimates are an important factor in the analysis of the regional economies. Spending estimates for each of the following three categories of Yosemite visitors were assessed: (1) visitors who spend the night in the park (park overnighters); (2) visitors who spend the night outside, but near the park (local overnighters); and (3) visitors who come to the area for day visits only and do not stay overnight in the region (day visitors).

The economic effects of visitor spending on the counties surrounding the park are related to the underlying structure of each county's economy. Counties with a large number of tourism-related businesses are more affected by changes in traveler and tourism spending than counties in which traveler and tourism-dependent businesses constitute a small component of the economy.

Understanding the characteristics of these three categories of Yosemite visitors is important in determining the socioeconomic impacts on the region from any changes in park visitation and visitor spending. Tourist spending information from several different sources was analyzed to estimate average daily per capita spending by Yosemite visitors. Visitor spending information derived from the 1997-1998 Yosemite Area Regional Transportation Strategy visitor survey was determined to be the most reliable source of information. Visitor spending presented in table 3-38 was estimated by taking weighted averages of the spending ranges reported by all respondents to the visitor survey (Nelson\Nygaard 1998b).

Table 3-38
Average Daily Spending by Yosemite Visitors in the Region (Per Capita in 1998 Dollars)

Category	Day Visitors	Local Overnighters	Park Overnighters
Lodging	NA	$31.20	$28.95
Food	$12.69	$20.63	$19.50
Retail	$6.02	$7.68	$7.65
Transportation	$6.83	$7.17	$5.20
Total	**$25.54**	**$66.68**	**$61.30**

Source: Dornbusch & Company, Inc. and Nelson\Nygaard. NA=Not Applicable

Total Yosemite visitor spending was calculated to estimate the magnitude of the economic impact that Yosemite visitation has on the surrounding counties and park concessioners. The daily visitor spending estimates are the primary source for estimating the total annual Yosemite visitor spending. Lower average daily spending figures would result in smaller aggregate economic impacts from visitor spending. Total visitor spending in each visitor category has been estimated by multiplying the daily visitor spending estimates and the corresponding annual visitation (in visitor days).

Table 3-39 provides estimates of total Yosemite visitor spending within the Yosemite region. Using estimated daily per-capita spending for each visitor category and 1998 visitation figures obtained from National Park Service monthly visitor reports, the total Yosemite visitor spending in 1998 is estimated to be approximately $240 million. This figure represents only Yosemite visitor spending in the park and the surrounding region. Yosemite visitors staying overnight outside the affected region are recognized as day visitors; therefore, their spending on lodging and other services outside the affected region is not included.

Table 3-39
1998 Total Spending by Yosemite Visitors (in 1998 Dollars)

Category	Estimated Annual Visits (millions)	Average Length of Stay in Region (days/Yosemite Visit)	Average Total Daily Spending ($ per capita)	Total Spending in Region (millions)
Park Overnighters	0.59	2.7	$61.30	$97.3
Local Overnighters	1.53	1[1]	$66.68	$102.3
Day Excursion Visitors	1.53	1	$25.54	$39.2
Total	**3.65**	**4.7**	**$153.52**	**$238.8**

Source: NPS Monthly Public Use Reports (1998) and Dornbusch & Company, Inc.

1. Local overnighters typically make multiple visits to the park during their Yosemite trip. However, each day trip into the park corresponds to one day of spending in the region.

Construction Spending

Construction spending within the Yosemite region would increase due to actions proposed under the alternatives. However, spending alone does not provide the best measure of potential construction-related economic impacts. Instead, projects are assessed in terms of the output and employment impacts anticipated to result from construction spending. Accordingly, recent output and employment statistics for the Yosemite region provide the appropriate baseline to evaluate the magnitude of estimated construction-related economic impacts. These baseline statistics are presented in table 3-40.

