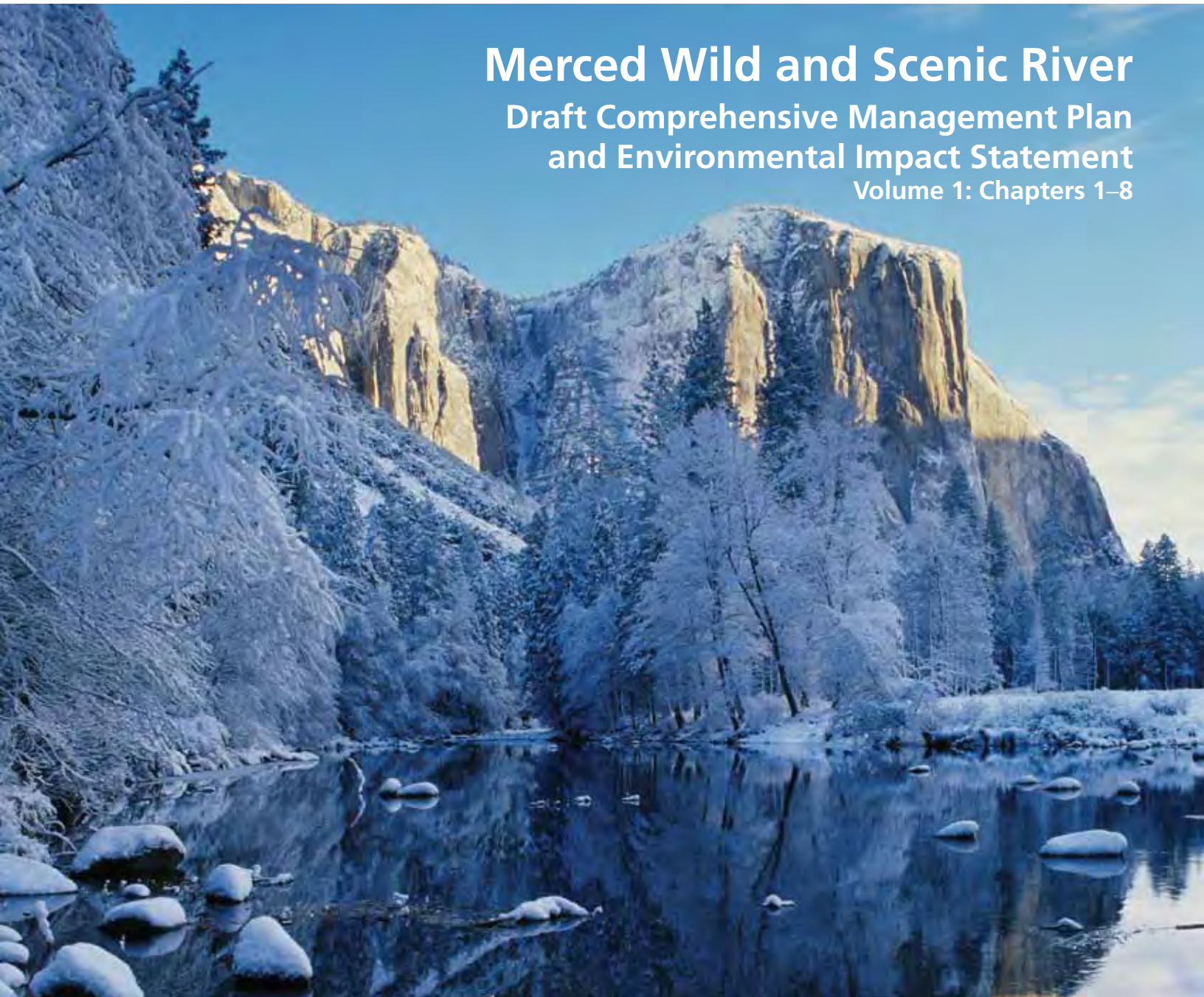




## Merced Wild and Scenic River Draft Comprehensive Management Plan and Environmental Impact Statement Volume 1: Chapters 1–8







## United States Department of the Interior NATIONAL PARK SERVICE

Yosemite National Park  
P.O. Box 577  
Yosemite, California 95389

IN REPLY REFER TO  
H3823 (YOSE-PM)

Dear Friends of Yosemite National Park:

The *Merced Wild and Scenic River Draft Comprehensive Management Plan and Environmental Impact Statement* represents a rich collaboration amongst the public, research scientists, park partners and park staff to explore opportunities for the future of Yosemite Valley and the Merced Wild and Scenic River. The alternatives included in the draft plan bring forward the best in science, stewardship, and your ideas to set management direction for the river corridor for the next 20 to 30 years. Alternative 5 (the draft preferred alternative) represents a balance between resource protection and visitor use and access. Yosemite National Park requests your continued active engagement in this draft plan. Your engagement and input are crucial to the future of the Merced River.

The centerpiece of the draft plan is a multi-faceted program to ensure the continual protection and enhancement of the rare, unique, and exemplary qualities of the Merced River. Research studies specific to Yosemite suggest that, overall, the natural river environment is being managed successfully; however, park management aspires to even better things. The draft preferred alternative would restore more than 200 acres of meadow and riparian habitat and outline a long-term program of work to reverse site-specific impacts from past patterns of visitor use. Additionally, a number of facilities subject to flooding and rock fall would be removed and re-designed to reduce the likelihood of future impacts. A robust monitoring program is a prominent feature of all action alternatives. Our commitment to this program acts as an insurance policy for the priceless attributes of the Merced River corridor and allows us to evaluate the success of our restoration goals and adapt our management actions accordingly.

The draft preferred alternative would retain the essence of Yosemite, ensuring that the experiences enjoyed by generations of families are sustained over time. Visitors would continue to have the freedom to access Yosemite Valley by private vehicle while enjoying increased public transit and expanded shuttle bus service. Traffic congestion and crowding would be reduced through organized and efficient parking for day-use visitors. The heart of Yosemite Valley would be reclaimed for visitor use and enjoyment, creating a sense of arrival with the redesign of the primary day-use parking area and the removal of industrial and administrative functions. Recommendations of professional traffic engineers would be implemented to improve circulation, reduce congestion, and provide for a more relaxed visitor experience.

Due to the significance of this plan, Yosemite has scheduled an extended 90-day public comment period. Public meetings will be scheduled in various locations to allow for widespread participation. For a full list of webinars and in-person meetings, visit [www.nps.gov/yose/parkmgmt/mrp\\_meetings.htm](http://www.nps.gov/yose/parkmgmt/mrp_meetings.htm). To obtain a copy of the draft plan or the *Merced River Plan Summary Guide*, visit the park's website at [www.nps.gov/yose/parkmgmt/mrp.htm](http://www.nps.gov/yose/parkmgmt/mrp.htm). For hard copies, send an email request to [yose\\_planning@nps.gov](mailto:yose_planning@nps.gov).

Electronically: To comment, go to the Planning, Environment, and Public Comment (PEPC) website at [http://parkplanning.nps.gov/mrp\\_deis](http://parkplanning.nps.gov/mrp_deis)  
Fax: 209/379-1294  
Mail: Superintendent, Attn: Merced River Plan/DEIS  
P.O. Box 577, Yosemite, CA 95389

Together, we can move forward to set a course for protecting the extraordinary values of the Merced River while ensuring they remain accessible for the use and enjoyment of all generations. We want to assure you that your contribution does make a difference, and we genuinely appreciate your continued involvement in completing this important plan.

Sincerely,

Don L. Neubacher  
Superintendent

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Merced Wild and Scenic River  
Comprehensive Management Plan and Draft Environmental Impact Statement

# Yosemite National Park

Lead Agency: National Park Service

## ABSTRACT

This *Merced Wild and Scenic River Draft Comprehensive Management Plan and Environmental Impact Statement* is intended to guide the management of the Merced Wild and Scenic River within the boundaries of Yosemite National Park for the next 20-plus years. The plan and its draft environmental impact statement, which evaluates potential impacts and the range of alternatives, are integrated in this document and are referred to collectively as the *Merced River Plan / DEIS*.

The *Merced River Plan / DEIS* directs the protection of the river's free-flowing condition, water quality, and the outstandingly remarkable values that make it worthy of designation. The plan will:

- Establish the boundaries and segment classifications (as wild, scenic, or recreational) of the Merced Wild and Scenic River (Chapter 3) and provide a clear process for protection of the river's free-flowing condition in keeping with WSRA Section 7 (Chapter 4).
- Refine descriptions of the river's *outstandingly remarkable values* (ORVs), which are the unique, rare, or exemplary river-related characteristics that make the river eligible for inclusion in the National Wild and Scenic Rivers System and document the conditions of these ORVs, water quality, and free-flowing condition of the river (Chapter 5).
- Identify management objectives for the river, and specific actions and/or programs that will be implemented to achieve the objectives and commit ongoing studies and monitoring to ensure that river values are protected and enhanced over the life of the plan (Chapter 5).
- Establish a user-capacity program that addresses the kinds and amounts of public use that the river corridor can sustain while protecting and enhancing the river's ORVs (Chapters 6 and 7).
- Fulfill the specific direction of the 1987 legislation designating the Merced River as a component of the National Wild and Scenic River System (16 U.S.C. Section 1274 (a)(62)(A)) and make appropriate revisions to the park's 1980 *General Management Plan for Yosemite National Park*.

The *Merced River Plan / DEIS* presents and analyzes six alternatives. Alternative 1 (No Action) would continue current management and trends in the condition of river values. Action Alternatives 2-6 would protect and enhance river values by improving conditions that threaten sensitive meadows, archeological resources, and scenic vistas. The action alternatives vary in the degree of restoration and the amount of visitor use accommodated by the commensurate level of facilities and services necessary to protect river values under each alternative.

There will be a 90-day public comment period for the *Merced River Plan/DEIS*. Comments are due no later than 90 days after the publication of the EPA notice in the *Federal Register*. Please refer to the project website, [www.nps.gov/yose/parkmgmt/mrp.htm](http://www.nps.gov/yose/parkmgmt/mrp.htm), for the exact comment end date. Readers are encouraged to submit comments electronically through the NPS Planning, Environment and Public Comment (PEPC) system at [http://parkplanning.nps.gov/mrp\\_deis](http://parkplanning.nps.gov/mrp_deis).

Written comments regarding this document should be postmarked by the end of the review period and directed to: Superintendent, Yosemite National Park, ATTN: Merced River Plan, P.O. Box 577, Yosemite, CA 95389. You may also fax your comments to 209-379-1294. To request a printed copy or CD of this document (available in limited quantity), please email [yose\\_planning@nps.gov](mailto:yose_planning@nps.gov).



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**Yosemite National Park**

National Park Service  
U.S. Department of the Interior



# **Merced Wild and Scenic River Draft Comprehensive Management Plan and Environmental Impact Statement**

**Volume 1: Executive Summary & Chapters 1-8**

**January 2013**



**Photo by Christine White Loberg / NPS**

The Merced Wild and Scenic River, shown flowing by the iconic El Capitan in Yosemite Valley, meanders 81 miles through Yosemite National Park.



**Photo by Erik Skindrud / NPS**

Young campers properly store food at their Yosemite Valley campsite in a bear box to avoid attracting black bears to the campground.



**Photo by Ray Santos / NPS**

Julia Parker, an American Indian interpreter at Yosemite, patches a Mono Indian cooking basket used to prepare acorn mush.



**Photo by Catherine Hilfiker / NPS**

Sarah Stock, a Yosemite ornithologist, demonstrates bird banding techniques to members of the Yosemite Conservation Corps.



**MERCED WILD AND SCENIC RIVER  
DRAFT COMPREHENSIVE MANAGEMENT PLAN AND  
ENVIRONMENTAL IMPACT STATEMENT**

**Volume 1: Executive Summary and Chapters 1-8**

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## EXECUTIVE SUMMARY

This *Merced Wild and Scenic River Comprehensive Management Plan and Draft Environmental Impact Statement (Merced River Plan/DEIS)* addresses all elements required by the Wild and Scenic Rivers Act (WSRA) for the management of a designated river. It analyzes these elements by following and documenting planning processes required by the National Environmental Policy Act (NEPA), the National Historic Preservation Act (NHPA), and other legal mandates governing National Park Service (NPS) decision-making.

Readers can gain a summary of proposed actions by reviewing, at a minimum, the following sections:

- ‘Merced River Plan / DEIS’ Document Organization (page 1-4)
- “Alternatives” (Chapter 8)
  - Process Used to Develop the Alternatives (pages 8-1 to 8-7)
  - Actions Common to Alternatives 2-6 (pages 8-53 to 8-102)
  - Alternative 1 (No Action) Overview (pages 8-13 to 8-28)
  - Alternative 2 Overview (pages 8-103 to 8-144)
  - Alternative 3 Overview (pages 8-145 to 8-160)
  - Alternative 4 Overview (pages 8-187 to 8-203)
  - Alternative 5 (Preferred) Overview (pages 8-231 to 8-246)
  - Alternative 6 Overview (pages 8-273 to 8-288)
  - Summary Comparison Table (pages 8-330 to 8-331)

Readers who wish to review the plan in more depth will find more decision-making details here:

- Goals of the Merced River Plan (Chapter 1: page 1-3)
- Identification of Planning Issues: Public and Internal Scoping (Chapter 2: pages 2-13 to 2-18)
- Key Concepts for River Management under WSRA (Chapter 5: pages 5-6 to 5-10)
- Part III User Capacity Discussion (Chapter 6: pages 6-12 to 6-43)

### THE MERCED WILD AND SCENIC RIVER

The Merced Wild and Scenic River, designated in 1987, includes 122 miles of the Merced River on the western side of the Sierra Nevada range in California. The NPS manages 81 miles of the Merced Wild and Scenic River through Yosemite National Park, including the headwaters and both the Merced River’s main stem and the South Fork Merced River (Figure ES-1). As the Merced River flows outside Yosemite’s western boundary, the U.S. Forest Service and the Bureau of Land Management manage the next 41 miles of the Merced Wild and Scenic River.

The main stem of the Merced River originates high in the Sierra Nevada on the eastern side of Yosemite in several watersheds: the Lyell Fork, Triple Peak Fork, Merced Peak Fork, and Red Peak Fork. From its headwaters, the main stem of the Merced River flows freely through Yosemite’s Wilderness, a landscape of alpine peaks, glacially carved valleys, and high-elevation meadows. The main stem of the river and several of its

tributaries make a dramatic entry into Yosemite Valley, rushing over towering cliffs in prominent waterfalls. As the river’s gradient lessens, it meanders through the rich meadow and riparian habitat of Yosemite Valley. At the west end of Yosemite Valley, the Merced River canyon narrows, and the river becomes a cascade of continuous rapids through the Merced Gorge. The gradient changes abruptly at the park boundary, where the river continues through the El Portal Administrative Site on its journey through the Sierra Nevada foothills to the Central Valley of California.

**Figure ES-1: Merced Wild and Scenic River and Vicinity**



The South Fork Merced River originates high in the Sierra Nevada on the eastern side of Yosemite National Park, draining the southwestern slopes of Triple Divide Peak and the west facing slopes of Gale Peak and Sing Peak. From its headwaters, the South Fork Merced River flows southwest through the Yosemite Wilderness (south of the Clark Range) and eventually through the community of Wawona. At the western park boundary, the South Fork flows through the Sierra National Forest to the confluence of the main stem of the Merced River west of El Portal.

The river has been central to a dynamic natural and cultural landscape for tens of thousands of years, and it continues to shape the landscape today. Ecological processes between the river and its floodplain support a wide elevational range of riparian and meadow communities providing habitat for a rich diversity of plants and wildlife. The river’s cultural heritage includes American Indian cultural traditions associated with the river that continue to the present day, along with the history associated with one of the nation’s first

national parks. Today the Merced River attracts millions of Yosemite visitors who enjoy opportunities for recreation, education, reflection, and inspiration in the sublime beauty of the river corridor.

## PURPOSE AND NEED FOR THE ‘MERCED RIVER PLAN /DEIS’

The NPS is considering what long-term, comprehensive guidance will best protect and enhance the 81 miles of the Merced Wild and Scenic River within Yosemite. WSRA requires comprehensive planning for Wild and Scenic Rivers to provide for the protection of the river’s free-flowing condition, water quality, and the outstandingly remarkable values that make it worthy of designation. In accordance with WSRA “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” (WSRA Section 3(d)). In addition, this plan must also fulfill the specific direction of the 1987 legislation designating the Merced River as a component of the National Wild and Scenic Rivers System.

Specifically, the purpose of the plan, as defined by WSRA and its implementing guidance is to:

- Establish the boundaries and segment classifications (as wild, scenic, or recreational) of the Merced Wild and Scenic River (see Chapter 3).
- Provide a clear process for protection of the river’s free-flowing condition in keeping with WSRA Section 7 (see Chapter 4).
- Refine descriptions of the river’s *outstandingly remarkable values* (ORVs), which are the unique, rare, or exemplary river-related characteristics that make the river eligible for inclusion in the National Wild and Scenic Rivers System (see Chapter 5).
- Document the conditions of river values, including water quality, free-flowing condition, and outstandingly remarkable values (ORVs) (see Chapter 5).
- Identify management objectives for the river, and specific actions and/or programs that will be implemented to achieve the objectives (see Chapter 5).
- Commit to a program of ongoing studies and monitoring to ensure that river values are protected and enhanced over the life of the plan (see Chapter 5).
- Establish a user-capacity program that addresses the kinds and amounts of public use that the river corridor can sustain while protecting and enhancing the river’s outstandingly remarkable values (see Chapters 6 and 7).

This is the third management plan prepared for the Merced Wild and Scenic River within Yosemite. In 2009, the NPS settled a long-running lawsuit challenging the adequacy of the two prior versions of the Merced River Plan (prepared in 2000 and 2005). The need for the *Merced River Plan/DEIS* also derives from the *2009 Settlement Agreement*, under which the NPS agreed to complete a new comprehensive management plan for the Merced Wild and Scenic River. Chapter 2 of this *Merced River Plan/DEIS* summarizes the history of the lawsuit and the relevance of the settlement agreement to the development of this comprehensive river management plan.

## Outstandingly Remarkable River Values

As noted above, WSRA requires comprehensive planning for the Merced Wild and Scenic River to provide for the protection of the river’s free-flowing condition, water quality, and the outstandingly remarkable

values (ORVs) that make the river worthy of designation. The ORVs of the Merced River are defined in this plan as follows:

### ***Biological Values***

1. The Merced River sustains numerous small meadows and riparian habitat with high biological integrity.
2. The meadows and riparian communities of Yosemite Valley comprise one of the largest mid-elevation meadow-riparian complexes in the Sierra Nevada.
3. Sierra sweet bay (*Myrica hartwegii*) is a rare plant found on river banks of the South Fork Merced River.

### ***Geologic/Hydrologic Values***

4. The upper Merced River canyon is a textbook example of a glacially carved canyon.
5. The “Giant Staircase,” which includes Vernal and Nevada Falls, is one of the finest examples in the western United States of stair-step river morphology.
6. The Merced River from Happy Isles to the west end of Yosemite Valley provides an outstanding example of a rare, mid-elevation alluvial river.
7. The boulder bar in El Portal was created by changing river gradients, glacial history, and powerful floods. These elements have resulted in accumulation of extraordinarily large boulders, which are rare in such deposits.

### ***Cultural Values***

8. Yosemite Valley American Indian ethnographic resources include a linked landscape of specifically mapped traditional-use plant populations as well as the ongoing traditional cultural practices that reflect the intricate continuing relationship between indigenous peoples of the Yosemite region and the Merced River in Yosemite Valley.
9. The Yosemite Valley Archeological District is an unusually rich and linked landscape that contains dense concentrations of resources that represent thousands of years of human settlement.
10. The Yosemite Valley Historic Resources represent a linked landscape of river-related or river-dependent, rare, unique or exemplary buildings and structures that bear witness to the historical significance of the river system.
11. The El Portal Archeological District contains dense concentrations of resources that represent thousands of years of occupation and evidence of continuous, far-reaching traffic and trade. This segment includes some of the oldest deposits in the region and archeological remains of the Johnny Wilson Ranch, a regionally rare historic-era American Indian Homestead.
12. The South Fork Merced River above Wawona includes regionally rare archeological features representing indigenous settlement and use along the South Fork Merced River at archeological sites with rock ring features.
13. The Wawona Archeological District encompasses numerous clusters of resources spanning thousands of years of occupation, including unusually rich evidence of continuous far-reaching traffic and trade. In Segment 7, remains of the U.S. Army Cavalry Camp A. E. Wood document the unique Yosemite legacy of the African-American Buffalo Soldiers and the strategic placement of their camp near the Merced River.

14. The Wawona Historic Resources ORV includes one of the few covered bridges in the region and the National Historic Landmark Wawona Hotel complex. The Wawona Hotel complex is the largest existing Victorian hotel complex within the boundaries of a national park, and one of the few remaining in the United States with this high level of integrity.

### ***Scenic Values***

15. Visitors to the Merced River above Nevada Fall experience exemplary views of serene montane lakes, pristine meadows, slickrock cascades, and High Sierra peaks.
16. Visitors to Yosemite Valley experience views of some of the world's most iconic scenery, with the river and meadows forming a placid foreground to towering cliffs and waterfalls.
17. Through the Merced Gorge, the Merced River drops 2,000 feet over 14 miles, a continuous cascade under exemplary Sierra granite outcrops and domes.
18. The South Fork Merced River below Wawona passes through a vast area of exemplary and wild scenic beauty.

### ***Recreational Values***

19. Visitors to federally designated Wilderness in the corridor engage in a variety of river-related activities in an iconic High Sierra landscape, where opportunities for primitive and unconfined recreation, self-reliance, and solitude shape the experience.
20. Visitors to Yosemite Valley enjoy a wide variety of river-related recreational activities in the Valley's extraordinary setting along the Merced River.

## **OVERVIEW OF THE PLAN AND ALTERNATIVES**

The *Merced River Plan* focuses on protecting and enhancing river values; therefore, many of the actions that would be taken to address management issues related to those values are common to all the action alternatives. For example, a comprehensive ecological restoration program for river-related meadow and riparian habitat is a central component of the plan that is included in all the action alternatives (Alternatives 2-6). The alternatives presented in Chapter 8 of the *Merced River Plan/DEIS* cover all 81 miles of the river corridor but vary, primarily, in how they will balance the protection of river values with different kinds of visitor use and associated user capacities.

## **Protection and Enhancement of River Values in the Merced River Plan**

### ***Free-Flowing Condition***

The Merced River in Yosemite is free-flowing with few impediments. Under the *Merced River Plan*, the NPS will protect its free-flowing condition by implementing a process under Section 7 of WSRM to ensure that no potential water resource project within the bed and banks of the river would have a direct and adverse effect on this river value.

At the time of the river's designation (1987), the natural flow regime had been altered in several locations by bridges, abandoned infrastructure in the river channel, riprap, water withdrawals for domestic use, and altered riverbank and channel conditions. These management considerations remain. The *Merced River Plan/DEIS* evaluates a range of options to address these issues, including removing large stretches of riprap,

removing or retaining bridges (many of which are historic), removing abandoned infrastructure from the bed and banks of the river, and using bio-engineering techniques to stabilize riverbanks and increase channel complexity.

### ***Water Quality***

The Merced River has exceptionally high water quality. All the measured indicators are within the NPS standards, which are considerably more protective than other federal or state standards. Although water quality is protected, a few risks are present within the river corridor, including surface water run-off in developed areas, potential hazards related to dump stations, septic tanks and leach fields, and accelerated erosion and potential sediment loading in the river. The *Merced River Plan/DEIS* addresses risks to water quality with a suite of actions to re-route stock trails that could affect water quality, move parking areas away from the river and/or construct stormwater run-off infrastructure; develop a wastewater collection system for Wawona Campground, and relocate dump stations.

An ongoing monitoring program will continue to test for nutrients, *E. coli*, and petroleum hydrocarbons to ensure that the exceptional baseline water quality is sustained over time. Decreasing water quality for any of these indicators will initiate more frequent sampling trigger studies to identify the source of the concern. Depending on the source, appropriate action will be taken to address the concern prior to an adverse effect. If the concern is related to visitor use, the use will be managed as needed to protect this river value.

### ***Biological Values***

#### **High-elevation Meadows and Riparian Habitat**

In 2010 and 2011, park staff evaluated the condition of high-elevation meadows and riparian areas and found high ecological integrity, with the exception of some site-specific impacts in subalpine meadows. Conditions at the time of the river's designation in 1987 were likely similar. Based on these recent assessments, NPS management considerations for specific subalpine meadow areas include high levels of bare soil, heavily grazed vegetation, evidence of stock-related disturbance, informal trails (visitor-created trails that are not directly managed by park staff), and extirpated or declining meadow and riparian wildlife species. In response, the *Merced River Plan/DEIS* evaluates actions to remove informal trails throughout the high-elevation meadow and riparian areas and options for stock use management that range from elimination of administrative pack stock grazing in certain areas to establishing grazing capacities. The alternatives also continue NPS policy to remove non-native species and re-introduce extirpated or declining wildlife species, as opportunities arise.

An ongoing program of monitoring and study will continue to be implemented to ensure that the high-elevation meadow and riparian habitat is returned to good condition and remains in good condition over the life of the plan. A suite of three indicators will be used to track the health and potential for impact on this complex river value. An important part of the monitoring program will be management triggers that identify any decline from "good" condition under any of the three indicators well before an adverse effect occurs. Any of these triggers would require additional action to protect the high-elevation meadow and riparian habitat.



### **Mid-elevation Meadows and Riparian Habitat in Yosemite Valley**

At the time of the river's designation in 1987, the impacts on meadow and riparian areas in Yosemite Valley included an altered hydrologic regime, loss of meadow extent, stresses on meadows caused by human use, accelerated bank erosion, denuded meadow and riparian vegetation in high-use areas, and poorly designed riprap revetment. While the NPS has taken action since designation to address several problem areas, many of these issues remain. Current NPS management concerns for this value include the proliferation of informal trails that lead to meadow fragmentation, conifer encroachment into meadows, impacts of non-native species, human-caused alterations to meadow topography, and formal trails that pass through sensitive meadow habitat.

The *Merced River Plan/DEIS* addresses these management concerns through a comprehensive program of ecological restoration and management of visitor use and development. Ecological restoration will include actions to decompact trampled soils and re-vegetate impacted areas, restore natural meadow topography, and re-vegetate riverbanks with native riparian shrubs and trees. Management of visitor use and development will include establishing a riparian buffer that precludes new development within 150 feet of the ordinary high-water mark. The plan will also remove and/or relocate some existing infrastructure, such as campsites in close proximity to the river, from a riparian buffer zone.

Additional actions will include removal of informal parking in meadow and riparian areas and removal of approximately six miles of informal trails through meadows; re-direction of visitor use to stable and resilient river access points; use of boardwalks or hardened surfaces to allow access to sensitive meadow areas; and increased visitor education. These actions are expected to enhance the meadow and riparian habitat and allow for long-term management in a condition equal to or better than the management standards. (Additional management of visitor use and development to further enhance this value is explored through alternative proposals to guide use to resilient areas or relocate development; these actions are explored in the range of alternatives in Chapter 8).

### **The Sierra Sweet Bay (*Myrica hartwegii*)**

At the time of the river's designation in 1987, botanists considered the Sierra sweet bay to be rare in Yosemite, but not threatened by local impacts. Based on 2010 surveys, the Sierra sweet bay population in Yosemite National Park is in good condition. The Merced River Plan includes a program to monitor the condition of the Sierra sweet bay population, and actions to protect this rare species if conditions decline.

## ***Geologic/Hydrologic Values***

### **Glacially carved Upper Merced River Canyon**

The glacially carved river canyon is considered impervious to human activity. Natural processes will continue to shape the landscape and the associated river value. No action other than continued protection under WSRA is proposed by the plan.

### **“Giant Staircase,” including Vernal Fall and Nevada Fall**

Stairstep river morphology is considered impervious to human activity. Natural processes will continue to shape the landscape and the associated river value. No action other than continued protection under WSRA is proposed by the plan.

### **Rare, Mid-elevation Alluvial River**

This river value integrates geologic/hydrologic processes and the condition of aquatic, riparian, and floodplain communities. Its condition is closely related to the free-flowing condition of the river and the mid-elevation meadows and riparian habitat river value discussed above. In addition to the issues identified for these river values, management considerations for this value include riverbank erosion in localized areas, lack of natural levels of large wood in the river system, altered surface and groundwater flow, and floodplain connectivity.

In addition to the actions to protect and enhance the free-flowing condition of the river and the mid-elevation meadows and riparian habitat river values listed above, the *Merced River Plan/DEIS* includes actions to improve fundamental alluvial processes in Yosemite Valley, including leaving large wood in the river channel that does not compromise visitor safety or infrastructure; placing large wood in the river to enhance channel complexity and mitigate scouring caused by bridges; placing log jams at specific locations in the river channel; and incorporating large wood into riverbanks to provide natural structure and increase habitat quality.

### **Boulder Bar in El Portal**

The large boulder bar at the east end of El Portal is considered impervious to human activity. Natural processes will continue to shape the landscape and the associated river value. No action other than continued protection under WSRA is proposed by the plan.

## ***Cultural Values***

### **Yosemite Valley American Indian Ethnographic Resources**

The discontinuation of traditionally associated American Indian practices, such as seasonal burning, selective pruning, tilling, timely harvesting, and propagation, had impacted ethnographic resources when the river was designated in 1987. Historic activities had also altered traditionally used meadow and oak habitat. In addition, by the time of designation, the introduction of non-native plant species had encroached on populations of traditional use plants in Yosemite Valley. All of these changes had likely led to alterations in the abundance and integrity of ethnographic resources, changes which persist today.

Since the river's designation in 1987, the NPS has begun restoration of sensitive resource areas to conditions resembling those found prior to intensive historic-era settlement. However, recent California black oak studies in Yosemite Valley indicate that ecological restoration action to restore a healthier sapling to non-sapling ratio is needed to promote a healthy black oak population in the Valley.

The current NPS mission encourages and seeks to facilitate ongoing cultural connections between traditionally associated American Indian communities and ancestral park lands and resources. Management considerations remain regarding the impact of non-native species, altered meadow hydrology, altered or denuded riparian vegetation, park operations, crowding, and visitor use on traditional-use plant populations and access to ethnographic resources. In response, the *Merced River Plan/DEIS* will continue to coordinate with traditionally associated American Indian tribes and groups and traditional practitioners in the development and implementation of park programs related to law enforcement, fire management, interpretation, ecological restoration, and facilities management. In addition, the ecological restoration program proposed in the *Merced River Plan/DEIS* will address existing impacts on traditionally used plant populations and will protect these populations over the life of the plan.

### **Yosemite Valley Archeological District**

At the time of the river's designation, the district retained integrity despite impacts from facility and administrative use, visitor use, and ecological processes that can impact archeological sites. The majority of archeological sites in Yosemite Valley still retain a relatively high degree of integrity; however, many have been disturbed by human activity or natural processes. Recent assessments found 47% of sites are rated in "good" condition, an additional 33% are in "fair" condition, and 18% are in "poor" condition. Disturbance severities range from 39% of sites with low disturbance, to 33% of sites with moderate disturbance severity, to 25% of sites with severe disturbances. Impacts on these sites include soil compaction, vegetation damage, movement of artifacts, feature disturbance, and vandalism. Some of these impacts are caused by formal and informal trails, stock impacts, parking, rock climbing and other visitor-use activities, such as camping.

Under the *Merced River Plan/DEIS*, sites will continue to be monitored. The potential for impacts will be greatly reduced by actions to manage visitor-use levels, divert foot traffic and stock use away from sites, remove informal trails, formalize river and meadow access locations, and mitigate ecological restoration practices by using non-invasive techniques wherever possible. Many of the actions related to the plan's ecological restoration program in Yosemite Valley, such as removing or delineating roadside parking, will also help protect archeological sites by diverting foot traffic away from sites and into less sensitive areas. The plan also proposes developing site-specific treatment actions through site management plans, where necessary, to avoid resource loss through park actions (such as development, repair, and maintenance of facilities and underground utilities to support visitor use). Any future downward trend in site conditions associated with human use will trigger a required management response to counteract or minimize the effect before an adverse impact occurs.

### **Yosemite Valley Historic Resources**

Recent assessments indicate that a number of building and structures that are an integral part of this river value, including National Historic Landmarks, are currently in "fair" condition. Residence 1, also known as the Superintendent's House, is in "poor" condition. Under *The Merced River Plan/DEIS*, preservation maintenance and/or repairs would occur sufficient to return these buildings and structures to "good" condition and to arrest ongoing deterioration of other elements. Specific actions called for in the plan would be further developed through consultation with the California State Historic Preservation Office and reflected in detail in the *Merced River Plan/DEIS* programmatic agreement. If future monitoring under the NPS List of Classified Structures assessment program detects deterioration or damage, repairs will be undertaken to correct the deficiency while the structure is still in an overall good condition.

In addition, the plan would continue the existing program of historic building and structures maintenance and repair in Yosemite Valley, employ design guidelines for new development or re-development, periodically assess and update documentation, and maintain the essential qualities of individual historic developed areas in Yosemite Valley.

### **El Portal Archeological District**

Sites within the El Portal Archeological District have been impacted by from historic development, more recent NPS administrative uses, and visitor use. The condition of the district has not changed significantly from the time of the river's designation in 1987. NPS management considerations for this river value include abandoned infrastructure located on an exceptional and extremely sensitive site that is highly valued by traditionally associated American Indians. In addition, informal trails, gravel roads, and visitor use are

contributing to site disturbance. The *Merced River Plan/DEIS* will protect these sites by removing informal trails, non-essential gravel roads, and abandoned infrastructure. The aforementioned site with high cultural significance for traditionally associated American Indians will be protected from any further development. A plan of action for addressing the abandoned infrastructure on that particular site will be developed in consultation with traditionally associated American Indian tribes and groups.

### **Archeological Sites in High Elevations along the South Fork Merced River**

Three regionally rare prehistoric archeological sites on the South Fork Merced River are fragile and highly susceptible to human alteration from visitor use. Documentation of these sites is incomplete. Since the time of the river's designation in 1987, a 1992 survey documented damage where visitors built a campfire in one site. Site visits in 2000 and 2002 found that two of the sites were in "good" and "fair" condition. In 2005, a site visit noted disturbance by campers; this is likely the same site surveyed in 1992. Under the *Merced River Plan/DEIS*, the NPS will complete documentation for these sites, restrict Wilderness camping in the area, remove informal trails near the sites, and increase education and outreach to Wilderness travelers.

### **Wawona Archeological District**

A recent condition assessment of the total 59 sites in the Wawona Archeological District within the Merced River corridor found that 33% (19 sites) are in "good" condition, with an additional 38% (23 sites) in "fair" condition, and 19% (11 sites) in "poor" condition. Four sites could not be relocated during an attempted field visit, and two sites with unknown conditions were not visited as part of the project because they were outside the project area. Impacts seen at archeological sites in the district fall into largely the same categories as those noted in the Yosemite Valley and El Portal archeological districts: administrative/facilities-related impacts such as campground and infrastructure maintenance, visitor-use impacts (including general trampling, artifact collection, and creation of informal trails), and natural impacts, such as flooding and erosion.

Under the *Merced River Plan/DEIS*, the NPS will address these issues by increasing monitoring frequency at affected sites, removing seven campsites from Wawona Campground, removing informal trails and fire rings in proximity to a site, and revising the Wawona Archeological District's National Register nomination to reflect changes in the district since its nomination to the register in 1979.

### **Wawona Historic Resources**

Two historic resources listed on the National Register are included within this value: the Wawona Covered Bridge and The Wawona Hotel National Historic Landmark. Currently, the Wawona Covered Bridge is considered to be in "good" condition. A recent condition assessment of the Wawona Hotel Complex indicates that the hotel complex continues to retain a high degree of historical integrity. There are a total of eight buildings and structures at the hotel, seven of which are assessed as in "good" condition, with some related contributing elements like wood siding and trim in "poor" condition. One building, Clark Cottage, was found to be in "fair" condition. Under *The Merced River Plan/DEIS*, preservation maintenance and/or repairs would occur sufficient to maintain the condition of buildings and structures currently in "good" condition, return the Clark Cottage to "good" condition, and to arrest any ongoing deterioration of other elements. If future monitoring under the NPS List of Classified Structures assessment program detects deterioration or damage, repairs will be undertaken to correct the deficiency while the building or structure is still in an overall "good" condition.

## ***Scenic Values***

### **Scenic Views in Wilderness**

Scenic views along the Merced River in Wilderness are largely unaffected by human activity. Views from the river and along trails include very few human-made features, most of which are clustered at specific locations. Scenic vistas can sometimes be obscured by regional air pollution. In addition, local wild and prescribed fires sometimes limit the visual range from higher elevations and vistas or views located within the river corridor.

At Merced Lake High Sierra Camp, which is located outside of designated Wilderness, there are rustic structures, trails, footbridges, utility buildings and tents visible from Wilderness. In the *Merced River Plan/DEIS*, the NPS is considering options for removing the High Sierra Camp, or keeping the camp and replacing tent fabric using colors that blend with the landscape (the options vary by alternative). In other locations specific to Wilderness, no further development or resource extraction can occur. To prevent management issues from re-developing, the *Merced River Plan/DEIS* monitoring program will subject any proposed structures to a contrast analysis, complemented by periodic monitoring, and a suite of actions to be taken should new scenic issues be identified. In addition, the NPS will continue to participate in regional efforts to monitor air quality throughout the park.

### **Iconic Scenic Views in Yosemite Valley**

Natural scenery in Yosemite Valley was key to the creation of Yosemite National Park. Much of the infrastructure in Yosemite Valley was developed to take advantage of abundant views of spectacular waterfalls, towering granite walls, and the interface of river, rock, meadow, and forested valley floor. Views from the river and designated vista points have retained high aesthetic value. Management considerations for scenic values in Yosemite Valley revolve around (1) visual intrusions associated with human-built structures, including parking, roads and traffic in meadows and the presence of certain facilities, (2) vegetation growth at scenic viewpoints, and (3) riverbank erosion, informal trails, and denuded riparian vegetation that affect views of the river or river-dependent resources.

The *Merced River Plan/DEIS* considers the presence of existing structures, major facilities, and services provided for visitors in the context of WSRA requirements. Under all alternatives, several structures and facilities will be removed, such as recreational facilities — such as pools, bike rentals, and the ice rink — abandoned bridge footings, and large stretches of riprap. All action alternatives propose a 150-foot riparian buffer to insulate the river from new development and protect views from the bed and banks. The ecological restoration program, included in all action alternatives, would also address disturbance in meadows, along riparian zones, and on riverbanks. The plan alternatives vary when addressing new development or relocation / removal of existing lodging, campsites, parking, and housing.

In addition, the *Merced River Plan/DEIS* will implement recommendations from the Scenic Vista Management Plan for Yosemite National Park Environmental Assessment to manage 47 vista points in the river corridor, primarily through mechanical thinning of conifers that obscure scenic views.

### **Scenic Views in the Merced River Gorge**

There have been some changes to scenic views in the Merced River Gorge, along El Portal Road, since the river's designation in 1987. The El Portal Road was severely damaged by the 1997 flood and was re-built and updated to meet contemporary safety standards. The road's rock walls and barriers were re-built in keeping

with historic character. The scenic quality of the Big Oak Flat Road/El Portal Road junction improved when the Cascades Diversion Dam and associated features were removed from the Gorge. The historic powerhouse and the Arch Rock entrance station/comfort station remain in place. Natural processes will continue to shape the landscape and the scenic river value. No action related to scenic values in this area, other than monitoring and continued protection under WSRA, is proposed by the *Merced River Plan/DEIS*.

### **Scenic Wilderness Views along the South Fork Merced River**

Scenic views in wild segments along the South Fork Merced River, including portions of the river corridor in designated Wilderness, are unaffected by human activity. The NPS will continue to participate in regional efforts to monitor air quality throughout the park.

### ***Recreational Values***

#### **Wilderness Recreation above Nevada Fall**

At the time of designation, the wild segment of the Merced River above Nevada Fall offered outstanding opportunities for river-related recreation characterized by self-reliance and solitude, and those opportunities continue today. The most common visitor activities within the corridor are hiking, backpacking, stock use, and lodging at the Merced Lake High Sierra Camp. Since the 1970s, an overnight zone capacity and trailhead quota system has helped protect this river value, particularly in more remote portions of the segment. Current management considerations include crowding at designated backpacker camping areas and high encounter rates on trails, particularly on busy weekends, although all conditions remain above the management standards for this ORV that will be implemented under the *Merced River Plan/DEIS*. The plan considers a variety of actions that could be taken to reduce zone capacities and trailhead quotas, expand designated camping areas, or disperse overnight use more broadly throughout the segment to enhance this recreational value. Regardless of which alternative is selected, the NPS will continue to monitor visitor encounter rates and take additional action in the future if necessary to protect the opportunities for primitive and unconfined recreation, self-reliance, and solitude that characterize this recreational value.

#### **River-related Recreation in Yosemite Valley**

At the time of designation, visitors to Yosemite Valley were participating in a wide diversity of activities, including sightseeing, scenic driving, day hiking, wildlife viewing, picnicking, floating, creative arts, camping, lodging, bicycling, nature study, rock climbing, and ranger-led programs. All of these activities are ongoing, and most have been determined to be river-related and contributing to this ORV (notable exceptions being lodging and many of the commercial services in the Valley).

A 1992 study near the time of designation found that the large majority of visitors rated their experiences as very good or better. However, a significant number also expressed that there was too much vehicle traffic and too many people in Yosemite Valley. The most recent survey of visitor satisfaction, conducted in 2005, found that more than half of all visitors were experiencing crowding.

This management concern will be addressed in the *Merced River Plan/DEIS* by implementing a user-capacity program that either reduces visitor use or increases the facilities necessary to support use without adversely affecting either resource values or the visitor experience. A major component of all the plan alternatives is decreasing traffic congestion through roadway, parking, and transit improvements; reducing congestion at

popular attractions by dispersing use to appropriately designed destinations; and removing unnecessary services and facilities, including many of the commercial services currently provided in the Valley. The alternatives explore different ways of balancing day and overnight opportunities, both of which are experiencing demand that exceeds the capacity of the current facilities. In all alternatives, the overnight capacity will be controlled through camping and lodging availability, and the day capacity will be controlled through the availability of day parking.

The effectiveness of using the day parking supply in Yosemite Valley to manage day-use capacity will be monitored through an indicator that compares the number of vehicles actually parking in Yosemite Valley with the supply of designated parking provided under the plan. Additional management actions to identify issues and enforce the designated user capacity will be triggered by the exceedance of standards developed for this indicator.

## Overview of the Alternatives

Six alternatives (a No Action alternative plus five action alternatives) under consideration in the *Merced River Plan/Draft EIS* involve primarily a reasonable range of variations in visitor use and user capacity. A table comparing the user capacities of the alternatives is included at the end of this section.

### *Alternative 1: No Action*

Alternative 1, also known as the “No Action Alternative,” is required by NEPA implementing regulations and serves as a baseline from which to compare the action alternatives. Alternative 1 represents existing conditions in 2011, when the NPS completed a series of research studies to assess the conditions of river values in the Merced River corridor. This alternative assumes that current trends in the conditions of natural and cultural resources and visitor experiences would continue, consistent with the management activities that are ongoing under currently approved plans. Future actions that would require additional planning and environmental compliance could still occur, independent of the *Merced River Plan/DEIS*, but they are not considered part of the No Action Alternative for the purposes of conducting environmental compliance for the *Merced River Plan/DEIS*.

### Summary of Current Actions and Issues Affecting River Values

Under Alternative 1 (No Action), the NPS would not adopt a comprehensive management plan to protect and enhance river values in the corridor. The two prior versions of the river plan would not be in effect because the courts determined that prior versions of the plan were invalid. The river corridor would be ¼ mile on either side of the ordinary high-water mark because WSRA provides for these default boundaries in the absence of agency designated boundaries. The segment classifications would be the same as those in the 1982 National Rivers Inventory. There would no Section 7 Determination Process.

The ORVs would continue to be protected by ongoing management programs although management considerations and concerns would continue, as discussed in Chapter 5. In addition, ecological restoration actions would be limited to those that would only require a Categorical Exclusion in compliance with NEPA, and those identified in the *2009 Settlement Agreement*. The NPS would also continue invasive species control where such plants are present as well as conifer removal from some meadows.



Although the ecological restoration possible without a comprehensive plan would mitigate some impacts to river values, management considerations and concerns associated with the current management of the river corridor (which the *Merced River Plan/DEIS* is intended to address) would generally continue under the No Action Alternative. These issues are not repeated here (although they are reiterated from Chapter 5 in the No Action Alternative in Chapter 8).

### **Summary of Current User Capacities, Land Use, and Facilities Management**

Under the No Action Alternative, existing user-capacity management actions would continue. These include the use of the wilderness permit system for overnight use of the backcountry and the reservations systems for camping and lodging accommodations. Day use would remain unlimited. Traffic congestion would be managed by staff directing traffic, maximizing parking efficiency, and diverting inbound traffic away from Yosemite Valley if no parking was available during peak use days. Pilot transit programs would continue to provide limited additional service to destinations within the river corridor, including Yosemite Valley. There would be no established limit to the number of visitors or vehicles that would be allowed within the corridor. All existing services and facilities would be retained.

Visitors would continue to have unmanaged access to many locations and services. However, during peak hours of the busiest peak season days, traffic congestion and crowding at popular attractions would continue to significantly affect the quality of the experience for many visitors.

### ***Alternative 2: Self-Reliant Visitor Experiences and Extensive Floodplain Restoration***

The guiding principles of Alternative 2 would include maximizing the restoration of the 100-year floodplain by removing infrastructure not essential to resource-related recreation, and creating a more self-reliant visitor experience, where fewer commercial services would be available. Visitor-use levels would be managed to allow for visitor experiences free of crowding or congestion.