Table 3-40
1996 Employment by Major Industry

Industry Sector	Madera	Mariposa	Merced	Mono	Tuolumne	Total
Agriculture	13,977	348	15,899	170	520	**30,913**
Mining	108	31	12	36	118	**304**
Construction	2,666	467	3,193	797	1,893	**9,016**
Manufacturing	3,836	354	10,832	111	1,422	**16,554**
Transportation, public utilities	2,848	299	5,199	218	1,248	**9,812**
Wholesale trade	1,269	56	1,886	84	321	**3,617**
Retail trade	2,614	287	4,913	653	2,183	**10,650**
Food stores/eating & drinking	3,137	674	6,539	1,156	2,406	**13,912**
Finance, insurance, real estate	1,833	352	3,879	625	1,372	**8,062**
Hotels & lodging	615	2,386	310	1,862	532	**5,706**
Services	8,434	970	13,026	1,056	5,252	**28,738**
Government	6,769	1,871	12,877	1,336	4,212	**27,065**
Total	**48,106**	**8,095**	**78,565**	**8,104**	**21,479**	**164,349**

Note: Totals may not add up exactly due to rounding.

Employment and Income

The employment figures include all waged, salaried, and self-employed positions in each county. These include both full-time and part-time workers. In 1996, total employment was approximately 164,000 in the five-county area. Approximately 48% of the total employment in the affected region was in Merced County alone (MIG 1999). Table 3-40 provides total employment estimates for the counties by sector. The figures are used as the baseline for employment conditions.

According to census estimates, the total civilian labor force in the five-county region in 1998 was 169,000, of which approximately 147,000 were employed. All five counties have unemployment rates above the national and state averages. The region's average rate of unemployment in 1998 was 13.1%.

Total personal income includes employee compensation, proprietor income, other property income, and indirect business tax. In 1996, total personal income for the five-county area was approximately $6.9 billion (1998 dollars) (see table 3-41).

Table 3-41 1996 Income by Major Industry (in Millions of 1998 Dollars)						
Industry Sector	**Madera**	**Mariposa**	**Merced**	**Mono**	**Tuolumne**	**Total**
Agriculture	$415.8	$16.6	$583.0	$7.9	$21.6	**$1,044.9**
Mining	$8.2	$2.2	$0.7	$3.1	$9.6	**$23.9**
Construction	$86.8	$13.5	$101.5	$25.9	$59.5	**$287.2**
Manufacturing	$269.9	$14.2	$552.4	$3.3	$98.7	**$938.4**
Transportation, public utilities	$173.8	$20.3	$350.5	$17.9	$83.2	**$645.7**
Wholesale trade	$86.4	$3.1	$104.1	$5.1	$15.4	**$214.2**
Retail trade	$66.7	$7.9	$124.8	$16.1	$56.7	**$272.2**
Food stores/eating & drinking	$69.9	$13.7	$152.8	$26.2	$53.4	**$315.9**
Finance, insurance, real estate	$257.6	$57.1	$466.2	$91.0	$167.2	**$1,039.0**
Hotels & lodging	$16.9	$77.4	$6.7	$68.8	$11.8	**$181.6**
Services	$245.7	$24.0	$372.7	$25.8	$167.4	**$835.5**
Government	$265.1	$69.3	$485.9	$64.6	$173.9	**$1,058.8**
Total	**$1,962.8**	**$319.3**	**$3,301.3**	**$355.5**	**$918.3**	**$6,857.2**

Note: Totals may not add up exactly due to rounding.

Other Revenues

Taxable retail sales are good indicators of annual spending in the travel-related service sectors, because they represent the taxes paid for transactions with consumers. The total taxable sales figures include the taxes paid by businesses on raw materials and services. In 1997, the total taxable retail sales for the five counties was $2.7 billion. Table 3-42 shows total taxable sales by county.

Table 3-42 Total Taxable Sales by County (in Millions of 1998 Dollars)	
County	**Total Taxable Sales 1998**
Madera	$720.2
Mariposa	$117.1
Merced	$1,380.5
Mono	$150.8
Tuolumne	$394.6
Total	**$2,763.1**

Note: Totals may not add up exactly due to rounding.
Converted from 1997 dollars using Consumer Price Index, All Urban Consumers

Concessioners and Cooperators

Yosemite Concession Services

Yosemite Concession Services Corporation (YCS), the primary concessioner in Yosemite National Park, provides a variety of guest services to the park's approximately 4 million annual visitors. These include hotels, restaurants, transportation, sightseeing tours, conference facilities, recreational opportunities, and merchandise. Yosemite Concession Services operates these services at numerous locations both in and outside Yosemite Valley.

As shown in table 3-43, Yosemite Concession Services operates 1,517 guest rooms, throughout the park, ranging from rustic tent cabins operated seasonally in wilderness areas to deluxe accommodations at The Ahwahnee.

Table 3-43 1999 Lodging Facilities in Yosemite National Park Operated by Yosemite Concession Services Corporation		
Location	**Lodging Facility**	**Capacity**
Yosemite Valley	The Ahwahnee	123 rooms
	Yosemite Lodge	245 rooms
	Curry Village	628 rooms, cabins, and tent cabins
	Housekeeping Camp	264 units
Wawona	Wawona Hotel	104 rooms
High Country	White Wolf	28 cabins and tent cabins
	Tuolumne Meadows	69 tent cabins
	High Sierra Camps	204 beds in 56 tent cabins
Total Guest Rooms		**1,517**

Most accommodations are sold out a year in advance for the summer months, weekends, and holidays. Reservations are handled at a central reservations office in Fresno, California. The demand for some accommodations (such as the High Sierra Camps) is so great that reservations are assigned by lottery. YCS reservations staff respond to as many as 2,500 calls per day during the peak season. YCS operates 23 food and beverage services ranging from seasonal snack stands to full-service dining. The facilities serve 2.5 million meals annually to Yosemite visitors.

YCS also operates six grocery stores, 10 gift shops, six sport shops, and an assortment of vending machines. Items sold at various stores include fresh produce, groceries, camping supplies, functional clothing, souvenirs, and unique park collectibles.

Yosemite Concession Services offers year-round recreational opportunities to park visitors. During the summer, recreational opportunities include hiking and bicycling, horseback rides, rafting, guided tours, and rock climbing. In the winter, visitors can participate in downhill and cross-county skiing, ice-skating, and snowshoeing.

As part of Yosemite Concession Services, Yosemite Transportation Services operates a year-round fleet of 10 shuttle buses, 12 tour buses, seven open-air trams in Yosemite Valley, and seven trams at the Mariposa Grove of Giant Sequoias. During the winter season, an additional six shuttle buses operate to serve guests skiing at Badger Pass. The Yosemite Valley, Wawona, and Tuolumne Meadows shuttle buses provide free and frequent transportation in busy areas of the park, thereby encouraging Yosemite visitors to park their vehicles and reducing traffic congestion. The operation of shuttle buses is funded by increased pricing for hotel and restaurant services. Annual ridership for tours and shuttles is in excess of 4 million people, the majority of whom ride the free shuttles. Yosemite Transit System currently has two electric buses.

Yosemite Concession Services employs approximately 1,750 employees parkwide during the summer, decreasing to approximately 1,200 employees during the winter season. Most of these employees live in employee housing (approximately 1,335), which ranges from seasonal housing in canvas tent cabins to dormitories, apartments, and houses. Under normal conditions, about 1,175 YCS employees live in Yosemite Valley housing owned by the National Park Service and managed by YCS. A significant proportion of YCS employees live in private housing, in El

Portal or other areas outside the park, or live with National Park Service employees in housing owned by the National Park Service and managed by the primary concessioner.

In 1998, Yosemite Concession Services generated approximately $88 million in revenues from its concession operations at Yosemite. Under the current concession contract, the total return from the concessioner to the National Park Service is approximately 18% of the total revenues generated by the concessioner. These funds are used to fund park improvements and services.