Management actions in Alternative 2 would:

- Restore 347 acres of meadow and riparian habitat.
- Slightly reduce the available campsites in all river segments (-8%) and in Yosemite Valley (-3%).
- Significantly reduce the available lodging in all river segments (-43%) and in Yosemite Valley (-46%).
- Reduce day-use parking spaces in Yosemite Valley (-23%).
- Reduce commercial services.
- Make significant changes to traffic-circulation patterns in Yosemite Valley to accommodate ecological restoration goals and reduce traffic congestion.
- Accommodate approximately 13,900 visitors per day in East Yosemite Valley
- Continue to manage overnight use through the wilderness permit system and a reservation system for lodging and camping
- Manage day-use capacity for East Yosemite Valley through a parking permit system required during peak season.

### ***Alternative 3: Dispersed Visitor Experience and Extensive Riverbank Restoration***

The guiding principles of Alternative 3 would include restoration of large portions of the floodplain and the riparian area within 150 feet of the river. This alternative would accommodate much lower maximum visitor-use levels than today, and offer fewer commercial services and facilities. Visitor-use levels would be managed to allow for dispersed visitor experiences free of crowding or congestion.

Management actions in Alternative 3 would:

- Restore 302 acres of meadow and riparian habitat.
- Slightly reduce the campsite inventory in all river segments (-3%) and slightly increase campsite inventory in Yosemite Valley (+2%).
- Significantly reduce the lodging inventory in all river segments(-37%) and in Yosemite Valley (-40%).
- Significantly reduce day-use parking for Yosemite Valley (-32%).
- Reduce commercial services.
- Make significant changes to the traffic circulation pattern in Yosemite Valley to accommodate ecological restoration goals and reduce traffic congestion.
- Accommodate approximately 13,200 visitors per day in East Yosemite Valley.
- Continue to manage overnight use through wilderness quotas, reservation systems for lodging and camping.
- Manage day-use capacity for East Yosemite Valley through permits and a reservation system required during peak season.

### ***Alternative 4: Resource-Based Visitor Experiences and Targeted Riverbank Restoration***

The guiding principles of Alternative 4 include restoration of portions of the floodplain and the riparian area within 150 feet of the river. This alternative focuses on providing only those commercial services and facilities that facilitate resource-based visitor experiences. It accommodates lower maximum visitor use levels than today, with large increases in overnight camping capacity, and moderate decrease in the overnight lodging capacity.

Management actions in Alternative 4 would:

- Restore 223 acres of meadow and riparian habitat.
- Significantly increase the campsite inventory in all river segments (+37%) and in Yosemite Valley (+50%).
- Reduce the lodging inventory in all river segments (-20%) and in Yosemite Valley (-20%).
- Reduce day-use parking for Yosemite Valley (-12%).
- Reduce commercial services.
- Make targeted changes to the traffic circulation pattern in Yosemite Valley to accommodate ecological restoration goals and reduce traffic congestion.
- Accommodate approximately 17,000 visitors per day in East Yosemite Valley.
- Continue to manage overnight use capacity through wilderness permits, and reservation systems for lodging and camping.
- Manage day-use capacity for East Yosemite Valley through permits and a reservation system required during peak season.

***Alternative 5 (Preferred): Enhanced Visitor Experience and Essential Riverbank Restoration***

The guiding principles of Alternative 5 would include significant restoration within 100 feet of the river and in meadow and riparian areas, maintaining daily visitation in Yosemite Valley to accommodate peak levels similar to those observed in recent years, reducing unnecessary facilities and services, and converting facilities from administrative use to public use where feasible.

Management actions in Alternative 5 would:

- Restore 203 acres of meadow and riparian habitat.
- Significantly increase the campsite inventory in all river segments (+28%) and in Yosemite Valley (+37%).
- Minimally increase the lodging inventory in all river segments (less than 1%) and in Yosemite Valley (+2%).
- Increase day-use parking spaces in Yosemite Valley (+5%).
- Reduce commercial services.
- Make significant changes to the traffic circulation pattern to meet ecological restoration goals and reduce traffic congestion through infrastructure improvements.
- Accommodate approximately 19,900 visitors per day in East Yosemite Valley.
- Continue to manage overnight use capacity through wilderness permits and reservation systems for lodging and camping.
- Manage day-use capacity for East Yosemite Valley through traffic diversions and monitoring.

***Alternative 6: Diversified Visitor Experiences and Selective Riverbank Restoration***

The guiding principles of Alternative 6 include limited restoration within 100 feet of the river and in meadow and riparian areas, infrastructure improvements to accommodate growth in peak daily visitation in Yosemite Valley, and expansion of facilities and services to allow for diversified visitor experiences.

Management actions in Alternative 6 would:

- Restore 170 acres of meadow and riparian habitat.
- Significantly increase the campsite inventory in all river segments (+46%) and in Yosemite Valley (+59%).
- Increase the lodging inventory in all river segments (+18%) and in Yosemite Valley (+21%).
- Increase day-use parking for Yosemite Valley (+11%).
- Expand facilities and services to accommodate growth in visitation.
- Reduce traffic congestions and improve traffic circulation through major infrastructure improvements.
- Accommodate approximately 21,800 visitors per day in East Yosemite Valley.
- Continue to manage overnight use capacity through wilderness quotas and reservation systems for lodging and camping.
- Manage day-use capacity for East Yosemite Valley through traffic diversions and monitoring.

***Summary Comparison of Alternatives***

A summary comparison of actions to protect and enhance river values is shown in Table ES-1. A summary comparison of user capacities under all the alternatives is shown in the Table ES-2.

**TABLE ES-1: SUMMARY OF MAJOR ACTIONS FOR PROTECTING AND ENHANCING RIVER VALUES—COMMON TO ALTERNATIVES 2-6**

	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
<b>Free Flow, Water Quality, Geologic/Hydrologic, and Biological Values</b>					
<b>Corridorwide</b>					
<b>Ecological Restoration Acreage</b>	Common to Alternatives 2-6: 164 acres total (refer to Appendix E for specific locations)				
	347 total acres	302 total acres	223 total acres	203 total acres	170 total acres
<b>Riprap to be Removed</b>	Common to Alternatives 2-6: 5,700 linear feet (refer to Appendix E for specific locations)				
	additional 964 feet of riprap	additional 435 feet of riprap	additional 435 feet of riprap	additional 435 feet of riprap	additional 348 feet of riprap
<b>Segment 1: Wilderness above Nevada Fall</b>					
<b>Riparian Buffer / Floodplain</b>	Remove facilities at Merced Lake High Sierra Camp and restore floodplain.	Remove facilities at Merced Lake High Sierra Camp and restore floodplain.	Remove facilities at Merced Lake High Sierra Camp and restore floodplain.		
<b>Segment 2: Yosemite Valley</b>					
<b>Free Flow / Geologic/ Hydrologic Values</b>	Common to Alternatives 2-6: <ul style="list-style-type: none"> <li>▪ Place large wood into riverbanks and river channel and construct log jams between Clark’s and Sentinel bridges to enhance riparian habitat and channel complexity.</li> <li>▪ Remove riverbank riprap.</li> <li>▪ Remove the Happy Isles bridge footings and relocate the Pohono gauging station.</li> </ul>				
	Remove Ahwahnee, Sugar Pine, and Stoneman bridges	Remove Ahwahnee, Sugar Pine, and Stoneman bridges	Remove Ahwahnee and Sugar Pine bridges	Remove Sugar Pine Bridge	

**TABLE ES-1: SUMMARY OF MAJOR ACTIONS FOR PROTECTING AND ENHANCING RIVER VALUES—COMMON TO ALTERNATIVES 2-6**

	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
<b>Free Flow, Water Quality, Geologic/Hydrologic, and Biological Values</b>					
<b>Riparian Buffer / Floodplain</b>	Common to Alternatives 2-6: <ul style="list-style-type: none"> <li>At a minimum, remove existing campsites and associated infrastructure from within 100 feet of the bed and banks of the river.</li> <li>Establish a riparian buffer to prohibit any new development within 150 feet of the bed and banks of the river</li> <li>Move Yosemite Village Day-use Parking Area (Camp 6) north at least 150 feet away from the river.</li> <li>Implement a 50-foot riparian setback from Indian Creek.</li> <li>Direct river access to resilient sandy beaches and sandbars; fence off sensitive riparian areas, and restore native riparian vegetation.</li> </ul>				
	<ul style="list-style-type: none"> <li>Ecologically restore 35.6 acres of the 10-year floodplain at former Upper and Lower River campgrounds.</li> <li>Ecologically restore 25 acres of 100-year floodplain at the North Pines Campground, Backpackers Camp, Yellow Pine Administrative Campground, and portions of Lower Pines Campground.</li> <li>Ecologically restore large portions of Yosemite Lodge and Housekeeping Camp.</li> <li>Move Yosemite Village Day-use Parking Area (Camp 6) north outside the 10-year floodplain.</li> </ul>	<ul style="list-style-type: none"> <li>Ecologically restore 35.6 acres of the 10-year floodplain at former Upper and Lower River campgrounds.</li> <li>Ecologically restore riparian habitat within 150 feet of the river at Backpackers Camp, North Pines and Lower Pines, campgrounds.</li> <li>Ecologically restore a large portion of Housekeeping Camp and four buildings of Yosemite Lodge within the 100-year floodplain.</li> <li>Move Yosemite Village Day-use Parking Area north outside the 10-year floodplain.</li> </ul>	<ul style="list-style-type: none"> <li>Ecologically restore 19.7 acres of riparian habitat in former Upper and Lower River campgrounds; construct campsites 150 feet away from the river</li> <li>Ecologically restore riparian habitat within 150 feet of the river at Backpackers Camp, North Pines, and Lower Pines campgrounds.</li> <li>Ecologically restore portions of Housekeeping Camp in the observed high-water mark.</li> <li>Move Yosemite Village Day-use Parking Area parking north at least 150 feet away from the river.</li> </ul>	<ul style="list-style-type: none"> <li>Ecologically restore 35.6 acres of the 10-year floodplain at former Upper and Lower River Campgrounds; construct new campsites in Upper River outside the 25-year floodplain.</li> <li>Ecologically restore riparian habitat within 100 feet of the river at Backpackers Camp, North Pines, and Lower Pines Campground.</li> <li>Ecologically restore part of Housekeeping Camp within the ordinary high-water mark (bed and banks) of the river.</li> <li>Move Yosemite Village Day-use Parking Area parking north at least 150 feet away from the river.</li> </ul>	<ul style="list-style-type: none"> <li>Ecologically restore 19.7 acres of riparian habitat in former Upper and Lower River Campgrounds and construct new campsites 150 feet away from the river.</li> <li>Ecologically restore riparian habitat within 100 feet of the river at Backpackers Camp, North Pines, and Lower Pines Campground.</li> <li>Ecologically restore part of Housekeeping Camp within the ordinary high-water mark (bed and banks) of the river.</li> <li>Move Yosemite Village Day-use Parking Area parking north at least 150 feet away from the river.</li> </ul>

**TABLE ES-1: SUMMARY OF MAJOR ACTIONS FOR PROTECTING AND ENHANCING RIVER VALUES—COMMON TO ALTERNATIVES 2-6**

	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
<b>Free Flow, Water Quality, Geologic/Hydrologic, and Biological Values</b>					
<b>Meadow and Upland Restoration</b>	Common to Alternatives 2-6: <ul style="list-style-type: none"> <li>Remove abandoned infrastructure, including tiles, pipes, and abandoned roads, and ecologically restore sites.</li> <li>Improve meadow hydrology by removing artificial fill, filling ditches, constructing culverts, and removing remnants of abandoned underground utilities to enhance water flows into meadows (actions in particular meadows would sometimes vary among alternatives).</li> <li>Remove six miles of informal trails to reduce meadow fragmentation; restore disturbed areas to natural conditions; eliminate some roadside parking adjacent to meadows and fence some areas to reduce the potential for informal trailing through sensitive meadow habitat.</li> <li>Eliminate some roadside parking and fence some areas to reduce the potential for informal trailing through sensitive meadow habitat.</li> <li>Improve the condition of plant communities at specific locations in Yosemite Valley (67 potential acres targeted) by restoring the mosaic of meadow, riparian deciduous, black oak, and open mixed conifer forest vegetation. Management actions could include re-vegetation, prescribed fire, mechanical removal of conifers, and infrastructure redesign.</li> </ul>				
	<ul style="list-style-type: none"> <li>Remove 900 feet of Northside Drive through Ahwahnee Meadow to enhance connectivity of the meadow and floodplain.</li> <li>Remove 1,335 feet of Southside Drive through Stoneman Meadow to enhance connectivity of the meadow and floodplain.</li> </ul>	<ul style="list-style-type: none"> <li>Remove 900 feet of Northside Drive through Ahwahnee Meadow to enhance connectivity of the meadow and floodplain</li> <li>Remove 1,335 feet of Southside Drive through Stoneman Meadow to enhance connectivity of the meadow and floodplain</li> </ul>	<ul style="list-style-type: none"> <li>Remove 1,335 feet of Southside Drive through Stoneman Meadow to enhance connectivity of the meadow and floodplain</li> </ul>		
<b>Segment 4: El Portal</b>					
<b>Riparian Buffer / Floodplain</b>	Common to Alternatives 2-6: <ul style="list-style-type: none"> <li>Ecologically restore Greenemeyer sand pit.</li> <li>Enhance valley oaks in Old El Portal by creating an oak recruitment area of at least one acre in the vicinity of the current Odger’s Fuel Storage Facility.</li> </ul>				

**TABLE ES-1: SUMMARY OF MAJOR ACTIONS FOR PROTECTING AND ENHANCING RIVER VALUES—COMMON TO ALTERNATIVES 2-6**

	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
<b>Free Flow, Water Quality, Geologic/Hydrologic, and Biological Values</b>					
<b>Segment 7: Wawona</b>					
<b>Riparian Buffer / Floodplain</b>	Common to Alternatives 2-6: <ul style="list-style-type: none"> <li>Ecologically restore portions of the Wawona Campground. Relocate or remove all campsites currently within 100 feet of the bed and banks of the river.</li> </ul>				
	<ul style="list-style-type: none"> <li>Ecologically restore the 42-acre Wawona Golf Course to meadow habitat.</li> </ul>	<ul style="list-style-type: none"> <li>Ecologically restore 42-acre Wawona Golf Course to meadow habitat.</li> </ul>			
<b>Scenic Values</b>					
<b>Segment 2: Yosemite Valley</b>					
<b>Iconic Scenic Views</b>	Common to Alternatives 2-6: <ul style="list-style-type: none"> <li>Reduce visual intrusions as part of the ecological restoration program.</li> <li>Ensure that new development is protective of scenic values.</li> <li>Implement management treatments, including removal of vegetation, to protect views from 47 vista points within the river corridor.</li> </ul>				
<b>Cultural Values</b>					
<b>Corridorwide</b>					
<b>Archeological and Ethnographic Resources</b>	Common to Alternatives 2-6: <ul style="list-style-type: none"> <li>Remove informal trails, non-essential roads, and infrastructure that impacts archeological sites.</li> <li>Delineate bike paths, roads, bridle paths, parking, staging, and trails away from sensitive cultural and ethnographic resource areas.</li> <li>Remove graffiti, and install fencing around rock art and other sensitive features to discourage inappropriate visitor use</li> <li>Develop site management plans for archeological sites with complex uses and impacts such as Yosemite Village.</li> </ul>				



**TABLE ES-1: SUMMARY OF MAJOR ACTIONS FOR PROTECTING AND ENHANCING RIVER VALUES—COMMON TO ALTERNATIVES 2-6**

	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
<b>Recreational Values</b>					
<b>Segment 1: Wilderness above Nevada Fall</b>					
<b>Wilderness Recreation</b>	<ul style="list-style-type: none"> <li>Enhance wilderness character by removing the Merced Lake High Sierra Camp and converting this area to designated Wilderness.</li> <li>Reduce zone capacities and convert overnight use to dispersed camping.</li> </ul>	<ul style="list-style-type: none"> <li>Covert Merced Lake High Sierra Camp to temporary stock camp with reduced overnight capacity and convert area to designated Wilderness.</li> <li>Reduce zone capacities and convert overnight use to dispersed camping.</li> </ul>	<ul style="list-style-type: none"> <li>Enhance wilderness character by removing the Merced Lake High Sierra Camp and converting this area to designated Wilderness</li> <li>Reduce zone capacities and size of Little Yosemite Valley Camping Area.</li> <li>Expand footprint of Merced Lake Backpackers Camping Area</li> </ul>	<ul style="list-style-type: none"> <li>Reduce zone capacities and trailhead quotas.</li> <li>Visitor overnight use concentrated to designated camping areas</li> </ul>	<ul style="list-style-type: none"> <li>Visitor overnight use concentrated to designated camping areas</li> </ul>
<b>Segment 2: Yosemite Valley</b>					
<b>River-related Recreation</b>	Common to Alternatives 2-6: <ul style="list-style-type: none"> <li>Improve traffic circulation and access while reducing congestion at key attraction sites.</li> <li>Manage boating to improve dispersed recreation along the river in Yosemite Valley.</li> </ul>				

**TABLE ES-2: YOSEMITE VALLEY VISITATION AND USER CAPACITIES**

Segment 2 Yosemite Valley	Unit Type	Alternative 1 (No Action)	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
Visitation (per day)	People	20,900 people	13,900 people	13,200 people	17,000 people	19,900 people	21,800 people
Visitor Overnight-Use Capacity *	Lodging and Campsites	6,564 people	4,758 people	5,027 people	7,224 people	7,729 people	9,006 people
Visitor Day-Use Capacity**	Vehicles and buses	8,272 people	6,819 people	6,289 people	7,554 people	8,954 people	9,449 people
* Visitation is defined as the expected use level over a 24-hour period that can be accommodated in Segment 2 (East Yosemite Valley). **User capacity for this segment is defined as the maximum number of people at one time (PAOT) accommodated in Segment 2 (East Yosemite Valley) without adverse effect to river values.							

## ENVIRONMENTALLY PREFERABLE ALTERNATIVE

The Council on Environmental Quality (CEQ) regulations implementing NEPA and the National Park Service NEPA guidelines require “the alternative or alternatives which were considered to be environmentally preferable” be identified (CEQ Regulations, section 1505.2). Environmentally preferable is defined as “the alternative that will promote the national environmental policy as expressed in NEPA’s Section 101. Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative that best protects, preserves, and enhances historic, cultural, and natural resources” (CEQ 1981).

Upon full consideration of the elements of NEPA Section 101, Alternative 5 was determined to represent the environmentally preferable alternative for the *Merced River Plan/DEIS*. This conclusion is analyzed in Chapter 8.

## ORGANIZATION: MERCED WILD AND SCENIC RIVER COMPREHENSIVE MANAGEMENT PLAN AND DRAFT ENVIRONMENTAL IMPACT STATEMENT

The information in this document is organized as follows:

### Volume 1

**Chapter 1: The Merced Wild and Scenic River** describes the purpose of the nation’s Wild and Scenic Rivers System and what the designation of the Merced River as part of that system means in terms of river planning and management.

**Chapter 2: The Purpose and Need for the Merced River Plan** describes the purpose and organization of the plan, the major planning issues identified during internal and public scoping, and the interrelationships with other plans and projects.

**Chapter 3: Wild and Scenic River Corridor Boundaries and Segment Classifications** explains the legal requirements for establishing a river corridor boundary and classifying its segments. It also describes the boundary and segment classifications for the Merced River in Yosemite National Park.

**Chapter 4: Determination Process for Water Resource Projects** explains the legal requirements for protecting the river’s free-flowing condition and describes the process that will be used to fulfill that requirement.

**Chapter 5: River Values and Their Management** is the heart of the *Merced River Plan/DEIS*. The chapter presents detailed discussions of the conditions, management concerns, actions for addressing management concerns, and continuing monitoring and protective actions for each river value. The actions to ensure protection of river values presented in this chapter will be common to all alternatives.

**Chapter 6: Visitor Use and User Capacity** describes the process used to address WSRA’s user capacity requirement. The major differences among the plan alternatives (presented in Chapter 8) have to do with the kinds and amounts of use the river corridor could receive in the future.

**Chapter 7: Facilities and Services Analysis** details structures and facilities within each segment of the Merced River corridor in terms of their effect on river values. This chapter also examines the feasibility of relocating, removing or re-designing facilities that cause management considerations with regard to river

values. Information presented in Chapter 7 informed the development of the alternatives presented in Chapter 8.

**Chapter 8: Alternatives** presents the six alternatives (no action alternative plus five action alternatives) currently under consideration in the *Merced River Plan/DEIS*. The differences among the alternatives revolve primarily around possible differences in visitor use and user capacity. Most of the actions needed to protect and enhance river values are common to all the action alternatives although some variations exist.

## Volume 2

**Chapter 9: Affected Environment and Environmental Consequences** identifies and describes the natural and sociocultural resources and values that could be affected by the alternatives presented in Chapter 8 and evaluates and compares the potential effects of the alternatives. Chapter 9 looks comprehensively at the components of the human environment that might be affected by the plan and assesses how they might be affected by actions intended to protect and enhance river values.

**Chapter 10: Consultation and Coordination** summarizes all consultation and coordination efforts undertaken to date for the *Merced River Plan/DEIS*. It outlines the project scoping history and the much broader public involvement history that extended through every step of the development of the plan alternatives. It describes specific consultations with the traditionally associated American Indian tribes and the federal, state, and local agencies having jurisdiction or particular interests in the Merced River corridor. Chapter 10 also includes a list of the agencies, organizations, and businesses that received the *Merced River Plan/DEIS*.

**Chapter 11:** List of Preparers

**Chapter 12:** Glossary and Acronyms

**Chapter 13:** References

### Appendices

Appendix A: Actions that Amend the ‘General Management Plan’

Appendix B: Cumulative Actions

Appendix C: Mitigation Measures

Appendix D: Draft Floodplain Statement of Findings

Appendix E: Proposed Restoration Actions

Appendix F: Acoustical Measurement Locations

Appendix G: On-road Vehicle Criteria Pollutant and GHG Emission Estimates

Appendix H: Scenic Vista Management

Appendix I: Yosemite Valley Historic District Resources

Appendix J: NHPA Assessment of Effect for Site-specific Actions

Appendix K: Management Considerations and Actions

Appendix L: Determination of Extent Necessary

Appendix M: Changes to the ORVs Over Time

Appendix N: Draft Biological Assessment

Appendix O: Draft Wetland Statement of Findings

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# 1. THE MERCED WILD AND SCENIC RIVER

The U.S. Congress designated the Merced River in Yosemite National Park as a component of the National Wild and Scenic Rivers System in 1987 (Public Law 100-149). This action amended the 1968 Wild and Scenic Rivers Act (WSRA) (16 USC 1271), which states:

*“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 Merced River (Figure 1-1) originates in Yosemite at the crest of the Sierra Nevada and descends almost 10,000 feet in elevation on its 81-mile journey through the park. The river has been central to this dramatic landscape for tens of thousands of years, and it continues to shape riparian and meadow communities and support a diverse suite of wildlife. The river was home to American Indians for millennia, and cultural traditions associated with the river continue to the present day. The Merced River is also a focus for millions of Yosemite visitors who enjoy opportunities for recreation, education, reflection, and inspiration in the sublime beauty of the river corridor.

**Figure 1-1: Merced Wild and Scenic River Overview Map**



The National Park Service (NPS) is the managing agency for the portions of the Merced Wild and Scenic River in Yosemite and the El Portal Administrative Site. As part of this responsibility, the NPS must develop a Wild and Scenic River comprehensive management plan to guide long-term management and public use in the river corridor. The NPS will develop the plan in accordance with the mandates of the National Environmental Policy Act (NEPA) and document the process with an Environmental Impact Statement (EIS) and subsequent Record of Decision. This document encompasses the draft comprehensive river management plan and associated Draft EIS, collectively referred to as the *Merced River Plan/Draft Environmental Impact Statement*. The NPS intends to release a final EIS in summer 2013.

The *Merced River Plan/DEIS* addresses the required elements of WSRA while complying with the planning processes required by NEPA, the National Historic Preservation Act, and other legal mandates that govern decision-making and planning in the NPS. The NPS expects the plan to have a lifespan of at least 20 years. The plan also fulfills public review requirements under the California Environmental Quality Act.

## THE WILD AND SCENIC RIVERS ACT

Congress established WSRA to counterbalance decades of dam building and river-related development by mandating the protection of some outstanding rivers in their natural, free-flowing state. A *Wild and Scenic River* has “outstandingly remarkable values” (ORVs) that make it worthy of special protection for the benefit and enjoyment of present and future generations. Federal land managers must protect and enhance the values for which a river was designated as a Wild and Scenic River. Today, WSRA protects a select amount—12,600 miles (or less than ¼ of 1%)—of U.S. rivers and creeks as units of the National Wild and Scenic Rivers System. Two Wild and Scenic rivers are located within Yosemite: the Merced River (designated in 1987) and the Tuolumne River (designated in 1984). The Merced River is one of 23 Wild and Scenic Rivers in California and one of six Wild and Scenic Rivers on the western slope of the Sierra Nevada.

## REGIONAL SETTING

Within the Sierra Nevada range of California, the Merced River is one of 15 major river systems. Originating in Yosemite’s alpine peaks, the Merced River flows west for 145 miles to its confluence with the San Joaquin River outside the park in the Central Valley of California, encompassing a drainage basin of 1,700 square miles. The first 122 miles of the Merced River are designated as Wild and Scenic; the NPS manages 81 miles of the river through Yosemite and El Portal, including both the Merced River’s main stem and the South Fork Merced River. Within Yosemite, the river reaches contain some of the world’s most-admired scenery, including grand waterfalls and large, mid-elevation meadows. As the Merced River flows outside Yosemite’s western boundary, the U.S. Forest Service (USFS) and the Bureau of Land Management (BLM) manage the next 41 miles of the Wild and Scenic River (Public Law 102-432). The remaining 23 miles of the Merced River below Lake McClure and the New Exchequer Dam, located in the Central Valley, do not have Wild and Scenic River status.

The headwaters of the main stem of the Merced River originate in Yosemite in several watersheds: the Lyell Fork, Triple Peak Fork, Merced Peak Fork, and Red Peak Fork. These watersheds are at the far eastern side of the Merced River watershed, with the Tuolumne, Mono, and San Joaquin River watersheds to the north, east, and south. From its headwaters, the main stem of the Merced River flows freely through a wilderness landscape of alpine peaks, glacially carved valleys, and high-elevation meadows. The river makes a dramatic entry into Yosemite Valley, rushing over towering cliffs in prominent waterfalls. As the gradient lessens, the

Merced River meanders through the rich meadow and riparian habitat of Yosemite Valley. At the west end of Yosemite Valley the canyon narrows, and the river becomes a cascade of continuous rapids through the Merced Gorge. The gradient changes abruptly at the park boundary, where the river continues through El Portal on its journey through the Sierra Nevada foothills to the Central Valley of California.

The South Fork Merced River originates at the Sierra crest from the southwestern slopes of Triple Divide Peak and the west facing slopes of Gale Peak and Sing Peak. The South Fork Merced River flows southwest through Yosemite Wilderness (south of the Clark Range) and the community of Wawona. The South Fork Merced River exits the park less than a mile below the Wawona Campground, and then flows through the Sierra National Forest to the confluence of the main stem of the Merced River west of El Portal.

The Merced River's main stem and the South Fork Merced River will be collectively referred to as the Merced River in this document from this point.

## **GOALS OF THE MERCED RIVER PLAN**

The 1980 *General Management Plan* for Yosemite National Park provides long-range management direction for Yosemite. The *Merced River Plan* will amend parts of the *General Management Plan* related to the Merced River corridor, as directed in the 1987 legislation designating the Merced River as a component of the National Wild and Scenic River System. In this legislation, Congress directed that:

*“appropriate revisions to the general management plan for the park, and the boundaries, classification, and development plans for such portions need not be published in the Federal Register. Such revisions to the general management plan for the park shall assure that no development or use of park lands shall be undertaken that is inconsistent with the designation of such river segments (16 U.S.C. Section 1274 (a)(62)(A)).”*

Appendix A summarizes the actions in the *Merced River Plan/DEIS* that would amend the *General Management Plan*.

The overall goal of the *Merced River Plan/DEIS* is to provide for public recreation and resource use while protecting and enhancing the values for which the Merced River was designated a Wild and Scenic River. The planning team developed goals that are more specific for the *Merced River Plan/DEIS* after analysis of public scoping comments. These specific goals of the *Merced River Plan/DEIS* are to:

- ***Protect and Enhance Ecological and Natural Resource River Values:*** Promote the ability of the Merced River to shape the landscape by reducing impediments to free flow, improving geologic/hydrologic processes, restoring floodplains and meadows, and protecting water quality.
- ***Provide Opportunities for Direct Connection to River Values:*** Support opportunities for people to experience and develop direct connections to the Merced River and its unique values as a place of cultural association, education, recreation, reflection, and inspiration.
- ***Institute a Visitor-Use Management Program:*** Institute a visitor-use management program that provides for high-quality, resource-related recreational opportunities in the river corridor while protecting and enhancing natural and cultural river values today and into the future.
- ***Determine Land Uses and Associated Developments:*** Provide clear direction on land uses and associated developments in the river corridor, allowing for the infrastructure necessary to support the protection and enhancement of river values.



**Figure 1-2: MRP / DEIS Organization**

<b>'Merced River Plan / DEIS' Document Organization</b>	
<b>Volume 1</b>	
Abstract Executive Summary Chapter 1: Introduction Chapter 2: Purpose and Need for the Plan <span style="border: 1px solid black; padding: 2px;">Chapter 3: River Boundaries and Segment Classifications</span> Chapter 4: Section 7 Determination Process Chapter 5: River Values and their Management Chapter 6: Visitor Use and User Capacity Chapter 7: Facilities and Services Analysis Chapter 8: Alternatives <ul style="list-style-type: none"> <li>• Introduction</li> <li>• Detailed Description of Alternatives</li> <li>• Actions Considered but Dismissed</li> <li>• Cost Comparison</li> <li>• Comparisons of User Capacities and Alternative Actions</li> <li style="border: 1px solid black; padding: 2px;">• River Value Analysis</li> </ul>	
<b>Volume 2</b>	
Chapter 9: Affected Environment and Environmental Consequences Chapter 10: Consultation and Coordination Chapter 11: List of Preparers Chapter 12: Glossary and Acronyms Chapter 13: References Appendices:	
<span style="border: 1px solid black; display: inline-block; width: 20px; height: 10px; margin-bottom: 5px;"></span>	<b>Merced River Plan Elements (as required by WSRA)</b>
<span style="border: 1px solid black; display: inline-block; width: 20px; height: 10px; margin-bottom: 5px;"></span>	<b>Draft Environmental Impact Statement (as required by NEPA)</b>

## THIS DOCUMENT'S ORGANIZATION

The *Merced River Plan/DEIS* is a two-volume set, with appendices provided digitally or online at

<http://www.nps.gov/yose/parkmgmt/mrp.htm>.

Figure 1-2 displays the organization of the plan and the sections that comprise the *Merced Wild and Scenic River Comprehensive Management Plan / Draft Environmental Impact Statement*.

<b>'Merced River Plan / DEIS' Appendix Organization</b>	
<b>Appendices in Volume 2</b>	
<b>Appendix A:</b> Actions that Amend the 'General Management Plan'	
<b>Appendix B:</b> Cumulative Actions	
<b>Appendix C:</b> Mitigation Measures	
<b>Appendix D:</b> Draft Floodplain Statement of Findings	
<b>Appendix E:</b> Proposed Restoration Actions	
<b>Appendix F:</b> Acoustical Measurement Locations	
<b>Appendix G:</b> On-road Vehicle Criteria Pollutant and GHG Emission Estimates	
<b>Appendix H:</b> Scenic Vista Management	
<b>Appendix I:</b> Yosemite Valley Historic District Resources	
<b>Appendix J:</b> NHPA Assessment of Effect for Site-specific Actions	
<b>Appendix K:</b> Management Considerations and Actions	
<b>Appendix L:</b> Determination of Extent Necessary	
<b>Appendix M:</b> Changes to the ORVs Over Time	
<b>Appendix N:</b> Draft Biological Assessment	
<b>Appendix O:</b> Draft Wetland Statement of Findings	



## 2. PURPOSE AND NEED FOR THE 'MERCED RIVER PLAN'

This chapter describes the purpose and need for the *Merced Wild and Scenic River Comprehensive Management Plan/Draft Environmental Impact Statement (Merced River Plan/DEIS)* and discusses the issues and opportunities addressed in the plan. Specifically, this chapter includes:

- Statements of the purpose and need for taking action
- The planning context of the plan, including the legal framework, recent legal history, and interrelationships with other plans
- A discussion of issues and opportunities identified during the scoping process and considered in preparation of this plan, and issues dismissed from further analysis.

### PURPOSE OF AND NEED FOR THE PLAN

The purpose of the *Merced River Plan/DEIS* is to preserve the Merced River in free-flowing condition, and to protect the water quality and outstandingly remarkable values (ORVs) that make the river worthy of designation, for the benefit and enjoyment of present and future generations. In accordance with WSRA “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” (WSRA Section 3(d)). This plan will fulfill the specific direction of the 1987 legislation designating the Merced River as a component of the National Wild and Scenic River System (16 U.S.C. Section 1274 (a)(62)(A)) and make appropriate revisions to the park’s 1980 *General Management Plan*.

The need for the *Merced River Plan/DEIS* also derives from a 2009 *Settlement Agreement* under which the National Park Service (NPS) agreed to complete a new comprehensive management plan for the Merced Wild and Scenic River by July 2013. The U.S. Forest Service (USFS) and Bureau of Land Management (BLM) completed plans for the river segments within their jurisdiction. The finished plan for the Yosemite segments will complete the management plans needed for the entire Merced Wild and Scenic River.

### LEGAL AND POLICY FRAMEWORK

The management of the NPS is guided by the Constitution, public laws, treaties, proclamations, executive orders, regulations, and directives of the Secretary of the Interior and the Assistant Secretary for Fish and Wildlife and Parks. The NPS Organic Act, passed by the U.S. Congress in 1916, provides fundamental management direction for all units of the National Park System. A key management provision in the act is:

*“[The National Park Service] shall promote and regulate the use of the Federal areas known as national parks, monuments, and reservations . . . by such means and measure as conform to the fundamental purpose of 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.”*

Congress amended the Organic Act with the 1970 General Authorities Act (16 USC 1a-1 et seq.), which affirms that that all of the nation’s parks—whether they include natural, cultural or historic resources—are

united under the mission, purpose and protection of the Organic Act. The 1978 Redwood National Park Expansion Act also amended the Organic Act, re-affirming the mandate and directing the NPS to manage park lands in a manner that would not degrade park values.

In addition to these key management-related statutes, federal management decisions must be consistent with national laws, including the National Environmental Policy Act (NEPA) and the National Historic Preservation Act of 1966, which define the process used to evaluate and make planning-related decisions. The following provides more detail on the NPS Organic Act and a summary of additional federal laws most relevant to this planning process, including WSRA, the Wilderness Act of 1964, and the 1998 Concessions Management Improvement Act.

## National Park Service Organic Act, and National Parks and Recreation Act

The NPS was created by the National Park Service Organic Act of 1916 (USC 2-4) for the purpose of promoting and regulating a system of national parks. This broad mandate has been translated into an extensive set of management policies, which direct all aspects of park management (NPS 2006a).

The NPS has a specific set of policies in place to implement the requirements of law, fulfill management responsibilities under the NPS Organic Act, and guide agency operations. *NPS Management Policies* (2006) is the basic NPS policy document, and the highest level of guidance in the NPS Directives System. Director's Orders are the second level of the Directives System, and they serve as a vehicle to clarify or supplement the *Management Policies*. Reference manuals or handbooks with detailed guidance make up the third level of the NPS Directives System.

Since 1978, the NPS has been required under the National Parks and Recreation Act (16 USC 1a-7) to prepare general management plans for all units of the National Park System. The relationship between the *Merced River Plan* and the *General Management Plan* for Yosemite National Park is described below under "Interrelationships with Other Plans and Projects."

## Wild and Scenic Rivers Act Requirements

The segments of the Merced River covered by the *Merced River Plan/DEIS* were part of Yosemite National Park when they were designated as part of Wild and Scenic River System in 1987. As part of the national park, these river segments are also managed under the provisions of the laws, policies, and regulations applicable to all units of the National Park System. Section 10(c) of WSRA specifies that in case of conflicts between the mandates of the two systems, the more restrictive provisions apply.

The following sections of WSRA are most pertinent to the *Merced River Plan/DEIS*:

**Section 1: Congressional Declaration of Policy**—Explains intent of WSRA in that designated rivers "shall be preserved in free-flowing condition, and ... their immediate environments shall be protected for the benefit and enjoyment of present and future generations" (16 USC 1271), as quoted in the first paragraph of "The Merced Wild and Scenic River" (Chapter 1).

**Section 2: Classifications**—Requires the river be classified and administered as "wild," "scenic," or "recreational" river segments, based on the condition of the river corridor at the time of designation. The classification of a river segment indicates the level of development on the shorelines, the level of development in the watershed, and the accessibility by road or trail.

**Section 3: Congressionally Designated Components, Establishment of Boundaries, Classifications, and Management Plans**—Lists rivers that are congressionally designated as National Wild and Scenic Rivers System components. Section 3 requires the administering agency to identify corridor boundaries and to prepare a comprehensive management plan to “provide for the protection of the river values.”

**Section 7: Restrictions on Hydro and Water Resource Development Projects**—Section 7 (16 USC 1278) is one of the most vital components of WSRA. This provision directs federal agencies to protect the values of designated rivers from adverse effects of “water resources projects” within the bed and banks of the river. Section 7 requires a rigorous process to ensure proposed water resources projects, implemented or assisted by federal agencies within the bed and banks of designated rivers, do not have a “direct and adverse effect” on the values for which the river was designated. It includes procedures to determine whether projects above or below the designated river or on its tributary streams would invade the area or unreasonably diminish the scenic, recreational, and fish and wildlife values present in the designated corridor.

**Section 10: Management Direction**—Section 10 sets forth the management direction for designated river segments and includes the following:

- WSRA shall be administered to *protect and enhance* a river’s ORVs. Insofar as possible, uses that are consistent with this and do not substantially interfere with public enjoyment and use of these values should not be limited (16 USC 1281[a]).
- In administration of a Wild and Scenic River, “primary emphasis shall be given to protecting its aesthetic, scenic, historic, archeologic, and scientific features. Management plans may establish varying degrees of intensity for its protection and development, based on the special attributes of the area” (16 USC 1281[a]).
- Wild and Scenic River segments inside congressionally designated Wilderness are subject to both WSRA and the Wilderness Act. Where the two conflict, the more restrictive (i.e., protective of resources) regulation will apply (16 USC 1281[b]).
- Any component of the National Wild and Scenic Rivers System administered by the NPS will become part of the National Park System and be subject to both WSRA and the acts under which the National Park System is administered. In the case of conflict among these acts, the more restrictive provisions will apply (16 USC 1281[c]).

Section 10(e) enables administering federal agencies to enter into cooperative agreements with state and local governments to allow them to participate in the planning and administration of components of the Wild and Scenic Rivers System that include or adjoin state- or county-owned lands.

**Section 12: Management Policies**—Section 12 directs the managing agency to take management actions on lands under its jurisdiction adjacent to the designated river corridor that may be necessary to protect the river according to the purposes of WSRA.

### ***1982 Final Revised Guidelines for Eligibility, Classification, and Management of River Areas (Secretarial Guidelines)***

In 1982, the Secretary of the Interior and Secretary of Agriculture jointly revised the guidelines for implementing WSRA. The revision, called the *National Wild and Scenic River System: Final Revised Guidelines for Eligibility, Classification and Management of River Areas*, is referred to as the Secretarial Guidelines. Published in the *Federal Register* in 1982, the Secretarial Guidelines incorporate changes in

WSRA necessary after more than a decade of use under the original 1970 guidelines<sup>1</sup>, facilitating greater consistency in agency interpretation of WSRA. The Secretarial Guidelines reflect new laws and regulations and respond to a 1979 presidential directive to consider river ecosystems in river evaluation and shorten river study time. The Secretarial Guidelines clarify the eligibility of free flowing rivers and river segments, eliminate minimum length guidelines, revise the definition of sufficient flow, revise water quality management, and accelerate the schedule for congressionally authorized studies (USDI and USDA 1982).

## Wilderness Act

The Yosemite Wilderness was added to the National Wilderness Preservation System by the 1984 California Wilderness Act. Segments of the Merced Wild and Scenic River corridor within Yosemite National Park are within this congressionally designated Wilderness.

WSRA specifies that both it and the Wilderness Act apply when a Wild and Scenic River is located in designated Wilderness:

*“Any portion of a component of the National Wild and Scenic Rivers System that is within the National Wilderness Preservation System, as established by or pursuant to the Act of September 3, 1964 (78 Stat. 890; 16 U.S.C., ch. 23), shall be subject to the provisions of both the Wilderness Act and this Act with respect to preservation of such river and its immediate environment, and in case of conflict between the provisions of these Acts the more restrictive provisions shall apply.”*

The National Wilderness Preservation System was established by the Wilderness Act of 1964 (PL 88-577, 16 USC 1131-1136) to secure for present and future generations the benefits of an enduring resource of wilderness. The Wilderness Act requires that areas of designated Wilderness be managed in ways that preserve their wilderness character. A Wilderness area, as defined by the act, is

*“an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain. An area of wilderness is further defined to mean. . . an area. . . retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which (1) generally appears to have been affected primarily by the forces of nature, with the imprint of man’s work substantially unnoticeable, and (2) has outstanding opportunities for solitude or a primitive and unconfined type of recreation.”*

Congress has delegated the management of the Yosemite Wilderness to the NPS. The *NPS Management Policies 2006* requires the superintendent of each park containing wilderness resources to develop a wilderness management plan or equivalent planning document to guide the preservation, management, and use of these resources. The relationship between the *Merced River Plan* and the *Yosemite Wilderness Management Plan* is described below under “Interrelationships with Other Plans and Projects.”

The NPS is required to consider the effects of commercial use in the Yosemite Wilderness as part of its delegated responsibility to maintain the wilderness character of the lands under its charge. A “Determination of Extent Necessary for Commercial Services in the Wilderness Segments of the Merced Wild and Scenic River Corridor” has been prepared as part of this planning for the Merced River (see Appendix L).

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<sup>1</sup> “Guidelines for Evaluating Wild, Scenic and Recreational River Areas Proposed for Inclusion in the National Wild and Scenic Rivers System under Section 2, Public Law 90-542”

## National Environmental Policy Act

Pursuant to section 102(2) (C) of the National Environmental Policy Act of 1969 (NEPA [42 USC 4341 et seq.]), the NPS has prepared a draft environmental impact statement identifying and evaluating six alternatives (the No Action and five action alternatives) for the *Merced River Plan*. Regulations governing NEPA compliance are set by the President's Council on Environmental Quality (CEQ) (40 CFR Parts 1500-1508). CEQ regulations establish the requirements and process for agencies to fulfill their obligations under the act. This draft environmental impact statement documents compliance with two fundamental NEPA requirements: 1) To make a careful, complete, and analytical study of the impacts of any proposal, and alternatives to that proposal, if it has the potential to affect the human environment, well before decisions are made and 2) To be diligent in involving interested or affected public members in the planning process.

Compliance with the National Historic Preservation Act (see below) is integrated into the NEPA compliance process, using NHPA criteria for the analysis of impacts on cultural resources. The NEPA process is also used to coordinate compliance with other federal laws and regulations applicable to the decisions to be made as part of the *Merced River Plan/DEIS*, including but not limited to the following:

- Americans with Disabilities Act (42 USC 12101 et seq.)
- Clean Air Act (as amended, 42 USC 7401 et seq.)
- Clean Water Act (33 USC 1241 et seq.)
- Endangered Species Act (16 USC 1531 et seq.)
- Executive Order 11593: Protection and Enhancement of the Cultural Environment
- Executive Order 11988: Floodplain Management
- Executive Order 11990: Protection of Wetlands
- Wilderness Act

## National Historic Preservation Act

Section 106 of the National Historic Preservation Act of 1966 (NHPA [16 USC 470]) directs federal agencies to take into account the effect of any undertaking (a federally funded or assisted project) on historic properties. A "historic property" is any district, building, structure, site, or object, including resources that are considered by American Indians or other communities to have cultural and religious significance, that is eligible for listing in the National Register of Historic Places (NRHP) because the property is significant at the national, state, or local level in American history, architecture, archeology, engineering, or culture. Section 106 also provides the Advisory Council on Historic Preservation (ACHP) and the state historic preservation officer (SHPO) an opportunity to comment on assessment of effects by the undertaking. Yosemite's section 106 review process is governed by national and park-specific programmatic agreements among the NPS, the Advisory Council for Historic Preservation, and the National Council of Historic Preservation Officers or the California state historic preservation officer (NPS, ACHP, and NCSHPO 2008; NPS, SHPO, and ACHP 1999). As stated above, compliance with NHPA section 106 is integrated into the NEPA compliance process, using NHPA criteria for the analysis of impacts on cultural resources.

The section 106 review process is also used to coordinate compliance with the following federal laws and regulations applicable to the decisions to be made as part of the *Merced River Plan*.

### ***Archaeological Resources Protection Act***

The Archeological Resources Protection Act of 1979 (ARPA [16 USC 470aa- 470ll]) prohibits unauthorized excavation of archeological sites on federal land, as well as other acts involving cultural resources, and implements a permitting process for excavation of archeological sites on federal or Indian lands (see regulations at 43 CFR 7). The act also provides civil and criminal penalties for removal of, or damage to, archeological and cultural resources. Historic properties are addressed in Volume 2, Chapter 9.

### ***Native American Graves Protection and Repatriation Act***

The Native American Graves Protection and Repatriation Act of 1990 (NAGPRA [25 USC 3001 et seq. and its implementing regulations at 43 CFR 10]) provides for the protection and repatriation of Native American human remains and cultural items and requires notification of the relevant Native American tribe upon accidental discovery of cultural items. Resources covered by NAGPRA are addressed in Volume 2, Chapter 9, and the process for handling these resources is included in the national and park-specific programmatic agreements.