Yosemite Medical Clinic

The Yosemite Medical Clinic is located in Yosemite Village and provides medical care for park visitors and residents. The clinic estimates that it handles 9,000 medical incidents annually, which vary from minor first-aid assistance to emergency care and major trauma. Approximately one-third of the clinic's service is primary medical care to park residents. The majority of the clinic's other medical service is emergency care to both park visitors and residents. In addition, the clinic provides health screening, physical therapy, medical training, and workers' compensation treatment for park employees. The clinic also runs a wilderness residence training program for doctors and provides advanced life-support services for the Badger Pass Ski Area. In addition, 24-hour on-call doctor and laboratory/x-ray medical attention is provided year-round.

Yosemite Medical Clinic employs 17 full-time and 15 part-time staff. This staff is equivalent to approximately 25 full-time employees, the majority of whom are medical staff. Housing for clinic employees is limited; approximately 10 clinic employees are housed in National Park Service facilities within the Valley. Due to the broad range of service provided by the clinic, its operation is expensive for the current concessioner. Although the clinic generated approximately $1.5 million in revenues in 1998, it operated at a loss.

The dental clinic is an independent operation located with the Yosemite Medical Clinic. The dental practice employs three full-time staff. Housing within the Valley is provided for one full-time employee. The dental operation generated approximately $200,000 in revenue in 1998. While services are available to, and occasionally used by, park visitors, the majority of the dental clientele are local residents and employees.

The Ansel Adams Gallery

Best's Studio (also known as The Ansel Adams Gallery) has operated in Yosemite since 1902. The Adams-Best family has owned and operated the gallery for four generations, and it is the oldest family-owned business in the National Park System. The gallery sells photographs by Ansel Adams, and artwork, books, and handmade crafts by other artists. In addition to its operation in Yosemite Village, the gallery also has a mail order business and additional galleries at Mono Lake and Pebble Beach, California.

The gallery employs approximately 15 retail staff during the summer and eight staff during the off-season. Six gallery employees live in houses assigned by the National Park Service within

Yosemite Valley. In addition, the gallery owns a house in El Portal on property leased from the park that can house one or two employees. Most other employees are spouses of park employees and also live in National Park Service housing in Yosemite Valley or El Portal. A few employees live in private housing outside the park. The gallery's administrative offices are located in Fresno.

In 1998, annual sales at the Yosemite location were approximately $2 million. The gallery's annual fee payments to the National Park Service were approximately 6% of its annual sales.

Yosemite Association

The Yosemite Association is a nonprofit membership organization whose mission is to initiate and support interpretive, educational, research, scientific, and environmental programs in Yosemite National Park. Currently, the Association maintains an annual membership of over 8,000. In cooperation with the National Park Service, the Yosemite Association operates retail bookstores and provides visitor assistance at visitor centers throughout the park. The Yosemite Association publishes and sells books to wholesalers, manages the park's wilderness reservation system, and runs the Ostrander Lake Ski Hut during the winter season. The Yosemite Association also presents evening theater programs at the Valley Visitor Center Auditoriums and runs 65 educational seminars in the park.

The Yosemite Association employs 15 full-time administrative staff and five permanent retail staff and has a seasonal retail staff of approximately 35. Most employees are required to find their own housing, although the National Park Service does provide housing in Tuolumne Meadows, Wawona, and El Portal for up to six Yosemite Association employees.

The majority of the Yosemite Association's income is generated by the bookstores it operates within the park. During the 1990s, the Yosemite Association contributed over $3.25 million to Yosemite National Park. In 1998, the Yosemite Association's annual retail sales from its park bookstores were $1.2 million, of which $850,000 was from sales at the Valley Visitor Center and Valley Museum Shop. The Yosemite Association earned revenues from wholesale and mail order sales ($360,000), membership donations ($300,000), and seminars and other programs ($400,000).

In 1998, the Yosemite Association's total revenues were approximately $2.3 million and its total operating expenses were approximately $1.8 million. As a result, the Yosemite Association was able to donate approximately $450,000 to numerous park programs, including interpretation and interpretive program operations, as well as visitor information assistance. These funds are used to promote park stewardship and enrich the visitor experience.

Yosemite Institute

Yosemite Institute is a residential field science program that provides interpretation and environmental education in Yosemite National Park through a cooperative agreement signed in 1971. Yosemite Institute provides educational programs primarily to students from kindergarten through 12th grade. In addition to serving over 300 public and private elementary and

secondary schools from locations throughout California, Yosemite Institute offers adult instruction and teacher training programs. In 1998, it served 12,900 children, adults, teachers, and families – representing 452,000 person-hours of programming.

Yosemite Institute provides the majority of its instruction between September and May. Most Yosemite Institute student visitors rely on commercial buses for transportation needs. Programs range from a single day to several days of instruction. While in Yosemite Valley, participants stay overnight at Curry Village, operated by YCS. In the spring and fall, participants stay in tent cabins, and during the winter stay in hard-sided, heated cabins at Curry Village. Yosemite Institute uses the Valley Visitor Center's East and West Auditoriums, the Junior Ranger and Visitor Center campfire circles, and the cafeteria in Curry Village to provide evening programs up to five nights a week.

Yosemite Institute also offers instruction outside Yosemite Valley at Crane Flat. Participants are housed and fed at the more rustic Crane Flat location, and evening instruction is provided in the dining hall.

Yosemite Institute administers and operates its educational programs from its office in El Portal. It also has a small office in the Valley, which is primarily a staging area and base of operations for Yosemite Institute's educational staff. The building is used to coordinate emergency support for field staff, to provide access to field training equipment, as a communication center, and, when necessary, as a rain refuge and teaching area.

Yosemite Institute employs 30 full-time instructors, 13 employees who are not instructors, and 13 substitute instructors. All of the full-time instructors and five of the other employees are provided housing by the organization. No staff are housed in Yosemite Valley. Eight employees live in National Park Service housing in Foresta and Crane Flat. All other employees live in El Portal, either at the El Portal Hotel, leased from the National Park Service, or at one of the four houses owned by Yosemite Institute.

In 1998, its total program revenues at Yosemite National Park were roughly $3 million. The Yosemite Institute also received another $120,000 in earnings primarily from its foundation investments, donations, grants, and other miscellaneous income. Its operating budget was nearly $2.5 million. As a result, Yosemite Institute's assets increased by over $600,000 from its 1998 operations at the park. The Yosemite Institute's earnings increase the organization's endowment and also fund its capital expenditures, such as recent employee housing improvements and septic system repairs at Crane Flat.

El Portal Chevron Station

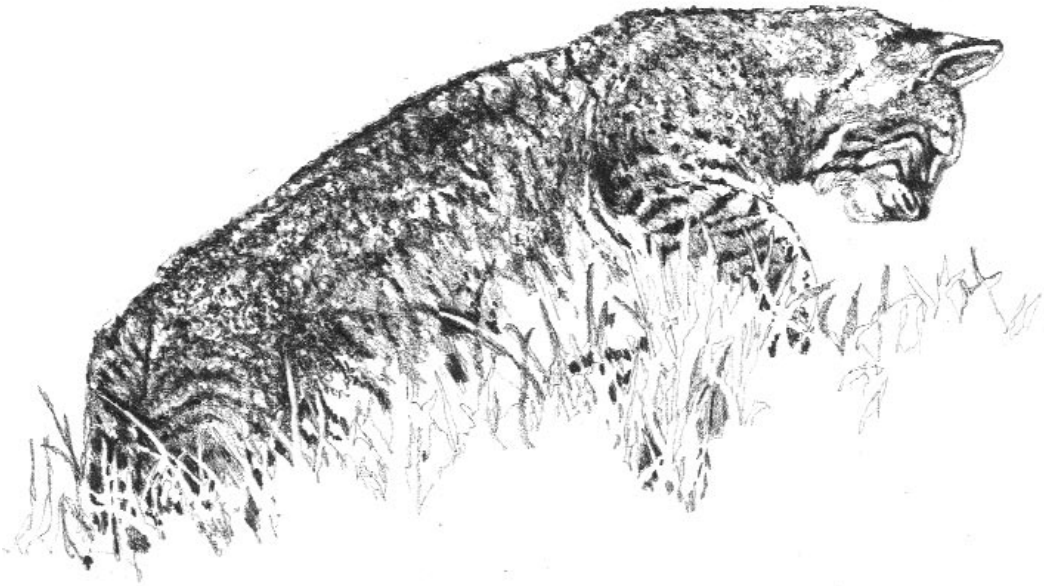
The El Portal Chevron station has operated since 1970; its current National Park Service contract expires in 2002. It is the only service station in El Portal, providing automotive fuel and oil sales as well as repairs and maintenance. The station is operated as a sole proprietorship, with one full-time employee during the off-season and three full-time employees and one part-time employee during the peak season.