### ***American Indian Religious Freedom Act***

The American Indian Religious Freedom Act of 1979 (AIRFA [42 USC 1996]) preserves for American Indians and other indigenous groups the right to express traditional religious practices, including access to sites under federal jurisdiction. Regulatory AIRFA guidance is lacking, although most land-managing federal agencies have developed internal procedures to comply with the act. Access to American Indian traditional religious practice sites is addressed in the parkwide programmatic agreement (1999 PA) and will be addressed in further detail in the plan-specific programmatic agreement.

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

Executive Order 13007 directs federal agencies with statutory or administrative responsibility for the management of federal lands, to the extent practicable and permitted by law, to accommodate access to and ceremonial use of Indian sacred sites by American Indian religious practitioners and avoid adversely affecting the physical integrity of such sacred sites. Access to and ceremonial use of American Indian sacred sites is addressed in the parkwide programmatic agreement (1999 PA) and will be addressed in further detail in the plan-specific programmatic agreement.

### **1998 Concessions Management Improvement Act (Public Law 105-391)**

In 1998, with the objective of improving concessions and increasing competition of contracts, Congress enacted the 1998 Concessions Management Improvement Act. Some of the major changes incorporated into the 1998 act include reduced preferential right situations, franchise fee distribution changes, new competitive bid requirements, and increased accountability and oversight. The 1998 act requires that contracts for visitor facilities and services "... be limited to those that are necessary and appropriate for public use and enjoyment..." of the national park area in which they are located "... and that are consistent to the highest practicable degree with the preservation and conservation of the areas ... ." Title 36 of the Code of Federal Regulations (36 CFR 51) outlines the requirements for the preservation of the parks and administration of commercial service operations. The *Merced River Plan/DEIS* will establish the extent



necessary determination for commercial use in Wilderness areas of the river corridor in compliance with this act. It will also analyze necessary and appropriate public-use facilities in the river corridor.

## Merced River Plan's Legal History

In 2009, the NPS settled a long running lawsuit challenging the adequacy of the two prior versions of the Merced River Plan. This section summarizes the history of the lawsuit and the relevance of the *2009 Settlement Agreement* to the development of the *2013 Merced River Plan/DEIS*.

In August 2000, the NPS completed the first iteration of the *Merced Wild and Scenic River Comprehensive Management Plan/Final Environmental Impact Statement (2000 Merced River Plan)*. Two organizations—Friends of Yosemite Valley and Mariposans for the Environment and Responsible Government (formerly Mariposans for Environmentally Responsible Growth)—sued the NPS in the U.S. District Court for the Eastern District of California alleging that the *2000 Merced River Plan* violated both WSRA and NEPA. The district court ruled in the NPS' favor on most issues, and the two plaintiff organizations appealed the case to the U.S. Court of Appeals for the Ninth Circuit Court (Ninth Circuit Court). On appeal, the Ninth Circuit Court reversed the decision of the district court. Of particular importance, the Ninth Circuit Court found that the *2000 Merced River Plan* failed to adequately address user capacities. In its 2003 opinion, the Ninth Circuit Court stated that under WSRA, a comprehensive management plan must include “specific measurable limits on use;” and that it must “deal with or discuss the maximum number of people that can be received” in a Wild and Scenic River corridor. The Ninth Circuit Court also found that the NPS had improperly drawn the boundary for the El Portal segment of the river.

In June 2005, the NPS prepared the *Merced Wild and Scenic River Revised Comprehensive Management Plan/Supplemental Environmental Impact Statement (2005 Revised Merced River Plan)*, in response. Then, in November 2005, the same plaintiffs challenged the *Revised Merced River Plan/SEIS* under WSRA and NEPA.

In 2006, the district court found that the *2005 Revised Merced River Plan* failed to address user capacity in accordance with Ninth Circuit Court's 2003 opinion. The district court also concluded that the *2005 Revised Merced River Plan* failed to comply with NEPA because it was not prepared as a “self-contained” plan, it did not have a true No Action alternative, and because it had an inadequate range of alternatives.

The NPS appealed the district court's ruling to the Ninth Circuit Court. In 2008, the Ninth Circuit Court issued an opinion upholding the district court ruling. The Ninth Circuit Court found that the *2005 Revised Merced River Plan* was “reactionary” because it did not describe an actual level of visitor use that will not adversely affect the ORVs of the Merced River. In the court's view, the *2005 Revised Merced River Plan's* “Visitor Experience and Resource Protection” framework failed to satisfy the user-capacity mandate of the WSRA because the framework did not trigger management action before degradation occurred. The Ninth Circuit Court also held that the plan's interim visitor-use limits were based on current capacities and that the NPS did not demonstrate how such limits would protect and enhance river values. Regarding NEPA, the court held that the range of actions in the alternatives was unreasonably narrow, that the plan should have been prepared as a single, comprehensive document; and that the No Action Alternative should not have included elements of the invalid *2000 Merced River Plan*.

The NPS entered into mediation with the plaintiffs in fall 2008 in an effort to resolve the litigation and agree upon a schedule for preparing the next version of the Merced River Plan. A court-mediated settlement agreement was executed Sept. 29, 2009. The *2009 Settlement Agreement* directs that the Merced River Plan be completed by July 2013. (The settlement originally called for the plan to be completed by December

2012, but in 2011, the parties extended the deadline by six months.) The settlement agreement provides that the NPS will prepare the plan with the assistance of designated user-capacity experts and that there will be extensive, frequent and robust public involvement in the development of the plan. The settlement agreement acknowledges that the new MRP may include both site-specific and programmatic elements. The NPS may also retain the boundaries, classifications and Section 7 process from the *2005 Revised Merced River Plan*. However, the settlement agreement requires NPS to develop revised outstanding remarkable values and a revised user capacity program in accordance with applicable legal directives including the Ninth Circuit Court's opinions discussed above.

Until the new plan is complete, the settlement agreement limits the types of actions that the NPS can conduct in the river corridor. In general, the NPS may undertake routine, intermittent and operational actions within the corridor. The NPS cannot construct new roads, parking spaces, bridges, large structures or overnight accommodations. The NPS also cannot take actions that would pre-determine user capacity in any segments of the river.

### **Interrelationships with 'General Management Plan' for Yosemite (1980)**

The 1980 *General Management Plan* for Yosemite National Park (GMP), as amended by the 1992 *Concession Services Plan*, is the overall management document for Yosemite National Park. The *Merced River Plan/DEIS* will amend parts of the GMP, as directed in the 1987 legislation designating the Merced River as a Wild and Scenic River. In addition, an appendix to the *2009 Settlement Agreement* states that the NPS will "define how the Plan/EIS will amend the 1980 Yosemite General Management Plan" in the *Merced River Plan/DEIS*. Appendix A describes the amendments to the GMP proposed in the *Merced River Plan/DEIS*.

The *Merced River Plan/DEIS* reflects the overarching goals and objectives of the GMP. The NPS has implemented or partially-implemented many river-related actions of the GMP, and the results of these actions are considered elements of the No Action Alternative described in "Alternatives" (Chapter 8). Some GMP actions have not been implemented to date, and the NPS considered inclusion of a comprehensive GMP alternative that would include all the outstanding GMP actions in the Merced River corridor in the *Merced River Plan/DEIS*. The NPS did not carry this idea forward, as a comprehensive GMP alternative would not be feasible as a stand-alone alternative. For example, some GMP actions do not meet the requirements of WSRA, as the Congress designated the Merced Wild and Scenic River in 1987 after the GMP was established in 1980. A stand-alone "GMP alternative" would be missing some components required in a comprehensive Wild and Scenic River management plan (Table 2-1). Instead, outstanding actions of the GMP in the river corridor are considered as part of the range of alternatives in the *Merced River Plan/DEIS* if they are actions that guide river protection and public use in the river corridor, protect and enhance river values, and establish a visitor capacity that is protective of these values. The NPS used the planning framework described in "Alternatives" (Chapter 8) to determine which GMP actions would be included in the alternatives.

### ***GMP Actions Presented in the 'Merced River Plan/DEIS'***

The NPS has implemented many GMP actions that continue to play a substantial role in protecting and enhancing Merced River values. In 1982, construction began on a large tertiary sewage treatment plant in El Portal, and since that time, the system has had regular upgrades that help to protect the water quality of the Merced River. In 1984, Congress designated 95% of Yosemite as part of the National Wilderness Preservation System, and about 70% of the Merced River corridor became designated Wilderness. In the years between



1985 and 1986, the NPS permanently closed the hydroelectric plant and penstock in Segment 3 (the Gorge). The Cascades Dam was removed in 2003, and, soon after, a small dam upstream of Happy Isles was removed. As a result of these actions to restore the free-flowing condition of the river, the Merced River's main stem from its headwaters to the western border of the El Portal Administrative Site is free of all impoundments. The replacement bridge over the South Fork Merced River in Wawona was constructed without in-channel piers, enhancing the free-flowing condition of the river. In addition, the NPS restored the Wawona Covered Bridge in 1983 to address structural safety hazards. Many river-related ecological restoration actions, including removal of underground infrastructure in meadows and the river channel, protect and enhance river values.

### *Types of 'MRP/DEIS' Actions that Differ from the 'General Management Plan'*

A key goal of the GMP is to “markedly reduce traffic congestion,” ultimately leading to removal of private vehicles in Yosemite Valley. The *Merced River Plan/DEIS* examines a range of alternatives that markedly reduce traffic congestion and are feasible under current conditions. Alternatives 2-6 propose enhancements to circulation and parking, expand the regional public transit system, and propose new service between Fresno and Yosemite Valley. These actions reflect the ultimate goals of the GMP. While reducing traffic congestion, none of the alternatives proposes the complete removal of private vehicles in Yosemite Valley for reasons that include:

- The infrastructure to support a system to transport all visitors into Yosemite Valley is not in place, and the funding required to develop a large internal system is not available.
- The large amount of buildable land required for satellite parking lots in El Portal, Crane Flat, and Wawona (as proposed in the GMP) is not available due to resource constraints and other issues.
- The complex planning process required to develop an external regional transportation system is not possible to complete within the court-mandated timeframe to complete this plan.

The *Merced River Plan/DEIS* uses a more detailed approach to address the issues of visitor use and user capacity than the GMP. Since establishment of the GMP, a legal record has been established for the Merced River, interpreting the mandates of the WSRSA and Secretarial Guidelines with regard to the issues of visitor use and user capacity. The GMP does not propose limits on the number of day users in the park but acknowledges that this may be necessary sometime in the future. The GMP achieves appropriate overnight- and day-use levels by limiting the number of overnight accommodations, campsites, and day-use parking spaces available. It directs the park to restrict access when the park reaches these capacities. The U.S. Court of Appeals for the Ninth Circuit stated “although the WSRSA does not preclude basing user capacity limits on current capacity limits, NPS’ decision to base many of its interim limits on current capacity limits was not ‘founded on a reasoned evaluation of the relevant factors’ ” (Yosemite I, 348 F.3d at 793). The NPS must “adopt specific limits on user capacity” that “describe an actual level of visitor use that will not adversely impact” river values. The *Merced River Plan/DEIS* adopts a process to address user capacity that meets this mandate, as described in “Visitor Use and User Capacity” (Chapter 6).

The 1997 flood was the largest flood in the Merced River corridor since the establishment of the Happy Isles Gauging Station in 1916. This flood changed the landscape of the river corridor, making some GMP actions infeasible. For example, before the 1997 flood, the GMP prescribed 768 total campsites in Yosemite Valley (not counting Backpackers Campground). After the flood, the NPS removed campsites damaged by the flood, and 466 campsites remain in Yosemite Valley. The *Merced River Plan/DEIS* evaluates areas in Yosemite Valley for potential new campsites and proposes campsite totals ranging from 450 campsites (Alternative 2) to

739 campsites (Alternative 6). All campsite totals are lower than prescribed in the GMP because some campsite locations of the GMP would not protect and enhance river values as directed by WSRA.

The *Merced River Plan/DEIS* does not include some GMP actions related to the level of commercial services in Yosemite Valley. The Opinion of the Eastern District of California in 2008<sup>2</sup> refers to levels of facilities and services operating within the river corridor, and the need to ensure that all facilities and services protect and enhance the river's unique values. The *Merced River Plan/DEIS* expands on the GMP objective "to permit only those levels and types of accommodations and services necessary for visitor use and enjoyment of Yosemite" and meet the mandates of WSRA. The *Merced River Plan/DEIS* evaluates every major facility in the river corridor as to whether it is essential, or necessary to meet the visitor experience desired under each alternative (see "Facilities and Services Analysis" Chapter 7). For example, the Merced River Plan's Alternative 5, as well as the GMP, retains 232 units at Housekeeping Camp, but the plan's Alternative 5 also proposes removal of the small grocery store at Housekeeping Camp.

Some actions prescribed in the GMP ultimately differed after they went through a site-specific NEPA planning process. For example, the GMP specifies a parking area with 50 parking spaces at the base of the trail to lower Yosemite Falls. In the environmental assessment process to develop a site-specific plan for the area, the NPS determined that the parking area would not fit the overall design vision for the area, and selected an alternative to relocate the parking and convert the area to natural conditions. Under Alternatives 2-6 in the *Merced River Plan/DEIS*, the Lower Yosemite Falls area remains in its current configuration, as described in the No Action alternative.

The comprehensive alternatives proposed in the *Merced River Plan/DEIS* integrate GMP actions that meet the purpose and need of the plan and integrate additional actions necessary actions to meet the requirements of the WSRA. While the GMP is the overarching management document for Yosemite, the *Merced River Plan/DEIS* does not evaluate a stand-alone GMP alternative, as it would not meet the purpose and need of the plan and the requirements of the WSRA. In addition, the GMP does not include necessary actions to protect and enhance river values, address user capacity issues, or remove facilities that are not essential or necessary under WSRA. The *Merced River Plan/DEIS* will amend the GMP to meet the requirements of WSRA, the Secretarial Guidelines, and the legal record. In the future, the Tuolumne River Plan and the Wilderness Stewardship Plan are expected to amend additional portions of the GMP. The NPS plans to prepare a comprehensive document integrating recent amendments to the GMP, after the respective Record of Decisions are signed.

## Interrelationships with other Plans and Projects

In addition to the complex legal framework of the *Merced River Plan/DEIS*, the following Yosemite-specific plans play a role in the planning framework.

- ***Concession Services Plan (1992)***. This plan supplements the 1980 *General Management Plan for Yosemite National Park*. Revisions to certain concession services action items of the General Management Plan are described, and the environmental consequences of those items are evaluated. The final plan reduced overall lodging, replaced lodging at Yosemite Lodge with economy cabins and cottages rather than motel units, retained 150 tent cabins at Curry Village (rather than 100), and increased food service seats, among other actions.

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<sup>2</sup> *Friends of Yosemite v. Kempthorne*, 520 F.3d 1024, 1035-36 (Ninth Circuit, 2008) [hereafter *FYVIII*].

- ***Fire Management Plan (2004)***. This plan guides a complex fire management program, which oversees wildland fire suppression, wildland fire used to achieve natural and cultural resource benefits, fire prevention, prescribed fire, fire ecology research, and the use of mechanical methods to reduce and thin vegetation in and around communities. Actions prescribed in the *Fire Management Plan* will help achieve natural resource goals of the *Merced River Plan/DEIS*.
- ***Scenic Vista Management Plan (2010)***. This plan describes a program to document, protect, re-establish, and maintain Yosemite's important viewpoints that is consistent with the natural processes and human influences that created them. The plan is adopted for the viewpoints within the Merced River corridor, but the analysis and specific actions related to those viewpoints would be directed by the *Merced River Plan/Final EIS*.
- ***Invasive Plant Management Plan Update (2011)***. This plan updates the *2008 Invasive Plant Management Plan* to create a more comprehensive and adaptive plan for protecting Yosemite's natural and cultural resources from non-native, invasive plants. This plan may be amended when the Tuolumne River and Merced river plans are completed.
- ***Ahwahnee Comprehensive Rehabilitation Plan (2012)***. This plan brings The Ahwahnee into compliance with the California Historical Building Code (2010), improves operational efficiencies, enhances visitor experience, and protects and preserves the historic integrity of this National Historic Landmark. The Ahwahnee is within the Merced River corridor, and proposed rehabilitation of the cultural landscape at The Ahwahnee is largely deferred to future site planning efforts, pending finalization of the *Merced River Plan/DEIS*.
- ***Curry Village Rock-Fall Hazard Zone Structures Plan (2012)***. This plan re-aligns the boundary of the previous rock-fall hazard zone in Curry Village in response to recent scientific inquiry. To reduce rock-fall risk, the NPS closed or repurposed structures within the updated rock-fall hazard zone.
- ***Yosemite Wilderness Management Plan (1989)***. The Yosemite Wilderness was established by the California Wilderness Act of 1984. The Committee Report accompanying the 1984 act contains recommendations for managing Yosemite Wilderness regarding operational and environmental impacts. The *Yosemite Wilderness Management Plan* responded to those recommendations in addition to a number of objectives identified through condition reports and other research. The objectives of the *Yosemite Wilderness Management Plan* that pertain to the *Merced River Plan* regard: 1) Human-Induced Change: NPS will impose limits on human-induced change and will establish maximum use levels and quotas to accomplish this objective. 2) Wilderness Experience: Visitors can find a variety of wilderness experiences in keeping with traditional use patterns and select the degree of crowding, solitude, and human impact they wish to experience. 3) Wilderness Values: NPS will provide educational and interpretive media and programs to facilitate greater understanding and appreciation of wilderness values and to help visitors minimize resource impacts. 4) Wilderness Facilities: Facilities, including safety railings, in Yosemite wilderness will be limited to those currently present or specifically proposed in this plan. Further facilities would compromise NPS responsibilities in wilderness management.
- ***Yosemite Wilderness Stewardship Plan (n progress)***. This plan is in the early stages of data collection, and public scoping has not commenced. Decisions made in the *Merced River Plan/DEIS* regarding wilderness values, wilderness facilities, use limits, designated camping areas, the Merced Lake High Sierra Camp, and restoration activities may be revisited in the forthcoming Yosemite Wilderness Stewardship Plan as part of the park's overall wilderness planning effort. The *Merced River Plan/DEIS* will not constrain the range of alternatives to be considered in the wilderness stewardship plan, and Wilderness Stewardship Plan decisions may supersede those made in the Merced River Plan. Stewardship strategies developed for the wilderness plan may affect day and overnight use of other trails that lead to the Merced River corridor. Such changes could, in turn, affect use levels. Any such changes would be evaluated comprehensively in the Yosemite Wilderness Stewardship Plan.

- ***Tuolumne Wild and Scenic River Comprehensive Management Plan (in progress)***. The NPS is preparing a comprehensive management plan for the Tuolumne River in Yosemite, designated as a Wild and Scenic River in 1984. The NPS expects the *Tuolumne Wild and Scenic River Comprehensive Management Plan/Draft Environmental Impact Statement* to be released about the same time as the *Merced River Plan/DEIS*. While the two river corridors do not overlap, these two plans have a similar approach and organization.
- ***Mariposa Grove of Giant Sequoias Restoration Plan (in progress)***. The Mariposa Grove of Giant Sequoias lies outside the Merced River corridor, but some visitor parking and transit facilities that serve the Mariposa Grove are located in the river corridor in Wawona. Decisions in the *Merced River Plan/DEIS* concerning land uses in Wawona would influence the span of decisions made during the Mariposa Grove planning process.
- ***Half Dome Trail Stewardship Plan (in progress)***. The purpose of this plan is to respond to an urgent need to address safety and wilderness character on the Half Dome trail. Visitor safety and Wilderness resource protection are necessary for the management of park operations. While the project area of the Half Dome Trail Stewardship Plan is well outside of the Merced River corridor, the establishment and management of use standards on the Half Dome trail may affect use patterns along trails in the river corridor between Happy Isles and Little Yosemite Valley. The user-capacity management for Wilderness areas in the Merced River corridors may affect day and overnight use of trails that access Half Dome. *The Half Dome Trail Stewardship Plan* would be amended if the river plans determine that protection and enhancement of river values requires adjustments to the use of the Half Dome trail.

“Cumulative Actions” (Appendix B) describes additional plans related to the *Merced River Plan/DEIS*.

## Comprehensive Wild and Scenic River Management Plan Requirements

WSRA and the Secretarial Guidelines direct managing agencies to develop a Comprehensive Wild and Scenic River Management Plan for each designated river. Table 2-1 displays the specific elements included in the *Merced River Plan/DEIS* that encompass the Comprehensive Wild and Scenic River Management Plan (Figure 1-2). These elements include those mandated in WSRA, the Secretarial Guidelines, and recommendations of the Interagency Wild and Scenic Rivers Coordinating Council (referred to as the Interagency Council from this point). The Interagency Council is not a decision-making body, rather its goal is to improve interagency coordination in administering WSRA, improving service to the American public and enhancing protection of important river resources. The Interagency Council recommends inclusion of the following key components in a comprehensive river management plan (Interagency Council 2010):

- A description of resource conditions including detailed description of river values (free-flowing condition, water quality, and ORVs)
- Goals and desired conditions to protect a river’s free-flowing condition, water quality, and ORVs
- Direction for visitor use and capacity management
- A framework for future development and activities on federal lands in the river corridor
- A monitoring strategy specifically related to protecting the river’s free-flowing condition, water quality, and ORVs

**TABLE 2-1: ELEMENTS OF THE COMPREHENSIVE WILD AND SCENIC RIVER MANAGEMENT PLAN**

Objective	Primary Reference <sup>1</sup>	Chapter in the Draft Merced River Plan/DEIS
Document river boundaries and classify river segments as wild, scenic, or recreational	<ul style="list-style-type: none"> <li>• Wild and Scenic Rivers Act (Section 3 [d])</li> <li>• Secretaries’ Guidelines (Section II)</li> </ul>	Chapter 3: Merced Wild and Scenic Boundaries and Segment Classifications
Provide a clear process for protection of the river’s free-flowing condition in keeping with Section 7 of the Wild and Scenic Rivers Act	<ul style="list-style-type: none"> <li>• Wild and Scenic Rivers Act (Section 7)</li> </ul>	Chapter 4: Section 7 of the Wild and Scenic River Act – Determination Process for Water Resources Projects
Clearly describe the river’s outstandingly remarkable values (ORVs), which are the unique, rare, or exemplary river-related characteristics that make the river eligible for inclusion in the National Wild and Scenic Rivers System	<ul style="list-style-type: none"> <li>• Wild and Scenic Rivers Act (Section 3[d])</li> <li>• Interagency Council (2010)</li> </ul>	Chapter 5: River Values and Their Management
Establish a management program to protect and enhance the river’s outstandingly remarkable values, free-flowing condition, and water quality	<ul style="list-style-type: none"> <li>• Wild and Scenic Rivers Act (Section 3[d])</li> <li>• Secretarial Guidelines (Section III)</li> <li>• Interagency Council (2010)</li> </ul>	Chapter 5: River Values and Their Management
Determine the type and location of lands and facilities (both current and future) that provide for public use while protecting and enhancing river values	<ul style="list-style-type: none"> <li>• Wild and Scenic Rivers Act (Section 3[d])</li> <li>• Secretarial Guidelines (Section III)</li> </ul>	Chapter 5: River Values and Their Management (Existing Facilities Analysis) Chapter 6: Visitor Use and User Capacity Chapter 8: Alternatives
Address user capacities; determine the quantity and mixture of recreation types and other public uses that can be allowed without causing adverse effects or degradation of river values	<ul style="list-style-type: none"> <li>• Wild and Scenic Rivers Act (Section 3[d])</li> <li>• Secretarial Guidelines (Section III)</li> <li>• Interagency Council (2010)</li> </ul>	Chapter 6: Visitor Use and User Capacity (Note that user capacity determinations build on information in Chapter 5) Chapter 7: Facilities and Services Analysis Chapter 8: Alternatives
<sup>1</sup> Secretarial Guidelines – <i>National Wild and Scenic Rivers System: Final Revised Guidelines for Eligibility, Classification and Management of River Areas</i> ; Interagency Council – Interagency Wild and Scenic Rivers Coordinating Council		

## IDENTIFICATION OF PLANNING ISSUES: PUBLIC AND INTERNAL SCOPING

The NPS sought to understand and consider input from the public, NPS staff, subject-matter experts, culturally-associated American Indian tribes, and other federal, state, and local agencies, as part of an extensive public planning process for the *Merced River Plan/DEIS*. The NPS conducted an open process, referred to as “scoping,” to identify and determine the scope of issues to be addressed in the environmental analysis.

During public scoping periods, the NPS collected written comments and conducted public workshops. The NPS considered 1,464 correspondences received since 2007 as part of this current planning process, as well as those received during earlier iterations of the Merced River Plan (see “Legal History” section in this chapter). Public workshops provide an opportunity for the public, the NPS planning team, and subject-matter experts to interact. Since 2007, the NPS has held approximately 40 Merced River Plan public workshops or webinars related to the *Merced River Plan/DEIS*:

- 2007 Public Scoping (three public meetings or webinars)
- 2009 Public Scoping (10 public meetings or webinars)
- 2010 ORV Interim Public Comment Period (seven public meetings or webinars)

- 2011 Baseline conditions report interim public comment period (six public meetings or webinars)
- 2011 alternative development workshop interim public comment period (six public meetings or webinars)
- 2012 preliminary alternative concepts workshops (six public meetings or webinars)

The NPS will continue facilitating workshops throughout the development of the final *Merced River Plan/EIS*. “Consultation and Coordination” (Chapter 10) includes a complete list of public meetings to date and more detail on the plan’s scoping process.

Internal scoping, including consultation with culturally associated tribes, other public agencies, and park staff, began with a comprehensive review of the river’s outstandingly remarkable values, and continued through development of this draft plan. The interests and concerns of the tribes and other government agencies will continue to be gathered concurrently with the general public process throughout the development of the final plan.

### Issues and Opportunities to be Addressed in the ‘Merced River Plan/DEIS’

The NPS analyzed public comments submitted in the period from 2007 to 2012 to assist with identification of issues and opportunities to be addressed in the *Merced River Plan/DEIS*. Throughout this time, the internal planning process generated additional issues and opportunities. Table 2-2 lists the issues and opportunities identified during this period. The NPS integrated the issues, opportunities, and associated actions into a range of alternatives. In general, the *Merced River Plan/DEIS* addresses issues that would protect and enhance river values; facilitate appropriate visitor use and associated user capacity in the river corridor; and determine appropriate types, sizes, and suitable locations of facilities needed to support visitor use. Issues considered outside the scope of this plan are described in the “Issues Beyond the Scope and Direction of this Plan” section in this chapter (see Table 2-3).

**TABLE 2-2: ISSUES IDENTIFIED IN PUBLIC SCOPING**

General Planning Issues
<p><b>General</b></p> <ul style="list-style-type: none"> <li>• The NPS should detail the specifics of project components, such as the types of campgrounds or the location of road alignments.</li> <li>• The NPS should conduct formal consultation on the Merced River Plan/DEIS with American Indian tribes who claim traditional association with Yosemite National Park.</li> </ul>
Actions to Protect and Enhance River Values
<p><b>General Restoration</b></p> <ul style="list-style-type: none"> <li>• The NPS should prioritize protection and enhancement of resource-based river values over recreational values.</li> <li>• The NPS should not ecologically restore the Merced River corridor to a static snapshot but should protect a dynamic ecological system.</li> <li>• The NPS should consider the ecological impacts of removing facilities in the river corridor.</li> <li>• The NPS should use a 150-foot riparian buffer for all infrastructure, rather than the 100-year floodplain.</li> </ul> <p><b>Biological</b></p> <ul style="list-style-type: none"> <li>• The NPS should restore the ecological function of Yosemite Valley meadows.</li> <li>• The NPS should partially restore Yosemite Village Day-use Parking Area (Camp 6) to natural conditions.</li> <li>• The NPS should manage conifers in Yosemite Valley to restore views and the ecological function of meadows.</li> </ul>



**TABLE 2-2: ISSUES IDENTIFIED IN PUBLIC SCOPING**

Actions to Protect and Enhance River Values (continued)
<ul style="list-style-type: none"> <li>• The NPS should examine the impacts of stock use on non-native plant dispersal, water quality, birds, native vegetation, and the visitor experience.</li> <li>• The NPS should consider additional mitigation measures for continued use of stock animals.</li> <li>• The NPS should map critical habitat for recovery of special-status wildlife species and address actions to protect and enhance this habitat.</li> <li>• The NPS should remove parking at the El Portal Administrative Site from sensitive areas.</li> <li>• The NPS should designate river access points and direct visitor use to resilient beach locations.</li> <li>• The NPS should allow roadside parking on edges of meadows, with fencing to protect meadow resources.</li> </ul> <p><b>Hydrology/Geology/Free-Flowing Condition/Water Quality</b></p> <ul style="list-style-type: none"> <li>• The NPS should restore riverbanks by removing riprap and restoring riparian vegetation.</li> <li>• The NPS should remove Sugar Pine, Ahwahnee, and Stoneman bridges to protect and enhance the free-flowing condition of the river.</li> <li>• The NPS should not remove the historic bridges as they provide opportunities for scenic viewing that is protective of other river values.</li> <li>• The NPS should consider the use of holding panels to protect bridges and river flow with openings, arches, or culverts to accommodate high flow without causing additional impacts to free-flowing condition.</li> <li>• The NPS should reduce the number of units at Housekeeping Camp to protect the river.</li> <li>• The NPS should remove or relocate campsites that are too close to the river, so as to protect riparian habitat.</li> <li>• The NPS should consider the full effects of adding remote parking in El Portal, including the impact on the river.</li> <li>• The NPS should remove unnecessary, abandoned, or inappropriate infrastructure, such as the Greenmeyer sand pit, and allow site restoration.</li> </ul> <p><b>Scenic and Cultural Resources</b></p> <ul style="list-style-type: none"> <li>• The NPS should identify goals, measurable objectives, and management prescriptions that explain specifically how the agency will define, protect, and enhance the cultural outstandingly remarkable value (ORV).</li> <li>• The NPS should retain historic bridges due to their important cultural value and their ability to provide for traffic flow on peak days in Yosemite Valley.</li> <li>• The NPS should adequately define and collaboratively monitor the ethnographic component of the cultural ORV in Yosemite Valley.</li> <li>• The NPS should protect and enhance traditional cultural resources (including archeological sites, scenic resources, and natural resources with traditional cultural uses) that represent a continuum of cultural heritage connecting contemporary people to the archeological sites of their ancestors in the park.</li> <li>• The NPS should consider removing the abandoned sewage treatment plant at El Portal but take measures to protect the prehistoric burials in the area and consult with traditionally associated American Indians.</li> <li>• The NPS should protect archeological resources by removing infrastructure and visitor uses from sensitive areas.</li> </ul>
User Capacity, Land Use and Facilities Management
<p><b>Facilities and Services</b></p> <ul style="list-style-type: none"> <li>• The NPS should clearly explain the process for analyzing major facilities in the river corridor.</li> <li>• The NPS should remove/relocate obsolete or unnecessary infrastructure.</li> <li>• The NPS should not reduce facilities with the assumption that the removal benefits the majority of people. The NPS should first identify appropriate visitor facilities and services necessary for the protection and enhancement of ORVs before determining transportation, user capacity, and parking requirements.</li> <li>• The NPS should not remove facilities, such as the Wawona Golf Course, if they are located outside the WSRA corridor and the 100-year floodplain.</li> <li>• The NPS should not remove, relocate, or re-design facilities, services, or activities that do not have a direct or indirect adverse effect on river values.</li> <li>• The NPS should not develop visitor facilities in the west end of Yosemite Valley because development should be concentrated in the east end of the Valley.</li> </ul>

**TABLE 2-2: ISSUES IDENTIFIED IN PUBLIC SCOPING**

User Capacity, Land Use and Facilities Management (continued)
<ul style="list-style-type: none"> <li>• The NPS should establish a limit for or reduce the amount of rafts on the river.</li> <li>• The NPS should allow year-round paddling on all sections of the Merced River, including the South Fork.</li> <li>• The NPS should provide more picnic areas in developed areas of the park.</li> <li>• The NPS should end use of commercial day rides within Yosemite Valley and close the commercial stables.</li> <li>• The NPS should remove or reduce hiker-stock conflicts on trails.</li> <li>• The NPS should continue to allow horseback riding in the Merced River corridor.</li> <li>• The NPS should continue stock support for trail maintenance.</li> <li>• The NPS should maintain the Wawona Impoundment to supply water to the Wawona community.</li> <li>• The NPS should consider development of camping, housing, office space, and parking in El Portal.</li> <li>• The NPS should not consider construction of administrative facilities in Section 35 in Wawona.</li> <li>• The NPS should improve access for people with disabilities.</li> </ul> <p><b>Visitor Overnight Services (Campgrounds and Lodging)</b></p> <ul style="list-style-type: none"> <li>• The NPS should maintain or increase the number of campsites in Yosemite Valley.</li> <li>• The NPS should develop increase and improve high-density walk-in camping, such as Camp 4, to reduce the sprawling nature of traditional campgrounds and their associated impacts to the natural landscape.</li> <li>• The NPS should not decrease the capacity of Yosemite Valley's Backpackers Campground.</li> <li>• The NPS should segregate camping by type (RV, tent, and walk-in campgrounds) to support each person's camping experience to the fullest.</li> <li>• The NPS should reduce campsites within the park and not rebuild those lost in the 1997 flood.</li> <li>• The NPS should not develop additional campgrounds west of Yosemite Lodge in Yosemite Valley.</li> <li>• The NPS should restore Upper and Lower River Campgrounds to natural conditions.</li> <li>• The NPS should replace the concessioner stables area in Yosemite Valley with additional camping.</li> <li>• The NPS should consider developing more group campgrounds in Yosemite Valley.</li> <li>• The NPS should increase camping and decrease lodging to improve access for lower-income families and to reduce the operational needs.</li> <li>• The NPS should not remove Yosemite Lodge or re-purpose the area as camping because it provides a mid-priced lodging opportunity.</li> <li>• The NPS should not reduce visitor lodging capacity in the park due to the loss of transient occupancy taxes for Mariposa County.</li> <li>• The NPS should remove the High Sierra Camps and restore the site.</li> <li>• The NPS should retain the High Sierra Camps at their current capacity.</li> <li>• The NPS should reduce the capacity of the Merced Lake High Sierra Camp.</li> <li>• The Merced Lake High Sierra Camp should be managed to protect its historic value.</li> </ul> <p><b>Housing</b></p> <ul style="list-style-type: none"> <li>• The NPS should remove employee housing complexes that are at risk from rock falls.</li> <li>• The NPS should consider negative impacts on El Portal's limited infrastructure, services, and community atmosphere before building high-density housing for concession employees.</li> </ul> <p><b>Transportation</b></p> <ul style="list-style-type: none"> <li>• The NPS should articulate how current and proposed transportation strategies affect ORVs.</li> <li>• The NPS should support private vehicle access to Yosemite Valley because it is more sustainable than out-of-park public transportation.</li> <li>• The NPS should encourage alternative transportation.</li> <li>• The NPS should not switch to a shuttle-only transportation system.</li> <li>• The NPS should implement a system to allow pedestrians to cross the road safely and not impede traffic.</li> </ul> <p>The NPS should construct pedestrian underpasses and roundabouts to improve traffic flow in Yosemite Valley.</p>



**TABLE 2-2: ISSUES IDENTIFIED IN PUBLIC SCOPING**

User Capacity, Land Use and Facilities Management (continued)
<ul style="list-style-type: none"> <li>• The NPS should consider an East Yosemite Valley day-use parking permit system.</li> <li>• The NPS should not construct pedestrian underpasses or roundabouts.</li> <li>• The NPS should use other transportation management tools before using a day-use parking permit system.</li> <li>• The NPS should develop parking in West Yosemite Valley.</li> <li>• The NPS should use real-time data to educate the visitor on the number of private vehicles allowed on a daily basis during the summer peak period.</li> <li>• The NPS should expand shuttle service between Wawona and other park locations.</li> <li>• The NPS should provide areas other than the Wawona Store for buses to park.</li> <li>• The NPS should develop remote parking lots outside of Yosemite Valley.</li> <li>• The NPS should develop additional employee parking at the El Portal Warehouse.</li> </ul> <p><b>Visitor Experience and User Capacity</b></p> <ul style="list-style-type: none"> <li>• The NPS should clearly define how user capacity will be determined.</li> <li>• The NPS should consider the impact of seasonal and location differences when evaluating user capacity.</li> <li>• The NPS should enforce user capacity to enhance the visitor experience and effectively protect resources.</li> <li>• The NPS should consider the socioeconomic impact of user capacity on surrounding gateway communities.</li> <li>• The NPS should establish a monitoring plan to ensure the effectiveness of use limits.</li> <li>• The NPS should maximize the use of the Merced River corridor as a recreational attraction and enable full accommodation of increased levels and intensities of visitor use.</li> <li>• The NPS should regulate access to sensitive areas within the park.</li> <li>• The NPS should not limit access to the park.</li> <li>• The NPS should establish user capacity based on vehicles rather than individual park visitors.</li> <li>• The NPS should not increase visitation because this would adversely affect the recreational ORV due to additional crowding and congestion at specific visitor-use areas.</li> <li>• The NPS should address how day use in Wilderness areas affects high-encounter rates and impacts to wilderness character.</li> <li>• The NPS should reduce the trailhead quotas for Wilderness areas to improve the wilderness experience.</li> </ul>

## Issues beyond the Scope and Direction of this Plan

This section describes the issues raised during public scoping and workshops that the NPS considered outside the scope and direction of the *Merced River Plan/DEIS*. “Alternatives” (Chapter 8) describes additional actions that were considered but dismissed in the plan. The NPS removed issues from consideration if they were:

- Outside the scope of the plan
- Already decided by law, regulation, or other higher-level decision
- Not relevant to the decision to be made
- Missing a valid cause and effect relationship
- Associated with small effects relative to the decision to be made
- Conjectural and not supported by scientific or factual evidence
- Unreasonable or infeasible because they would be cost prohibitive, violate law or policy, or contribute to other resource concerns or hazards

- Inconsistent with the facilities and services analysis criteria (See Chapter 7)

The following issues were considered beyond the scope and direction of the *Merced River Plan/DEIS*:

**TABLE 2-3: ISSUES IDENTIFIED IN PUBLIC SCOPING BEYOND THE SCOPE OF THE 'MERCED RIVER PLAN/DEIS'**

Actions to Protect and Enhance River Values
<ul style="list-style-type: none"> <li>• The NPS should design “smokeless campsites” with no fire rings in a portion of all Valley campgrounds to enhance the visitor experience for people with aversions to campfire smoke.</li> <li>• The NPS should eliminate roadside parking from El Capitan Meadow to enhance views and protect the meadow.</li> <li>• The NPS should allow roadside parking on the edges of meadows, which can be fenced to protect meadow resources.</li> <li>• The NPS should develop seasonal campgrounds in areas that are known to flood annually.</li> <li>• The NPS should increase development in Wilderness areas.</li> <li>• The NPS should change the Wilderness boundaries within Yosemite.</li> <li>• The NPS should consider altering the bridges over the Merced River to accommodate peak flood events and to correct unnatural widening of the river channel.</li> </ul>
User Capacity, Land Use and Facilities Management
<p><b>Facilities and Services</b></p> <ul style="list-style-type: none"> <li>• The NPS should develop more trails and other recreation opportunities throughout the park to disperse visitor use.</li> <li>• The NPS should consider moving administrative offices out of Yosemite Valley to El Portal or Mariposa.</li> <li>• The NPS should locate the concessioner general offices and the NPS administrative offices together, whether in Yosemite Valley, El Portal, or Mariposa, to maximize collaboration.</li> <li>• The NPS should not remove the Curry Village ice rink, Happy Isles snack stand, or Yosemite Lodge and Ahwahnee pools.</li> <li>• The NPS should encourage bicycle use through a non-profit bicycle exchange or park-run operation offering reasonable prices.</li> <li>• The NPS should not issue special-use permits for large, private events.</li> </ul> <p><b>Visitor Overnight Services (Campgrounds and Lodging)</b></p> <ul style="list-style-type: none"> <li>• The NPS should develop additional campgrounds outside of the river corridor.</li> <li>• The NPS should implement a tiered camping fee structure for its premium campsites.</li> </ul> <p><b>Transportation</b></p> <ul style="list-style-type: none"> <li>• The NPS should construct a remote parking area and visitor center in Foresta.</li> <li>• The NPS should increase the frequency and expand shuttle service between Yosemite Valley, Glacier Point, and Mariposa Grove.</li> <li>• The NPS should partner with local communities to develop remote transit centers and expanded public transportation.</li> </ul> <p><b>Visitor Experience and User Capacity</b></p> <ul style="list-style-type: none"> <li>• The NPS should manage permit and reservation systems that cannot be abused by speculative buyers and scalping.</li> <li>• The NPS should encourage the use of the larger Sierra Nevada environment surrounding Yosemite.</li> <li>• The NPS should address recreational opportunities that are accessed in the Merced River corridor, such as climbing, but do not necessarily occur in the river corridor.</li> </ul>

### 3. MERCED WILD AND SCENIC RIVER BOUNDARIES AND SEGMENT CLASSIFICATIONS

#### RIVER CORRIDOR BOUNDARIES

The Wild and Scenic Rivers Act (WSRA) requires federal agencies to establish legal boundaries for each federally administered river in the National Wild and Scenic Rivers System. The boundary for a Wild and Scenic River establishes the area that will receive the greatest resource protection efforts. In accordance with WSRA (section 3[b]), boundaries may include an average of not more than 320 acres of land per mile, measured from the ordinary high-water mark<sup>3</sup> on both sides of the river. The National Park Service (NPS) used U.S. Geological Survey 7.5-inch topographic quadrangle data to calculate a Wild and Scenic River corridor boundary that encompasses all land within a quarter-mile of the ordinary high-water mark of the Merced River, the maximum area allowed under WSRA<sup>4</sup>. This includes the land below the ordinary high-water mark, which is not included in the acreage limitation. The NPS applies this boundary consistently to the Merced River in Yosemite National Park and the El Portal Administrative Site, including the main stem Merced River, South Fork Merced River, Red Peak Fork, Merced Peak Fork, Triple Peak Fork, and Lyell Fork tributaries.

The NPS presented and refined the boundaries and classifications of the Merced Wild and Scenic River throughout the legal and planning history of the Wild and Scenic River. Early in the litigation over the Merced River Plan, some of the segment classifications were challenged in court. These challenges were reflected by the courts, and the segment classifications have remained consistent over time. However in 2003, the U.S. Court of Appeals for the Ninth Circuit ruled that the 2000 *Merced Wild and Scenic River Comprehensive Management Plan/Final Environmental Impact Statement* was deficient with regard to the river boundary in the El Portal segment, which was delineated as the 100-year floodplain along with adjacent wetlands, or a 100-foot buffer from the ordinary high-water mark, whichever was greater. The court found that this river corridor did not fully account for the location of river values in the area, and directed the NPS to “reevaluate the river corridor boundary based on the precise location of outstandingly remarkable values.”

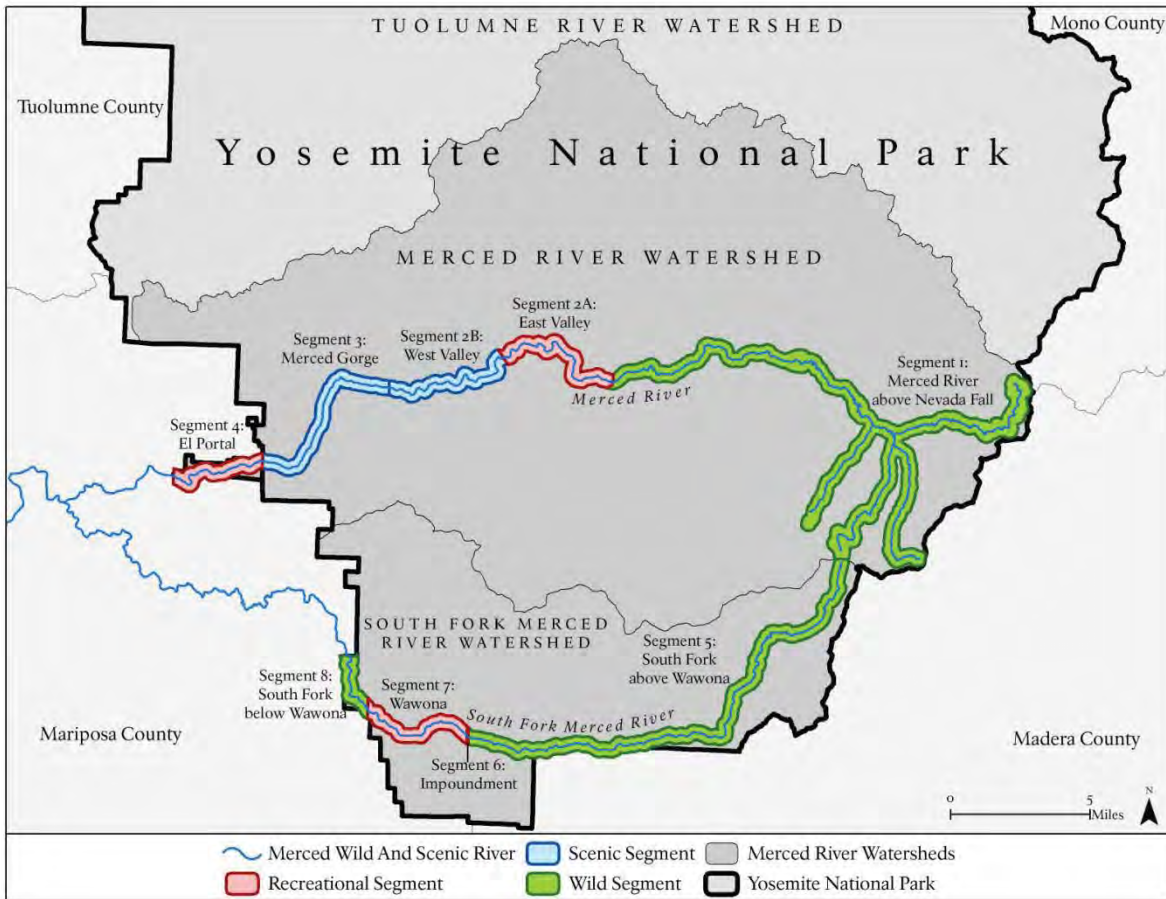
The 2005 *Merced Wild and Scenic River Comprehensive Management Plan/Final Environmental Impact Statement* revised the corridor boundary in El Portal to include all land within a quarter-mile of each side of the river, consistent with the rest of the river corridor. This *Merced Wild and Scenic River Comprehensive Management Plan/Draft Environmental Impact Statement* (Merced River Plan/DEIS) establishes the same river corridor boundary for the Merced Wild and Scenic River that encompasses a quarter-mile of land measured from each side of the river’s ordinary high-water mark throughout all segments of the river (Figure 3-1). This action is common to all alternatives proposed in this plan.

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<sup>3</sup> The U.S. Army Corps of Engineers defines the ordinary high water mark as “ that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.”

<sup>4</sup> This acreage designation does not limit the protection of river values, which must be protected whether they are inside or outside the corridor boundary.

**Figure 3-1: Merced Wild and Scenic River Segment Boundaries and Classifications**



## WILD AND SCENIC RIVER CLASSIFICATIONS

WSRA (section 2 [b]) directs managing agencies to classify and administer designated rivers as one of the following, depending on the type and intensity of development:

**Wild:** Rivers or sections of rivers that are free of impoundment and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and water unpolluted. These represent vestiges of primitive America.

**Scenic:** 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:** Rivers or sections of rivers readily accessible by road or railroad, may have some development along their shorelines, and may have undergone some impoundment or diversion in the past.

A Wild and Scenic River may be divided into segments to aid in classification (DOI 1982). This plan divides the Merced River into segments, and classifies each segment as *Wild*, *Scenic*, or *Recreational* as portrayed in Figure 3-1 and Table 3-1. This classification system is common to all alternatives proposed in this plan. If the NPS removes the Wawona Impoundment from the river channel at some time in the future, Segment 6

would be reclassified as Scenic, based on the change in the level of development and enhancement of the river’s free-flowing condition.

The classification of a river segment provides a general framework for the type and intensity of land management activities that may take place in the future (IWSRCC 2002). A comprehensive management plan may allow different levels of use and development based on how a segment is classified. The classifications of each river segment guide the range of actions proposed in this plan. All proposed actions were analyzed to ensure they are compatible with the classification for each river segment.

**TABLE 3-1: SEGMENT CLASSIFICATIONS FOR THE MERCED WILD AND SCENIC RIVER**

Segment	Classification	Location
1	Wild	Merced River Above Nevada Fall
2A	Recreational	East Yosemite Valley: Top of Nevada Fall to Sentinel Beach
2B	Scenic	West Yosemite Valley: Sentinel Beach to junction of El Portal Road and Big Oak Flat Road
3	Scenic	Merced Gorge: Junction of El Portal and Big Oak Flat Roads to western Yosemite National Park boundary at parkline
4	Recreational	El Portal: Western Yosemite National Park boundary at parkline to El Portal Administrative Site boundary
5	Wild	South Fork Merced River Above Wawona: Headwaters to top of pool at Wawona Impoundment
6	Recreational	Wawona Impoundment: Top of pool at Wawona Impoundment to 200 feet below dam
7	Recreational	Wawona: 200 feet below Wawona Impoundment to Squirrel Creek
8	Wild	South Fork Merced River Below Wawona: Squirrel Creek to western park boundary

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## 4. SECTION 7 OF THE WILD AND SCENIC RIVERS ACT – DETERMINATION PROCESS FOR WATER RESOURCES PROJECTS

The U.S. Congress enacted the Wild and Scenic Rivers Act (WSRA) in 1968 to end decades of damming, dredging, and diversion of some of the nation’s most spectacular waterways. Section 7(a) is a key provision of WSRA that directs federal agencies to protect the free-flowing condition, water quality, and outstandingly remarkable values (ORVs) of designated Wild and Scenic Rivers. Section 7 requires a rigorous and consistent interagency process for protecting river resources. This chapter describes the process used to protect the free-flowing condition of the Merced River when a proposed *water resources project* triggers a review and determination under section 7 of WSRA. *Water resources projects* include, but are not limited to, dams, water diversion projects, fisheries habitat and watershed restoration/enhancement projects, bridge and other roadway construction/ reconstruction projects, bank stabilization projects, channelization projects, levee construction, recreation facilities such as boat ramps and fishing piers, and activities that require a section 404 permit from the U.S. Army Corps of Engineers<sup>5</sup>.

While no new dams will be proposed on the Merced River in the future due to its status as a Wild and Scenic River, other potential water resources projects along the Merced Wild and Scenic River could be proposed, including projects with the purpose of improving the free-flowing condition of the river or enhancing a particular outstandingly remarkable value. The National Park Service (NPS) will conduct a “Section 7 Determination Process” as described in the next section of this chapter for all proposed projects that require review under section 7 of WSRA. Any proposed project that meets the following conditions must undergo an initial review, as depicted in Table 4-1, to confirm whether the proposed project is subject to the Section 7 Determination process:

- Proposed projects in the bed or banks of the Merced River, or
- Proposed projects in the bed or banks of a river located above, below, or on a stream tributary to the Merced River


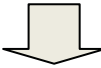
The next section in this chapter describes the “Section 7 Determination Process.”

The NPS will conduct the Section 7 Determination process for the preferred alternative in the final Merced River Plan, and the analysis and determination will be included in the Record of Decision for the plan.

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<sup>5</sup> Section 404 of the Clean Water Act requires that a permit is obtained from the U.S. Army Corps of Engineers, prior to beginning any non-exempt activity involving the placement of dredged or fill material in waters of the e United States, including wetlands.

**TABLE 4-1: DETERMINING THE NEED FOR A SECTION 7 DETERMINATION UNDER WSRA**

When is a Determination under Section 7 of the Wild and Scenic Rivers Act Required?	
<p style="text-align: center;"><b>IF</b></p> <ul style="list-style-type: none"> <li>The project is proposed in the bed or banks of a designated river or congressionally authorized study river</li> </ul> <p style="text-align: center;"><b>AND</b></p> <ul style="list-style-type: none"> <li>The project is proposed by a federal agency or it requires some type of federal assistance such as a permit, license, grant, or loan</li> </ul> <p style="text-align: center;"><b>THEN</b></p> <p style="text-align: center;"></p> <p style="text-align: center;"><b>A Section 7 Determination is required under when both of the above conditions exist.</b></p>	<p style="text-align: center;"><b>IF</b></p> <ul style="list-style-type: none"> <li>The project is proposed in the bed or banks of a river below, above, or on a stream tributary to a designated river or congressionally authorized study river</li> </ul> <p style="text-align: center;"><b>AND</b></p> <ul style="list-style-type: none"> <li>The project is proposed by a federal agency or it requires some type of federal assistance such as a permit, license, grant, or loan</li> </ul> <p style="text-align: center;"><b>AND</b></p> <ul style="list-style-type: none"> <li>The project is likely to result in effects within a designated river or congressionally authorized study river</li> </ul> <p style="text-align: center;"><b>THEN</b></p> <p style="text-align: center;"></p> <p style="text-align: center;"><b>A Section 7 Determination is required under when all of the above conditions exist.</b></p>

## THE SECTION 7 DETERMINATION PROCESS

Any federally assisted water resources project that would have a “direct and adverse effect” on the values for which a river was added to the Wild and Scenic Rivers System is prohibited. The NPS is responsible for making the final determination as to whether a proposed water resources project would have a direct and adverse effect on river values in the portion of the Merced River within Yosemite. The NPS must coordinate the Section 7 Determination process with other agencies that are required to review and comment on the project. Depending on the type and location of the project, such agencies might include the U.S. Fish and Wildlife Service, the Environmental Protection Agency, the U.S. Forest Service, the Bureau of Land Management, and the U.S. Army Corps of Engineers. “Consultation and Coordination” (Chapter 10) provides specific information on NPS consultation with other agencies. Review of projects subject to Section 7 of WSRA will also be coordinated with other environmental review processes as appropriate, such as those required by NEPA and the National Historic Preservation Act (NHPA). In accordance with WSRA, potential water resources projects that could have a direct and adverse effect on the values of a designated river must be: (1) redesigned and resubmitted for a subsequent Section 7 Determination, (2) abandoned, or (3) reported to the Secretary of the Interior and Congress.

### Federal Projects Below, Above, or on Tributaries of a Wild and Scenic River

Proposed non-hydroelectric projects with federal assistance that would take place below, above, or on the tributaries of a Wild and Scenic River have a slightly different evaluation standard than projects proposed directly in the bed and banks of a Wild and Scenic River. These projects must not “invade the area or unreasonably diminish” wild and scenic river values. Typical projects that meet this definition are water



resources projects that would be visible from the designated river, dams, and upstream diversion structures, because such projects have the potential to affect scenic, recreational, and fish or wildlife values in the designated river.

## Steps in the Wild and Scenic Rivers Act Section 7 Determination Process

The following WSRA Section 7 Determination process is adapted from a technical report by the Interagency Council (IWSRCC 2004). In conformance with the guidance contained in that report, the NPS will undertake the following steps as part of its Section 7 Determination process for non-emergency projects:

- Describe the purpose and need of the proposed project and its location, duration, magnitude, and relationship to past and future management activities.
- Analyze the potential impacts of the proposed project on the values for which the river was designated wild and scenic. This analysis will follow the guidelines provided by the *Wild and Scenic Rivers Act, Section 7 Technical Report* of the Interagency Council (2004), and other applicable guidance.
- Define the likely duration of the projected impacts.
- Use this analysis to make a WSRA Section 7 Determination. This determination will document the effects of the proposed activity, including any direct and adverse effects on the values for which the river was designated as wild and scenic.
- Redesign and resubmit any water resources projects found to have a direct and adverse effect on the values of this designated river for a subsequent Section 7 Determination. In the event that a project cannot be redesigned to avoid direct and adverse effects on the values for which the river was designated, the NPS will either abandon the project or advise the Secretary of the Interior in writing and report to Congress in writing in accordance with WSRA section 7(a).
- Follow WSRA section 7 procedures to determine if projects above or below the designated river or on its tributary streams would invade the area or unreasonably diminish the scenic, recreational, and fish and wildlife values present in the designated corridor.

Emergency projects, such as repairing a broken sewer line in or near the river, may temporarily proceed without a Section 7 Determination. However, a Section 7 Determination must be completed in a timely manner upon completion of the project. Emergency water resources projects that are later determined to have a direct and adverse effect on the river values shall be mitigated based on the findings of the Section 7 determination.

## Flowcharts to Illustrate WSRA Section 7(a) Determination Process

The Interagency Council's *Wild and Scenic Rivers Act: Section 7 Technical Report* (IWSRCC 2004) suggests procedures to evaluate the effects of proposed water resources projects. The Interagency Council website<sup>6</sup> also includes examples of section 7 determinations for common types of water resources projects. The Interagency Council developed three flowcharts to guide managers in determining whether a proposal is subject to review under section 7(a) and, if so, which standard and evaluative procedure applies. These flowcharts, as illustrated in Figure 4-1, Figure 4-2 and Figure 4-3 also reference the appropriate detailed

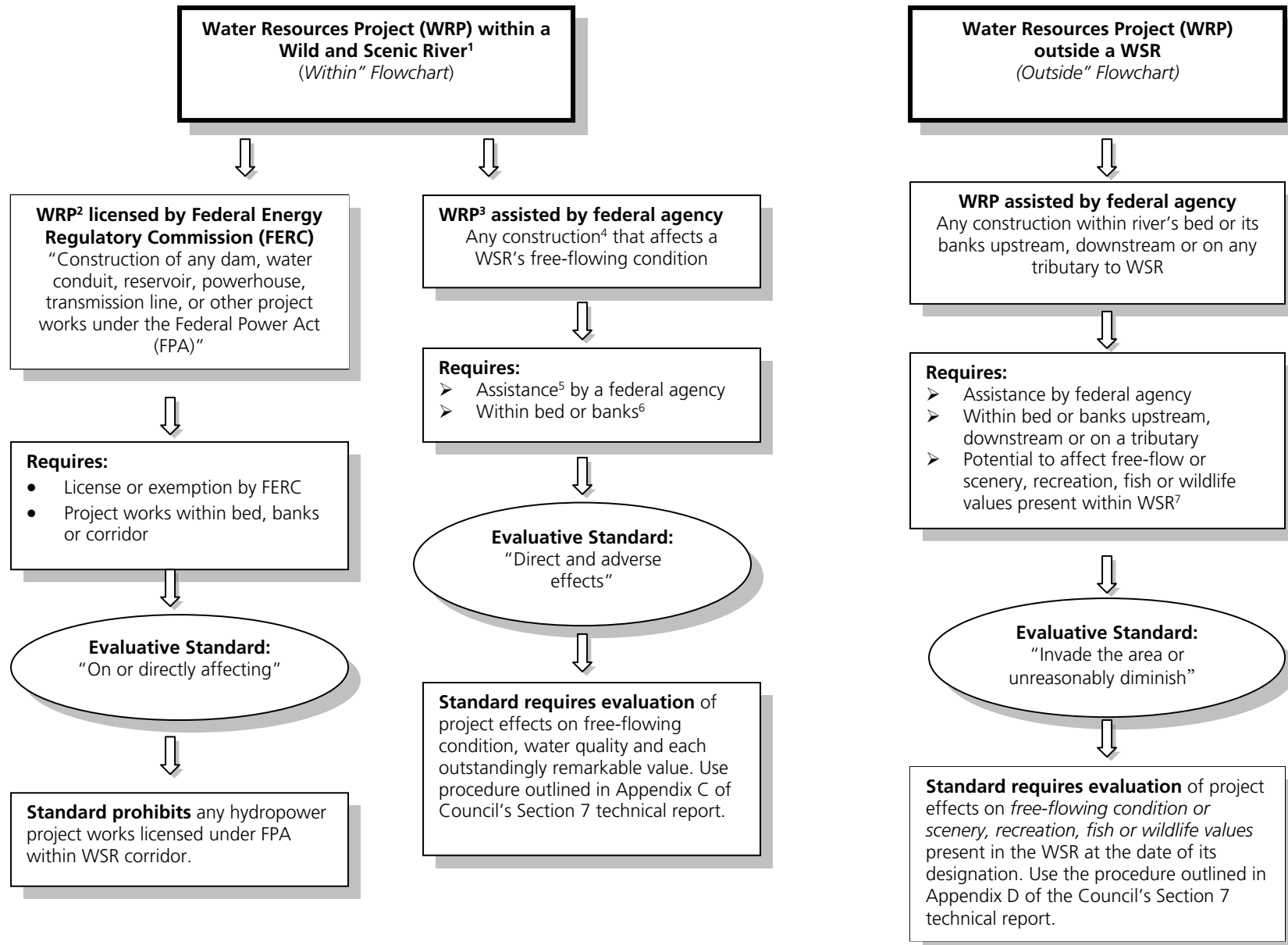
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<sup>6</sup> <http://www.rivers.gov/rivers/documents/section7/flowchart-introduction.pdf>

evaluative process in the Interagency Council’s Section 7 technical report. These flowcharts would be the basis of the section 7 determination process for the *Merced River Plan/DEIS*.

Using the flowcharts, managers would follow the track for proposed water resources projects located either *within* the Merced River corridor, or *outside* (upstream, downstream, or on a tributary to) the Merced River corridor (Figure 4-1). Figure 4-2 and Figure 4-3 provide a more detailed explanation of the process and may be used independent of Figure 4-1. Figure 4-2 would be used for water resources projects that would be located within a designated river corridor, and Figure 4-3 would be used for water resources projects that would be located outside a designated river corridor.

Figure 4-1: Wild and Scenic Rivers Act Section 7(a) Process Flowchart



FLOWCHART FOOTNOTES

- <sup>1</sup> A **Wild and Scenic River** includes the river channel and adjacent areas within the Wild and Scenic River boundaries pursuant to Section 3(a) or 2(a) (ii) of WSRA.
- <sup>2</sup> A **water resources project** (i.e., a hydropower project licensed under the Federal Energy Regulatory Commission) refers to construction of any dam, water conduit, reservoir, powerhouse, transmission line, or other project work under the hydropower provisions (license and exemption) of the Federal Power Act (Part I), as amended (41 Stat. 1063; 16 USC 791a et seq.). Other facilities licensed by the Federal Energy Regulatory Commission under the Federal Power Act (e.g., interstate power transmission lines or natural gas pipelines) are not prohibited outright. They are subject to review under Section 7(a) only if they include construction as described in Footnote 6.
- <sup>3</sup> A **water resources project** is federally assisted construction that would affect a designated river’s free-flowing characteristics, as defined in Section 16(b) of WSRA (see footnote 6). Examples of water resources projects include, but are not limited to: fisheries habitat and watershed restoration/enhancement projects; water diversion projects; transmission lines and pipelines; bridge and other roadway construction/reconstruction projects; dams; water conduits; bank stabilization projects; channelization projects; powerhouses; levee construction; reservoirs; recreation facilities such as boat ramps or fishing piers; or dredge and fill projects that require a federal permit, such as from the U.S. Army Corps of Engineers as required by Section 404 of the Clean Water Act (33 USC 1344).
- <sup>4</sup> **Construction** refers to any action carried out with federal assistance that would affect the free-flowing characteristics of a Wild and Scenic River.
- <sup>5</sup> **Assistance** refers to any loan, grant, license, or other assistance in the construction of any water resources project.
- <sup>6</sup> **‘Bed or banks’** is an interpretation of Section 16(b) of WSRA, which defines free flowing, in part, as “existing or flowing in natural condition without impoundment, diversion, straightening, riprapping, or other modification of the waterway.” Generally, the applicability of Section 7(a) is limited to the area within the ordinary high-water mark) of the river. The ordinary high-water mark is defined in 33 CFR Part 328.3(e) as “. . .that line on the shore established by fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.”
- <sup>7</sup> Requires a **nexus** between the proposed upstream, downstream, or tributary project and the Wild and Scenic River or such project is not a water resources project for purposes of a Section 7(a) determination. Projects that have the potential to affect the river’s free flow or the scenery, recreation, fish, or wildlife values of a Wild and Scenic River are dams, upstream diversion structures and projects that can be seen from the Wild and Scenic River, as they have the potential to affect these characteristics and values in the designated river.

Figure 4-2: Section 7(a) Flowchart for a Water Resources Project Within a Wild and Scenic River Corridor<sup>1</sup>

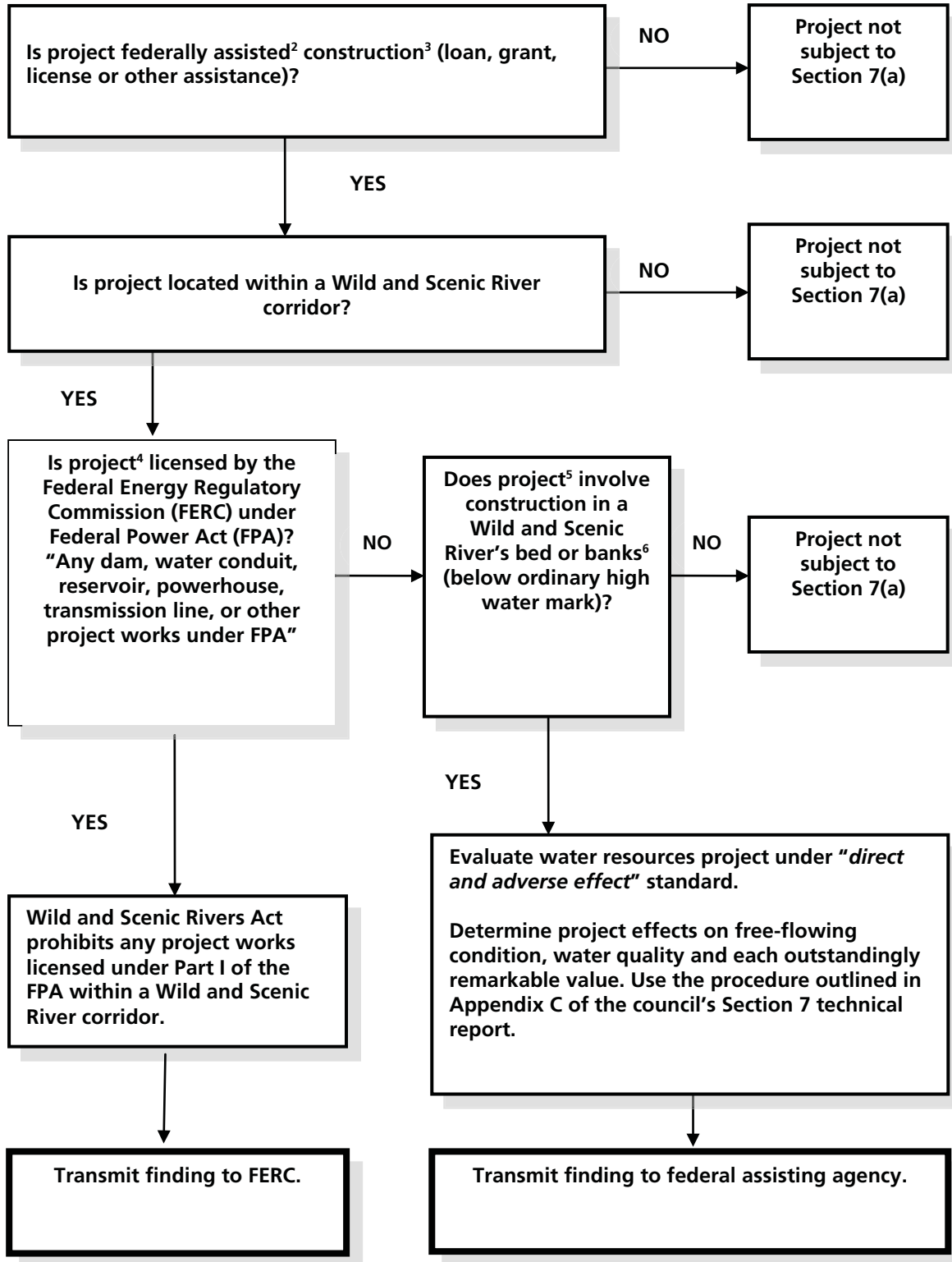
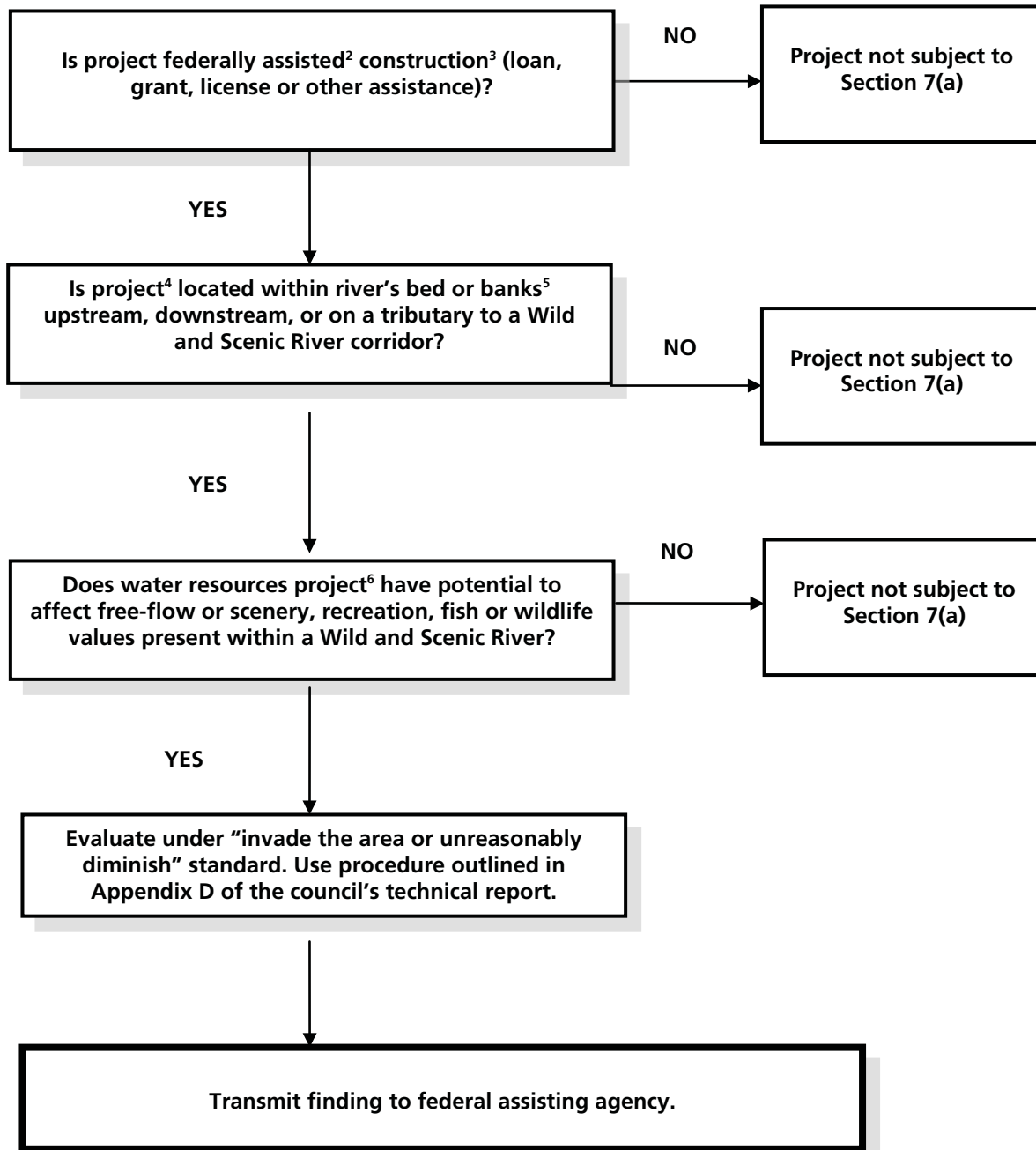


Figure 4-3: Section 7(a) Flowchart for a Water Resources Project Outside of a Wild and Scenic River Corridor



## 5. RIVER VALUES AND THEIR MANAGEMENT

This chapter begins with a brief orientation to the river values identified for the Merced River, designated as a Wild and Scenic River in 1987, and the concepts of management standards, adverse effect, and degradation integral to protection. The bulk of the chapter discusses each river value in detail, including a summary of its current condition, associated management concerns and considerations, specific actions to protect and enhance the river value, and the monitoring program the National Park Service (NPS) will use to protect river values from adverse effect in the future. The monitoring program described in this chapter and the associated actions to protect river values are common to all alternatives. Further actions designed to enhance river values vary by alternative (see “Alternatives” Chapter 8).

### MANDATE TO PROTECT AND ENHANCE RIVER VALUES

The Merced River was added to the National Wild and Scenic Rivers System in acknowledgement of the river’s (1) free-flowing condition, (2) water quality, and (3) outstandingly remarkable values (ORVs). Collectively, these qualities are referred to as river values. Section 10(a) of the Wild and Scenic Rivers Act (WSRA) provides the following broad direction related to river management:

*Each component of the national wild and scenic rivers system shall be administered in such manner as to protect and enhance the values which caused it to be included in said system without, insofar as is consistent therewith, limiting other uses that do not substantially interfere with public use and enjoyment of these values. In such administration primary emphasis shall be given to protecting its aesthetic, scenic, historic, archaeological, and scientific features. Management plans for any such component may establish varying degrees of intensity for its protection and development, based on the special attributes of the area.*

Under the Merced River Plan, protection and enhancement of river values is accomplished by a series of initial actions to address immediate concerns and a commitment to a monitoring program to ensure that river values remain protected over time. In addition, all action alternatives in the plan include a number of site-specific actions directed toward the general improvement of conditions in the river corridor, thereby enhancing river values and fulfilling the goals of the WSRA.

### THE RIVER VALUES OF THE MERCED WILD AND SCENIC RIVER

This section describes the river values of the Merced Wild and Scenic River. There are 20 outstandingly remarkable values (ORVs) in addition to the river’s free-flowing condition and water quality, which the Wild and Scenic Rivers Act stipulates must be protected for all Wild and Scenic Rivers.

#### Free-Flowing Condition

A river must be in a free-flowing state to be eligible for inclusion in the National Wild and Scenic Rivers System. Once a river is designated, the managing agency is required to preserve it in its free-flowing condition for the benefit and enjoyment of present and future generations.

## Water Quality

Another goal of the WSRA is to protect the water quality of designated rivers. Water quality in the Merced River is exceptionally high, and far superior to federal and state standards.

## Outstandingly Remarkable Values (ORVs)

Section 1(b) of WSRA describes other values to be protected with wild and scenic river designation:

*“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 preserved for the benefit and enjoyment of present and future generations”.*

The Interagency Wild and Scenic Rivers Coordinating Council (Interagency Council or IWSRCC) was formed in 1995 to assist those federal and state agencies charged with administering designated wild and scenic rivers.<sup>1</sup> The council’s mission is to make recommendations that will foster consistency in the interpretation and implementation of WSRA. The council has issued specific guidance and criteria for identifying ORVs (IWSRCC 1999):

- To be considered an ORV, a value must be river-related or river-dependent. To be considered river-related or river-dependent, a value must be located in the river or on its immediate shorelands (generally within 0.25 mile on either side of the river); contribute substantially to the functioning of the river ecosystem; and/ or owe its location or existence to the presence of the river.
- To be considered an ORV, a value must be rare, unique, or exemplary in a regional or national context. To be considered rare, unique, or exemplary, a value should be a conspicuous example from among a number of similar values that are themselves uncommon or extraordinary.

The council described additional criteria for assessing each category of ORVs listed in the WSRA, noting that these criteria may be modified to make them more meaningful to a particular river. The council also notes that while no specific national evaluation guidelines have been developed for the “other similar values” mentioned in WSRA, agencies may assess additional river-related values, including but not limited to hydrology, paleontology, and botany resources, consistent with the guidance provided (IWSRCC 1999).

The NPS described and refined ORVs for the Merced River several times during the planning history for the river. As noted above, ORVs for the Merced were discussed in the river’s eligibility study (1986), the *1996 Draft Yosemite Valley Housing Plan*, and previous river plans (2000 and 2005) that were ultimately invalidated by legal decisions. The major changes in the ORVs through time were:

- Air quality was listed as an ORV in the *1996 Draft Yosemite Valley Housing Plan*. Air quality was not listed as an ORV in the *2000 Merced River Plan/EIS* and subsequent plans because it was inconsistent with IWSRCC criteria, and because it is not river-related or river-dependent.
- “Scientific resources” were removed as an ORV because the topic was considered vague, and the topic was inherent in all ORVs.
- Two ORVs, geology and hydrology, were merged in 2010. In the view of subject-matter experts, these interdependent ORVs are difficult to address separately in the context of the *Merced River Plan/DEIS*.

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<sup>1</sup> See <http://rivers.gov/council.html>.



In 2010, the NPS conducted six workshops to consult with members of the public, academia, tribes, and other governmental agencies regarding ORVs for the *Merced River Plan/DEIS*. At the public workshops, the NPS described the ORVs to date and asked three questions:

1. Do you have any specific knowledge of locations with river-related or river-dependent features or resources not addressed by the NPS ORV report?
2. Do you have any knowledge or observations regarding the conditions of river features and values that should be addressed?
3. How should the NPS protect and enhance river resources and values?

The NPS also accepted written input on ORVs, and more than 30 people or organizations submitted letters. With input from other agencies, tribes, and members of the public, Yosemite park staff used the best available science and their professional judgment, to refine and finalize the list of river-related values for the *Merced River Plan/DEIS* (Table 5-1). The Sierra Nevada region was the primary region of comparison for determining rare, unique or exemplary status. More detail about each of the Merced River ORVs is provided in this chapter.

**TABLE 5-1: OUTSTANDINGLY REMARKABLE VALUES (ORVs) OF THE MERCED WILD AND SCENIC RIVER IN YOSEMITE**

<b>Outstandingly Remarkable Values of the Merced Wild and Scenic River in Yosemite</b>
<b>Biological ORVs</b>
<b><i>Segments 1 and 5 – Merced River Above Nevada Fall and South Fork Merced River Above Wawona</i></b>
1. The Merced River sustains numerous small meadows and riparian habitat with high biological integrity.
<b><i>Segment 2 – Yosemite Valley</i></b>
2. The meadows and riparian communities of Yosemite Valley comprise one of the largest mid-elevation meadow-riparian complexes in the Sierra Nevada.
<b><i>Segments 7 and 8 – Wawona and South Fork Merced River below Wawona</i></b>
3. Sierra sweet bay ( <i>Myrica hartwegii</i> ) is a rare plant found on river banks of the South Fork Merced River.
<b>Geologic/Hydrologic ORVs</b>
<b><i>Segment 1 – Merced River Above Nevada Fall</i></b>
4. The upper Merced River canyon is a textbook example of a glacially-carved canyon.
<b><i>Segment 2 – Yosemite Valley</i></b>
5. The “Giant Staircase,” which includes Vernal and Nevada falls, is one of the finest examples in the western United States of stair-step river morphology.
6. The Merced River from Happy Isles to the west end of Yosemite Valley provides an outstanding example of a rare, mid-elevation alluvial river.
<b><i>Segment 4 – El Portal</i></b>
7. The boulder bar in El Portal was created by changing river gradients, glacial history, and powerful floods. These elements have resulted in accumulation of extraordinarily large boulders, which are rare in such deposits.
<b>Cultural ORVs</b>
<b><i>Segment 2 – Yosemite Valley</i></b>
8. Yosemite Valley American Indian ethnographic resources include a linked landscape of specifically mapped traditional-use plant populations and as well as the ongoing traditional cultural practices that reflect the intricate continuing relationship between indigenous peoples of the Yosemite region and the Merced River in Yosemite Valley.
9. The Yosemite Valley Archeological District is an unusually rich and linked landscape that contains dense concentrations of resources that represent thousands of years of human settlement.

**TABLE 5-1: OUTSTANDINGLY REMARKABLE VALUES (ORVs) OF THE MERCED WILD AND SCENIC RIVER IN YOSEMITE**

<b>Outstandingly Remarkable Values of the Merced Wild and Scenic River in Yosemite</b>
<b>Cultural ORVs (continued)</b>
<b>Segment 2 – Yosemite Valley (continued)</b>
10. The Yosemite Valley Historic Resources represent a linked landscape of river-related or river-dependent, rare, unique or exemplary buildings and structures that bear witness to the historical significance of the river system.
<b>Segment 4 – El Portal</b>
11. The El Portal Archeological District contains dense concentrations of resources that represent thousands of years of occupation and evidence of continuous, far-reaching traffic and trade. This segment includes some of the oldest deposits in the region and archeological remains of the Johnny Wilson Ranch, a regionally rare historic-era American Indian Homestead.
<b>Segment 5 – South Fork Merced River Above Wawona</b>
12. This segment includes regionally rare archeological features representing indigenous settlement and use along the South Fork Merced River at archeological sites with rock ring features.
<b>Segments 5, 6, 7, and 8 – South Fork Merced River above Wawona, Wawona Impoundment, Wawona, South Fork Merced River below Wawona</b>
13. The Wawona Archeological District encompasses numerous clusters of resources spanning thousands of years of occupation, including unusually rich evidence of continuous far-reaching traffic and trade. In Segment 7, remains of the U.S. Army Cavalry Camp A. E. Wood document the unique Yosemite legacy of the African-American Buffalo Soldiers and the strategic placement of their camp near the Merced River.
14. The Wawona Historic Resources ORV includes one of the few covered bridges in the region and the National Historic Landmark Wawona Hotel complex. The Wawona Hotel complex is the largest existing Victorian hotel complex within the boundaries of a national park, and one of the few remaining in the United States with this high level of integrity.
<b>Scenic ORVs</b>
<b>Segment 1 – Merced River Above Nevada Fall</b>
15. Visitors to this Wilderness segment experience exemplary views of serene montane lakes, pristine meadows, slickrock cascades, and High Sierra peaks.
<b>Segment 2 – Yosemite Valley</b>
16. Visitors to Yosemite Valley experience views of some of the world’s most iconic scenery, with the river and meadows forming a placid foreground to towering cliffs and waterfalls.
<b>Segment 3 – The Merced Gorge</b>
17. The Merced River drops 2,000 feet over 14 miles, a continuous cascade under exemplary Sierra granite outcrops and domes.
<b>Segments 5 and 8 – South Fork Merced River Above and Below Wawona</b>
18. The South Fork Merced River passes through a vast area of exemplary and wild scenic beauty.
<b>Recreational ORVs</b>
<b>Segment 1 – Merced River Above Nevada Fall</b>
19. Visitors to federally designated Wilderness in the corridor engage in a variety of river-related activities in an iconic High Sierra landscape, where opportunities for primitive and unconfined recreation, self-reliance, and solitude shape the experience.
<b>Segment 2 – Yosemite Valley</b>
20. Visitors to Yosemite Valley enjoy a wide variety of river-related recreational activities in the Valley’s extraordinary setting along the Merced River.

## PROTECTING AND ENHANCING RIVER VALUES

At the direction of the U.S. President in 1982, the Secretaries of the Interior and of Agriculture jointly promulgated regulations (hereafter referred to as the guidelines<sup>2</sup>) implementing WSRA. The guidelines interpret the “protect and enhance” directive of WSRA as a “nondegradation and enhancement mandate for all designated river areas, regardless of classification.” Under the guidelines, rivers must be “managed to protect and enhance the values for which the river was designated, while providing for public recreation and resources uses which do not adversely impact or degrade those values.” To do so, agencies are instructed to address the kinds and amounts of public use that the river area can sustain without adverse effect to river values. Guidance is also provided on the location of major public-use facilities with regard to the river corridor and agencies are instructed to ensure that any such development does not adversely impact river values.<sup>3</sup>

The U.S. Court of Appeals for the Ninth Circuit (the Ninth Circuit) has interpreted WSRA and its implementing guidelines to mean that a comprehensive river management plan must contain provisions designed to prevent any adverse effects or degradation from occurring. Specific thresholds must be stated for mandatory management action that will occur ahead of any such impacts or degradation. In addition, a comprehensive river management must address “both past and ongoing degradation.”<sup>4</sup>

In its technical report on managing wild and scenic rivers, the Interagency Council recommends that managers should document and eliminate adverse effects on ORVs, free flow, and water quality, “including activities that were occurring on the date of designation.”<sup>5</sup> According to the council, any past degradation or adverse effects in existence as of the date of designation should be carefully assessed, and the managing agency should establish “a positive trajectory for any value that was in a degraded condition.”<sup>6</sup>

In order to assess the health of river values at the date of designation and to ensure that no further degradation or adverse effect occurs, the Interagency Council recommends “the river administering agency should document baseline resource conditions and monitor changes to these conditions.”<sup>7</sup> According to the council, this baseline:

*“...serves as the basis from which the degree/intensity of existing and future impacts can be measured. All future activities are to be measured from this baseline to ensure continued high quality conditions and to eliminate adverse impacts (protect) or improve conditions (enhance) within the river corridor. If a thorough resource assessment that includes a baseline description of the outstandingly remarkable values is not completed at the time of designation, this assessment should be included in the river management plan. The river management plan then establishes the baseline conditions at the time of designation—including a description of any degradation—and proposes management actions that will be taken to improve conditions until they meet the requirement to protect and enhance the river’s values.”*

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<sup>2</sup> National Wild and Scenic River System; Final Revised Guidelines for Eligibility, Classification and Management of River Areas, 47 FR 39454 (1982).

<sup>3</sup> Id. at 39458-9. In order to be located within the river area, major public use facilities such as visitor centers, administrative facilities, and developed campgrounds, must be (1) necessary for public use or resource protection; and (2) infeasible to move outside the river area; and (3) have no adverse effects on River Values.

<sup>4</sup> Friends of Yosemite v. Kempthorne, 520 F.3d 1024, 1035-36 (Ninth Circuit, 2008) [hereafter FYVIII].

<sup>5</sup> IWSRCC, “Wild and Scenic River Management Responsibilities,” page 26 (2002), available at <http://www.rivers.gov/publications/management.pdf>.

<sup>6</sup> IWSRCC, “A Compendium of Questions and Answers Relating to Wild & Scenic Rivers,” page 69 (2011), available at <http://rivers.gov/publications/q-a.pdf>.

<sup>7</sup> IWSRCC, “Wild and Scenic River Management Responsibilities,” page 22 (2002), available at <http://rivers.gov/publications/management.pdf>.

By assessing baseline conditions, past adverse effects or degradation can be identified and corrected.<sup>8</sup> In addition, any downward trends that could lead to adverse effects or degradation can be identified and addressed at an early stage. The river management plan then responds to the management situation described in the baseline condition report. The plan identifies management actions needed to correct situations where river values are threatened and proposes additional actions to enhance river values, where possible. In April 2011, the NPS produced a draft baseline conditions report of river values both at the time of the Merced River's 1987 designation and 2010. The July 2012 version of the *Merced Wild and Scenic River Values Baseline Conditions Report* incorporates the findings of scientific studies conducted specifically for the Merced River planning effort.

The WSRA program embodied in the river management plan includes the following steps, each of which is important in carrying out the act's mandate:

1. Identify and define river values
2. Define the terms "adverse effect," "degradation," "enhancement," "management standard," "management concern," and "management consideration" as they are used to describe the condition of river values
3. Assess the baseline condition of all river values, including both the current state and, to the extent possible, the condition at the time of designation (1987)
4. Select measurable indicators for each river value, and set metrics for the associated management standard and triggers for management concerns as well as thresholds for adverse effect and degradation
5. Assess each river value for the presence of adverse effects, degradation and/or management concerns, as defined in steps 2 and 4
6. Describe and commit to management actions needed to mitigate or eliminate adverse effects, degradation and management concerns
7. Implement a monitoring program for each indicator, with pre-determined conditions which will trigger specific management actions needed to ensure that river values remain protected and enhanced over time.

## KEY CONCEPTS FOR RIVER MANAGEMENT UNDER WSRA

The following sections provide definitions of "adverse effect" and "degradation" in the context of WSRA requirements, which are not to be confused with similar terminology used for the National Environmental Policy Act (NEPA) analysis included in "Volume II" of this EIS or the analysis completed in accordance with the National Historic Preservation Act (NHPA). For purposes of WSRA, an *adverse effect* to a river value is not synonymous with an *adverse effect* to an impact under NEPA or an *adverse effect* to a historical property under NHPA. In this chapter, adverse effects under WSRA pertain specifically to ORVs and are defined according to measurable thresholds determined at a segmentwide scale. Adverse effects documented in NEPA for this plan are resource-specific and may be observed at a smaller scale. Thus, the adverse effects reported in Volume II do not necessarily equate to adverse effects/effects under WSRA/NHPA.

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<sup>8</sup> According to the Interagency Council, adverse effects to river values "must be identified in development of the CRMP, with appropriate strategies detailed for their resolution." IWSRCC, "Wild and Scenic River Management Responsibilities," page 22 (2002), available at <http://rivers.gov/publications/management.pdf>.

Just as clarity is needed when defining the ORVs, it is necessary to define a number of terms in order to know how to translate the protection and enhancement mandate of WSRA into management activities. Recent guidance by the Interagency Council (IWSRCC 2011) equates protection under WSRA with the elimination of adverse effects. It is, therefore, important to define adverse effect in order to know what constitutes a “protected” state. The following sections define this term and others that are used in the management framework for protecting individual river values that has been developed for this plan and included in full detail later in the chapter.

## Adverse Effect (WSRA)

*Adverse effect* is defined as a substantial reduction in the condition of a river value in relation to baseline conditions as a result of public use, development, and/or administrative use. An adverse effect is a segmentwide condition and requires immediate attention by the agency. It may be detected by periodic monitoring or by other means. When more than one indicator is monitored for any river value, an adverse effect associated with any one of the indicators constitutes an adverse effect on the value as a whole.

Under WSRA, the NPS must protect the river area against those impacts that “substantially interfere” with river values.<sup>9</sup> Degradation is not explicitly defined by WSRA or the Interagency Council guidelines. In cases of this nature, the Ninth Circuit has held that, absent further guidance, such terms should be given their ordinary meaning.<sup>10</sup> Therefore, the NPS has defined the term in accordance with its plain, ordinary meaning, and best professional judgment. The conclusion reached was that, for purposes of WSRA, an adverse effect would be defined as a substantial reduction in the condition of a river value throughout a given river segment. Such an impact could be sudden and unforeseeable, or it could develop over a specified period of time, as reflected through the findings of periodic assessments.<sup>11</sup>

As discussed in this chapter, the specific conditions that constitute an adverse effect have been defined for each river value. These metrics were established using the best available scientific information, including research conducted specifically for this planning effort, and reasoned professional judgment.

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<sup>9</sup> Hell’s Canyon Alliance v. U.S. Forest Service (USFS), 227 F.3d 1170, at 1177-78 (Ninth Circuit 2000). As one court has observed, the act requires managers to exercise discretion and judgment in order to strike a balance between use and preservation. Sierra Club v. Babbitt, 69 F. Supp. 2d 1202, 1254 (E.D. Cal. 1999). (“If anything, the WSRA seems deliberately ambiguous as to how an agency is supposed to balance the recognized tension between use and preservation.”)

<sup>10</sup> Friends of Yosemite Valley v. Norton, 348 F.3d 789, 796 (Ninth Circuit 2003) (citing Hell’s Canyon Alliance v. USFS, 227 F.3d 1170, at 1177 (Ninth Circuit 2000). “Degradation” is not a term from the act, but from the Secretaries’ Guidelines for River Areas. The Supreme Court has recently reaffirmed that where an agency’s regulations construing a statute are ambiguous, the agency’s own interpretation of those terms are entitled to substantial weight. Chase Bank USA, N.A. v. McCoy, 131 S. Ct. 871, 880 (2011). In this case NPS has determined that the ordinary meaning of the term “degradation” is the most reasoned reading of the text of the guidelines because it will enable the agency to use the best available science to establish clear and specific thresholds for degradation of each outstandingly remarkable value (ORV), as well as a monitoring program that triggers action intended to prevent degradation prior to its incidence. See FYVIII, 348 F.3d at 1034.