In the last three years, the Chevron station has generated approximately $470,000 in gross revenues. The station is currently closed, but the concessioner is in the process of developing proposals for expanding and upgrading its services. Upgrades could include installing new storage tanks and new automated pumps that will provide 24-hour fuel service.

El Portal Market

El Portal Market has operated since 1933; its current National Park Service contract expires in 2006. The market has approximately 900 square feet of retail space and sells groceries, liquor, recreational equipment, and other convenience items. The market is operated as a partnership. In addition to one partner who works at the market full time for most of the year, the market employs one full-time manager year-round and two to three additional full-time workers during the peak season.

In the last four years, the market has generated approximately $610,000 in gross revenues annually, although revenues have declined over the last two years. (This decline is attributed to the 1997 flood.)



Park Operations

Infrastructure and Facilities

Roads

The National Park Service maintains approximately 200 miles of road within Yosemite National Park, divided among the following Federal Highway Administration categories: 127 miles are major park routes, 10 miles are minor park routes, 34 miles are special-purpose routes, nine miles are administrative routes, and 19 miles are one-way routes.

The park road system is in fair physical condition. The system has some safety and operational issues, including 34 miles of roads that have deteriorated beyond the point where annual maintenance is practical. The majority of these are minor roads, except for five miles of the Glacier Point Road. However, more than 80% of road pavements within the park are more than 17 years old (the normal life of these surfaces is 16 to 20 years); thus, deterioration is anticipated to accelerate for older surfaces, leading to continued safety and operational issues.

Major park routes are the El Portal Road (Highway 140 outside the park), Northside and Southside Drives (the Valley Loop Road) in Yosemite Valley, Big Oak Flat Road (Highway 120 West), Tioga Road (Highway 120 East), and Wawona Road (Highway 41). Minor routes within the park are primarily those for administrative use or those open only to bicycles, shuttle buses, or designated vehicles used by disabled visitors.

Previous research into road development in the park revealed that specific records on the dates and details of construction, maintenance, and repairs are generally lacking. In many cases, exact construction dates of individual features, such as guardrail segments and turnouts, cannot be determined more accurately than within a range of 10 to 20 years (NPS 1989a).

Bridges and Tunnels

The Yosemite road system contains four tunnels and 30 bridges, each of which has unique maintenance issues and requirements. Bridges within the park are generally in good condition, with a few exceptions. The South Fork of the Merced River Bridge is closed, and vehicle traffic over the South Fork in Wawona is currently routed over a temporary bridge. The Happy Isles Footbridge near the Nature Center in Yosemite Valley, has been condemned and closed. Access to the John Muir Trail has been rerouted.

Bridges in Yosemite Valley include Pohono, El Capitan, Swinging, Superintendent's, Housekeeping, Stoneman, Ahwahnee, Sugar Pine, Clark's, Happy Isles, and several unnamed footbridges over tributaries to the Merced River. The Covered Bridge in Wawona built in 1879, is one of the oldest bridges in California and still serves pedestrian and stagecoach traffic. Eight bridges in Yosemite Valley and the Covered Bridge in Wawona are listed on the National Register of Historic Places.