<sup>11</sup> The requirement that in order to be an adverse effect, a decline must be substantial and sustained over time is intended to exclude limited, transitory, or natural fluctuations in condition from the definition. Many river values may experience temporary downward trends that are not indicative of any threat to the segment-wide condition of the river value as a whole. For example, an animal may drown while crossing the Merced River, thereby temporarily increasing nearby coliform bacteria counts. In another example, some downward trends may be the result of natural variations in function over time. Drought years, for example, may negatively influence the diversity and productivity of grasses in Yosemite Valley Meadows for several years in a row. For these reasons, the trends leading to adverse effects must be reflective of something more than inconsequential changes or short-term fluctuations. More rarely, sudden unforeseeable impacts may occur that require immediate action to mitigate. For example, a chemical or fuel spill that meadow would create such an adverse effect.

## Degradation

**Degradation** is defined as the state in which a river value has been fundamentally altered by public use or development to the point that its value is lost for at least a decade. Degradation is a long-term condition that is segmentwide. A river value has been degraded when recovery would only be possible through a sustained change in park management and a significant investment of financial and natural capital. Degradation may be detected by the baseline condition assessment, by periodic monitoring, or by other means.

The Ninth Circuit has held under WSRA that a comprehensive management plan must “trigger management action before degradation occurs.”<sup>12</sup> Like adverse effect, degradation is not defined in either the act or the guidelines. This plan therefore relies on the common, ordinary meaning of the term. Merriam Webster’s *Collegiate Dictionary, Tenth Edition*, defines degradation as a “decline to a low, destitute, or demoralized state,” while degrade is defined as “to lower or impair in respect to some physical property” or “to lower in grade, rank, or status.” Similarly, Webster’s *Third New International Dictionary Unabridged* uses both of the above definitions of degrade as well as “to lower from a superior to an inferior level.” Thus, the common, ordinary meaning of degradation is consistent with that given above: a substantial reduction in the condition of a river value to a clearly defined, low state of functioning.

As presented in this chapter, each river value has a specific set of conditions that equate to degradation. The NPS relied on the best available science and reasoned professional judgment in determining conditions.

## Enhancement

**Enhancement** is defined as actions taken to improve the condition of a river value. This definition is based upon guidance provided by the Interagency Council: “Enhance rivers by seeking opportunities to improve conditions.”<sup>13</sup> Such actions would improve the conditions of a river value to the point where the river value’s condition meets or exceeds the management standard (defined below).

## Management Standard

**A management standard** is defined as the desired condition of a river value. Under this plan, all river values will be protected and enhanced in accordance with WSRA and the Secretaries’ Guidelines for River Areas. The management standard is the desired condition of a river value attainable under current trends and influences beyond NPS control. As discussed in more detail below, most river values are currently in a condition that is better than the management standard and within desired conditions. Enhancement actions included in the plan will serve to increase this margin of quality.

## Management Concern

The goal of this river plan is to maintain all river values in a condition that meets or exceeds the associated management standard. However, in a dynamic natural setting, fluctuations in resource conditions can be expected to occur over time. The key to successful management then is to provide a series of checkpoints in the monitoring framework that will be used to trigger actions to arrest downward trends before conditions

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<sup>12</sup> FYVIII, 520 F.3d 1024, 1034-35 (Ninth Circuit 2008).

<sup>13</sup> IWSRCC, “Wild and Scenic River Management Responsibilities,” page 26 (2002), available at <http://rivers.gov/publications/management.pdf>.

drop below the management standard. Therefore, for each river value, a series of “trigger points” have been established at incremental levels above the management standard. When monitoring indicates that the condition of the river value has dropped below a trigger point, the situation is described as a *management concern*. Management concerns are to be immediately addressed and corrective measures have been pre-identified and included in the management framework described for each river value later in this chapter.

Management concerns are segmentwide conditions (such as informal trails fragmenting a meadow complex that dominates a river segment) but are correctable and do not bring the river value condition to the level of adverse effect or degradation. Another form of management concern is a downward trend in river condition that is occurring so slowly that the river condition has not yet been adversely affected but would if given adequate time and continued decline. In either case, the NPS will take the actions identified for each river value when a trigger point is reached. A river value that has documented management concerns is still considered to be protected but requires management action to remain so.

## Management Consideration

*Management considerations* are localized areas of impact to components of a river value where management actions can be taken that will improve (enhance) conditions in the river corridor. Management considerations were developed from information in the *Merced Wild and Scenic River Values Draft Baseline Conditions Report*, the 2011 ORV workshops, public comment, and park staff input. Management considerations also include programs or specific actions to protect and enhance the long-term condition of river values, such water quality monitoring. Because of limited extent, management considerations can be corrected with relatively simple actions that help to ensure the associated river value remains at or above the management standard.

## Baseline Conditions Assessment

To assess the health of river values and ensure that no degradation or adverse effect occurs, the Interagency Council recommends that managing agencies “document baseline resource conditions and monitor changes to these conditions.”<sup>14</sup> According to the council, the baseline resource condition:

*“... serves as the basis from which the degree/intensity of existing and future impacts can be measured. All future activities are to be measured from this baseline to ensure continued high quality conditions and to eliminate adverse effects (protect) or improve conditions (enhance) within the river corridor. If a thorough resource assessment that includes a baseline description of the ORVs is not completed at the time of designation, this assessment should be included in the river management plan [for the Merced River Plan/DEIS, that assessment is summarized in this chapter, and provided in its entirety in an attached DVD]. The river management plan then establishes the baseline conditions at the time of designation—including a description of any degradation—and proposes management actions that will be taken to improve conditions until they meet the requirement to protect and enhance the river’s values ...”<sup>15</sup>*

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<sup>14</sup> Interagency Wild and Scenic Rivers Coordinating Council, “Wild and Scenic River Management Responsibilities,” page 22 (2002), available at: <http://rivers.gov/publications/management.pdf>.

<sup>15</sup> Interagency Wild and Scenic Rivers Coordinating Council, “A Compendium of Questions & Answers Relating to Wild & Scenic Rivers,” page 70 (2011), available at [www.rivers.gov/publications/q-a.pdf](http://www.rivers.gov/publications/q-a.pdf).

By assessing baseline conditions, managing agencies can identify and correct past degradation.<sup>16</sup> Downward trends that could lead to adverse effects and degradation can be identified and addressed at an early stage. In April 2011, the NPS produced a draft baseline conditions report of river values both at the time of the Merced River's 1987 designation and in 2010. The *Merced Wild and Scenic River Values Baseline Conditions Report* continued to be revised to reflect newly completed scientific studies that informed river values. An updated July 2012 baseline conditions report is available at [http://www.nps.gov/yose/parkmgmt/mrp\\_documents.htm](http://www.nps.gov/yose/parkmgmt/mrp_documents.htm).

## Monitoring Program

The monitoring program in the *Merced River Plan/DEIS* fulfills the Secretarial Guidelines to ensure “studies will be made during preparation of the management plan and periodically thereafter to determine the quantity and mixture of recreation and other public use which can be permitted without adverse effect on the resource values.” This plan defines a set of measureable indicators to monitor the condition of each river value through time as described in this chapter. Yosemite National Park staff selected indicators for their ability to provide insight into the integrity of the river value and provide early warnings of change. Park staff also required indicators to support objective and easily obtained data collection that is repeatable across time and across observers. The monitoring program for an individual river value may be refined, if necessary, through time as more information becomes available.

## HISTORICAL RESOURCE CONDITIONS ASSOCIATED WITH DEVELOPMENT

This section provides an overview of development patterns over time in Yosemite Valley, the extent of development that has occurred in the past, and how this development has been managed over the decades. The *Draft Baseline Conditions Report* (available online) provides more detailed information on changes in resource condition over time, and “Proposed Ecological Restoration Actions within the Merced River Wild and Scenic River Corridor” (Appendix E) provides a more detailed explanation on actions of this plan to improve conditions of the Biological ORVs.

## Overview of Historic Development Patterns

Since the Yosemite Grant was established in 1864, Yosemite Valley has been the focus of constant, ongoing human attention and manipulation. The Valley's development footprint has constantly changed over time, growing, shrinking, and changing pursuant to the human needs and perceptions of the given era. Along with the development footprint, human activities have influenced the natural vegetation and condition of the Merced River over time. These changes have been the subject of numerous inquiries over time, including several books (Runte 1990, Demars 1991, Sanborn 1981, Carr 1998) and, more recently, a National Register nomination (NPS 2006) for the Yosemite Valley Historic District. The nomination, which succinctly describes the long evolution of Yosemite Valley development, indicates several changes in park philosophy since 1864:

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<sup>16</sup> According to the Council, adverse effects to River Values “must be identified in development of the comprehensive management plan, with appropriate strategies detailed for their resolution.” Interagency Wild and Scenic Rivers Coordinating Council, “Wild and Scenic River Management Responsibilities,” page 22 (2002), available at <http://rivers.gov/publications/management.pdf>.



*“The Yosemite Valley landscape is the result of a long and complex history of interactions between natural systems and human influences. For thousands of years, American Indians managed the landscape through burning and other practices. In the 1860s, Euro-Americans took over management of the valley floor landscape for the purpose of preserving it as a public park. This has resulted in a 150-year history of agricultural use, clearing, burning, and facility development. Yosemite Valley today is the landscape record of one of the most ambitious and historically significant experiments in the preservation of natural scenery ever attempted.”*

Unlike much of the rest of Yosemite and most backcountry areas in the country’s other large national parks, Yosemite Valley is a landscape as much influenced by people as it is by nature.

Historic manipulations of the Yosemite Valley landscape began almost immediately after Euro-American discovery. The first permanent hotel in Yosemite Valley was built in 1856. Called the Lower Hotel, it was the first of a string (Lower Hotel, Upper Hotel, Leidig Hotel) that were in place by 1869 (Greene 1987). Clusters of buildings also proliferated at the foot of the present Four Mile Trail (the “Lower Village”), and south of the river to opposite Yosemite Falls (Yosemite Village, now referred to as Old Yosemite Village). The first road reached the valley in 1874, with a carriage road circumnavigating the valley floor completed in 1882. During this era (1851-1889), homesteaders built farm buildings, corrals, fences, bridges, a ferry crossing, gardens, orchards, irrigation ditches, fenced grazing areas, sawmills, and plantings of hay and grain. Visitors also camped anywhere they desired throughout the valley in this era.

This summary of human structures only begins to provide one with an idea of the full extent of human activity and changes occurring in the valley at this time. Widespread human *activity* was also occurring that manipulated the landscape in both obvious and subtle ways. Additional vignettes taken from the Yosemite Valley Cultural Landscape Report (1994) demonstrate Yosemite Valley was no different from the rest of California, experiencing rapid and irreversible change at this time:

- *“The land between Hutchings’ House (Sentinel Hotel) and the Merced River was a small lawn with scattered shade trees, hitching posts and rails. Across the river, meadowland was used to grow hay” (1868).*
- *“By 1870, Lamon’s gardens and orchards were producing strawberries, raspberries, blackberries, apples, pears, peaches, nectarines, plums, and almonds. In additions, 20 acres of El Capitan Meadow were plowed in an unsuccessful attempt to grow hay.”*
- *“In 1879, the portion of land between the later Sentinel Hotel and the Merced was in use as a barnyard.”*
- *“To alleviate the problem of the winding Merced River’s tendency to change its banks and threaten crops and buildings, and to drain some of the valley’s swampy meadows for development, Galen Clark used dynamite to blast away much of the moraine at the foot of the El Capitan. With the natural dam removed, the water table dropped at least five feet” (Milestone 1978 and 1990).*
- *“After the moraine was blasted, the marshy Leidig Meadow became fit for cultivation. The meadow was sown with timothy for hay until 1888.”*
- *“In 1881, fine forage grasses had been thinned out of the meadows by constant travel and grazing animals. Coarser, more robust grasses replaced them.”*
- *“In 1884, to stop the Merced’s erosion activities, a trench lined with willow trees planted at an angle of forty degrees was dug along the river’s banks and filled with rocks.”*
- *“One hundred and fifty acres of the Stoneman Meadow were cleared and plowed for hay in 1887.”*
- *“J.M. Hutchings established an elm-lined boardwalk between his hotel (the Upper Hotel or Sentinel Hotel) and his home at the foot of Yosemite Falls around 1866.”*

Rapid development in Yosemite Valley inspired John Muir to fight for national park designation, which occurred in 1890. While 1,400 square miles surrounding Yosemite Valley were designated as national park, the original Yosemite Grant lands (the Valley and Mariposa Grove) were not. Nonetheless, the change in land designation surrounding the valley inspired the first understanding that rampant development and manipulation of the valley itself should be limited, for the State of California Commissioners overseeing it wrote: “The policy of this Commission is to preserve the floor of the valley as nearly as possible in its natural state; to avoid the grouping of buildings so as to form a village . . . to restore as rapidly as consistent with well ascertained principles of forestry, the park-like condition of the valley” (State of California 1890). Implementing policy over the course of the next decade, the commissioners specified no more than 200 acres on the valley floor would be under cultivation at one time. The commissioners also began the first attempts to improve resource conditions in the Valley:

*“The policy of the commissioners of 1890 was to restore the vegetation of the valley to its 1851 appearance by clearing underbrush, reducing human intrusions to a minimum, and encouraging the growth of flowering plants. They responded to criticism of their management by arguing that the shifting banks of the Merced were responsible for much of the destruction of timber and meadowland in the valley.”*

While these ideas were notable in their novelty, actual reduction in impacts did not occur throughout Yosemite Valley. Indeed, 1890 was perhaps the beginning of over a century of debate about what the proper level of development and recreation in the valley should be, and about the tension between articulated policies and their implementation on the ground in Yosemite Valley. While the commissioners oversaw the demolition of numerous structures and the continued clearing of trees and brush from meadows, the park’s concessioner was expanding facilities to accommodate growing tourist numbers during that same time period with Camp Curry opening in 1899. In another example of actions taken to both protect park resources while accommodating visitors, riprap to protect a sugar pine at the bridge of the same name was installed in 1899, while almost all of Lower Village was removed (with only three buildings remaining there by 1901) (NPS 1994).

The paired efforts to protect resources and accommodate visitation continued during the U.S. Army’s oversight of Yosemite (1906 to 1916), as well as the beginning years of the NPS (that took over Yosemite’s administration in 1916). The army oversaw the construction of roads for automobile use. Tourist establishments complemented the roads. By 1913, the Old Village contained a general store, studio, dance and lecture pavilion, offices, the Cosmopolitan Bathhouse, several cottages, the Yosemite Chapel, a butcher shop, bakery, Wells Fargo office, cottages, a Masonic Lodge, and miscellaneous residences and out buildings. Nearby, a paddock for Tule elk appeared, as did an ice rink, ski jump, and toboggan run. Entertaining events complemented the structures, with bear-feeding shows and the fire fall starting during this era; riprapping continued as well.

Conversely, between 1916 and 1931, the NPS replaced this same village with its contemporary Yosemite Village. Designed and planned to be more harmonious with the surroundings, the new village was farther away from the Merced River (NPS 1994). The NPS phased out grazing in valley meadows, created designated picnic areas, and experimented with burning in Ahwahnee, Cook’s and Bridalveil meadows.

The pattern of development and protection continued into the modern era. Mission 66, a decade-long program to upgrade park facilities nationwide, resulted in more structures in Yosemite Valley, as well as the removal of development from valley meadows, and an increase in associated meadow restoration programs.

Today, this combination of protecting and restoring resources while managing for development away from the river continues. The comparison of past development to current development shows the struggle between accommodating visitors and the services they require while protecting the natural scenery that drew tourists to Yosemite Valley in the first place. Never an easy balance to strike, this cursory review indicates that, while the development footprint has not decreased substantially, it has shifted away from the Merced River corridor and its Biological ORVs. Additionally, while some perceived incongruent activities may still occur in the valley, many more have joined the history books as public thinking about natural resource management and national park service policy has evolved. Overall, the NPS has done much to protect and enhance the Merced River and its resources before ORVs were ever defined.

Further detail on the impacts from development and public use can be found under the Historic Resource Conditions section under each individual ORV explanation.

## **Historical Resource Conditions by ORV**

The following sections examine the impacts to ORVs from this history of development and public use.

### ***Biological and Geological/Hydrological ORVs***

**Yosemite Valley Meadows and Riparian Vegetation:** It is widely acknowledged that there have been significant changes in the vegetation composition of Yosemite Valley since 1851, particularly with regard to increase in extent/density of conifers and reduction of meadow extent. It is also widely acknowledged that American Indians strongly influenced the vegetation of Yosemite Valley (Gibbens and Heady 1964, Heady and Zinke 1978, Anderson 2005). While some scientific studies have shown natural factors contributing to these changes, it is most likely a combination of human induced and natural changes, such as cessation of American Indian burning, altered hydrology, domestic livestock grazing, public use of the meadows, wildlife herbivory, natural succession, and climate change.

Gibbens and Heady (1964) found that Yosemite Valley was forested prior to the arrival of American Indians, noting that American Indians controlled brush and tree growth in the Valley, keeping vegetation at the stage best suited to their needs. Indians largely accomplished this goal through the use of fire (Ernst 1943; Reynolds 1959, Anderson and Carpenter 1991, Taylor 2006). The Euro-American arrivals essentially eliminated anthropogenic fire from the Valley in the 1850s—perhaps the first ecological change bearing upon a Merced River ORV. Elimination had immediate effects, with a widespread establishment of trees in and around the meadows taking place after 1860 (Gibbons and Heady 1964). Plowing, mowing, burning, and probably in some cases severe overgrazing, complicated the increase in tree cover to varying degrees, as did the clearing activities of the 1890s, 1930s and 1940s. Nonetheless, a substantial reduction in the size of the meadows was becoming evident by the time Gibbens and Heady did their work.

Several authors (Heady and Zinke 1978, Anderson and Carpenter 1991, Taylor 2006) since have refined these conclusions, but the fundamental conclusion—that Yosemite Valley meadows have shrunk in size in the historic era—remains. Alterations in meadow hydrology, almost always making meadows drier, have had an equally altering effect. The blasting of the recessional moraine, for example, likely dropped the water table in El Capitan Meadow by approximately 5 feet, making it more conducive for tree establishment. Ditching done to drain the meadows had that effect, with roads built across meadows exacerbating the hydrological alterations (Madej et al. 1994, Milestone 1978, Cooper et al. 2008).

Madej conducted the primary investigation into the historic manipulation of the Merced River itself (Madej et al., 1991, Madej et al. 1994). She and her co-authors summarize the impacts to the Merced River in East Yosemite Valley in four general categories (Madej et al., 1991), all of which alter river dynamics significantly:

1. Vegetation loss caused by visitor use and subsequent bank erosion
2. Systematic removal of large wood from the channel up until the 1980s
3. Gravel mining for park road construction
4. Several bridges with openings too small to accommodate even minor flood flows

These changes have been significant, and likely irreversible. In fact, two of the scientists to examine Yosemite Valley meadows concluded—“So much alteration of the meadows has occurred that they can no longer be restored to their primitive state” (Heady and Zinke 1978:20). The extent to which this change should be considered adverse is unclear: Both Gibbens and Heady (1964) and Heady and Zinke (1978) argue that meadows largely exist and persist because of human intervention. To perpetuate meadows, perpetual management intervention will be required.

**High Elevation Meadows:** The meadows in the Merced Lake vicinity (Merced Lake-Shore, Merced Lake-West and Merced Lake-East, for example) were grazed by NPS and concessioner stock in 1987 and showed typical grazing-related impacts such as trampling, erosion, and a decline in herbaceous production (Sharsmith 1961).

### ***Cultural ORVs***

**Yosemite Valley, Wawona, and El Portal Archeological Districts:** Many of the most-researched archeological sites have been impacted by park-related development, often by construction of facilities that are now important historic resources themselves. For example, one multi-component archeological site located immediately adjacent to the LeConte Memorial Lodge experienced impacts from construction of the lodge and an associated road in 1915. At other archeological sites, pre-contact American Indian villages and middens have been damaged. The impacts have been largely due to construction of administrative and visitor facilities, including buildings, roads, utilities, trails, etc. In some El Portal locations, impacts to archeological sites are from mining and logging during the early 1900s. Though these sites may have been damaged, they are nonetheless listed as contributing elements of their respective archeological districts. The majority of the impacts to these sites occurred well before their National Register listings, and the impacts were not significant enough to preclude listing. Despite the impacts, these sites have been documented to contain intact cultural deposits with information important to understanding regional pre-contact and historic-era American Indian lifeways.

**Yosemite Valley Black Oaks:** Similar to meadows in Yosemite Valley, American Indians actively managed black oak stands in Yosemite Valley. This management likely included burning or hand pulling to discourage conifer encroachment and undergrowth, deer control, and planting. The purpose of this active management was to ensure a good harvest of acorns, which was an important part of their diet, and the reason for the Ethnographic ORV. Since the active management of black oak stands by American Indians ceased in the mid-1800s, mature individuals are being encroached upon by conifers, and recruitment (number of saplings) is low.

### **Scenic ORVs**

**Visible Historic Developments:** Historic developments may be visible from the river in segments 1, 2, 3, 6, and 7. These include the Merced Lake High Sierra Camp, roads and other transportation infrastructure, lodging such as Housekeeping Camp and Yosemite Lodge, and campgrounds in Yosemite Valley, for example. These historic-era developments may affect the scenic ORV.

### **Recreational ORVs**

Parkwide annual visitation was first recorded in 1906, marked at 5,414 annual visitors. A decade later, annual visitation increased six-fold to 33,390. At that time, the U.S. Army established checkpoints in Yosemite Valley (by 1913) to regulate traffic and respond to accidents (NPS 1994). Another 10 years later in 1926, annual visitation jumped to 274,209. It almost doubled again in 1936 to 431,192. While visitation was drastically reduced with the advent of World War II, the end of the war led to visitation skyrocketing. Visitation grew from 116,682 in 1943 to 640,483 in 1946. It was at this point in time when managers first acknowledged that existing visitor facilities and circulation routes were inadequate to handle the dramatic influx (NPS 1994). By the Mission 66 era, when visitation exceeded 1,000,000 (first in 1954), the NPS decided:

*“the limited area of the Valley, in relation to the physical facilities essential to operate the park and to serve the tremendous number of park visitors attracted to it, is the heart of the problem. We can no longer continue to build, construct and develop operating facilities on the Valley floor without seriously impairing and ultimately destroying those qualities and values which the National Park Service was created to preserve and protect for future generations”.*

Since then, visitation has continued to grow, regularly exceeding 2 million by 1967, 3 million by 1994, and 4 million today. Crowding and traffic congestion has become increasingly common.

### **River Values Not Impacted By Development**

Some ORVs have not been affected by past development: the boulder bar in El Portal, the Giant Staircase, the glacially carved canyon, scenery in the South Fork area, recreation above Nevada Fall, high elevation archeological sites and rare features along the South Fork of the Merced River, Sierra sweet bay, and water quality.

### **Conclusion for Historical Resource Conditions by ORV**

The above descriptions are just a very brief window into the multitude of changes that have taken place in Yosemite Valley since the first Euro-Americans arrived. The examples given illustrate the extent of past development in Yosemite Valley prior to the Merced Wild and Scenic designation. They are not meant to justify the current level of development in the Valley, but to remind us of how far the NPS has come in improving resource conditions within the Merced River corridor. Yosemite Valley has gone from an area where construction was haphazardly and hastily placed to capitalize on the best scenic views and where visitor use extended across most available space, to a more thoughtfully planned spatial organization that has attempted to move increasing use to areas of less sensitivity. The planned actions proposed in this Merced River Plan (see this chapter’s discussions of each ORV and in Chapter 8) are intended to ensure that ORVs are protected and to implement actions to enhance the river values.

## RIVER VALUE CONDITION, PROTECTION, AND ENHANCEMENT

This section describes the program to protect and enhance each ORV as proposed in the *Merced River Plan/DEIS*. For each ORV, the following will be discussed:

- The current condition of each ORV and condition at the time of the river’s 1987 designation
- A description of the management program and actions to ensure each ORV is protected before adverse effects or degradation could take place. The management program includes:
  - A description of the indicator(s) used to monitor the condition of each ORV
  - Definitions of the management standard, adverse effect, and degradation
  - A description of the set of measures that would trigger increasingly aggressive management actions to protect each ORV
- Management concerns and associated protective actions proposed in Alternatives 2-6
- Management considerations and actions to enhance river values proposed in Alternatives 2-6

### River Value: Free-flowing Condition

<b>River Value: Free-flowing Condition</b>
<b>Location:</b> All Segments of the Merced River
<b>Description:</b> A free-flowing river, or section of a river, moves in a natural condition without impoundment, diversion, straightening, riprapping, or other modification of the waterway (WSRA 1968, Section 16). Management considerations concerning free-flowing conditions focus on human-constructed modifications within the bed and banks of the Merced River, such as riprap, bridges, and infrastructure.
<b>Management Objective:</b> Reduce the overall amount of human-constructed modifications within the bed and banks of the Merced River through restoration, redesign, and other appropriate methods.

### *Condition at Time of Designation (1987)*

As the Merced River flows from its headwaters in the High Sierra at 13,000 feet through its descent to El Portal at 2,000 feet, various elements impeded its movement at the time of designation in 1987.

- In the highest reaches of the Merced River, a few small structures and scattered sections of riprap impeded river flows in Segments 1 and 5. A small diversion dam above Nevada Fall diverted some flows during spring high water. Four small, wooden footbridges crossed the river upstream of the Nevada Fall Bridge and created minor constrictions.
- Between Nevada Fall and the Happy Isles Bridge, bedrock and massive talus boulders line the river channel, making it more resistant to human impacts. The free-flowing condition of the river was largely intact in this section, with only minor constrictions at the Vernal Fall Bridge, the Happy Isles Bridge, the Happy Isles Gauging Station Footbridge, three footbridges near the Happy Isles Nature Center, and footings associated with the Happy Isles Diversion Dam (which were removed in 2004-2005). From Happy Isles Bridge to Clark’s Bridge, the channel was confined on the right bank by moraines for much of its length. This reach was generally stable at the time of designation (Madej et al. 1991).
- Below Clark’s Bridge, the river becomes a meandering alluvial system. Although the alluvial reach of the Merced River in Yosemite Valley has been relatively free-flowing compared with most rivers in California, this segment was the most impacted reach of the river within the park, especially in east Yosemite Valley floor between Clark’s Bridge and Sentinel Bridge.

In 1879, large boulders were blasted to deepen and widen the river gap through the El Capitan moraine, which lowered the base level of the Merced River by four to five feet (Milestone 1978). As a result, the extent and frequency of flooding in the upstream meadows were reduced within approximately three to four miles of the moraine (approximately up to Superintendent's Bridge) leading to drier conditions and loss of wetlands.

Since the 1870s, large wood, such as downed trees and logjams, was removed from the river to reduce flood risk near bridges and to facilitate road construction and river recreation. Large organic matter contributes to channel *roughness*, which slows down flows and dissipates energy of the water. The practice has encouraged faster, more erosive flows and promoted vertical channel erosion, referred to as downcutting, rather than point bar creation, lateral migration, and avulsion. The removal of large wood also contributed to channel simplification, creating a more homogeneous river. An inventory of large wood was done around the time of the river's 1987 designation (Madej et al. 1994). This study found 12 pieces of wood per kilometer in the upper study reach (between Clark's Bridge and Sentinel Bridge) and 29 pieces per kilometer in the lower reach (comprising 1.6 miles upstream of El Capitan Bridge). Cardno ENTRIX repeated this survey in 2010 and found the level of wood loading in 1994 was 7%-17% of the levels found in natural systems within the Douglas-fir/ponderosa pine forest of the eastern Cascades (Fox and Bolton 2007).

Evidence, such as historical maps and floodplain topography, suggests the Merced River has always had a high rate of lateral erosion, which may have increased in response to human activities, such as trampling along the banks. Between 1879 and the early 1970s, the NPS performed extensive bank stabilization to prevent channel migration near campsites and infrastructure. Riprap—used successfully as a management tool to prevent channel erosion—inhibits the free-flowing condition of the river by preventing natural stream processes, such as lateral migration and point bar formation (Florshiem et al. 2008; Schmetterling et al. 2001). By 1987, 25% of the river's banks had undergone bank revetment, primarily lined with riprap, between Clark's Bridge and Sentinel Bridge (the area with the greatest infrastructure and human presence). In the less-visited West Valley downstream of Swinging Bridge, riprap lines only 2% of the channel.

Between 1919 and 1986, visitor trampling along the banks between Clark's Bridge and Sentinel Bridge damaged riparian vegetation to the point that the river channel widened by an average of 27% and by more than 100% in some locations. In 1987 at the time of designation, 39% of the Yosemite Valley segment was actively eroding. Downstream in the west Valley, 25% of the banks were actively eroding. A strong association was found between levels of human use around campsites and river access points and the loss of riparian vegetation cover and accelerated bank erosion (Madej et al. 1991).

At the time of the river's designation, 11 historic bridges spanned the Merced River between Happy Isles and the Pohono Bridge. Hydraulic constrictions were especially pronounced at three arch bridges built in the 1920s: Stoneman, Sugar Pine, and Sentinel bridges (Madej 1991). Restrictive bridges cause eddy currents upstream and downstream that lead to bank erosion. Additionally, accelerated flows through the narrow opening have scoured the channel bed near bridges and resulted in bar formation downstream and river migration. Bridges also created hard points that anchored channel migration, preventing channel evolution. Some bridges, such as Sugar Pine Bridge, created such strong confinement that they appear to have increased the potential for channel avulsion by substantially eroding and widening naturally-occurring cutoff channels. The impacts of some of these bridges were exacerbated by the elevated road causeways leading to them, which intercepted and concentrated floodplain flows at high water.

Two dams and numerous utility crossings at the time of designation affected the Merced River's free-flowing condition.

- The Happy Isles Dam footing, a three-foot-high structure spanning the river, created a barrier to flow though it was no longer used to produce electricity or divert water.
- The Cascades Diversion Dam, a 17-foot-high structure about one mile downstream of Pohono Bridge, impeded the free-flowing condition of the river though it was no longer used for hydroelectricity since the mid-1980s. This decaying structure was removed in 2004.
- Utility lines crossed the riverbed at 13 locations, acting as small dams. The North Pines Lift Station at the confluence of the Merced River and Tenaya Creek also exacerbated riverbank erosion.

In Segment 4 at the time of designation, the Merced River near El Portal was confined by Foresta Road and associated abutments and riprap, which encroached into the historical channel bed in places. In El Portal, a small levee was located on the left bank of the Merced River, just downstream from the El Portal Road Bridge. This approximately 300-foot deflection bar protects the Trailer Village area from flooding. There is also a levee near the gas station and store. Other modifications to the river in Segment 4 include remnant rock diversions and the use of the Greenemeyer sand pit in the floodplain for sand capture and storage.

Bridges on the Merced River near El Portal included the El Portal Road Bridge and the Foresta Road Bridge. Neither bridge created significant impoundments that affected the free-flowing condition of the river.

In Segment 6 at the time of designation in the Wawona area, a small impoundment at the intake of Wawona's surface water supply was located near the end of Forest Drive. By the time of designation, the pool had filled with small cobbles, sands, and other sediments; however, this impoundment was not a major source of sediment and did not act as a significant barrier to river flow and dynamics.

In Segment 7 at the time of designation, Wawona bridges on the South Fork Merced River include the Swinging Bridge upstream of Wawona; the historic Wawona Covered Bridge, a timber-framed covered bridge; and the South Fork Bridge (Wawona Road). At the time of designation, the South Fork Bridge was a narrow bridge that has since been replaced. The original South Fork Bridge had unreinforced masonry cobble abutments and piers within the channel that affected the free flow of the South Fork Merced River and created local scour holes.

### *Current Condition*

In Segments 1 and 5, all structures that existed at the time of designation remain, including the diversion dam above Nevada Fall and several small footbridges. Water for domestic consumption at Merced Lake High Sierra Camp is taken directly from the Merced River. Such withdrawals constitute at most 0.5% of the river's flow, as determined from 2012 abstraction rates (one of the driest years in Yosemite history).

Segment 2 is the most complex stretch of the Merced River because it includes Yosemite Valley, which hosts the majority of Yosemite's current 4 million annual visitors. Segment 2, therefore, incorporates the most impacts and the greatest number of management actions taken since designation, as presented here:

- Localized riverbank restoration projects have been implemented since 1987 at Housekeeping Camp, North Pines Campground, Sentinel Bridge, former Lower River Campground, and the original El Capitan Picnic Area. In addition, the Happy Isles Dam was removed in 2004. Restoration techniques included soil decompaction, re-vegetation, bioengineering stabilization, riprap removal, and fencing installation. Through restoration, approximately 1,700 cubic yards of riprap have been removed from the Merced River's banks; 2,600 feet of biotechnical bank stabilization have been installed; and 15,000 feet of fencing have been installed (Cardno ENTRIX 2012). In addition, 13 utility lines have been removed from the riverbed, and the North Pines Lift Station has been removed from riverbanks at the confluence of the Merced River and Tenaya Creek. These actions



eliminated some impediments to the free-flowing condition of the river; however, the fundamental causes of channelization remains large wood removal from the channel, bank revetment (e.g. riprap), bridge confinement, and continued bank erosion.

- No hardened bank stabilization, such as riprap, has been installed since the 1987 designation. Although the installation of riprap in Yosemite Valley largely ceased in the early 1970s, more than 3,500 meters of riprap still line the edges of riverbanks and streambanks in Yosemite Valley. Since 1987, the river has undermined riprap in some locations, and bank erosion is occurring behind the lines of riprap in other locations.
- Under current conditions, large wood continues to be managed, although less aggressively than in 1987 conditions. Large wood is maneuvered to riverbanks in the designated rafting area from Stoneman Bridge to Sentinel Beach, a practice considered best management due to the presence of commercial rafting. In part due to this practice, Cardno ENTRIX found that in the upper reach wood loading had increased from 19 to 70 pieces per mile, while in the lower reach the load had increased from 47 to 97 pieces per mile. This increase was also attributed to bank erosion and wood recruitment resulting from the 1997 flood. Within Yosemite Valley, wood loading varies, with the highest levels found in the Happy Isles reach. In Yosemite Valley, large wood loading is likely still below levels found in comparable natural settings, with a level of approximately 26%-35% of that found in a similar study of unmanaged watersheds in the eastern Cascades (Cardno ENTRIX 2012).
- Yosemite Valley's historic bridges continue to constrict river flows, similar to constrictions at the time of designation. Following the 1997 flood, the Happy Isles Gauge Bridge was removed from the channel, and Sentinel Bridge was reconstructed upstream of its original location. Three historically significant arch bridges continue to produce major hydraulic constrictions during high water events: Sugar Pine, Ahwahnee, and Stoneman bridges. The elevated multi-use trail connecting Sugar Pine and Ahwahnee bridges exacerbates these effects. At Sugar Pine Bridge, the bridge's small opening diverts some river flow into a cutoff channel. Greater flow and a steeper slope in the cutoff channel has led to substantial widening since 1919, increasing the potential for avulsion of the main channel in this location. At other bridges—even some of the non-arch bridges like Housekeeping and Swinging bridges—large scour holes have developed. Constructed of multiple piers on top of fill in the river bottom, these bridges create a weir-like impact to free-flowing conditions. Superintendent's Bridge, similarly, disrupts flow and results in the formation of artificial rapids.
- The current condition of additional infrastructure, related to bridges, affects the free-flowing condition of the Merced River in Segment 2. This includes abutments still standing at the former Happy Isles footbridge and the Happy Isles Gauge Bridge. In addition, the Pohono Bridge gauging station, identified as critical infrastructure, could be relocated north outside the river's bed and banks.
- Riverbank erosion and widening in Segment 2 have continued to occur since the time of designation. Erosion has developed on the outside of meander bends, with the most significant location near Sentinel Beach Picnic Area. Channel widening also developed through erosion of both banks between Swinging Bridge and El Capitan Picnic Area and on the outer bends between El Capitan Picnic Area and El Capitan Meadow (Cardno ENTRIX 2012).
- Water for domestic consumption is pumped from three different wells in Yosemite Valley. Even though extraction rates approach 700,000 gallons daily in the summer (the period of greatest use), groundwater levels in Yosemite Valley show very little effect. This is most likely due to both to the aquifer's great depth (there is as much as 2,000 feet of sediment overlying bedrock in Yosemite Valley, so there is substantial water-holding capacity) and due to recharge from surrounding areas. Consequently, such water extraction has no impact on the river's free flow, on groundwater recharge in nearby meadow/riparian areas, or on downstream ecosystems (Newcomb and Fogg 2011).

In Segment 3, the Cascades Diversion Dam, a 17-foot-tall impoundment that backed up the river 200 feet, was removed in 2004, allowing the river channel to be restored to natural conditions. Also in Segment 3, the El Portal Road was partially rebuilt after it suffered significant damage during the 1997 flood (the Merced River eroded the road's embankments). About 7.5 miles of the roadway were rebuilt, with extensive riprap.

Segment 4 conditions in El Portal continue to be similar to those at the time of the river's designation. The river is confined by Highway 140 and revetment (riprap, for example), which in places encroach into the historical channel bed. The small deflection bar built to protect the Trailer Court still exists. Other free-flowing impediments include the El Portal Road berm, remnant rock diversions, and remnants of the Greenemeyer sand pit no longer used for sand capture. Water for domestic consumption is taken from three wells in the El Portal area. These wells do not appear to affect groundwater levels or those in the Merced River (which has substantially higher flows than it does in Yosemite Valley).

In Segments 6 and 7 in Wawona, the South Fork Bridge was damaged during the 1997 flood and replaced in 2006 with a new bridge without piers in the river channel. As established in the WSRA Section 7 determination process, an evaluation for direct and adverse effects by the new bridge found no significant impediment to the free-flowing condition of the river during most flow conditions. In addition, a water intake structure at Swinging Bridge, diverting water to the Wawona Water Treatment Plant, remains.

Water for domestic consumption in Wawona (Segment 7) is taken directly from the South Fork Merced River, in Segment 6. In most years, there is adequate flow for the withdrawals, but in dry years like 2012 river levels can reach critically low levels. In 1987, the NPS implemented the *Wawona Water Conservation Plan*, which set the rate of diversion from the Wawona water intake at 0.59 cubic feet per second (NPS 1987) (water is diverted for domestic and irrigation uses). To protect instream flows for aquatic habitat, the plan enacts mandatory water conservation whenever the river reaches flows of less than 6 cubic feet per second. At flows of less than 6 cubic feet per second, diversions were limited to 10% of the river flow. The plan adequately protects the river's aquatic invertebrates and other life forms during such drought years, but increases in such withdrawals could harm native fauna (Holmquist and Waddle 2012). All alternatives would continue the conservation plan.

In Segments 5 and 8, current free-flowing conditions remain the same as in 1987 at the time of river's designation. There are no human-caused impediments within the river channel.

### ***Management Program for Free-flowing Condition of the Merced River***

This section discusses the proposed management program for this ORV, including the indicator(s) to be used; the definitions of management standard, adverse effect, and degradation; and the monitoring program. The program to manage this river value identifies actions to address specific management considerations and a set of trigger points associated with management actions to maintain desired conditions. To prevent future impacts, the NPS would require all projects involving construction within the bed or banks of the river to undergo a Section 7 analysis as described in "Section 7 of WSRA—Determination Process for Water Resources Projects" (Chapter 4). The analysis would take place in advance of project implementation to ensure no adverse effects or degradation impacts occur on the free-flowing condition of the river.

### **Indicator - Impediments to Free-flowing Condition**

WSRA specifies guidelines for determining appropriate actions within the bed and banks of a Wild and Scenic River. Section 7 of the act restricts hydrologic and water resource development projects and directs managing agencies to specify a process to determine whether or not a proposed water resources project is appropriate. Chapter 4 articulates the Section 7 Determination Process for Water Resources Projects, as proposed in the *Merced River Plan/DEIS*. This process is used to ensure that the free-flowing condition of the Merced River is preserved, in lieu of a specific monitoring program.

### Management Standard

The management standard for free-flowing condition shall be preservation of the river in its current state, with no additional structures or impediments to free-flow within the bed and banks of the river. The Wild and Scenic Rivers Act provides for existing structures, as of designation, to remain.

### Adverse Effect

Adverse effects on the free-flowing condition of the Merced River are defined as an increase in the number of bridges or addition of riverbank riprap; an addition of water diversion structures, or otherwise modifying the waterway in such a manner that free-flowing condition is negatively affected.<sup>17</sup> The addition of any structure within the bed and banks of the river would trigger a Section 7 analysis under WSRA. This definition of adverse effect would allow the NPS to add or modify structures if absolutely necessary, but would trigger an analysis that assures these structures do not impact free-flowing condition. Consider a proposal, for example, to add riprap to support a washed-out section of trail through a narrow section of a canyon. If there is no alternate route for the trail that is feasible and the river is otherwise constrained by the topography, then addition of a short section of riprap may not be considered a substantial impact to free-flow. If, on the other hand, riprap is required to maintain the trail in a historic trail alignment, and the river has migrated into the trail corridor and further migration would be impeded by the addition of riprap, then this would be considered an adverse effect to free-flow or even degradation.

### Degradation Standard

Degradation of the free-flowing condition of the Merced River is defined as the addition of any structure that constrains the movement of the river through avulsion or progressive migration. Additional structures exceed this minimum and would contribute to a degraded state of the river.

### Monitoring Free-flowing Condition

Proposed park management actions (for example, projects involving construction, maintenance, and activities involving ground disturbance) are already regularly reviewed by subject-matter experts and park management at NPS's Monthly Planning Forum. At this forum, any project proposed within the bed and banks of the Merced River is mandated to complete a Section 7 determination process to ensure compliance with Section 7 of WSRA. Table 5-2 displays trigger points and Section 7 analysis response associated with free-flowing conditions.

**TABLE 5-2: MANAGEMENT ACTIONS AND TRIGGER POINTS TO MAINTAIN DESIRED CONDITIONS FOR FREE-FLOWING CONDITION**

Trigger Point(s) at Which Management Action Would Be Taken	Possible Management Actions	Rationale for Management Actions
<b>Trigger Point 1:</b> Proposed construction of a project within the bed or banks of the Merced River.	Section 7 analysis.	Such analysis is required by the Wild and Scenic River Act and would prevent adverse effects from occurring.

<sup>17</sup> Adverse effect and degradation are specifically defined for the Merced River (they are not for the Tuolumne River in the *Tuolumne River Plan/DEIS*) because the potential for new development in the Merced River corridor is substantially greater than it is the Tuolumne River corridor. Specifically, the Merced River has considerably more existing impediments to free flow in Yosemite Valley, there are substantially more management actions proposed in the *Merced River Plan/DEIS* than in the *Tuolumne River Plan/DEIS*, and Yosemite Valley is not designated wilderness (where such wilderness boundaries closely approach the Tuolumne River, precluding such kinds of development in that area).

### ***Management Concerns and Protective Actions***

Management concerns occur when the condition of a resource has reached the trigger point identified in Table 5-2 above. There are no management concerns associated with the free-flowing condition river value.

### ***Management Considerations and Enhancement Actions***

Management considerations associated with this river value include the riverbank riprap, infrastructure within the bed and banks of the river, and bridges. The following actions would take place under Alternatives 2-6 to address these management considerations:

- ***Riprap revetment.*** Remove riverbank riprap to restore natural river processes. Replace riprap with native riparian vegetation and re-vegetate with riparian species (3,400 linear feet). Use bioengineering techniques where riverbank stabilization is necessary for infrastructure protection (2,300 linear feet) under Alternatives 2-6.
- ***Footings at the former Happy Isles footbridges.*** Remove former footings and river gauge base from the bed and banks of the Merced River. Re-vegetate denuded informal trails.
- ***Base of the former gauging station at Happy Isles.*** Remove the gauge base from the bed and banks of the Merced River. Re-vegetate denuded areas.
- ***Pohono Bridge Gauging Station.*** Move the gauging station north of the river outside of the bed and banks of the river. Re-vegetate denuded areas.

The *Merced River Plan/DEIS* considers a range of options to address bridge-related considerations. These options range from removal of three bridges under Alternatives 2 and 3 to retention of all historic bridges under Alternative 6:

- **Alternative 2:** Remove Stoneman Bridge and restore river banks to natural conditions. Redesign the intersection at Sentinel Bridge and convert Southside Drive to a two-way road. Remove the Sugar Pine and Ahwahnee bridges and the berm that connects them, and restore river banks to natural conditions. Re-route the multi-use trail north of the river.
- **Alternative 6:** Retain all historic bridges. Improve riverbank condition and increase channel complexity at Sugar Pine and Ahwahnee bridges through construction of engineered log jams, strategic placement of large wood, removal of rip rap, and use of riverbank bioengineering techniques. Reduce the width of the cut-off channel associated with Sugar Pine Bridge by importing fill material, constructing log jams, and use of bioengineered bank stabilization techniques. If subsequent monitoring of riparian conditions reveals insufficient improvement (i.e. CRAM rating remains below 0.71) within 10 years of the implementation of these actions, more aggressive management action would be initiated, and the NPS would consider the removal of Sugar Pine Bridge.<sup>18</sup>

The NPS would remove Sugar Pine and Ahwahnee bridges in Alternative 4, and Sugar Pine Bridge in Alternative 5.

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<sup>18</sup> Strategically placed log jams diffuse and direct high velocity flows, a property that makes them a valuable tool to mitigate altered flow regimes around bridges. Log jams, unlike traditional rock revetment, reintroduce habitat complexity within the channel by creating additional bars and scour holes, and by providing cover for aquatic organisms (e.g. Abbe et al., 2003). When used in conjunction with the wood retention policy and other log jams designed to facilitate bar formation, riparian vegetation recruitment, and resultant channel narrowing, log jams used around bridges form part of a comprehensive restoration and mitigation strategy designed to improve the hydrologic function of the Merced River.