Utilities

Water, wastewater, electric, and telephone utility systems within the park are generally in fair to good condition. Most utility systems in the park are operating within design capacity, with a few exceptions. The water supply systems in El Portal and Wawona are marginal, as is the capacity of the Wawona Wastewater Treatment Plant. Any excess utility system capacity is due to the decreased number of lodging and campsites in Yosemite Valley following the January 1997 flood. Wastewater flows in Yosemite Valley decreased considerably after the flood because several campgrounds and lodging units were damaged and subsequently closed. Leakage and resulting infiltration have been major problems in the past, but the Facility Management Division has made substantial improvements to the collection system; leakage and infiltration are now comparatively rare, but still occur.

Wastewater and electric lines run between El Portal and Yosemite Valley beneath El Portal Road on the north side of the river. Wastewater in Yosemite Valley is pumped to the west end of Yosemite Valley, where it flows down to the El Portal Wastewater Treatment Plant at Railroad Flat, which has a capacity of 1 million gallons per day. Five wastewater treatment facilities are located within the park: El Portal, Hodgdon Meadow, Tuolumne Meadows, Wawona, and White Wolf.

The National Park Service purchases power from the Pacific Gas and Electric Company, which it distributes and resells to end users in Yosemite Valley, predominantly to the concessioner. Electricity is carried into Yosemite Valley by a 70,000-volt transmission line that runs overhead through El Portal and the Merced River gorge to the substation at the old Cascades powerhouse. The powerhouse is no longer active as a hydroelectric generator, but is still used as a substation. From the powerhouse, the power is stepped down to 12,000 volts. Conductors in 6-inch conduits run beneath El Portal Road to a substation in Yosemite Village. The primary electric distribution system is generally in good condition after upgrades over the last 12 years, although some areas in Yosemite Valley still require rehabilitation. End users in Wawona, El Portal, Foresta, and Hodgdon Meadow are served directly by Pacific Gas and Electric Company, whose facilities are within the park in several places.

Pacific Bell supplies telephone service to Yosemite and El Portal primarily through microwave transmission. Overhead and underground lines serve various other locations throughout the park and El Portal.

There are 20 public water systems in the park; the Tuolumne Meadows and Wawona areas are the only large surface water systems. The Wawona water system takes raw water out of the South Fork of the Merced River. This system is constrained in most years through much of the late summer and early fall because of low flows. The National Park Service mandates stepped water conservation measures whenever flows reach critical levels. Conservation measures start with banning irrigation use for the golf course and the lawns of homes and other buildings, and escalate to requiring the use of paper plates and cups at the Wawona Hotel to reduce water use

for washing dishes. The National Park Service is considering other options to increase the reliability of the water system at Wawona, including bringing water into Wawona via a seven-mile pipeline from beyond the Mariposa Grove, and/or drilling deep wells.

Three wells, a 2.5-million-gallon water storage tank, and several distribution lines supply Yosemite Valley users with water. The system has the capacity to produce about 3.8 million gallons per day. Major components of the water system are being replaced and upgraded due to damage sustained in the 1997 flood. These improvements will restore reliability to the system, provide monitoring of system conditions, and allow for remote control of pumping.

El Portal's water supply system consists of six wells adjacent to the Merced River and three tanks with a total storage capacity of 900,000 gallons, for a total production capacity of approximately 240 gallons per minute, or 350,000 gallons per day. The water system in El Portal is marginally sufficient for the current levels of use, but does not have adequate capacity to compensate for any component failure or increased development.

Organization and Program Areas

The superintendent is responsible for overall management and operation of the park. Park headquarters is located in Yosemite Valley. Some divisions are based in the Valley, and others are based in El Portal. Yosemite is operationally organized into six divisions, each with a functional area of responsibility.

The Facility Management Division is responsible for buildings, grounds, roads, trails, utilities (water, power, sewer, solid waste), stock operations, equipment maintenance, and engineering and design. The Facility Management Division is further broken into five district operations.

The Division of Visitor and Resource Protection is responsible for resource protection, law enforcement and emergency services (emergency medical services, search and rescue, incident management), fee operations, structural and wildland fire management, wilderness management, and campground management. Each of these forms a functional branch within the division. Law enforcement and emergency services is broken into five districts.