### ***Conclusion: Protecting and Enhancing Free-flowing Condition***

The free-flowing condition of the Merced River is determined to be absent of adverse effects, degradation, and management concerns, although management considerations are present. The *Merced River Plan/DEIS* proposes actions to address specific considerations including removing riprap and removing unnecessary infrastructure in the river channel under Alternatives 2-6. Alternatives 2-6 consider a range of options to address bridge-related impacts in Segment 2, Yosemite Valley. The actions range from complete removal of selected bridges, to retention of bridges and use of design and engineering techniques such as constructed log jams to improve riverbank conditions and increase channel complexity near bridges. To prevent future impacts, the NPS would require all projects involving construction within the bed or banks of the river to undergo a Section 7 analysis. The analysis would take place well in advance to ensure that no adverse effects or degradation impacts occur on the free-flowing condition of the river.

### **River Value: Water Quality**

<b>River Value: Water Quality</b>
<b>Location:</b> All Segments of the Merced River
<b>Management Objective:</b> Maintain exceptional water quality on all segments of the Merced River within Yosemite National Park and the El Portal Administrative Area.

### ***Condition at Time of Designation (1987)***

The U.S. Geological Survey (USGS) began ongoing monitoring of Merced River water-quality constituents at the Happy Isles gauge in 1968. At the time of river’s designation in 1987, the USGS continued to monitor the Happy Isles gauge. Then, in 1994, the NPS published a comprehensive water quality report, which established baseline water-quality data for the Merced River. The overall water quality of the river was exceptionally high, with relatively few impacts caused by development and visitor use. Water quality in the South Fork Merced River above Wawona was characterized as high, while generally low in nutrients, salts, and suspended sediment, and high in dissolved oxygen. Only minor impacts from human activities were indicated (NPS 1994). Although limited data has been collected for the Merced River above Nevada Fall, the available information documented high water quality (Clow et al. 1996).

### ***Current Condition***

Current water quality in all Merced River segments is high, with most water quality sampling results near natural background levels. Water samples collected near Sentinel Bridge and Pohono Bridge showed higher bacteria levels than elsewhere in the watershed, but even those levels were well below public health limits (Clow et al. 2011). Nutrient concentrations are very low and have been for similar undeveloped areas (Brown and Short 1999; Clow et al. 2011). Some Yosemite Valley samples (9%-14%) indicated trace amounts of petroleum hydrocarbons (Peavler et al. 2008), most likely a result of stormwater runoff from parking lots and roads. Petroleum hydrocarbon concentrations, when detected, were well below the State of California water-quality limits. Higher water temperatures may result from a wider channel with less shading vegetation on the banks. Higher temperatures can result in decreased dissolved oxygen concentration.

## ***Management Program for Water Quality***

This section discusses the proposed management program for this ORV, including the indicator(s) to be used; the definitions of management standard, adverse effect, and degradation; and the monitoring program.

### **Indicators of Water Quality**

The following variables related to water quality can be tied to human contact with water:

- Nutrient levels (total dissolved nitrogen, total phosphorus, nitrate plus nitrite, and total dissolved phosphorous)
- Total petroleum hydrocarbons
- *E. coli* (The State of California has proposed replacing the general fecal coliform indicator with *E. coli* as a more direct indicator of human disease potential. Adoption is on hold until the U.S. Environmental Protection Agency finishes a court-mandated review of bacteriological criteria, due October 2012. Given the likelihood that state standards will change, the NPS is adopting *E. coli* rather than fecal coliform as an indicator of water quality.)

### ***Management Standard***

The management standard for water quality shall be anti-degradation of the indicator condition from a baseline established in 2004-2008. Site-specific management targets are exceeded when annual sampling (nutrients and *E. coli*, respectively) exceeds the 95% upper confidence limit of the baseline condition (75th or 50th percentile) in greater than one in five years. Similarly, the standard for petroleum hydrocarbons is exceeded when hydrocarbons are detected in greater than one in five years.

Water quality criteria for the upper Merced River are established by the California Water Control Board through the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins. The Water Quality Control Plan adheres to the federal Anti-degradation Policy (40 CFR 131.12) by stating: "Chief among the State water policies for water quality control is State Water Board Resolution No. 68-16 (Statement of Policy with Respect to Maintaining High Quality of Waters in California). It requires that wherever the existing quality of surface or ground waters is better than the objectives established for those waters in a basin plan, the existing quality would be maintained unless as otherwise provided by Resolution No. 68-16 or any revisions thereto."

### ***Adverse Effect***

An adverse effect would be either of the following:

- Exceedance of the draft EPA's bacteriological criteria for water contact recreation *E. coli* one-day standard of 235 MPN/100ml (Most Probable Number of bacterial colonies per 100 milliliters) and subsequent exceedance of the 90-day geometric mean standard of 126 MPN/100ml. Exceedance of the bacteriological standard indicates a persistent contamination problem beyond normal flushing rainstorms that would result likely in a violation of state water-quality standards (protecting the designated use of Merced River waters for recreation).
- Exceedance of EPA Maximum Contamination Level for nitrate+nitrite of 10 mg/l (milligrams of nitrate and nitrite expressed as the weight of elemental nitrogen). Exceedance of the Nitrate+Nitrite criteria would be a violation of state water-quality standards as applied to municipal water sources. Waters designated for municipal use must also adhere to California drinking water regulations (Title 22), which include the EPA's Maximum Contaminant Limit for Nitrate+Nitrite. Levels of Nitrate+Nitrite, currently within Yosemite, are 10-100 times lower than this Maximum Contaminant Limit.

### Degradation Standard

Degradation is defined as the inclusion of any Merced River segment on the federal Section 303d (Clean Water Act) listing of waters not attaining minimum water quality objectives. For the Merced River and the chosen water quality indicators, this will occur when there are 10 or more exceedances of the EPA’s water quality standards over the course of the 303d reporting period of three years.

States are mandated “to identify waters that do not meet applicable water quality standards with technology-based controls alone and prioritize such waters for the purposes of developing Total Maximum Daily Loads (TMDLs),” according to California State Water Resources Control Board.

### Monitoring Water Quality

The Merced River’s water quality, as measured by nutrient levels and *E. coli*, would be measured at six locations and petroleum hydrocarbons at three of those six locations (noted with asterisks):

- Merced River above Nevada Fall
- Merced River above Happy Isles Bridge
- Merced River above Pohono Bridge\*
- Merced River below Foresta Bridge\*
- South Fork Merced River above Swinging Bridge
- South Fork Merced River below Wawona Campground\*.

The monitoring protocol is available as a part of the overall Visitor Use and Impacts Monitoring program field guide: <http://www.nps.gov/yose/naturescience/upload/Visitor-Use-Monitoring-Guide-v1-0-2010.pdf>. In addition, Table 5-3 displays trigger points related to water-quality conditions and management response.

**TABLE 5-3: MANAGEMENT ACTIONS AND TRIGGER POINTS TO MAINTAIN DESIRED CONDITIONS FOR WATER QUALITY**

Trigger Point(s) at Which Management Action Would Be Taken	Possible Management Actions	Rationale for Management Actions
<p><b>Trigger Point 1:</b> Statistically significant upward trend in concentration of any of the indicator analyses at any one monitoring site.</p>	<p>Initiate investigation of water quality conditions in the area of consideration to identify potential point source.</p>	<p>These standards indicate possible deterioration of water quality. Steps taken here are focused on determining the persistence and source of the problem and whether more serious investigation and action are required to resolve the issue.</p>
<p>Trigger Point 2: Exceedance of proposed USEPA bacteriological criteria for water contact recreation <i>E. coli</i> one-day standard of 235 MPN/100ml at any one monitoring site in 2 consecutive monthly samples.</p>	<p>Initiate weekly sampling of <i>E. coli</i> at sites exceeding the limit until sample concentration falls below single sample limit (235 MPN/100 ml). Assure at least 5 samples are taken over the course of the 90 days following the first exceedance in order to determine 90-day geometric mean to determine adherence to proposed <i>E. coli</i> standard. If the geometric mean is greater than the 90-day standard of 126 MPN/100ml, a subsequent investigation shall take place.</p>	<p>This trigger point indicates potential violation of a state (and EPA) water quality standard. Subsequent prescribed sampling would determine whether the event was one time only or more persistent (more serious) in nature.</p>

**TABLE 5-3: MANAGEMENT ACTIONS AND TRIGGER POINTS TO MAINTAIN DESIRED CONDITIONS FOR WATER QUALITY**

Trigger Point(s) at Which Management Action Would Be Taken	Possible Management Actions	Rationale for Management Actions
<p><b>Trigger Points 1 or 2</b></p>	<p>These actions may be taken for either trigger point above, depending on the type of impact:</p> <ul style="list-style-type: none"> <li>• Increase educational messaging regarding water quality.</li> <li>• If impacts are related to human waste (and where allowed by management objectives), provide toilet facilities.</li> <li>• If impacts result from erosion, improve conditions through restoration, trail rerouting, etc.</li> <li>• If impacts result from stock use, redirect/ reduce/limit stock use in certain areas.</li> <li>• Increase enforcement of permit requirements.</li> <li>• Increase ranger patrols in river areas to protect water quality and educate users.</li> <li>• Close some areas temporarily or permanently.</li> </ul>	<p>Actions may be initiated during or after the investigations listed under either trigger point to protect water quality and human health.</p>

Source: Environmental Protection Agency

***Management Concerns and Protective Actions***

Management concerns occur when the condition of a resource has reached one of the trigger points identified in Table 5-3. There are no management concerns associated with the water quality river value.

***Management Considerations and Enhancement Actions***

Management considerations pertaining to this river value include water quality related to the impacts of automotive fluids and surface water runoff; potential hazards related to dump stations, septic tanks, and leach fields; and accelerated erosion and potential sediment loading in the Merced River. While water quality in the Merced River meets standards, the Secretarial Guidelines (USDI and USDA 1982) direct managing agencies to maintain or, where necessary, improve water quality to levels that meet federal criteria or federally approved state standards in Wild and Scenic River areas. The following actions proposed in the *Merced River Plan/DEIS* would take place to address these issues:

- **Wawona Impoundment:** Alternatives 2-6 would retain the current water collection and distribution system, and continue to implement the Water Conservation Plan related to the minimum flow analysis for the South Fork. Abandoned infrastructure (not related to the water collection and distribution system) would be removed from a side channel of the South Fork Merced River.
- **Pack Trail from Concessioner Stables in Yosemite Valley to Happy Isles:** Alternatives 2 and 4 would remove the pack trail along the Merced River and restore the area to natural conditions, as the Concessioner Stables would be removed. Alternatives 3 and 6 would re-route the pack trail to the north along the road where the stock trails converge with the Valley Loop Trail.
- **Odger’s Fuel Storage Facility:** Alternatives 2-6 would remove and relocate the facility out of the 500-year floodplain.
- **Yosemite Village Day-use Parking Area:** Alternatives 2 and 3 would move the parking area north of its current location and closer to the Village Center. Northside Drive would be rerouted south of the parking area, outside the 10-year floodplain. The NPS would restore meadow and floodplain communities. Under Alternatives 4, 5, and 6, parking would be moved north to about 150 feet away from the ordinary high-water mark. The NPS would riparian habitat adjacent to the river.



- **Parking Areas:** Move parking lots away from the river and/or construct stormwater run-off mitigation measures that incorporate best management practices.
- **Upper Pines RV Dump Station:** Alternatives 2-6 would relocate dump station away from the river to a site between Curry Village and the entrance to the Pines Campgrounds.
- **Wawona RV Dump Site:** Alternatives 2-6 would relocate the dump site to an appropriate location away from the river.
- **Waste Water Collection System for the Wawona Campground:** Alternatives 2-6 would remove the current septic system and develop a waste water collection system. The NPS would build a pump station above the Wawona Campground to connect the facility to the existing waste water treatment plant.

Actions to address accelerated riverbank erosion and potential sediment loading are described under Geological/Hydrological ORV 7— the Merced River in Yosemite Valley as an outstanding example of a rare, mid-elevation alluvial river.

**Conclusion: Protecting and Enhancing Water Quality**

The Merced River’s water quality is determined to be absent of management concerns, adverse effects, or degradation, although management considerations are present. To remedy these considerations, the *Merced River Plan/DEIS* proposes to continue to implement a water conservation plan for Wawona, including minimum flow thresholds; re-route the stock trail between Happy Isles Bridge and Clark’s Bridge for stock use; and move parking lots away from the river and/or construct stormwater run-off mitigation measures that incorporate best management practices.

The plan would consider options to relocate the Upper Pines and Wawona RV dump stations, develop a wastewater collection system for the Wawona Campground to minimize water use and discharge, To preserve water quality in the future, the NPS would monitor the condition of water quality, and take specific actions should specific trigger points be reached. These trigger points are selected to inform managers well in advance of adverse effects or degradation impacts on water quality.

**BIOLOGICAL ORVs**

This section describes the program to protect and enhance each Biological ORV as proposed in the *Merced River Plan/DEIS*. Three Biological ORVs exist in the Merced River corridor, each related to specific segment(s) of the river (Table 5-4).

**TABLE 5-4: BIOLOGICAL ORVs AND ASSOCIATED INDICATORS**

ORV Number and Key Resource	Segment(s)	Indicator to be Monitored through Time
1. High-elevation meadows and riparian habitat	1 and 5	1. Meadow bare soil 2. Meadow fragmentation resulting from proliferation of informal trails 3. Streambank stability
2. Mid-elevation meadows and riparian communities in Yosemite Valley	2	1. Meadow fragmentation resulting from proliferation of informal trails 2. Status of riparian habitat 3. Riparian bird abundance
3. Sierra sweet bay population in the Wawona area	7 and 8	1. Population decline

## Biological ORV—High-elevation Meadows and Riparian Habitat

**ORV 1—The Merced River sustains numerous small meadows and riparian habitat with high biological integrity.**

**Location:** Segment 1 (Merced River above Nevada Fall) and Segment 5 (South Fork Merced River above Wawona)

**Rationale:** Numerous small meadows and adjacent riparian habitats in this high-elevation environment owe their existence to the river and its annual flooding. The meadows and riparian habitat are exemplary in their intact condition and the great diversity of plant and animal species they support.

**Management Objective:** Manage human use in meadows and riparian habitat within the Merced River corridor to maintain high ecological condition; minimize habitat fragmentation; and protect the integrity of streambanks to conserve ecosystem processes associated with meadow and riparian function.

### *ORV Condition at the Time of Designation (1987)*

Meadow conditions in 1987 at the time of designation were likely similar to conditions of today, with some exceptions. At the time of designation, the NPS allowed the concessioner to graze its pack stock at Merced Lake-West Meadow and Merced Lake-Shore Meadow, and trampling and grazing impacts were reportedly widespread and severe in these areas (Sharsmith 1961). In the early 1990s, the NPS closed these meadows to grazing. In general, the drier, upland edges of subalpine meadows in the Sierra Nevada became more forested during the last century. A comprehensive study by Millar et al. (2004) determined that this occurred during a “single distinct climatic pulse” that occurred from 1946 to 1975, when the weather was warm and dry with little annual variability and conditions fostered pine seed germination. Historic sheep grazing (Sharsmith 1959; Dunwiddie 1977) and fire suppression (DeBenedetti and Parsons 1979) are also implicated in conifer invasion in meadows. Pack stock grazing and fire suppression that occurred between 1946 and 1975 may have contributed to the forest invasion by adding more stress to grazed meadow plants. It is difficult to ascertain the extent, timing, or causes of this historic forest spread in specific subalpine and alpine reaches of the Merced River corridor due to a lack of studies and lack of consistent documentation of conifer removal activities in the past 150 years (Ballenger et al. 2011).

### *Current ORV Condition*

In 2010, park personnel evaluated the condition of high elevation and subalpine meadows of the Merced River corridor. Most meadows reflected high ecological integrity, with the exception of some site-specific impacts. Alpine meadows displayed little to no impacts from visitors or pack stock, with the exception of braided and rutted formal trails in several meadows along the Red Peak and Triple Peak Forks (Ballenger et al. 2011). No stock impacts or informal trails were observed in alpine meadows in the river corridor (Ballenger et al. 2011). Subalpine meadows displayed site-specific negative impacts. For example, Merced Lake - East Meadow exhibited very low vegetation cover and high bare-ground levels associated with several years of administrative pack stock grazing. Researchers documented extensive informal trails at two subalpine meadow sites—Merced Lake - Shore and Merced Lake - East Meadow (Ballenger et al. 2011).

## ***Management Program for ORV 1***

This section discusses the proposed management program for this ORV, including the indicator(s) to be used; the definitions of management standard, adverse effect, and degradation; and the monitoring program. The NPS conducted a widespread condition assessment for meadows in Segment 1 in 2010 (Ballenger et al. 2011). This study evaluated every meadow in the corridor in its entirety, using assessment protocols tailored to different elevations. In subalpine meadows, the study evaluated over 30 different metrics associated with meadows. In alpine meadows, the study focused on coarse composition of vegetation and substrate, and plant communities. In subalpine sites, the study assessed streambank and channel condition using an interagency protocol (Burton et al. 2011), and in alpine sites, the study used a rapid assessment protocol.

This condition assessment provided a foundation to focus meadow monitoring in Segment 1 on areas of special concern. Three distinct indicators were selected to monitor meadow conditions through time. The indicators are: (1) bare soil cover in meadows, (2) fragmentation of meadow habitats as a result of proliferation of informal trails; and (3) physical streambank stability. The NPS is currently testing a pilot monitoring protocol to precisely monitor the bare ground indicator in Segments 1 and 5.

### **Indicator 1 – Meadow Bare Soil for ORV 1**

The amount and distribution of bare soil is considered an important indicator of meadow integrity as it directly relates to site stability and susceptibility to wind and water erosion (Smith and Wischmeier 1962; Morgan 1986; Benkobi et al. 1993; Blackburn and Pierson 1994; Gutierrez and Hernandez 1996; Cerda 1999). Researchers have linked grazing activities to increases in bare soil as well as decreased plant cover, decreased primary productivity, and shifts in species composition (Miller and Donart 1981; Trimble and Mendel 1995; Olson-Rutz et al. 1996; Fahnestock and Detling 2000; Cole et al. 2004). Trampling, by either humans or stock, can produce similar results (Cole 1995; Liddle 1975, 1991) with the added impact of soil compaction that compromises root growth and water infiltration (Gilman et al. 1987; Unger and Kaspar 1994; Pietola et al. 2005).

Candidate metrics for monitoring ecological condition in meadows subject to grazing and/or trampling pressures include vegetative cover, bare soil, species composition, and meadow productivity. Bare soil and basal vegetative cover are more sensitive indicators of meadow condition than species composition (Cole et al. 2004). For instance, bare soil increases at lower levels of disturbance compared with shifts in species composition in a variety of montane vegetation types of North America (including alpine meadow) (Cole 1993). Plant productivity may be more sensitive to grazing pressure than bare soil (Cole et al. 2004), but this measure may be impractical to monitor in Wilderness meadow settings. Furthermore, plant productivity is subject to high interannual variability resulting from climatic factors, such as precipitation (Walker et al. 1994), snowpack, or snowmelt (Walker et al. 1995). In addition to its relevance for monitoring meadow condition, bare soil measured from point data is efficient, objective, easily obtained, and repeatable across time and observers. Therefore, bare soil may be one of the most robust indicators of changes in meadow ecological condition.

Weixelman and Zamudio (2001) generated low, moderate and high ecological condition classes for bare soil cover values based on monitoring data from a comprehensive multi-year study in U.S. Forest Service meadows in the Sierra Nevada range (Table 5-5). These values were used to inform condition class development in Yosemite; however, the park may further refine condition classes based on monitoring data collected in Yosemite (protocol in development). These data will be collected from meadows with visitor

and pack stock use as well as meadows with no to low use levels and provide reference sites to discern changes in condition unrelated to human use or management actions. The monitoring approach may also include collecting information on meadow characteristics and human use to have an empirical basis for assessing bare soil causal factors. A specific approach would be determined during monitoring design.

**TABLE 5-5: BARE SOIL COVER VALUES FOR ECOLOGICAL CONDITION CLASSES AMONG SIERRA NEVADA MEADOW TYPES (FROM WEIXELMAN ET AL. 2003)**

Meadow type	High Condition	Moderate Condition	Low Condition
<b>Montane</b>			
Hydric meadow	0-4%	5-9%	>9%
Mesic meadow	0-6%	7-13%	>13%
Xeric meadow	0-8%	9-13%	>13%
Temporarily flooded	TBD	TBD	TBD
<b>Subalpine</b>			
Hydric meadow	0-4%	5-8%	>8%
Mesic meadow	0-6%	7-13%	>13%
Xeric meadow	TBD	TBD	TBD
Temporarily flooded	TBD	TBD	TBD
NOTE: The montane zone is 4,000 to 8,000 feet in elevation and the subalpine zone is 8,000 to 9,500 feet in elevation			

**Management Standard**

To meet the management standard for meadow bare soil, at least 75% of sites monitored in the river segment would have bare soil cover values within the range of high ecological condition, and no more than 15% of sites in low ecological condition (Weixelman and Zamudio 2001).

The values for bare soil cover that define ecological condition classes would vary according to meadow type and elevation (Table 5-5). For example, to be in a high condition class, a moist meadow would not have bare soil exceeding 6%, and a wet montane meadow (5,000-8,000 feet [1,500-2,400 meters]) would not have bare soil exceeding 4%. One meadow may contain up to 3 meadow types (wet, moist and dry), each of which would be sampled as an independent unit (a “site”) and its values for condition class applied respectively. In order to determine whether the standard would be met at the segment-wide level, a percentage of sites in each low, moderate and high condition classes would be calculated.

The NPS based these management standards on data and recommendations from the U.S. Forest Service Region 5 (California) Range Monitoring Project. This project has been monitoring bare soil in relation to livestock use in Sierra Nevada meadows for 12 years (Weixelman 2009).<sup>19</sup> Ecological condition classes for bare soil values are based on point-intercept data collected from 363 meadows across a broad disturbance gradient (Weixelman and Zamudio 2001).

<sup>19</sup> There are no known standards for bare soil in published academic literature.

***Adverse Effect***

Adverse effects would be indicated when bare soil cover values are twice the bare soil cover value for low ecological condition (regardless of meadow type) in at least 40% of the sites in a river segment. For example, a subalpine wet meadow with double the bare soil cover value (as measured by point-intercept data) would have >16% bare soil cover. If a river segment contained 50 monitored sites, an adverse effect would be present if there were more than 20 sites with such a doubling of their respective bare ground cover values.

The condition ratings in Weixelman and Zamudio (2001) provide ecologically meaningful ranges for bare ground values that were derived from analyzing meadow data from the Sierra Nevada. This condition class approach provides a way to distinguish adverse effect from minor fluctuations in the amount of bare soil. Increases in bare soil that result in a values at double the low condition rating for more than 40% of meadow sites in a river segment would signify a more significant decline than a minor, short-term fluctuation in one meadow.

***Degradation Standard***

Degradation would be indicated when bare soil cover values are twice the bare soil cover value for low ecological condition (regardless of meadow type) in at least 80% of the sites in a river segment. For example, a subalpine wet meadow with double the bare soil cover value (as measured by point-intercept data) would have >16% bare soil cover. If a river segment contained 50 monitored sites, an adverse effect would be present if there were more than 40 sites with such a doubling of their respective bare ground cover values.

The ecological processes that sustain meadows are integrally tied to plant composition, vegetative structure, and soil stability. A meadow in low ecological condition would have a predominance of shallow- and tap-rooted species, lower vegetative cover, and a greater extent of bare soil. High amounts of bare soil indicate low meadow productivity and greater susceptibility to erosion. Bare soil amounts of the magnitude described above, widespread across meadows in a river segment, would likely indicate that the processes sustaining meadow function are in jeopardy within that segment of the Merced River corridor.

***Monitoring – Meadow Bare Soil***

The NPS is collaborating with the University of California-Berkeley and the University of Arizona to develop a protocol to monitor meadow bare soil cover. Together they completed a draft monitoring protocol and collected pilot data from representative meadow types in summer 2012. They will further refine the protocol based on pilot data results and will implement the protocol in meadows of concern and reference meadows in summer 2013.

Monitoring would occur in Segment 1 above Nevada Falls (e.g., Merced Lake, Washburn Lake, Lyell Fork) and in Segment 5 on the South Fork Merced River above Wawona (Moraine Meadow and meadows upstream of Moraine Meadow, for example). The NPS would evaluate meadows of concern as well as reference meadows within the Segments 1 and 5. As the protocol develops, specific meadows of concern will be identified for monitoring. Reference sites (meadows with little to no visitor or stock use) will also be monitored as needed to provide a comparison with meadows of concern. Every five years, NPS staff will re-evaluate which meadows in the corridor are in need of monitoring. The NPS would evaluate the effectiveness of the indicators on a regular basis to assure that the combination of these metrics fully protect ORV 1.

Bare soil amounts vary among meadow vegetation types and elevation zones. This variability is addressed by different values to define ecological condition for dry, moist, and wet meadows (Weixelman and Zamudio

2001). Temporarily flooded meadow types may also contribute to greater variability in bare soil cover than other wet meadows (NPS unpublished data). This variability may necessitate the development of bare soil standards for temporarily flooded meadows during the early portion of the monitoring program.

The recommended monitoring interval for bare soil is three to five years unless the amount of bare soil exceeds a management trigger, prompting an increase in monitoring frequency. A subset of sites may receive annual monitoring to obtain estimates of inter-annual variation. Monitoring may occur any time between meadow flowering and first snowfall. Table 5-6 displays the trigger points at which actions would be taken to maintain meadow condition well above the management standard. These trigger points are focused on both site-level and segmentwide conditions. Responses are taken at the individual meadow level; this is necessary to avoid a downward trend segment-wide that may be difficult to mitigate at that scale.

**TABLE 5-6: MANAGEMENT ACTIONS AND TRIGGER POINTS TO MAINTAIN DESIRED CONDITIONS FOR HIGH-ELEVATION MEADOWS (BARE SOIL)**

Trigger Point(s) at Which Management Action Would Be Taken	Possible Management Actions	Rationale for Management Actions
<p><b>Trigger Point 1:</b> Bare soil indicates low ecological condition at any monitored site. OR less than 90% of monitoring sites within a river segment are rated in high ecological condition for bare soil.</p>	<p>Apply a secondary assessment method (e.g., California Rapid Assessment Method [CRAM, CWMW 2009]) for a qualitative evaluation of meadow condition.</p>	<p>Rapid assessments are diagnostic tools that provide standardized, rapid, field-based assessments of the overall condition or functional capacity of meadows. Assessing meadow condition would aid in identifying key stressors that may be affecting meadow condition. Assessment results would assist with interpretation of monitoring results. CRAM, for example, has undergone extensive peer review, and it performs well when compared with fine-scale quantitative condition assessments (Stein et al. 2009). A version of CRAM tailored to wet meadows is in development; it is best used in combination with quantitative measures (M. Denn, NPS, pers. comm.)</p>
	<p>Increase education about BMPS in meadows for all who use them.</p>	<p>Education in maintaining meadow condition would help prevent further increases in bare soil associated with human use.</p>
<p><b>Trigger Point 2:</b> Bare soil indicates low ecological condition at any monitored site for two monitoring periods AND secondary assessment method indicates use is a stressor. OR less than 90% of monitoring sites within a river segment are rated in high ecological condition for bare soil.</p>	<p>Increase education about Best Management Practices in meadows for Wilderness visitors, park staff, and park partners.</p>	<p>Education in maintaining meadow condition would help prevent further increases in bare soil associated with human use.</p>
	<p>Work with Stakeholders to develop strategies for timing of use, then reducing use if needed to minimize impacts. Work with stakeholders to adjust use levels annually.</p>	<p>Determining effective strategies with stakeholders for managing meadow use is a necessary step in the process to protect and enhance meadow condition.</p>
	<p>Increase monitoring frequency: Monitor annually for 5 years and adaptively manage use levels based on monitoring results.</p>	<p>Frequent monitoring would help facilitate more rapid detection of, and management response to, changes in ecological condition. Its utility would be to evaluate the effectiveness of changes in the intensity and/or timing of use on meadow condition.</p>
	<p>Rest the meadow if necessary: temporarily discontinue grazing until conditions improve based on secondary assessment results. Establish a preliminary grazing capacity or adjust grazing capacity.</p>	<p>Allowing a period of meadow "rest" (removing stresses from grazing and/or trampling) has been shown to facilitate meadow recovery. Effects of trampling and grazing that are expected to decline with reduced use or avoidance of early-season use include soil compaction, bare ground exposure, and plant disturbance. Grazing capacities are estimates of use levels that can be sustained in a meadow based on available forage cover, productivity and site condition which can guide in setting an appropriate level of use.</p>

**TABLE 5-6: MANAGEMENT ACTIONS AND TRIGGER POINTS TO MAINTAIN DESIRED CONDITIONS FOR HIGH-ELEVATION MEADOWS (BARE SOIL)**

Trigger Point(s) at Which Management Action Would Be Taken	Possible Management Actions	Rationale for Management Actions
<p><b>Trigger Point 3:</b> Less than 80% of monitoring sites within a river segment are rated as high condition or greater than 15% of sites in low ecological condition</p> <p>OR</p> <p>Bare soil is double the value of low ecological condition class at a site</p>	<p>Apply a secondary assessment method (e.g., California Rapid Assessment Method [CRAM, CWMW 2009]) for a qualitative evaluation of meadow condition.</p>	<p>Rapid assessments are diagnostic tools that provide standardized, rapid, field-based assessments of the overall condition or functional capacity of meadows. Assessing meadow condition would aid in identifying key stressors that may be affecting meadow condition. Assessment results would assist with interpretation of monitoring results. CRAM, for example, has undergone extensive peer review, and it performs well when compared with fine-scale quantitative condition assessments (Stein et al. 2009). A version of CRAM tailored to wet meadows is in development; it is best used in combination with quantitative measures (M. Denn, NPS, pers. comm.)</p>
<p>OR</p> <p>Previous management actions (such as reduction in use) have been ineffective</p> <p>OR</p> <p>Assessments for 5 years have not shown improvement in ecological condition</p>	<p>Rest the meadow: temporarily discontinue grazing until conditions improve based on secondary assessment results. Establish a preliminary grazing capacity or adjust grazing capacity.</p>	<p>Allowing a period of meadow “rest” (removing stresses from grazing and/or trampling) has been shown to facilitate meadow recovery. Effects of trampling and grazing that are expected to decline with reduced use or avoidance of early-season use include soil compaction, bare ground exposure, and plant disturbance. Grazing capacities are estimates of use levels that can be sustained in a meadow based on available forage cover, productivity and site condition which can guide in setting an appropriate level of use.</p>
	<p>Increase monitoring frequency.</p>	<p>Frequent monitoring would help facilitate more rapid detection of, and management response to, changes in ecological condition. Its utility would be to evaluate the effectiveness of changes in the intensity and/or timing of use on meadow condition.</p>

**Indicator 2 – Meadow Fragmentation Due to Proliferation of Informal Trails for ORV 1**

This indicator encompasses fragmentation of high elevation meadow habitat due to the proliferation of informal trails. (The NPS will also use this indicator to monitor meadow conditions in Yosemite Valley as described in the next section.) Informal trails or social trails are tracks created by visitors or administrative use that are noticeable to observers and generally not managed directly by park staff, as opposed to formal trails that are mapped, periodically assessed, and maintained (Leung et al. 2002, 2011b). Various informal trail metrics have been commonly used as indicators of visitor-caused impacts throughout federal land management agencies, including other parks like Mount Rainier and Acadia (Kim and Daigle 2011; Rochefort and Swinney 2000), due to representation of impacts to both social and ecological conditions (Leung et al. 2011b; Monz and Leung 2006). Informal trail management has been found to be more difficult in subalpine environments where recovery rates are slow (Eagan et al. 2004; Kim and Daigle 2011).

The NPS selected this fragmentation-related indicator for this ORV because of its sensitivity in detecting spatial changes and thus protecting the pristine quality of large areas of intact meadow. In studies of trail impacts outside of meadow environments, researchers identified disturbance to vegetation and soils within one to three meters of the trail’s edge (Dawson et al. 1974; Dale and Weaver 1974; Leung et al. 2011c). Research within meadow environments has demonstrated that impacts from trails can extend beyond the direct impacts on trails and can have sizeable impacts radiating from the trail’s edge into the meadow (Holmquist 2004). The degree of fragmentation reflects the potential for impacts to meadow hydrology, habitat quality, soil moisture, and the introduction of non-native species (Forman 1995, Leung et al. 2011c; Lindenmayer and Fischer 2006). Trail corridors have also been shown to pose barriers for small mammals and other wildlife (Knight 2000; Miller et al. 1998; Gaines et al. 2003).

Although fragmentation is commonly used to measure impacts on the landscape scale, park managers and scientists at Yosemite and other public lands have used these metrics to assess impacts from recreation in the form of tracks and informal trails (Kutiel 1999; Leung et al. 2011b; White et al. 2011; Wimpey and Marion 2011). Investigation of trampling impacts in Yosemite Valley meadows demonstrates that meadow condition is poorer in heavily used areas, smaller areas are more prone to difficulties with recovery than larger areas, and visitor-created trampling has a significantly negative impact on vegetation and macroinvertebrate structure and diversity (Holmquist 2004; Leung et al. 2011a; Holmquist and Schmidt-Gengenbach 2008; Foin et al. 1977).

As fragmentation exists as a proxy for the aforementioned impacts, a fragmentation measure known as the Largest Patches Index –5 (LPI<sub>5</sub>) would be used to measure level of fragmentation. Adapted from the concept of Largest Patch Index (Table 5-7) (McGarigal and Marks 1995), this index derives from the sum of areas of the five largest patches without informal trails divided by total landscape (meadow) area and then multiplied by 100. The resulting percentage indicates the extent to which the meadow area is divided (fragmented) owing to the existence of visitor-created trails. If no trails are present, the total index value would be 100%. The main purpose of grouping the five largest patches, instead of evaluating the single largest patch, is to reduce the index's over-sensitivity to changes in one single patch. Just as parks such as Mount Rainier have found variations of this metric best suited to their meadow system (Moskal and Halabisky 2010), Yosemite park staff and collaborators also considered the three largest and 10 largest patches (LPI<sub>3</sub>, LPI<sub>10</sub>), ultimately determining that five best achieved a balance between simplicity and representativeness for Yosemite's meadows.

**TABLE 5-7: LARGEST PATCHES INDEX (LPI<sub>5</sub>) – YOSEMITE VALLEY MEADOWS**

Meadow	2006	2007	2008	2009	2010	2011
Ahwahnee		96.97			98.37	
Bridalveil		96.59			99.25	
Cooks A	93.84		75.53	80.05	78.63	86.19
Cooks B	99.10		98.20			99.34
Cooks C			99.09			95.04
El Capitan	87.24		83.47	78.18	78.01	79.23
Leidig		63.06		95.89	82.37	86.95
Sentinel A		92.58			93.55	
Sentinel B		98.37				99.90
Slaughterhouse A	98.60		98.27			86.86
Slaughterhouse B	99.02		99.31			99.74
Stoneman A	99.62	99.30	99.37	99.29	98.99	98.92
Stoneman B	99.71	99.90	99.81	99.91	99.94	99.84
Weighted Mean LPIs (Using Most Recent Data)						90.98

### *Management Standard*

The fragmentation standard (LPI<sub>5</sub>) for the montane and subalpine meadow complexes within segments 1, 2, and 5 of the Merced River corridor is a weighted mean of 93% for each segment, with no individual meadow less than 90%. The sum of the five largest intact patches for each selected meadow within the segment should be greater than or equal to 93%, as represented as a weighted mean, with no individual meadow less than 90%. The weighted mean values are selected by determining each individual meadow size relative to the total meadow area within each segment. Because the overall size of the meadow complex is a key component of the meadow ORV, using a weighted mean ensures protection for the integrity and overall extent of individual meadows and the full complex within each segment.



A group of subject matter experts determined this standard based on data from meadows throughout Yosemite (not just those in the Merced River corridor) that experienced elevated visitation levels, reduced vegetation cover, and an increased occurrence of invasive species. As there are no specific standards established for this metric in the literature, subject matter experts turned to two information sources to determine the appropriate standard for meadow fragmentation in the Merced River Corridor. First, they considered the fragmentation values recorded for several years in meadows both in the Merced and in the Tuolumne Corridors (since 2008). Meadows found to exhibit LPI<sub>5</sub> values below 90% were meadows with restoration needs and potential threats to biodiversity, soil erosion, and increased fragmentation. Conversely, meadows that were fully protective of species biodiversity, overall ecological integrity, and meadow hydrology (the fundamental components of this ORV) had a higher fragmentation standard, 93%. Second, the subject matter experts also performed a GIS analysis to determine the range of LPI<sub>5</sub> values expected to be found after management actions outlined in this plan are implemented. Another part of this second analysis was to consider the potential *impacts* that could incur alongside all of the proposed *actions* in the plan, such as expanding a campground next to a meadow. This second, two-pronged analysis determined that the fragmentation level (the LPI<sub>5</sub>) would be 93%. Through these two analyses, then, park managers determined that the meadow fragmentation management standard of 93% would both protect this ORV and be attainable for the Yosemite Valley meadows.<sup>20</sup>

### *Adverse Effect*

An adverse effect would be indicated at the segment level, when the weighted mean for the total meadows within one segment has dropped below an LPI<sub>5</sub> threshold of 81% for three consecutive years of annual assessments despite management actions to improve the connectivity and overall health of the meadow. Owing to fluctuations that are possible from year to year, specific precipitation patterns would be evaluated to ensure that the sampling interval reflects impacts caused by visitors as opposed to other natural causes.

Patch size in some meadows has been shown to be associated with reduced total vegetation, increased bare ground cover and an increased presence of non-native plants (Leung et al. 2011b). The value chosen to represent adverse effects reflects conditions found in individual meadows identified by park staff, managers, and subject matter experts as needing significant restoration actions. This value relates to low values for meadows within Yosemite Valley as well as Tuolumne Meadows, both of which have been identified for comprehensive ecological restoration. Through several years of data collection in Yosemite meadows, the value of 81% has been selected to reflect the condition of meadows that had extensive trailing networks, significant trampling impacts from trailing and areas of bare ground, and identified as needing extensive ecological restoration. These meadows should demonstrate accelerated recovery rates and good response to restoration once actions are taken. A conservative number has been chosen from existing data for increased sensitivity to impacts (NPS 2009).

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<sup>20</sup> As conditions are different across meadow types, which respond differently to varying levels of use, the management standard selected here for the Merced River corridor varies slightly from that selected to protect meadow values in the Tuolumne River Corridor, which is 90%. The fragmentation standards for the two plans demonstrate the range of acceptable values that are fully protective of the sensitive resources and that accommodate the inherent temporal variability in results from meadow fragmentation. In scaling this value up to the level of the segment, managers utilized best professional judgment in selecting a weighted mean that protects the river values at the segment level.

**Degradation Standard**

Degradation would occur when fragmentation resulting from informal trailing results in a LPI<sub>5</sub> of 40%, as reflected as a weighted mean of all meadows recorded within a segment. This applies to montane and sub-alpine meadow complexes in the Merced River corridor.

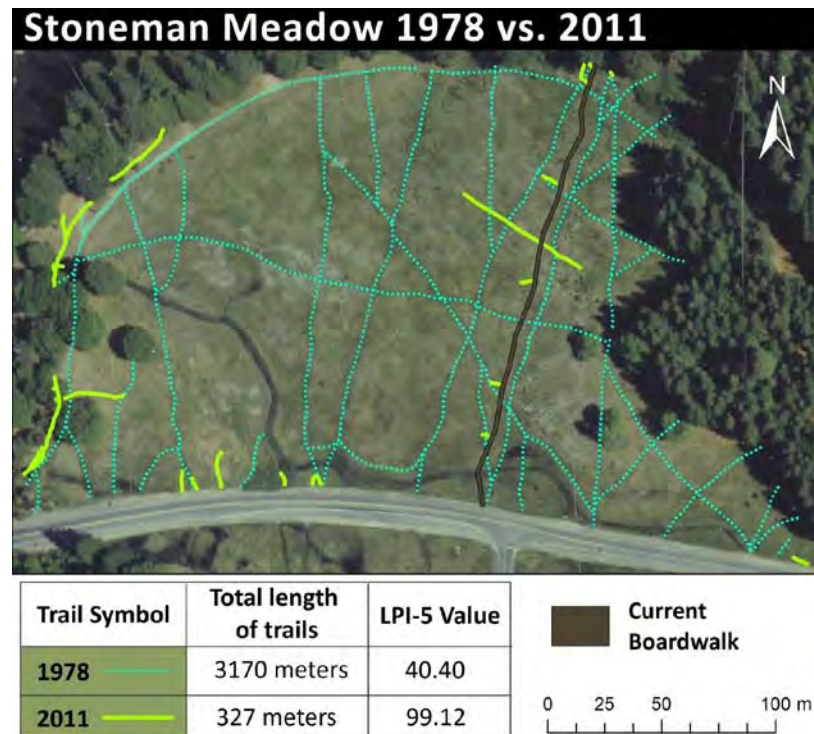
Using archival aerial photographs, NPS staff members were able to simulate meadow degradation in certain Yosemite Valley meadows. Specifically, spatial analysis utilizing a 1978 image of Stoneman Meadow (Figure 5-1) revealed that an LPI<sub>5</sub> of 40% existed prior to intensive restoration efforts. The figure represents an example of a meadow in a degraded state. Although this meadow has shown evidence of recovery in

recent years, the recovery was a result of intensive restoration efforts, significant financial investment, and several years of planning. Past conditions in Stoneman Meadow represent meadow conditions that park managers and scientists feel best represent the level of degradation for meadows in Yosemite, including subalpine and alpine meadows. Current conditions in Stoneman meadow demonstrate the potential for recovery that is possible through intensive restoration efforts.

**Monitoring Meadow Fragmentation due to the Proliferation of Informal Trails**

All meadows selected for monitoring will be evaluated for a complete set of measures reflecting extent, proliferation, and condition of trails and disturbed areas (Leung et al. 2011b). Monitoring of informal trails in meadows within the Merced River corridor would take place during the middle of the growing season before plant senescence. All meadows with a high potential for visitor-created impacts would be monitored on a three-year basis or at a maximum of five years. Meadows with specific management considerations would be monitored annually. Increased monitoring frequency may be triggered by actions listed in Table 5-8. Meadows of consideration are identified for increased monitoring based on other trends found in metrics collected alongside fragmentation data. Table 5-8 depicts measures that would trigger management response.

**FIGURE 5-1: INFORMAL TRAILS IN STONEMAN MEADOW IN 1978 AND 2011**



These 1978 informal trail values were determined based on the presence of trails in this aerial photograph from the Yosemite Archives. For LPI-5 values, all 1978 trails were given a default trail width of 12".

**TABLE 5-8: MANAGEMENT ACTIONS AND TRIGGER POINTS TO MAINTAIN DESIRED CONDITIONS FOR HIGH-ELEVATION MEADOWS (MEADOW FRAGMENTATION)**

Trigger Point(s) at Which Management Action Would Be Taken	Possible Management Actions	Rationale for Management Actions
<p><b>Trigger Point 1:</b> Decrease in LPIs threshold below 93% at the level of an individual meadow.</p>	<ul style="list-style-type: none"> <li>• Increase meadow monitoring assessments to one-year interval at each individual meadow that surpasses this value. Target the largest patches in meadow, and analyze trail condition and emergence of new trails.</li> <li>• Increase enforcement and education of best management practices in meadows.</li> <li>• Implement restoration practices, including visitor messaging, restoration signs after Wilderness Minimum Requirement Analysis, delineation of trails determined to be less disturbing to meadow ecology, and closure of informal trails.</li> </ul>	<p>This action allows increased sensitivity to changes in trails, and would allow managers better opportunities to identify meadows of consideration, and take actions well before adverse effects are incurred. With more frequent assessment, emerging trails and particularly problematic trails would be identified and restoration actions taken.</p>
<p><b>Trigger Point 2:</b> Data analyses from annual monitoring of fragmentation yields results less than an LPIs value of 93% for three consecutive years in an individual meadow or, a decrease below 90% at the level of an individual meadow.</p>	<p>Further restoration of disturbed areas and informal trails in specific meadows that exceed trigger. Depending on the degree and extent of impacts, the NPS would enact some or all of the following actions:</p> <ul style="list-style-type: none"> <li>• Use boardwalks or hardened surfaces to allow access to sensitive areas.</li> <li>• Delineate trails through upland areas and along meadow perimeters to allow access while reducing fragmentation and meadow impacts.</li> <li>• Place restoration closure signs, and/or</li> <li>• Outside Wilderness, fence meadow perimeters. Within Wilderness, fence meadow perimeters if deemed appropriate after a Wilderness Minimum Requirement Analysis.</li> <li>• De-compact trampled soils.</li> <li>• Salvage plants growing in trail ruts and use as part of re-vegetation to consolidate multiple parallel trails.</li> <li>• Re-contour topography.</li> <li>• Scatter locally gathered seed and organic materials to facilitate new plant growth.</li> <li>• Fill deep headcuts caused by informal trails with native soil and re-contour to natural meadow topography.</li> <li>• Institute closures in individual impacted meadows, and increase visitor education associated with the closures</li> </ul>	<p>This value represents the level at which a group of subject matter experts determined meadows to be threatening resource protection and quality of visitor experience.</p>

### Indicator 3 – Streambank Stability for ORV 1

Impacts to streambank stability can result from many causes, including both anthropogenic and natural sources that alter sediment-discharge balance (Kondolf et al. 1996), and may be the result of cumulative impacts from both source types (Allen-Diaz et al. 1999). Examples of anthropogenic activities that contribute to destabilization of streambanks (hereafter, streambank alteration) include the following:

- Human foot-traffic (bank shear, compaction, vegetation trampling)
- Stock use (hoofpunching, bank shear, soil compaction, vegetation trampling, vegetation removal from grazing)
- Road/trail construction and/or informal trailing (soil compaction, decreased sheetflow, reduced infiltration/percolation, increased surface routing and flow velocities, vegetation composition changes)

Streambank stability is a long-term indicator of system function over time, and monitoring data on stability conditions can be used to verify the achievement of management objectives. Low ratings for streambank stability would be indicative of reduced system function and diminished biological integrity of riparian areas within the specified river segments.

Streambank stability ratings comprise a combination of habitat type, vegetative cover, and the presence (or absence) of erosion features (Frasier et al. 2005; Burton et al. 2011). Results of quality control tests conducted by Archer et al. (2004) demonstrated that streambank stability ratings had generally low coefficients of variation, were repeatable, and were consistent among different observers (especially for dichotomous ratings – either stable or unstable). Streambank stability has been widely identified as a factor affecting the geomorphic function of stream channels (Kondolf et al. 1996; Kattleman and Embury 1996; Madej et al. 1994; Kauffman et al. 1997).

Standards for streambank stability have been reported in published literature from various survey protocols, including the Pfankuch-Rosgen Channel Stability Assessment (Rosgen 2001), Stream Condition Inventory (Frazier et al. 2005), and Multiple Indicator Monitoring (Burton et al. 2011). Each protocol and corresponding optimal value for streambank stability ratings was considered in the determination of the trigger point, management target, adverse effect, and degradation standard for this ORV.

The following delineations for trigger point, management standard, adverse effects, and degradation standard are described hierarchically—in terms of increasing spatial and/or temporal scale from trigger point and management target, to adverse effects, and lastly to degradation standard. The trigger point and management target are determined at the monitoring site (or designated monitoring area) scale. Adverse effects and the degradation standard are determined at each river segment. In addition, the degradation standard incorporates temporal scale, where this standard is met if streambank stability conditions have not recovered to above the management standard over two monitoring intervals. This hierarchical distinction is consistent with the river discontinuum and continuum concepts, which infer that each river segment is comprised of individual components (Poole 2002) that collectively function as an interconnected riverine system (Vannote et al. 1980, Rosgen 1996).

### ***Management Standard***

The management standard for the maintenance of stable streambanks is 50% or greater for the mean observed value at any individual monitoring site.

Preliminary assessment of Multiple Indicator Monitoring data from sites categorically separated by use levels indicated a mean percentage of stable plots as 55% for the highest use sites without adjustment for statistical confidence (n = 3; all located within the upper Lyell Fork of the Tuolumne River—a location similar to the high-elevation meadows in Merced Segment 1—and surveyed between 2009 and 2011). This value is consistent with the findings for nonreference (managed) sites by Frazier et al. (2005). Furthermore, this management target allows for a portion of streambank instability resulting from anthropogenic causes and/or dynamic processes (such as channel migration, erosion, deposition) fundamental to hydrologic function of fluvial river systems.

Despite a reportedly low coefficient of variation (Archer et al. 2004), an inherent level of uncertainty exists within our ability to quantifiably measure changes in streambank stability conditions, owing to variability in observers as well as variation within, and between, sites. Confidence limits developed from monitoring data would facilitate a given level of certainty (i.e., 95%, or 90%, confidence) for comparison of the mean of the

observed values and the management target (i.e., actions taken at the trigger point would occur before streambank stability reaches the management target, and are aimed facilitate the maintenance of streambank stability above the management target). Burton et al. (2011) reported the width of confidence intervals as 5.2% (at 95% confidence) from repeat surveys of streambank stability at 89 sites. Therefore, breach of the management target would be determined by comparing the management target to the value of the upper confidence limit for the mean of the observed data (i.e., the upper confidence limit is the observed value for streambank stability at a site plus the confidence interval value for these data).

### *Adverse Effect*

Adverse impact for streambank stability is a rating significantly less than 50% stable for any one river segment (i.e., all monitoring areas within a river segment) for any single monitoring year, after restoration or use-restriction actions (as described under the Trigger Point section) have been implemented. Potential adverse effects may also be realized when a statistical trend is observed where streambank stability ratings significantly less than 50% stable are likely to occur in subsequent monitoring years without intervening management action.

As with the management target, the decline of streambank stability conditions below adverse effect would be determined by comparing the adverse effect to the value of the upper confidence limit for the mean of the observed data across the river segment.

### *Degradation Standard*

Degradation would occur when rating values for all plots within a river segment are significantly less than 50% stable for two or more consecutive monitoring years after restoration or use-restriction actions (as described in the Trigger Point section) have been implemented.

Degradation of riparian zones and stream channels diminishes their capacity to provide critical functions, including chemical and nutrient cycling, water purification, flood attenuation, maintenance of stream flows and temperatures, groundwater recharge, and habitats for fish and wildlife (Kauffman et al. 1997).

Ultimately, adverse consequences of channel instability (or disequilibrium) would be associated with land productivity change, land loss, aquatic habitat deterioration, changes in both short- and long-term channel evolution, and loss of physical and biological function (Rosgen 2001). Extensive or severely degraded streambank stability conditions, manifested from either anthropogenic or natural sources, would likely propagate the loss of functional integrity of the stream channel on site and downstream. Realization of the degradation standard would be indicative of the need for substantial restoration investment.

### *Monitoring Streambank Stability*

An initial condition assessment for streambank stability in this segment is complete, and precise monitoring in focal areas will begin in 2013. Baseline conditions for streambank stability would be established through data collection in 2013; subsequent evaluation of streambank stability conditions would be conducted on a three- to five-year monitoring interval thereafter.

The trigger point for streambank stability would be realized if streambank stability ratings for any monitoring site decline below stable ratings in more than 75% of the plots at a given monitoring site. The trigger point may also be realized when a statistical trend indicating the likelihood for a monitoring site to have less than 75% of plots rated as stable in subsequent monitoring years, without intervening management action, is observed.

Management actions taken at the trigger point would be pro-active actions to facilitate anti-degradation of river segment conditions below the management target. Streambank stability ratings greater than the management target are anticipated to retain some functional capacity. Functioning channels have an inherent resiliency for self-repair of some level of streambank alteration each year (Kauffman et al. 1997). Thus, management actions taken at the trigger point could be minimal in scope compared with efforts necessary for recovery from segment-wide adverse effects or degradation. Recovery would be achieved by restricting the level of use (i.e., access to riparian habitats) and promoting natural recovery processes (Kattelman and Embury 1996; Kauffman et al. 1997).

The trigger point is consistent with the reported findings for reference streams by Frazier et al. (2005). These authors reported the mean percentage of stable plots as 75.3 and 52.9, for 18 reference and 25 non-reference sites, respectively, from Stream Condition Inventory surveys in the Sierra. Standards for the optimal value of stability ratings have not been reported for the Multiple Indicator Monitoring protocol; however, this protocol has been applied at 20 sites in Yosemite National Park. Preliminary assessment of data for those sites – without separation by use type or magnitude – indicated the mean percentage of stable plots as 76%.

Per the trigger point, if less than 75% of plots at a given monitoring site are rated as stable, management action would be taken to evaluate the level of streambank alteration through more frequent (i.e., annual) and detailed assessments at that site. Annual assessments of alteration would provide data on the level, location, and distribution of use, and would facilitate inference on the degree to which use is affecting streambank stability. Concurrently, assessment of hydrologic conditions within the contributing source area for that monitoring site would be implemented to identify potential anomalies (i.e., excessive alteration at areas upstream of monitoring site, or the occurrence of natural events such as landslides or wildfires) as sources of site instability. In combination, these two management actions would help prioritize subsequent actions necessary for site recovery.

Management actions to facilitate site recovery would restrict use of riparian habitats by a combination of exclosures (access restriction), rest (temporary restriction of specific use types), and/or site restoration, depending on the specific impact. The duration of use restriction would depend on the rates of recovery of streambank stability and could be short- or long-term. Effectiveness monitoring would be initiated if management actions to restrict use levels are implemented. Table 5-9 depicts the triggers at which action would be taken to prevent system degradation.

**TABLE 5-9: MANAGEMENT ACTIONS AND TRIGGER POINTS TO MAINTAIN DESIRED CONDITIONS FOR HIGH-ELEVATION RIPARIAN HABITAT (STREAMBANK STABILITY)**

Trigger Point(s) at Which Action Would Be Taken	Possible Management Actions	Rationale for Management Actions
<p><b>Trigger Point 1:</b> The percentage of stable plots observed at any monitoring site declines to less than 75%, or a statistical trend indicating the likelihood for a monitoring site to have less than 75% stable plots in subsequent monitoring years, without intervening management action, is observed.</p>	<p>Conduct assessment of streambank alteration at impacted sites, and conduct hydrologic assessments of the contributing source area for that site. Implement actions to facilitate site recovery through restoration and/or use restriction (such as resource exclosure and site restoration). Implement use-restriction actions if streambank alteration or other anthropogenic activities are identified as causal mechanisms of instability. Increase monitoring frequency to evaluate effectiveness and recovery to the management target, and compare to reference site conditions as available.</p>	<p>The utility of this action would refine our understanding of baseline conditions and causal mechanisms (streambank alteration, natural processes, or cumulative effects) affecting streambank stability, on site and within the greater contributing source area for that monitoring site. Identification of land-use practices that are the most damaging to ecosystems or that prevent recovery is essential for restoration (National Research Council 1992). Comparison of site conditions to reference sites would validate observed conditions and recovery.</p>

### ***Management Concerns and Protective Actions***

Using these three indicators, park managers will be able to assess when meadow conditions are declining or management concerns are present; management concerns occur when a trigger point for any one of the three indicators has been exceeded. In 2011, NPS staff conducted a meadow condition assessment using the bare soil indicator to characterize meadow and riparian conditions throughout the Merced River corridor and identify meaningful indicators and specific areas of concern (Ballenger et. al. 2011). This assessment suggests that from a segment-wide perspective, trigger points have not been reached in subalpine and alpine meadows, and adverse effects and degradation are not present in relation to bare soil.

The NPS is currently testing site-specific monitoring protocols for all three high-elevation meadow and riparian indicators. The NPS will establish a baseline for all three indicators using site-specific monitoring protocols by 2013. In relation to fragmentation and streambank stability indicators, the NPS is collecting initial data with the precise monitoring protocol during summer 2012, and baseline data will be available in 2013. After evaluating that baseline data according to the specific standards for the three meadow/riparian indicators, NPS will take management action if needed as prescribed in Table 5-9.

### ***Management Considerations and Enhancement Actions***

Several management considerations for this ORV concern Merced Lake-East Meadow, which NPS staff determined had a high level of bare soil, heavily grazed vegetation, and evidence of stock disturbance. There were also site-specific considerations present related to informal trails in meadows and to extirpated or declining meadow- and riparian-related wildlife species. To address these considerations, “Alternatives” (Chapter 8) considers the following actions:

- **Meadow trails:** Alternatives 2-6 would remove informal trails that incise meadow habitat, trails in wet and/or sensitive vegetation, and trails that fragment meadow habitat, including trails in the Triple Peak Fork meadow, wetlands near Echo Valley and Merced Lake shore, mineral springs between Merced Lake and Washburn Lake, and other areas as necessary.
- **Merced Lake—East Meadow:** Alternatives 2 and 4 would prohibit administrative pack stock grazing at Merced Lake— East Meadow and require administrative stock users to pack in pellet feed. Under Alternative 3, 5, and 6, preliminary grazing capacities would be established, monitored, and adapted as necessary.
- **Re-introduce declining amphibian and reptile species:** In accordance with NPS Policy, Yosemite would continue to remove non-native species and reintroduce extirpated or declining species, as opportunities arise. The NPS would prioritize the study of the Western pond turtle and foothill yellow-legged frog. The NPS would also address issues related to fire management and non-native species control through actions prescribed in the *Yosemite National Park Fire Management Plan* (NPS 2004) and the *Invasive Plant Management Plan Update* (NPS 2010).

### ***Conclusion: Protecting and Enhancing Biological ORV 1 (high-elevation meadows and riparian habitat)***

The NPS is testing site-specific monitoring protocols for the three indicators in 2012: meadow bare soil, meadow fragmentation resulting from proliferation of informal trails, and streambank stability. The NPS will establish a baseline for all three indicators using site-specific monitoring protocols by 2013 and confirm the presence or absence of adverse effects, degradation, or management concerns in terms of identified standards. The NPS will also determine whether conditions have reached trigger points.

An initial meadow condition assessment (Ballenger 2011) suggested that grazing-related management considerations are present at one site, Merced Lake-East Meadow. Alternatives 3, 5, and 6 would discontinue grazing and allow the Merced Lake-East Meadow to recover until a secondary assessment method (e.g., California Rapid Assessment Method [CRAM, CWMW 2009]) indicates meadow recovery; Alternatives 2 and 4 would discontinue grazing in the meadow altogether and require pelletized feed to be packed in for all stock use. Once Merced Lake-East Meadow has recovered, Alternatives 2-6 consider a range of options to protect and enhance the meadow. Some alternatives would permanently close the meadow, requiring all pack stock passing through the Merced Lake area to carry pellet feed. Some alternatives would develop preliminary grazing capacities for the meadow, and allow administrative grazing at established capacities. Under Alternatives 2-6, the NPS would remove informal trails in wet meadows and those that fragment meadow habitat, and restore to natural meadow conditions under Alternatives 2-6. In accordance with NPS policy, the NPS would continue to remove non-native species and re-introduce extirpated or declining species as priorities and opportunities develop under Alternatives 2-6.

To ensure this ORV is protected and enhanced through time, the NPS will continue to monitor three indicators to assess the condition of the ORV: meadow bare soil, meadow fragmentation due to the proliferation of informal trails, and streambank stability. Monitoring these indicators, in association with the identified standard for the trigger points, would provide early warning of conditions that require management action before impacts occur. The indicators link to triggers that initiate a specific management response resume here.

### Biological ORV—Mid-elevation Meadows and Riparian Habitat

<b>ORV 2—The meadows and riparian communities of Yosemite Valley comprise one of the largest mid-elevation meadow-riparian complexes in the Sierra Nevada.</b>
<b>Location:</b> Segment 2 (Yosemite Valley)
<b>Rationale:</b> The large, moist mid-elevation meadows and the riparian vegetation communities of Yosemite Valley owe their existence to river processes that produce regular flooding and sustain high water tables, and past American-Indian burning and current prescribed burns that maintain open conditions for meadows. Yosemite Valley meadows and riparian habitats support rare and endemic species as well as an exemplary diversity of plant and animal species found in a variety of ecological niches.
<b>Management Objective:</b> The NPS would manage public use of meadows and riparian zones within the Merced River corridor to minimize habitat fragmentation, maintain high ecological condition, and protect the integrity of streambanks to conserve ecosystem processes associated with meadow hydrologic and ecological function.

### *ORV Condition at the Time of Designation (1987)*

An estimated 64% of the original meadow (and open forest) habitat in Yosemite Valley has converted to dense forest since the mid-1800s (Ballenger et al. 2011). Scientists hypothesize that this rapid conversion to dense forest had several origins, including suppression of regular burning conducted by California Indians, impacts to natural hydrologic flows, and agricultural practices that disturbed land and created conditions favorable for conifer germination (Cooper 2008). While most meadow loss occurred prior to the 1940s (NPS 1997 Parkwide Vegetation Map; NPS 1937 Type Mapping, Hoffman 1866), infrastructure and development continue to influence the hydrologic regime, reducing the distribution and extent of connected floodplain, level and extent of meadow inundation, and the meadow extent. For example, roads can alter hydrologic flows that sustain meadows, particularly when culverts are too small to accommodate water flow.



California Indians conducted small, low-intensity surface fires for centuries to increase growth and yield of crops, aid in hunting and insect collection, and perform other functions (Gassoway 2007). Systematic burning was likely a component in maintaining the open park-like scenery described by early visitors and explorers (Greene 1987). Since Anglo-American contact in the mid-1800s, park managers steadily eliminated meadow burns conducted in Yosemite Valley by Indians (Gassoway 2007; Anderson 2005).

Anthropogenic impacts to hydrologic flows in Yosemite Valley were both purposeful and inadvertent. For example, in 1879 Galen Clark, Guardian of the Yosemite Grant, used blasting methods to lower the level of the terminal moraine located just downstream of El Capitan Meadow in an effort to drain upstream meadows and enhance access to east Yosemite Valley (Milestone 1978). Most Merced River tributaries in Yosemite Valley were also channelized in part (Milestone 1978), altering the path of water that would naturally flow from cliff walls in a sheet or braided fashion across the meadows.

Historic impacts on riparian communities were also widespread. Madej (1994) reviewed historic photographs and documents related to the Merced River channel and found “banks were well vegetated, except on the outside of meander bends or where humans had already concentrated their activities. Riparian vegetation was typically dense and vigorous.” By the late 1970s, there were over 4,000 meters of riprap revetment placed along the banks of Yosemite Valley streams (Milestone 1978; ENTRIX 2012). Madej (1994) documented severe riverbank erosion in specific areas, particularly in sites in proximity to development. There was a strong relationship to accelerated erosion and a lack of riparian vegetation. Based on earlier studies, these impacts remained at the time of designation in 1987.

Through time, many park managers took action to control conifer encroachment in meadows. Galen Clark initiated the first post-contact conifer thinning in Yosemite Valley in the early 1890s (Clark 1894). Conifer clearing continued in the campgrounds and in El Capitan Meadow in 1919 (Greene 1987). Emil Ernst, Yosemite Park Ranger/Forester in the 1930-1950s, championed and conducted large efforts to control conifer encroachment. Efforts to control conifer encroachment with prescribed burning began in 1970.

By the time of designation, the NPS had several fundamental programs and projects in place to address the vegetation changes in Yosemite Valley and to improve the integrity of remaining meadows. Notably, the NPS systematically reintroduced fire into Yosemite Valley meadows. Park staff and volunteers also removed tens of thousands of conifer seedlings and saplings from Yosemite Valley meadows since the time of designation (Ballenger et al. 2011). These practices kept encroaching conifers at bay in many Yosemite Valley meadows. These actions were intended to restore the open scenery and cultural landscape that was changed by the cessation of American Indian burning beginning about 1850, and counter human-initiated changes in hydrologic processes and topography that channelized sheet flow in meadows.

In 1987, riparian areas along the banks of the Merced River in Yosemite Valley demonstrated substantial impacts including erosion, denuded riparian vegetation, and poorly designed riprap revetment (Tucker 1996; Cardno ENTRIX 2012). Madej et al. (1991) found a strong association among levels of human use around campsites and river access points, and loss of riparian cover leading to accelerated bank erosion. Trampled soils with denuded vegetation in the developed, high-use areas of east Yosemite Valley (e.g. Upper Pines, Lower Pines, and North Pines Campgrounds) exposed highly erodible soils on the riverbanks that were vulnerable to accelerated erosion. This condition contributed to substantial widening of the river in some reaches (Madej et al 1991). The potential effects of denuded riparian vegetation on the riverbanks include lack of shading and altered nutrient dynamics in aquatic habitats, reduced riparian habitat for wildlife, increased water temperature, increased suspended sediment, and reduced dissolved oxygen levels (Madej et al. 1994). Other areas in west Yosemite Valley exhibited extensive trampling from visitor use and a

subsequent decrease in riparian vegetation including the former El Capitan Picnic Area, the Lower River Campground/Housekeeping Camp area, Devil's Elbow, and North Pines Campground.

### *Current ORV Condition*

The NPS conducted a number of projects to enhance the condition of meadow and riparian areas in Yosemite Valley since the time of designation. These projects include:

- Extensive removal of high priority non-native species in meadows and riparian areas
- Boardwalks installed in Sentinel and Stoneman Meadows, substantially reducing the dense network of informal trails in these meadows
- Fill removed in Sentinel Meadow from the site of a former movie house and dance hall (Pavilion Square), and natural meadow topography restored at the site
- Comprehensive ecological restoration in Cooks Meadow involving removal of a historic road (abandoned), filling in ditches, and restoration of natural meadow topography; and construction of a boardwalk across sensitive meadow habitat
- Comprehensive riparian habitat restoration at Lower River Campground, Housekeeping Camp, El Capitan Picnic Area, Devil's Elbow, Sentinel Bridge, Swinging Bridge, Clark's Bridge, North Pines Campground, and the Cascades Dam site, after dam removal
- Removal of infrastructure from meadows and riparian habitat including actions to remove buried utility lines in meadows and replace them under existing roadways, removal of underground utility lines that cross the Merced River, and removal of utility lines and lift stations from riparian/riverbank areas

These projects mitigated many meadow- and riparian- related issues, though many remain. The *Baseline Conditions Report* (NPS 2012) reached the following conclusions as regards the current conditions of Yosemite Valley meadows and riparian areas:

- **Informal trails:** Informal trails are visitor-created noticeable tracks that are not managed directly by park staff, as opposed to maintained, formal trails. Informal trails are common in Yosemite Valley meadows. Meadow research demonstrates that impacts associated with trails can extend beyond direct trail impacts, with impacts radiating from the trail's edge into the meadow (Holmquist 2004).
- **Conifer encroachment:** In five of six meadows surveyed, tree seedlings were present in more than 10% of the study plots, indicating that the tree encroachment documented since 1870 (Gibbens and Heady 1964) continues. The extent of tree seedlings was highest in El Capitan and Stoneman Meadows (32% of plots contained seedlings), indicating that nearly one-third of meadow area in El Capitan Meadow and Stoneman Meadow has some degree of tree encroachment (Ballenger et al. 2011).
- **Non-native species:** Non-native species are common across all Yosemite Valley meadows, with the highest extent of non-natives found in El Capitan Meadow and Stoneman Meadow (as inferred from percent of plots with non-native plants present—92-96% of plots contained non-native species) (Ballenger et al. 2011).
- **Meadow vegetation composition:** The mean cover of non-native plants was lower in saturated and inundated soils (by a factor of two to seven) compared with moist to dry soils (Ballenger et al. 2011). As found in other studies (Dwire et al. 2006), the distribution of non-native plants was strongly linked to water table depths in meadows, with a higher presence of non-native species in drier areas. Maintaining meadow water tables to promote areas of wet soil may be a means to sustaining native meadow vegetation composition (Kluse and Allen-Diaz 2005).

- **Meadow topography:** Ditches and other human alterations to meadow topography, remnants of the past agricultural era, remain within Yosemite Valley meadows. Ditches were also constructed during NPS administration beginning in 1929, often referred to as “moral ditches” to keep people from driving into meadows. (Greene 1987). Ditches increase drainage and lower natural water-table levels, favoring non-native meadow vegetation.
- **Sensitive meadow habitat:** Formal trails in the Ahwahnee Meadow, Bridalveil Meadow, and Slaughterhouse Meadow pass through sensitive meadow habitat, some of which is inundated on a regular basis. Trails can alter hydrologic connectivity within the meadow by blocking natural flows.

A recent assessment of riparian vegetation took place in 2010 (Cardno ENTRIX 2012). The *Merced River and Riparian Vegetation Assessment* utilized the California Rapid Assessment Method (CRAM) to assess the condition of eight different reaches of the Merced River in Yosemite Valley. The study found:

- Reaches with high scores (Happy Isles, inter-meadows, and above Pohono Bridge) had lower intensities of visitor use, and were generally characterized as areas with little riprap revetment, less bank erosion, high topographic complexity, and moderately developed vegetation with moderate structural complexity.
- Areas with poor scores (above and below the confluence with Tenaya Creek, and below Pohono Bridge) had higher intensities of visitor use, more riprap, more bank erosion, low topographic complexity, and a poorly developed riparian community.
- Recreational use and infrastructure affected the condition of riparian wildlife habitat. Conditions varied by reach in response to the type of human impact. For example, the reach below Happy Isles was characterized as good wildlife habitat, with wide riparian buffers and a complex physical structure. Conversely, the reach below the confluence with Tenaya Creek was characterized as poor wildlife habitat, with narrow riparian buffers and low vegetation structural complexity.
- The majority of the riparian corridor had few non-native species, and moderate horizontal zonation and vertical overlap among plant layers, indicating a well-developed riparian community.
- The study observed bank erosion throughout the study area, particularly near bridges, recreation facilities, and some meander bends. Areas with moderate to high human use generally had fewer co-dominant species and lower riparian community structure complexity.

The *Wildlife Condition Assessment for the Merced River Corridor in Yosemite Valley* (Espinoza et al. 2011) assessed the health of riparian and meadow habitats in Yosemite Valley in relation to focal bird species. The study suggests that there is greater availability of riparian habitat in the Upper Meadow, Inter-meadow, and Lower Meadow reaches, and that that the structural integrity of the riparian habitat in these reaches may be higher than in other areas of the Sierra Nevada.

### ***Management Program for ORV 2***

This section discusses the proposed management program for this ORV, including the indicator(s) to be used; the definitions of management standard, adverse effect, and degradation; and the monitoring program. The NPS selected three distinct indicators to monitor the condition of this ORV through time: 1) fragmentation of meadow habitats resulting from proliferation of informal trails, 2) status of riparian habitat, and 3) riparian bird abundance.

#### **Indicator 1 – Meadow fragmentation due to proliferation of informal trails for ORV 2**

The NPS would employ the same fragmentation indicator used for ORV 1 in high elevation habitats to monitor meadows in Yosemite Valley, the Largest Patches Index – Five (LPI<sub>5</sub>). The NPS would utilize the

same protocols and definitions of adverse effect and degradation as described under ORV 1—high-elevation meadows and riparian habitat—Indicator 1, described earlier in this chapter. The management responses will vary slightly due to differences in access and limitations on structures in Wilderness. The trigger points and management responses for this indicator in Segment 2 are found in Table 5-10.

**TABLE 5-10: MANAGEMENT ACTIONS AND TRIGGER POINTS TO MAINTAIN DESIRED CONDITIONS FOR MID-ELEVATION MEADOWS (MEADOW FRAGMENTATION)**

Trigger Point(s) at Which Management Action Would Be Taken	Possible Management Actions	Rationale for Management Actions
<p><b>Trigger Point 1:</b> Decrease in LPIs threshold below 93% at the level of an individual meadow.</p>	<ul style="list-style-type: none"> <li>• Increase meadow monitoring assessments to one-year interval at each individual meadow that surpasses this value. Target the largest patches in meadow, and analyze trail condition and emergence of new trails. Additional potential management actions include:</li> <li>• Increase enforcement and education of Best Management Practices in meadows.</li> <li>• Implement restoration practices, including visitor messaging, restoration signs if appropriate after Wilderness Minimum Requirement Analysis, delineation of trails determined to be less disturbing to meadow ecology, and closure of selected informal trails.</li> </ul>	<p>This action allows increased sensitivity to changes in trails, and would allow managers better opportunities to identify meadows of consideration, and take actions well before adverse effects are incurred. With more frequent assessment, emerging trails and particularly problematic trails would be identified and restoration actions taken.</p>
<p><b>Trigger Point 2:</b> Data analyses from annual monitoring of fragmentation yields results less than anLPIs value of 93% for three consecutive years in an individual meadow or a decrease below 90% at the level of an individual meadow.</p>	<p>Further restoration of disturbed areas and informal trails in specific meadows that exceed trigger. Depending on the degree and extent of impacts, the NPS would enact some or all of the following actions:</p> <ul style="list-style-type: none"> <li>• Use boardwalks or hardened surfaces to allow access to sensitive areas,</li> <li>• Delineate trails through upland areas and along meadow perimeters to allow access while reducing fragmentation and meadow impacts</li> <li>• Place restoration closure signs, and/or</li> <li>• Fencing along meadow perimeters</li> <li>• De-compact trampled soils.</li> <li>• Salvage plants growing in trail ruts and use as part of revegetation to consolidate multiple parallel trails.</li> <li>• Re-contour topography.</li> <li>• Scatter locally gathered seed and organic materials to facilitate new plant growth.</li> <li>• Fill deep headcuts caused by informal trails with native soil and re-contour to natural meadow topography.</li> <li>• Institute closures in individual impacted meadows and increase visitor education associated with the closures</li> </ul>	<p>This value represents the level at which a group of subject matter experts determined meadows to be threatening resource protection and quality of visitor experience.</p>

**Indicator 2 – Status of Riparian Habitat for ORV 2**

The objective of this indicator is to provide a comprehensive rapid assessment of riverbank (river riparian habitat) status every two to three years. The intent is to detect potential impacts from visitor use at the incipient stage and correct them in a timely manner so as to protect and enhance biological and geologic/hydrologic ORVs. Given the spatial and temporal complexity of riparian systems, this general indicator would be part of a comprehensive river protection implementation program that includes permanent riverbank vegetation monitoring plots and river cross-section analysis in addition to periodic

surveys for total accumulated large wood in the channel. The NPS will also use this indicator to monitor a component of ORV 10, ethnographic resources in Yosemite Valley.

The park would adopt the California Rapid Assessment Method (CRAM) (Collins et al. 2008) for producing condition ratings along approximately 10 miles of alluvial river channel in Yosemite Valley (Happy Isles Bridge to 0.6 mile downstream of Pohono Bridge). This extensively peer-reviewed and validated protocol (e.g., Stein et al. 2009) is intended to provide a general condition index of riparian and wetlands sites using a combination of landscape, hydrology, physical, and biotic structure scores. Both banks of the river would be evaluated in 200-meter reaches (approximately 160 individual sites) every two to three years. Scores range from 0.27 for the poorest condition up to 1.00 for the best. In Yosemite Valley, 20% of sites as evaluated in 2010 were classified in the low-condition class (scores below 0.71) and 20% were classified in the high-condition class (above 0.87) (Cardno ENTRIX 2012).

Necessarily broad in nature, the condition rating integrates substantial information and has been shown to adequately distinguish poor and good site conditions, while allowing for documentation of stressors that may be affecting ecosystem processes. The latter is particularly important for a rapid survey in this setting as it permits a fairly direct connection to possible management actions necessary to protect and enhance the ORV. This indicator would be supported by more rigorous monitoring of riparian vegetation and riverbank condition at permanently established plots in this segment (Yosemite National Park 2010). The park may adopt other protocols to address this indicator that provide more refined metrics of riparian condition as they become available.<sup>21</sup>

### ***Management Standard***

The management standard for the status of riparian habitat varies across the alternatives described in “Alternatives” (Chapter 8). Table 5-11 demonstrates the appropriate standard to each alternative. The standard is derived from an assessment of the number of sites currently in a low condition class (Cardno ENTRIX 2012) that will be affected by actions in each alternative of the plan. Of the 20% of sites currently in the low condition rating, approximately half have the potential of being restored to a moderate or high condition class in Alternatives 2 and 3. The remaining 50% of these sites could remain in a low condition class due to their proximity to critical roads and bridges. Therefore, a maximum of approximately 90% of all sites could achieve a moderate- or high-condition rating once restoration actions are taken in Alternatives 2 and 3. Moreover, to ensure that at least a portion of sites are in high condition, a minimum of 20% of sites shall be in high-condition class.

Increased visitor use coupled with placement of additional campgrounds near the river in Alternatives 4, 5, and 6 reduce restoration potential. Substantial restoration actions would be mostly offset by the potential for increased riverbank impacts due to visitor access and proximity to the river. With substantial controls in place such as fencing, designated river access points, and routine monitoring, there is the potential for modest improvements in site condition, though it is difficult to estimate this. For this reason, the management standards reflect the current distribution of sites in high, medium, and low condition classes. Setting management standards to the experiences envisioned in an alternative, as proposed herein, is a practice recommended by noted user capacity experts.<sup>22</sup>

<sup>21</sup> Note that the streambank stability indicator used to monitor higher elevation meadows (both in this plan and in the Tuolumne River Plan/DEIS) is not suitable for the higher order stream found in Yosemite Valley; CRAM is.

<sup>22</sup> Specifically, by Dave Cole, Bo Shelby, and Doug Whittaker. Wilderness recreation management standards also vary by alternative, both in this plan and in the Tuolumne River Plan/DEIS.

**TABLE 5-11: MANAGEMENT STANDARDS FOR THE STATUS OF RIPARIAN HABITAT INDICATOR**

<b>Alternatives</b>	<b>Associated Management Standard</b>
Alternative 1	No action
Alternative 2	At least 90% of sites would attain CRAM scores of 0.7 or higher (moderate or high rating) and at least 20% of sites would rate as high condition (greater than 0.87) during any single monitoring period. <sup>23</sup>
Alternative 3	At least 90% of sites would attain CRAM scores of 0.7 or higher (moderate or high rating) and at least 20% of sites would rate as high condition (greater than 0.87) during any single monitoring period.
Alternative 4	At least 80% of sites would attain CRAM scores of 0.7 or higher (moderate or high rating) and at least 20% of sites would rate as high condition (greater than 0.87) during any single monitoring period.
Alternative 5	At least 80% of sites would attain CRAM scores of 0.7 or higher (moderate or high rating) and at least 20% of sites would rate as high condition (greater than 0.87) during any single monitoring period.
Alternative 6	At least 80% of sites would attain CRAM scores of 0.7 or higher (moderate or high rating) and at least 20% of sites would rate as high condition (greater than 0.87) during any single monitoring period.

### *Adverse Effect*

An adverse effect is indicated when thirty percent or more of the river segment is rated in a low condition class, as measured by the CRAM rating system. This is the minimum change below current condition that could be detected given physical metrics and observer variability.

Surveys in 2010 (Cardno ENTRIX 2011) indicated that about 20% of the riparian area along the Merced River in Yosemite Valley was in low condition. Consensus among NPS staff and outside specialists is that this is an unacceptable impact on riparian habitat. However, these impacts are highly localized (almost all of them are between Clark's and Sentinel Bridge), with the remaining 80% of the segment in higher condition (moderate or high). Most riparian habitat in the valley, in other words, is functioning at an acceptable level. Consequently, the segment as a whole is functioning at a level higher than what most ecologists would consider adverse effect (e.g., Poole 2002). Management concerns are clearly present (see below), with the overall river condition approaching adverse effect. This definition of adverse effect, then, defines a point that is the minimum detectable decline in proportion to monitoring sites in the moderate and high condition classes from the 2010 survey.

Currently, 16 of 81 sites (20%) rate in low condition. In order to detect a significant increase (at the 95% confidence level) in the number of sites in low condition, at least 22 sites (27%) would have to fall into the low category. Given the dynamic nature of river systems and the estimated uncertainty in CRAM scores of +/- 6% (Stein et al., 2009), the percentage of sites in the low condition class that constitutes adverse effect is rounded to 30%.

### *Degradation Standard*

Degradation is indicated when 50% or more of sites have CRAM condition ratings of less than 0.71.<sup>24</sup>

<sup>23</sup> The 0.7 and 0.87 values are based on the grouping of such scores in Cardno ENTRIX 2012.

<sup>24</sup> This value is taken directly from Cardno ENTRIX 2012, in which this value delimited the lowest fifth of CRAM scores from the other 80%--those values that were considered "low" in condition.

Extensive or severely degraded streambank stability conditions, manifested from either anthropogenic or natural sources, would likely propagate the loss of functional integrity of the stream channel on site and downstream. Degradation of riparian zones and stream channels diminishes their capacity to provide critical functions, including chemical and nutrient cycling, water purification, flood attenuation, maintenance of stream flows and temperatures, groundwater recharge, and habitats for fish and wildlife (Kauffman et al. 1997). Ultimately, adverse consequences of channel instability (or disequilibrium) would be associated with land productivity change, land loss, aquatic habitat deterioration, changes in both short- and long-term channel evolution, and loss of physical and biological function (Rosgen 2001). Realization of the degradation standard would be indicative of the need for substantial restoration investment.

**Monitoring Program for the Status of Riparian Habitat**

Monitoring would take place along the entire portion of this segment that is alluvial in nature. This encompasses the stretch of river between Happy Isles Bridge and 0.6 mile downstream of Pohono Bridge. Both left and right banks of the river over this entire length would be divided into 200-meter sites (reaches) and each would be assigned a CRAM score. Monitoring would be conducted every two to three years and after major (greater than 10-year return interval) flood events. Table 5-12 depicts the trigger points and management response to riparian habitat ratings.

**TABLE 5-12: MANAGEMENT ACTIONS AND TRIGGER POINTS TO MAINTAIN DESIRED CONDITIONS FOR MID-ELEVATION RIPARIAN HABITAT (STATUS OF RIPARIAN HABITAT)**

Trigger Point(s) at Which Action Management Would Be Taken	Possible Management Actions	Rationale for Management Actions
<p><b>Trigger Point 1:</b> Routine survey finds the decline of condition class of any reach from high to moderate, high to low, or moderate to low. Alternatively, the surveyors note any localized impact due to visitor use such as an incipient headcut or loss of riverbank vegetation. The scale of impacts and potential restoration is up to 200 meters of riverbank, the maximum single reach length in the CRAM protocol.</p>	<p>Investigation of site conditions and potential factors leading to the decline in condition class or localized impact. Specific mitigating actions could range from continued regular monitoring to restoration and exclusion of the reach from visitor use. Actions could include:</p> <ul style="list-style-type: none"> <li>• Restore affected area and address causes of impacts</li> <li>• Fencing around campgrounds and designated river access points</li> <li>• Increased monitoring frequency to assure recovery of site</li> </ul>	<p>The purpose of this trigger is to allow for immediate site-specific action regarding a potential impact to riparian condition. In addition, this action will refine our understanding of baseline conditions and causal mechanisms (streambank alteration, natural processes, or cumulative effects) affecting streambank condition, on-site and within the greater contributing source area for that site.</p>
<p><b>Trigger Point 2:</b> Presence of a negative trend indicating that the breach of the management standard is likely without intervening management actions. The scale of impacts here is greater than 200 meters of riverbank. <i>(Note that this is considered the current state of the riparian area in the Yosemite Valley segment.)</i></p>	<p>Action at this level requires a more comprehensive visitor management and restoration response than under Trigger Point 1. Actions at this point must be sufficient to restore river condition at greater than the single reach scale and prevent (or mitigate) displacement of impacts upstream or downstream of the affected area. Actions include:</p> <ul style="list-style-type: none"> <li>• Fencing around campgrounds and designated river access points</li> <li>• Active patrols of river area to protect riparian vegetation from trampling</li> <li>• Manage access by limiting use adjacent to the river</li> <li>• Close or re-design campgrounds to lessen human impacts to the riparian area</li> </ul>	<p>This trigger point indicates that impacts have grown beyond site-specific impacts and now affect multiple reaches of the river. While unforeseen circumstances could manifest this condition, visitor impacts are likely to be the most important factor. The purpose of taking action at this point would be to prevent impacts from coalescing and propagating downstream leading to adverse effect.</p>

**TABLE 5-12: MANAGEMENT ACTIONS AND TRIGGER POINTS TO MAINTAIN DESIRED CONDITIONS FOR MID-ELEVATION RIPARIAN HABITAT (STATUS OF RIPARIAN HABITAT)**

Trigger Point(s) at Which Action Management Would Be Taken	Possible Management Actions	Rationale for Management Actions
<p><b>Trigger Point 3:</b> The condition of the riparian has not improved 10 years after reaching Trigger Point 2 and implementation of major restoration and visitor use management actions.</p>	<p>Reduce use.</p>	<p>Riparian condition may take several years to recover following restoration or visitor use management actions. No measureable improvement 10 years after implementing actions, however, most likely indicates human use is preventing recovery.</p>

The NPS would evaluate the effectiveness of the indicators regularly to assure that the combination of these metrics fully protect the ORV.

### Indicator 3 – Riparian Bird Abundance for ORV 2

The riparian bird indicator is based on the relative abundance of five riparian bird species that breed throughout the meadow and riparian habitats in the Yosemite Valley segment each summer. Birds are an effective indicator of overall habitat quality and have been used as indicators of ecological integrity in a variety of habitats (Bradford et al. 1998; O’Connell et al. 2000; Canterbury et al. 2000; Venier and Pearce 2007). Bird monitoring is cost-effective, efficient, and effective because birds advertise their presence through vocalizations, making them relatively easy to detect and identify; also, they can be censused efficiently over various spatial scales. An assemblage of birds with strong ecological ties to riparian habitat, as opposed to a single species, incorporates a wider range of sensitivities to habitat disturbances and modifications (Koskimies 1989). Hence, relative abundance of such an assemblage would be more likely to reflect changes in the ecosystem. Furthermore, consistent causes of change should be easier to identify, and local natural changes in population dynamics of one of the species should be less likely to skew overall data (Zonneveld 1983).<sup>25</sup>

The riparian bird indicator comprises five focal species identified by the Riparian Habitat Joint Venture as being biologically relevant indicator species (RHJV 2004) occurring in Yosemite Valley in abundances that allow collection of an adequate sample size. These five species are spotted sandpiper, warbling vireo, yellow warbler, song sparrow, and black-headed grosbeak (see Table 5-13 for scientific names and associated characteristics). This suite of focal species follows suggestions by Chase and Geupel (2005) to select species that are easy and efficient to monitor and that represent various habitat elements and processes in the riparian ecosystem. All of the selected focal species except for Song Sparrow are neotropical migrants, which are considered sensitive, and declines in neotropical species owing to human disturbance and habitat fragmentation have been well documented (Temple 1986; Terborgh 1989; Wilcove and Terborgh 1984). This indicator includes ways of detecting impacts on the bird populations caused by factors occurring outside of Yosemite Valley or even Yosemite; see below).

<sup>25</sup> Additionally, riparian bird abundance is a better indicator for Yosemite Valley meadows than bare soil because bare soil as an indicator is most appropriate for areas where grazing occurs (there is no grazing in YV), while riparian bird abundance is a direct measure of habitat quality (because the birds chosen for this alternative are directly dependent on such habitat).



**TABLE 5-13: RIPARIAN BIRD ASSEMBLAGE IN YOSEMITE VALLEY SEGMENT AND GUILD ASSIGNMENTS**

Species	4-Letter code <sup>a</sup>	Scientific name	Neotropical migrant <sup>b</sup>	Nest type <sup>c</sup>	Diet <sup>d</sup>	Foraging type <sup>e</sup>
Spotted sandpiper	SPSA	<i>Actitis macularius</i>	Y	GRND	IN	GG
Warbling vireo	WAVI	<i>Vireo gilvus</i>	Y	HICUP	IN	FG
Yellow warbler	YEWA	<i>Setophaga petechia</i>	Y	LOCUP	IN	FG
Song sparrow	SOSP	<i>Melospiza melodia</i>	N	GRND	OM	GG
Black-headed grosbeak	BHGR	<i>Pheucticus melanocephalus</i>	Y	LOCUP	OM	FG

NOTE: Data compiled by Bryce 2006 and collected from Terres 1980, Ehrlich et al. 1988, and DeGraaf et al. 1991.

<sup>a</sup> The American Ornithologists' Union 4-letter codes (AOU 2011); provided here for ease in finding them in this source.

<sup>b</sup> Neotropical migrant: N = no; Y = yes

<sup>c</sup> Nest type: GRND = ground nester; LOCUP = cup nest generally 10 feet or less off the ground; HICUP = cup nest generally >10 feet off the ground

<sup>d</sup> Diet: IN = insectivore; OM = omnivore

<sup>e</sup> Foraging type: FG = foliage gleaner; GG = ground gleaner

These focal species' requirements define different spatial attributes, habitat characteristics, and management practices that are representative of a healthy riparian system (Chase and Geupel 2005). By using riparian vegetation as their primary breeding habitat in Yosemite and needing the full range of riparian successional stages for successful breeding, these specialists represent better indicators than habitat generalists (who are also less susceptible to local extinction following environmental change) (Hutto 1998). Population trends of these riparian habitat specialists could indicate whether the integrity of the habitat is improving or deteriorating under the range of possible habitat management regimes (Carignan and Villard 2002).

Although birds have been widely used as indicators (Beintema 1983; Powell and Powell 1986; Bost and Mayo 1993; Daily et al. 1993; Bradford et al. 1998; Hutto 1998), it is still challenging to develop an indicator that discriminates between population declines caused by changes within the local habitat (i.e. the Yosemite Valley meadows and riparian habitat—ORV 2) and declines caused by factors occurring outside of that habitat (i.e. changes in the wintering habitat of such birds in Central America, disease, parasites, competition, predation, conditions in other areas used by migratory species, and/or climate change). This monitoring program would address this need in two complementary ways (Steele et al. 1984; Bryce 2006).

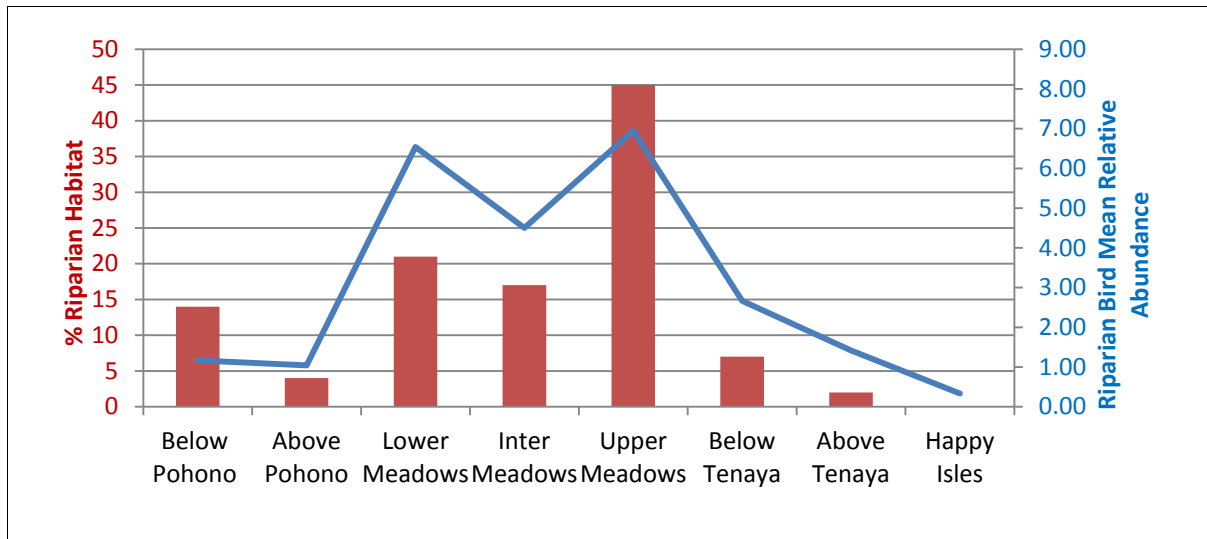
First, the NPS would continue conducting parkwide surveys for these birds done as part of the Sierra Nevada Network bird-monitoring program (and using the peer-reviewed survey protocol developed by Siegel et al. 2010). This annual data collected park-wide would provide an invaluable comparison with population trends detected in Yosemite Valley. For example, if yellow warblers disappear from Yosemite Valley, park ornithologists could turn to the park-wide dataset (collected using exactly the same protocol) to determine if the trend is local or if instead it indicates a more widespread threat.