The Resources Management Division is organized as a parkwide function and is responsible for all research and resources management. This entails documenting and ensuring the well-being of natural and cultural resources, managing social science studies, and planning and environmental compliance. The division is organized into natural resources (wildlife, vegetation, ecological restoration), physical sciences, planning and environmental compliance, and cultural resources (historic, archeological). The division is located primarily in El Portal.

The Division of Interpretation is organized and managed on a parkwide basis and is responsible for communication and information services, education, interpretive services, museum operations, and field operations. Interpretation is primarily based in Yosemite Valley, but personnel are stationed in the outlying districts.

The Division of Concessions Management is based in the Valley and is responsible for all contracted concession operations throughout the park.

The Division of Administration is organized to include personnel, property and procurement, special park uses, information management, and fiscal management. The division head is located in the Valley, but the operations are in El Portal.

The 1999 funding for Yosemite National Park was $21,205,000. Table 3-44 presents a personnel breakdown by division within the park. This information corresponds to an average annual salary and operating cost of approximately $37,500 per full-time equivalent.

Table 3-44
1999 Yosemite National Park
Personnel by Division

Division	Positions	Percentage of Total
Superintendent's Office	16	3%
Administration	54	10%
Visitor and Resource Protection	159	28%
Maintenance	251	45%
Resources Management	31	5%
Interpretation	47	8%
Concessions	7	1%
Total	**565**	**100%**

Regulations, Policies, and Planning Objectives

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 the national parks. This partnership officially inaugurated the program titled "Green Energy Parks: Making the National Parks a Showcase for a Sustainable Energy Future." This initiative will help to fulfill provisions of the Energy Policy Act of 1992, which directs the use of energy-efficient building designs and equipment and the utilization of alternative motor fuels where practicable, and Executive Order 12902, Energy Efficiency and Water Conservation at Federal Facilities. The initiative will also help fulfill the goal of Executive Order 13031, Federal Alternative Fueled Vehicle Leadership, which promotes increasing use of alternative-fueled vehicles in the federal motor vehicle fleet.

Energy Consumption

The majority of activities proposed under each of the action alternatives have the potential to affect energy consumption as a result of changes in personal vehicle and/or shuttle bus use, as well as the potential to change the number of housing beds in Yosemite Valley, El Portal, and Wawona. In reality, housing units would use a mix of propane, electricity, wood, fuel oil, and possibly renewable energy sources such as solar energy. However, propane is the primary home fuel consumed in the area. In 1998, National Park Service and Yosemite Concession Services energy records indicate that approximately 260,000 gallons of propane were consumed. Consumption of propane and other fuel types is shown in table 3-45

Gasoline and diesel are the primary fuels consumed by automobiles, trucks, and buses used in the area. A California Air Resources Board model called BURDEN was used to estimate motor fuel consumption associated with proposed plans, employee commuting patterns, and utilization of National Park Service and concessioner vehicles that operate in the Valley. Annual fuel consumption for heavy trucks, urban buses, and shuttle buses was derived from vehicle-miles-traveled estimates and typical fuel economy values for these vehicle types. The results of this analysis indicate that approximately 2,905,800 gallons of gasoline and approximately 230,200 gallons of diesel would be necessary to power automobiles, trucks, and buses anticipated to be used in the Valley in the year 2000.

Table 3-45
1998 Energy Consumption – Yosemite Valley

Consumer	Fuel Type					
	Electricity[1] (kWh)	No. 2 Fuel Oil (gal)	Propane (gal)	Wood (tons)	Gasoline (gal)	Diesel Fuel (gal)
National Park Service	5,585,092	28,542	12,774	88[2]	2,905,800	230,200
Yosemite Concession Services	14,502,908	458,800	246,795			
Visitors	NA	NA	NA	760[3]		
Total	**20,088,000**	**487,342**	**259,569**	**848**	**2,905,800**	**230,200**

1. Entire park. 2. Fireplace fuel. 3. Campfire fuel.