Second, the NPS would conduct these bird surveys at the same sites (randomly selected) where the Yosemite Visitor Use and Impact Monitoring Program also collects vegetation, riverbank, and human use data (Newburger et al. 2009; Starceovich 2011).<sup>26</sup> If there is a perceived decline in riparian bird abundances,

<sup>26</sup> Vegetation data collected include functional groups related to understory community composition (nonvascular plants, annual biennials, tap-rooted perennials, fibrous-rooted perennials, woody seedlings, and shrubs), physical riverbank characteristics (litter cover, bare ground, large woody debris, substrate size classes, and exposed roots), and canopy characteristics (deciduous trees, evergreen trees, and snags).

then the vegetation data could be used to determine possible effects from any changes that have occurred in vegetation attributes. Several studies have found local vegetation and habitat characteristics to be important in explaining variation in local bird abundance (e.g., Wiens and Rotenberry 1981; Cody 1985; Strong and Bock 1990; Saab 1999; Nur et al. 2008). Such knowledge of a species’ life history and habitat requirements enables researchers to relate an observed decline to possible human impacts on specific habitat components or to a flood or other natural event. For example, preliminary data suggest a relationship between the relative abundance of riparian birds in Yosemite Valley and the amount of riparian habitat within specific reaches of the Merced River (Cardno ENTRIX 2012) (Figure 5-2). If a decline in one of the species using these riparian habitat types were detected, park managers would examine those habitats to see if changes were occurring that could account for the decline; they would examine the area’s recent history to see if a natural event could have caused the decline.

**FIGURE 5-2: MEAN RELATIVE ABUNDANCE OF FIVE RIPARIAN FOCAL SPECIES IN 2010-2011 IN RELATION TO PERCENTAGE OF RIPARIAN HABITAT (CARDNO ENTRIX 2012)**



NOTE: Graph portrays Black Cottonwood Temporarily Flooded Forest Alliance and Shining Willow Riparian Scrub in Eight Discrete Geomorphic Reaches in Yosemite Valley

As explained in more detail below, bird surveys would be conducted at 24 randomly selected sites each year during the breeding season (May 15-June 30), with three sets of bird surveys performed at each of the 24 plots. Birds would be tallied both by sight and sound; if observers see or hear a bird, the bird’s presence would be noted.

In summary, the riparian bird indicator is based on five riparian specialist bird species that commonly breed in Yosemite Valley’s riparian habitat and that represent various life histories and riparian habitat requirements (Table 5-13). The indicator accounts for population changes that could be caused by sources external to the habitat condition of this ORV by including two additional components: (1) comparison with similar data being collected on a wider spatial scale, and (2) matching the sampling plots with concurrent data collection on vegetation attributes and extent of human use. Over the long term, such relative abundance data on riparian-obligate species will be used to assess whether meadow and riparian communities in Yosemite Valley are achieving the management standard.

### Management Standard

The management standard is that the abundance of any one of the five species, averaged across the three annual observation periods, exceeds the 25<sup>th</sup> percentile of its distribution in at least three out of every ten years, or that the average abundance of all five species, averaged again across the three annual observation periods, exceeds their summed 25<sup>th</sup> percentile, unless a species shows similar declines in other nearby riparian habitat not in Yosemite Valley. For example, for song sparrow populations to meet the management standard, observers would need to see or hear at least four individuals in their three visits to exceed the 25<sup>th</sup> percentile (4 sightings/3 visits=1.33 birds per visit, which exceeds the 25<sup>th</sup> percentile value of 1.22), at least three times in a decade. Or, for the sum of all five species, observers would need to see or hear an average of ten or more of any of the five species (any combination that adds to ten) on each of their three annual visits, to exceed the 25<sup>th</sup> percentile (10 sightings/3 visits=3.33, which exceeds the 25<sup>th</sup> percentile value of 3.21), again at least three times in a decade.

The riparian bird management standard adopted for the *Merced River Plan/DEIS* was developed from a four-year pilot dataset: a two-year dataset collected by NPS biologists in 2010-2011 at 24 randomly selected monitoring plots (NPS unpublished data) and a two-year dataset collected by other skilled bird observers (Point Reyes Bird Observatory scientists) in 2006-2007 at 20 systematically placed plots in Yosemite (Stillwater Sciences 2008). In the absence of long-running historical data in Yosemite Valley, this standard uses the 4-year pilot dataset to determine expected interannual variation. Percentiles were calculated based on the interannual mean and standard deviation (Table 5-14).

**TABLE 5-14: SPECIES SPECIFIC ANNUAL ABUNDANCES\***

Species	Average	Variance	Max	Inter-annual Average <sup>a</sup>	Inter-annual Variance <sup>a</sup>	Inter-annual Standard Deviation <sup>a</sup>	Percentiles		
							10%	20%	25%
Spotted Sandpiper	0.42	0.62	5	0.38	0.07	0.26	0.05	0.16	0.21
Warbling Vireo	0.78	0.85	4	0.78	0.08	0.28	0.41	0.54	0.59
Yellow Warbler	0.54	0.83	5	0.50	0.09	0.31	0.11	0.24	0.29
Song Sparrow	1.55	1.65	6	1.50	0.17	0.41	0.97	1.15	1.22
Black-headed Grosbeak	0.84	1.10	5	0.81	0.10	0.32	0.41	0.55	0.60
<b>Sum</b>	<b>4.13</b>	<b>8.37</b>	<b>18</b>	<b>3.97</b>	<b>1.28</b>	<b>1.13</b>	<b>2.52</b>	<b>3.02</b>	<b>3.21</b>

\*NOTE: Yosemite Valley point count data were collected by Point Reyes Bird Observatory scientists in 2006-2007 (Stillwater Sciences 2008) and NPS biologists in 2010-2011 (NPS unpublished data). Table 5-13 describes the species codes. Units are the number of detections per plot—the number of birds seen or heard at a plot, averaged across the three annual visits per plot. Species specific annual abundances (average, variance, and maximum abundance); interannual (year to year) average, variance, and standard deviation; and percentiles are based on the interannual average and standard deviation. Values are calculated from four years of point count data (2006, 2007, 2010, and 2011) collected in Yosemite Valley.

<sup>a</sup> Computed by first calculating the within-year average across sites and dates for each year, then taking the average, variation, and standard deviation of those annual averages. (The Interannual average differs from the individual average because it weights years equally while the individual average effectively weights years by the "Plot by Date" effort.)

<sup>b</sup> Percentiles are based on the interannual average and standard deviation, and are the values that abundances are expected to be below N% of the time due to random fluctuations as observed in the four years of pilot data.

In any given year, random population fluctuations may be less than the values for the 25<sup>th</sup> percentiles. To fall below the management standard, such poor years would have to occur 7 or more times per decade. To fail to meet the management standard for any individual species, the decline would have to be directly associated with ORV 2 in Yosemite Valley. If similar declines were observed in other nearby riparian habitats (e.g., Wawona Meadow, Tuolumne River riparian corridor), the management standard would still be met, though the reasons for the decline would still need to be determined. The management standard is set to safeguard against the chance of falling below the standard due to chance fluctuations while being sensitive enough to be triggered if the riparian ORV in Yosemite Valley becomes ecologically dysfunctional.

There may be certain instances when the management standard needs to be re-evaluated and potentially readjusted: a natural event (flood, fire, or drought) that does not pertain to human use causes the target threshold to be exceeded; another dataset from Yosemite shows more variation than expected annual variation; or any individual species disappears across all sites.

### *Adverse Effect*

An adverse effect would be present when the average abundance of any individual species or the average abundance summed across all species falls below the 20th percentile of the respective distributions in at least four out of 10 years, unless a species shows similar declines in other nearby riparian habitat not in Yosemite Valley. As Table 5-14 indicates, falling below those percentiles would indicate that the bird species are becoming less common. For example, warbling vireo sightings would be declining from 0.59 averaged across all three observation periods in a year (the management standard, to less than 0.54 in a year (the adverse effect level). Or, the summed sightings would fall from 3.21 across all three observation periods in a year (the management standard), to less than 3.02 in a year (the adverse effect level).

Because of the fluctuations that are possible from year to year, the duration of four out of 10 years is used. This accounts for stochastic events, such as flooding or fire (both of which have occurred in Yosemite Valley in the last couple of decades) that could temporarily drop a bird's population. If such an event occurred, it is reasonable to assume that the habitat and bird community would change, but would remain below the 20th percentile threshold in fewer than four out of 10 years. If rebounding did not occur and human-use factors are identified as the cause of adverse effect, then mitigation to reverse impacts would be necessary to restore ecological function.

There may be certain instances when the point of adverse effect needs to be re-evaluated and potentially re-adjusted: a natural event (flood, fire, or drought) that does not pertain to human use causes the adverse effect threshold to be exceeded; another dataset from Yosemite shows more variation than expected annual variation; or any individual species disappears across all sites. As explained in the triggers discussion below, the NPS is committed to ensuring adverse effects or degradation do not occur, through the multiple levels of management triggers.

### *Degradation Standard*

Degradation would be present when the average abundance of any individual species or average abundance summed across all species falls below the 10th percentile of the respective distributions in at least five out of 10 years, unless a species shows similar declines in other nearby riparian habitat not in Yosemite Valley. As Table 5-14 indicates, falling below those percentiles would indicate that the bird species are becoming considerably less common. For example, spotted sandpiper sightings would be declining from 0.21 averaged across all three observation periods in a year (the management standard), to less than 0.05 in a year (the

degradation level)—a decline of more than 75%. Or, the summed sightings would fall from 3.21 across all three observation periods in a year (the management standard), to less than 2.52 in a year (the adverse-effect level).

Because of the fluctuations that are possible from year to year, degradation is reached only when riparian bird abundances drop below the 10th percentile threshold in at least five out of 10 years. The duration of five out of 10 years accounts for stochastic events. If such an event occurred, it is reasonable to assume that the habitat and bird community would rebound above the 10% threshold in more than five out of 10 years. If rebounding does not occur and human use factors are identified as the cause of degradation, then mitigation to reverse degradation would take multiple years and a tremendous amount of effort and resources, but would be necessary to restore ecological function.

There may be certain instances when the point of degradation needs to be reevaluated and potentially readjusted: (1) a natural event (flood, fire, or drought, for example) that does not pertain to human use causes the degradation threshold to be exceeded; (2) another dataset from Yosemite shows more variation than expected annual variation; or (3) any individual species disappears across all sites. The NPS is committed to ensuring adverse effect or degradations levels are never met through the multiple levels of management triggers developed, as explained below.

### ***Monitoring Program for Riparian Bird Abundance***

As noted above, bird surveys would be conducted at the same randomly selected sites (N = 24) where vegetation and riverbank data are regularly collected through the Yosemite Visitor Use and Impact Monitoring Program (Newburger et al. 2009; Starcevich 2011). The NPS would conduct point count surveys using the peer-reviewed survey protocol developed by Siegel et al. (2010), and implemented throughout Yosemite each year as part of the Sierra Nevada Network bird-monitoring program. Annual data collected park-wide would provide an invaluable comparison if population trends are detected in impacted sites in Yosemite Valley. Each year during the breeding season (May 15-June 30), the NPS would conduct three sets of bird surveys at each of the 24 plots. In a given year, each set of surveys would be spaced at least ten days apart. To reduce sample bias, observers would be highly trained and have at minimum five years of bird survey experience; survey locations would not change during the season or between years; surveys would begin within ten minutes of official local sunrise and must be completed by 3.5 hours after official local sunrise, because bird activity tends to decrease later in the morning; and surveys would only take place under mild weather conditions. For a more detailed description of the survey protocol, see Siegel et al. (2010). Table 5-15 depicts the trigger points and management response to riparian bird abundance ratings.

While actions under the trigger points should prohibit falling below the management standard, unforeseen circumstances could occur. Plots that exhibit declines that fall below the management standard would require a comprehensive analysis of causal relationships for informing effective restoration actions. Restoration actions would be guided by identifying specific elements or attributes of habitats used by affected bird focal species. Earlier studies on bird-habitat associations emphasized general structural characteristics of vegetation (Wiens 1969; Willson 1974; Cody 1985), while more recent studies have identified the importance of specific tree species for riparian-dependent birds (Strong and Bock 1990; Saab 1999). Nur et al. (2008) reported that local vegetation and habitat characteristics were important in explaining variation in local abundance. Concurrent with active habitat restoration, removal of anthropogenic use of the impacted riparian habitats (e.g., willow and cottonwood stands) adjacent to the river may occur.

**TABLE 5-15: MANAGEMENT ACTIONS AND TRIGGER POINTS TO MAINTAIN DESIRED CONDITIONS FOR MID-ELEVATION RIPARIAN HABITAT (RIPARIAN BIRD ABUNDANCE)**

Trigger Point(s) at Which Management Action Would Be Taken	Possible Management Actions	Rationale for Management Actions
<p><b>Trigger Point 1:</b> Mean abundance of two or more individual species drop below the 10th percentile threshold for one year or the mean abundance summed across species drops below the 20th percentile threshold in two out of three years</p>	<p>For each plot, assess riparian bird assemblage and extent of human impacts. Compare the mean abundance of birds (individual species and summed across species) in pristine versus potentially impacted plots. Pristine versus impacted sites would be identified based on an index of human use and the structural integrity of the riparian vegetation. For those potentially impacted plots that have lower bird abundance, assess any changes in vegetation attributes and human use that may be causing declines in riparian birds. If anthropogenic activities are identified as causal mechanisms of declining riparian bird populations, then implement actions to limit the extent and magnitude of effects (i.e., human impacts or management practices). Actions could include visitor messaging, restoration signs, and targeted vegetation restoration.</p>	<p>Management action to assess vegetation attributes and human use at potentially impacted sites would refine our understanding of baseline conditions and causal mechanisms (altered riparian habitat function, natural processes, external factors, or cumulative effects) affecting localized riparian bird integrity.</p>
<p><b>Trigger Point 2:</b> Mean abundance of two or more individual species are below the 10th percentile threshold in three out of five years or the mean abundance summed across species is below the 5th percentile threshold in five out of seven years.</p>	<p>For those potentially impacted plots that have lower bird abundance, assess any changes in vegetation attributes and human use that may be causing declines in riparian birds. If anthropogenic activities are identified as causal mechanisms of declining riparian bird populations, then implement actions to limit the extent and magnitude of effects (i.e., human impacts or management practices). Actions could include restoration practices at those impacted sites where riparian birds have declined. Such practices could include visitor messaging, restoration signs, fencing, and habitat restoration to restore vegetation attributes related to higher riparian bird abundances (determine by statistical analyses). Actions may also include hard closures of individual impacted areas, including increased visitor education surrounding closures and riparian vegetation impacts. Closure regulations would be represented within the superintendent’s compendium to allow for law enforcement.</p>	<p>If this trigger point is exceeded after 5 years, there would be another 5 years left before the management standard would be exceeded. This would provide enough time for focused visitor education and vegetation restoration to avert failing the management standard.</p>

**Management Concerns and Protective Actions**

Management concerns occur when the condition of a resource has reached one of the trigger points identified in Tables 5-10, 5-12, or 5-15 above, which present the trigger point values for the three indicators (meadow fragmentation resulting from informal trails, the status of riparian habitat, and riparian bird abundance) used to monitor meadow and riparian conditions for ORV 2: Mid-elevation meadows and riparian habitat in Yosemite Valley.

Management concerns are present in relation to the meadow fragmentation indicator. The fragmentation standard (LPI<sub>3</sub>) is a weighted mean of 93% in Segment 2, with no meadow less than 90%. Several Yosemite Valley meadows (Cook’s A, El Capitan, Leidig, and Slaughterhouse A) have a fragmentation standard of less than 90%, as shown in Table 5-7. Ensuring that these meadows are in compliance at the individual meadow level will ensure that the ORV is protected at the Segment level. To address the management concerns related to meadow fragmentation triggers, the NPS will take the following actions as specified in Table 5-10 and Alternatives 2-6:

- Remove informal trails in meadows where they fragment meadow habitat or cross through sensitive, wet vegetation communities. Overall, restore six miles of informal trails throughout Yosemite Valley.
- Use boardwalks or hardened surfaces to allow access to sensitive areas
- Delineate trails through upland areas and along meadow perimeters

- Place restoration closure signs, and/or fencing along meadow perimeters
- Fill deep headcuts caused by informal trails with native soil and re-contour to natural meadow topography
- De-compact trampled soils, and use salvaged plants growing in trail ruts and local seed to revegetate area and consolidate multiple parallel trails
- Institute closures in individual impacted meadows, and increase visitor education associated with the closures

Surveys in 2010 indicate that management concerns are also present in terms of the riparian status indicator. These surveys indicated that about 20% of the riparian area along the Merced River in Yosemite Valley was in low condition, and approaching an adverse effect (30% of the riparian habitat in low condition). These impacts are highly localized. To address this management concern, the NPS will:

- Re-vegetate riverbanks between Clark's Bridge and Sentinel Bridge with native riparian shrubs and trees, and strategically place wood to promote bar formation and natural channel narrowing.
- Utilize temporary closures to sensitive resource areas to allow natural recovery along riverbanks.
- Re-direct visitor use to more stable and resilient river access points such as sandbars, and designate formal river access sites. Establish fencing and signage to protect sensitive areas; install boardwalks where appropriate, and actively re-vegetate where needed.
- Construct hardened structures at designated river access points where needed to facilitate and concentrate safe visitor access. Fence and sign sensitive areas and re-establish riparian vegetation.
- Locate any new structures at least 150 feet from the ordinary high-water mark. Relocate or remove all campsites at least 100 feet away from the ordinary high-water mark.

The NPS is beginning to monitor the third indicator in this segment, riparian bird abundance. A baseline for this indicator is in place to monitor the status of the indicator through time. The first status assessments will take place in 2013, after one year of monitoring. The next assessment requires information from two out of three years. In 2013, the NPS will determine if initial triggers are achieved. Confirmation of the presence or absence of adverse effects or degradation requires 10 years of monitoring data.

### *Management Considerations and Enhancement Actions*

In general, actions proposed to address meadow and riparian considerations in Segment 2 would improve meadow hydrology and topography, install or extend boardwalks to reduce meadow trampling, fill drainage ditches not serving current operational needs, remove abandoned infrastructure, and remove conifer seedlings and saplings from meadows. The following actions are common to Alternatives 2-6:

- **Meadow hydrology:** Construct wide box culverts to enhance natural water flows into meadows, and formalize or remove road shoulder parking. Restore hydrologic processes to increase sheet flow into meadows to sustain native meadow vegetation and limit conifer growth where possible. Target areas include Sentinel Meadow, Cook's Meadow, El Capitan Meadow, Stoneman Meadow, and other meadows as necessary.
- **Meadow habitat:** Restore denuded vegetation in Leidig Meadow, El Capitan Meadow, Ahwahnee Meadow, Sentinel Meadow, Stoneman Meadow, and other meadows as necessary. Protect re-vegetated areas with fencing or other natural barriers and install signs to prevent vegetation trampling. Replace a section of paved trail in Leidig meadow (within ordinary high-water mark of the river) with an elevated boardwalk. Develop or extend boardwalks to accommodate visitors and reduce meadow

trampling. Fill ditches not serving current operational needs using adjacent soil or pond-and-plug techniques. Manually or mechanically remove conifer seedlings and saplings from meadows.

- **Riparian habitat buffers:**<sup>27</sup> Relocate or remove all campsites within 100 feet of the ordinary high-water mark. Establish a riparian buffer and prohibit new development along both sides of the Merced River within 150-feet of the ordinary high-water mark. Move the Yosemite Village Day-use Parking Area 150 feet north of the Merced River. Restore riverside areas of Backpackers, North Pines, and Lower Pines campgrounds to natural riparian conditions.
- **Abandoned infrastructure in meadow and riparian habitat:** Remove abandoned infrastructure (including tiles, pipes, and abandoned roads) from meadow, riparian, and floodplain habitat. Decompact soils, remove fill, and re-vegetate with riparian species. Address areas including the former Eagle Creek/Rocky Point Sewage Plant site, Royal Arches Meadow, Cook's Meadow, western (closed) portion of former Lower Pines Campground, and the former lodge cabin/volunteer center at Yosemite Lodge.
- **Riparian restoration and river access:** Use brush layering and other re-vegetation techniques to repair localized riverbank erosion and lessen the scouring effect associated with bridges. Direct visitor use on the banks of the Merced River to stable and resilient river access points such as sandy beaches and low-angle slopes. Install fencing and signs to protect sensitive areas such as steep riverbanks and high use areas that exhibit vegetation loss and eroded soils. Protect re-vegetated areas with closure signs, fencing, and/or natural barriers such as rocks and logs. Riverbanks that would be addressed include those adjacent to Lower Pines and North Pines Campgrounds, Housekeeping Camp, Yosemite Lodge beach access, Swinging Bridge Picnic Area, Sentinel Beach Picnic areas, Cathedral Beach Picnic Area, Devi's Elbow, riverside areas between Pohono Bridge and the El Portal Road/Big Oak Flat Road intersection, and along the Valley Loop Trail. Remove the pack stock trail along the river between the Concessioner Stables and Happy Isles, and re-direct stock use to the Valley Loop Trail. See Appendix E for a detailed description of ecological restoration actions.

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<sup>27</sup> A riparian buffer is a strip of riparian vegetation along the banks of a river that filters runoff and provides a transition zone between the river and human land use (e.g., Osbourne and Kovacic, 1993). The concept of a riparian buffer to protect river resources is well established in the scientific literature and has been applied by numerous federal, state, and local land management agencies (e.g., Welch, 1991; Wenger, 1999; Lee et al., 2004; Mayer et al., 2006).

The primary justifications for employing a riparian buffer along the Merced River are to protect water quality and riparian habitat. In terms of water quality, riparian buffers help trap pollutants that could otherwise directly enter the river. Buffers reduce the magnitude and velocity of overland flow, trap sediment, and attenuate compounds such as nitrogen and phosphorous and pathogens such as *E. coli* (e.g., Osbourne and Kovacic, 1993; Mayer et al., 2005; Tate et al., 2006; Hoffmann et al., 2009). Riparian buffer vegetation helps to stabilize riverbanks through provision of root cohesion on banks and floodplains, reduce erosion, and allow surface water to infiltrate the soil. Riparian buffer vegetation provides a source of large wood to the river and adjacent floodplain, which dissipates river flow energy and regulates channel form (Montgomery et al., 2003). In terms of habitat, riparian buffers enhance important habitat for birds and other wildlife by allowing establishment of new vegetation and persistence of a complex habitat structure (e.g., Darveau et al., 1995, 2001; Whitaker and Montevicchi, 1999). Buffers also protect aquatic ecosystems by providing organic nutrients, by supplying woody debris that improves habitat complexity, and by moderating water temperatures by vegetative shading of the river (e.g., France et al., 1996; Karr and Schlosser, 1977).

The effective width of a riparian buffer depends on the steepness of the local topography, the floodplain extent, soil type(s), vegetation type(s), local wildlife species, and the nature and extent of human land use (e.g., Lee et al., 2004; Hawes and Smith, 2005; Mayer et al., 2006). As a result of these numerous factors, as well as the inherent variability and complexity of river system processes, there are no singular, generic standards for riparian buffer widths. Review of scientific literature indicates a range of recommended buffer widths, with values generally ranging between a minimum of 30 feet and a maximum of 300 feet (Castelle et al., 1994; Wenger, 1999; Lee et al., 2004; Mayer et al., 2006); typical values fall between 50 and 150 feet. In general, larger buffers afford greater levels of river protection. Because the riparian buffers proposed herein are designed to protect a Wild and Scenic River within a National Park and World Heritage site, a strong level of river protection is desired.



- **Ahwahnee Meadow:** Restore meadow to natural conditions by restoring meadow topography, removing abandoned irrigation lines and associated fill material, filling in ditches, and re-vegetating with native meadow vegetation. Remove the abandoned tennis courts from the black oak woodland. Re-connect fragmented portions of Ahwahnee Meadow by removing conifers and re-contour topography to increase the size of the meadow 5.7 acres.
- **Bridalveil Meadow:** Address the condition of the stream in Bridalveil Meadow, which exhibits “headcutting,” by inserting willow cuttings into disturbed sites in the stream channel, banks of the Merced River, and the adjacent meadow. Re-establish the riparian shrub layer in the meadow to restore the diversity of meadow and riparian habitat.
- **Native Plant Communities in River Corridor:** Restore the mosaic of meadow, riparian deciduous vegetation, black oak, and open mixed conifer forest at specific locations in Yosemite Valley (67 potential acres). Management actions could include re-vegetation, prescribed fire, mechanical removal of conifers, and infrastructure re-design.
- **Declining amphibian and reptile species:** In accordance with NPS Policy, continue management toward removal of non-native species, and re-introduction of extirpated or declining species as priorities and opportunities are developed. Prioritize studies of the Western pond turtle and the foothill yellow-legged frog.

The alternatives propose a variety of actions and solutions to address other meadow and riparian considerations. Alternatives 2-6 would restore the Merced River corridor to natural conditions as follows:

Alternative 2: 347 acres ecological restoration

Alternative 3: 302 acres ecological restoration

Alternative 4: 223 acres ecological restoration

Alternative 5: 203 acres ecological restoration

Alternative 6 : 170 acres ecological restoration

- **Ahwahnee Meadow:** Alternatives 2 and 3 would re-route meadow trails outside of wetlands, and consolidate trails with the Housekeeping Footbridge trail where possible. In addition, alternatives would remove associated fill and restore wetland areas where trails are removed, and remove 900 feet of Northside Drive and relocate the parallel bike path to the south to improve connectivity between the meadow and the river. Alternatives 4, 5, and 6 would remove fill from wetlands and sensitive areas, and install a 350-foot boardwalk to traverse wet areas. Northside Drive and the associated bike path would remain in the current configuration, and culverts would be added to improve hydrologic connectivity.
- **Indian Creek / Ahwahnee Row and Tecoya Dorms Concessioner Employee Housing:** Alternative 2 would remove housing and development between the Village Store and Ahwahnee Meadow; recontour topography using 1919 maps as a guide; restore hydrologic functions of Indian Creek; and revegetate the area with native meadow and riparian vegetation. Alternatives 3, 4, 5, and 6 would retain concessionaire employee housing in the area and establish a 50-foot setback from Indian Creek for new development; existing incompatible uses would be removed from the setback.
- **El Capitan Meadow:** Alternative 2 would restore all informal trails in the meadow to natural conditions, reduce roadside parking, and consolidate parking in the west end of the meadow. Parking for search and rescue efforts would remain. Alternatives 3 and 4 would utilize fencing and signage to designate appropriate meadow access points and remove all informal trails in sensitive, frequently inundated, or incised meadow habitat. Alternatives 5 and 6 would install fencing along the northern perimeter of meadow and designate appropriate access points using boardwalks and viewing platforms.
- **Former Upper and Lower Rivers Campground:** Alternatives 2-3 and 5 would restore 35.6 acres of floodplain/riparian/wetland habitat within the 10-year floodplain. This includes actions to remove remnant asphalt, decompact soils, and re-establish seasonal channels and natural

topography. Alternatives 4 and 6 would restore 19.7 acres of floodplain topography and riparian/wetland habitat within 150 feet of the ordinary high-water mark of the Merced River. This includes actions to remove remnant asphalt, decompact soils, and re-establish overflow channels where possible. No development would occur in the former campground site in Alternatives 2-3, but new campsites and related infrastructure would be built in Alternatives 4-6 with minimal impact expected on the landscape. Alternative 5, specifically, would accommodate 30 new walk-in campsites in Upper River Campground and eight picnic tables at the former Lower River Campground. In Alternatives 4 and 6, there would be 30 walk-in campsites and 2 group sites in Upper River and 40 walk-in sites in Lower River. As additional ecological protections in Alternative 5, large box culverts would be installed under the road to accommodate water flows that sustain riparian and wetland habitats, and fencing would be constructed along sections of the riverbank to guide visitor use to less sensitive areas. In Alternatives 4 and 6, the Upper River riparian zone would be fenced and closed to prevent riverbank trampling.

- **Housekeeping Camp:** Alternatives 2 and 3 would remove all lodging units and riverside revetment at Housekeeping Camp from within the 100-year floodplain and restore 19.4 acres of floodplain and riparian habitat to natural conditions. The area would be reconfigured for day-use river access, a rafting put-in, and picnicking. Alternative 4 would remove 166 lodging units at Housekeeping Camp (83 duplex lodging units, 4 restrooms, store and office) out of the ordinary high-water mark retaining a total of 100 units. Restrooms, shower houses, and laundry would remain. Alternatives 5 and 6 would remove a total of 34 units, commensurate with the decision in the Concession Services Plan/ Supplemental Environmental Impact Statement (1992), allowing restoration of about one acre of riparian habitat. The existing fencing along the riverbank would be adjusted to protect restored riparian habitat.
- **Stoneman Meadow and Curry Orchard Parking Area:** Alternatives 2, 3, and 4 would restore hydrologic and habitat connectivity in Stoneman Meadow by removing the 1,335-foot long segment of Southside Drive that bisects Stoneman Meadow and extend the boardwalk to Curry Village up to 275 feet and realign the road through Boys Town. Alternative 5 would remove roadside parking along the road through Stoneman Meadow, allowing removal of unnatural fill re-vegetation of the area. The fenced area on the north end of the meadow near Lower Pines Campground would be expanded to protect wetlands. The NPS would conduct transportation and engineering studies to examine the potential to remove Northside Drive from the meadow under Alternative 5. All alternatives would redesign or improve the Orchard parking area to promote water flows from cliff walls to Stoneman Meadow and to remove apple trees from the Orchard parking area to mitigate human-bear encounters.
- **Valley Loop Trail:** Alternatives 2, 3, and 4 would re-route the portion of the trail in Slaughterhouse Meadow that runs through wetland habitat to an upland area. Alternatives 5 and 6 would construct a boardwalk through this wet area. All alternatives would move a 780-foot segment of the trail through Bridalveil Meadow to the base of the fill slope of the Valley Loop Road.
- **Yosemite Lodge:** Alternative 2 would remove all buildings except for the core portion of the Lodge complex which houses the cafeteria. Alternative 3 would remove four buildings from the 100-year floodplain. All alternatives would restore new undeveloped areas (that differ in size per alternative) to natural conditions; de-compact soils; recontour topography using 1919 maps as a guide, and plant native vegetation.
- **Backpackers Campground:** Under Alternative 5, 10 sites would remain and 15 sites within 100 feet of the ordinary high-water mark would be removed, to be restored with native plant communities. In addition, 16 campsites would be added west of Backpackers Campground.

Additional considerations related to fire management and non-native species control would be addressed through actions prescribed in the Yosemite *National Park Fire Management Plan* (NPS 2004) and the *Invasive Plant Management Plan Update* (NPS 2010). ORV 6—the Merced River as an outstanding example

of a rare, mid-elevation alluvial river—presents additional management considerations and associated actions to enhance riparian habitat.

***Conclusion: Protecting and Enhancing ORV 2 (mid-elevation meadows and riparian habitat)***

The NPS will monitor three indicators to assess the condition of ORV 2: meadow fragmentation resulting from informal trails, the status of riparian habitat, and riparian bird abundance.

Adverse effects and degradation are not present in relation to the meadow fragmentation indicator. Management concerns are present, as preliminary data collection indicates that a trigger point for the fragmentation standard (LPIs) has been exceeded. Actions to address informal trailing impacts and fragmentation will be taken at all meadows where these triggers have been tripped. Actions to address these management concerns are found in Table 5-10.

Initial surveys of the riparian status indicator in 2010 indicate that degradation is not present, but management concerns are present, with conditions approaching an adverse effect. To address this management concern, the NPS will re-vegetate riverbanks between Clark's Bridge and Sentinel Bridge with native riparian shrubs and trees, strategically place wood to promote bar formation and natural channel narrowing, utilize temporary closures to allow natural recovery along riverbanks, re-direct visitor use to more stable and resilient river access points and establish fencing and signage to protect sensitive areas, install boardwalks where appropriate, construct hardened structures at designated river access points to concentrate safe visitor access, locate new structures at least 150 feet from the ordinary high-water mark, and relocate or remove all campsites at least 100 feet away from the ordinary high-water mark.

The NPS is beginning to monitor the third indicator in this segment, riparian bird abundance. The first status assessments will take place in 2013, after one year of monitoring. The next assessment requires information from two out of three years. Confirmation of the presence or absence of adverse effects or degradation requires 10 years of monitoring data.

Additional management considerations related to ORV 2 are present. Under Alternatives 2-6, the NPS will fill in ditches and re-contour meadow topography, expand the role of fire in maintaining meadows, and restore the abandoned golf course at The Ahwahnee to natural conditions. Alternatives 2-6 also consider a range of options for large-scale ecological restoration in historic riparian/ meadow/ floodplain complexes, reduce impacts of formal trails in meadows, reduce hydrological impacts of the road that runs through Sentinel Meadow, and reduce meadow impacts that result from roadside parking. In accordance with NPS Policy, management direction would continue toward removal of non-native species, and re-introduction of extirpated or declining species as priorities and opportunities are developed.

To ensure this biological ORV is protected and enhanced through time, the NPS would continue to monitor the condition of the ORV using these three indicators. Monitoring would provide early warning of conditions that require management action before impacts occur. These measurable conditions would trigger specific management responses, as described in Table 5-10, Table 5-12, and Table 5-15.

## Biological ORV—Sierra Sweet Bay (*Myrica hartwegii*)

**ORV 3—The Sierra sweet bay (*Myrica hartwegii*) is a rare plant found on riverbanks along the South Fork Merced River.**

**Location:** Segments 7 (Wawona) and 8 (South Fork Merced River below Wawona)

**Rationale:** In Wawona and downstream, the South Fork Merced River provides habitat for a rare plant, the Sierra sweet bay (*Myrica hartwegii*). This special-status shrub is found in only five Sierra Nevada counties. In Yosemite, it occurs exclusively on sand bars and riverbanks along the South Fork Merced River downstream from Wawona and along Big Creek.

**Management Objective:** Manage the Sierra sweet bay population to protect the abundance of the population along the South Fork Merced River

### *ORV Condition at the Time of Designation (1987)*

At the time of designation, botanists considered the Sierra sweet bay to be rare in Yosemite, but not threatened by local impacts.

### *Current ORV Condition*

The Sierra sweet bay population in Yosemite National Park is in good condition (Colwell and Taylor 2011). The only known human impact is minor localized trampling associated with recreational river access near the Wawona Campground.

### *Management Program for ORV 3 — Sierra Sweet Bay*

This section discusses the proposed management program for this ORV, including the indicator(s) to be used; the definitions of management standard, adverse effect, and degradation; and the monitoring program.

### **Indicator – Sierra Sweet Bay Population Decline**

Permanent photo points would be established to monitor the integrity of the of Sierra sweet bay population along the South Fork Merced River. Comparison of repeat photos can be expected to be a more effective surrogate for assessing human disturbance than more complicated and costly monitoring strategies for this ORV. The health of this ORV would be determined by comparing populations located near Wawona Campground (an area that is likely to be disturbed by humans) with more remote populations that are less likely to receive such disturbance. Monitoring would occur every five years. When photos indicate a decline in sweet bay abundance, the population can be re-mapped and compared to the original mapped extent of Sierra sweet bay completed in 2010 (Colwell and Taylor 2011) to determine if real declines have occurred in the population. Easily accessible potential reference stands are located away from direct effects associated with the Wawona Campground and along Big Creek.

### *Management Standard*

The management standard for Sierra sweet bay would be achieved if the abundance of populations along the South Fork Merced River within Yosemite National Park is maintained at >80% of the reference stands.

The management standard establishes a low tolerance for human-caused decline in population size so that population decline caused by human disturbance can be reversed if detected early. This species is adapted to

spatial and temporal modifications to its habitat resulting from periodic hydrologic events, such as 50- and 100-year floods or periodic fires. Resulting natural fluctuations in population size indicated by all populations declining in size by a similar amount would not be mitigated under this ORV. Also, population declines resulting from global environmental change (e.g., invasive species, disease, changing precipitation patterns), even if anthropogenic in origin, are beyond the scope of this plan and would not be mitigated under this ORV.

**Adverse Effect**

An adverse effect would be present if there is a human-caused decline of over 40% in Sierra sweet bay abundance along measured reaches of the South Fork Merced River, as compared with reference stands.

**Degradation Standard**

Degradation would be present if there is a human-caused decline of over 70% in the abundance score of Sierra sweet bay occurs along measured reaches of the South Fork Merced River, as compared with reference stands. A 70% decline in the abundance score is estimated to be a level of decline that would be difficult to mitigate without a significant input of resources.

**Monitoring – Sierra Sweet Bay Population Abundance**

Permanent photo points would be established to help assess habitat condition and population persistence over time. Monitoring would occur every five years in Segments 7 (Wawona) and 8 (South Fork Merced River below Wawona). The mapped extent of Sierra sweet bay completed in 2010 (Colwell and Taylor 2011) would provide the basis for locating monitoring sampling units and for comparisons through time. Table 5-16 describes the trigger points that would inform managers that a response is required to avoid impacts on the ORV.

**TABLE 5-16: MANAGEMENT ACTIONS AND TRIGGER POINTS TO MAINTAIN DESIRED CONDITIONS FOR SIERRA SWEET BAY**

Trigger Point(s) at Which Action Would Be Taken	Possible Management Actions	Rationale for Management Actions
<b>Trigger Point 1:</b> Decline of 20% in Sierra sweet bay abundance across two monitoring periods.	Reduce localized human use of Sierra sweet bay habitat with the installation of fencing.	Because localized human use is the most likely source of human-caused decline in Sierra sweet bay population abundance along the South Fork Merced River, a reduction in human use is likely to reverse a declining trend.
<b>Trigger Point 2:</b> Decline of 30% in Sierra sweet bay abundance across two monitoring periods.	Reduce localized human use of Sierra sweet bay habitat with the installation of fencing Augment population by planting and protecting using cuttings or seeds from local population	Fence installation will reduce the effects of trampling, and the addition of more individuals derived from this population will enhance population abundance. Both of these management responses are likely to reverse a declining trend.

**Management Concerns and Protective Actions**

Management concerns occur when the condition of a resource has reached one of the trigger points identified in Table 5-16 above. This population is in good condition, and management concerns are not present. Protective management action is not required at this time.

**Management Considerations and Enhancement Actions**

This population of Sierra sweet bay is in good condition, with management considerations not present. Management action to enhance the population is not required at this time.

**Conclusion: Protecting and Enhancing ORV 3 (Sierra sweet bay)**

The Sierra Sweet Bay ORV is determined to be absent of adverse effects and degradation and in good condition, based on 2010 surveys (Colwell and Taylor 2011). No immediate management concerns or considerations are present. To ensure that this biological ORV is protected and enhanced through time, the NPS would monitor the condition of the Sierra sweet bay population to ensure early warning of conditions that require management action before impacts occur. The monitoring indicator for Sierra sweet bay is coupled with triggers for specific management responses.

**GEOLOGICAL AND HYDROLOGICAL ORVs**

This section describes the program to protect and enhance each Geological/Hydrological ORV as proposed in the *Merced River Plan/DEIS*. Four Geological/Hydrological ORVs exist in the Merced River corridor, each related to specific segment(s) of the river (Table 5-17).

**TABLE 5-17: GEOLOGICAL/HYDROLOGICAL ORVs AND ASSOCIATED INDICATORS**

ORV Number and Key Resource	Segment(s)	Indicator to be Monitored through Time
4. Glacially-carved Canyon in Upper Merced River Canyon	1	None; the ORV is impervious to human disturbance
5. The "Giant Staircase"	2	None; the ORV is impervious to human disturbance
6. A Rare, Mid-elevation Alluvial River	2	1. The California Rapid Assessment Method (CRAM)
7. Boulder Bar in El Portal	4	None; the ORV is impervious to human disturbance

**Geological/Hydrological ORV—Glacially-carved Canyon in Upper Merced River Canyon**

<b>ORV 4—The upper Merced River canyon is a textbook example of a glacially-carved canyon.</b>
<b>Location:</b> Segment 1 (Merced River above Nevada Fall)
<b>Rationale:</b> This segment of the Merced River is characterized by a large-scale, glacially-carved canyon. The section of the Merced River above Bunnell Point, in particular, illustrates the relationship between geology and river course owing to its sweeping, glacially carved granite canyon cradling the river.
<b>Management Objective:</b> Manage to allow natural processes to shape the landscape and associated geologic values.

**ORV Condition at the Time of Designation (in 1987)**

This Geologic ORV was unaffected by human activities at the time of designation.

***Current ORV Condition***

Natural processes would continue to shape the landscape and associated geologic values. Human intervention has not perceptibly modified this Geologic ORV.

***Management Program for ORV 4***

It is very unlikely that this ORV would ever be affected by human intervention. Because the ORV is essentially impervious to intended human activities, no indicator will be used to monitor it. For the same reason, management standard, adverse effect, and degradation are not defined for this ORV, and the NPS will not monitor the condition of this ORV as part of the *Merced River Plan/DEIS*.

***Management Considerations and Enhancement Actions***

The NPS has no immediate management considerations with respect to the U-shaped, glacially carved canyon along the Merced River above Nevada Fall. Because there are no considerations regarding the condition of this ORV, no actions other than continued protection under WSRA is necessary.

***Conclusion: Protecting and Enhancing ORV 4 (glacially-carved canyon in Upper Merced River Canyon)***

This Geologic ORV is determined to be absent of adverse effects and degradation. No immediate management considerations are present, and it is unlikely that this ORV would be affected by human intervention in the future. The NPS would not monitor the condition of this ORV.

**Geological/Hydrological ORV—“Giant Staircase”**

<b>ORV 5—The “Giant Staircase,” which includes Vernal and Nevada Falls, is one of the finest examples in the western United States of stair-step river morphology.</b>
<b>Location:</b> Segment 2 (Yosemite Valley)
<b>Rationale:</b> Dropping over 594-foot Nevada Fall and then 317-foot Vernal Fall, the Merced River creates what is known as the Giant Staircase. Such exemplary stair-step river morphology is characterized by substantial variability in river hydrology, from quiet pools, such as Emerald Pool, to the dramatic drops in the waterfalls.
<b>Management Objective:</b> Manage to allow natural processes to shape the landscape and associated geologic values.

***ORV Condition at the Time of Designation (1987)***

The rocky cliffs, cascades, and broad valleys along the Merced River represent a nationally significant example of a glaciated landscape. Sierra Nevada landforms were well established before glaciation, and major stream drainages provided the avenues that the glaciers would later follow. The course of the present-day Merced River is determined by the path of glaciers that came and went during the geological epoch known as the Pleistocene (10,000 to 1.8 million years ago). These glaciers transformed valleys from V-shaped to U-shaped, left hanging valleys along their lower reaches, and deposited thick packages of glacial till—ultimately shaping the iconic landscapes for which Yosemite Valley and the upper Merced River are known. Most researchers agree that at least three major glacial advances, or stages, have taken place: the Tioga, the Tahoe, and a much older pre-Tahoe (possibly the Sherwin) (Huber 1989). The Tioga Glaciation is

considered to have peaked around 20,000 years ago, but the precise timing of the earlier stages is still a topic of debate. Because these are massive landscape-wide natural events well beyond human control, this Geologic ORV was unaffected by human activities at the time of designation.

***Current ORV Condition***

Natural processes would continue to shape the landscape and associated geologic values. Human intervention has not perceptibly modified this geologic ORV.

***Management Program for ORV 5***

It is very unlikely that this ORV would ever be affected by human intervention. Because the ORV is essentially impervious to intended human activities, no indicator will be used to monitor it. For the same reason, management standard, adverse effect, and degradation are not defined for this ORV, and the NPS will not monitor the condition of this ORV as part of the *Merced River Plan/DEIS*.

***Management Considerations and Enhancement Actions***

Natural processes would continue to shape the landscape and the geologic value. The NPS has no immediate management considerations with respect to the Giant Staircase characteristic of the geology of Yosemite Valley above Happy Isles.

Because there are no considerations regarding the condition of this ORV, no actions other than continued protection under WSRA are necessary.

***Conclusion: Protecting and Enhancing ORV 5 (“Giant Staircase”)***

This Geologic ORV is determined to be absent of adverse effects and degradation. No immediate management considerations are present, and it is unlikely that this ORV would be affected by human intervention in the future. The NPS would not monitor the condition of this ORV as part of the *Merced River Plan/DEIS*.

**Geological/Hydrological ORV—A Rare, Mid-elevation Alluvial River**

<b>ORV 6—The Merced River from Happy Isles to the west end of Yosemite Valley provides an outstanding example of a rare, mid-elevation alluvial river.</b>
<b>Location:</b> Segment 2 (Yosemite Valley)
<b>Rationale:</b> In Yosemite Valley, the Merced River is alluvial, characterized by a gentle gradient, a robust flood regime with associated large woody debris accumulation, and complex riparian vegetation. There are few examples in the Sierra Nevada of similar river morphology of this scale at this elevation (about 4,000 feet).
<b>Management Objective:</b> Protect and enhance natural geologic and hydrologic processes, such as overbank flooding and channel migration, which sustain river values such as meadow and riparian communities.

***ORV Condition at the Time of Designation (1987) and Current Condition***

This ORV integrates geologic/hydrologic processes and the condition of aquatic, riparian, and floodplain communities. For condition of the ORV, see the Free-Flowing Condition section in this chapter, and ORV 2 in this chapter concerning riparian and meadow communities in Yosemite Valley.



### ***Management Program***

The status of riparian habitat, as measured by the California Rapid Assessment Method (CRAM) (Collins et al. 2008) would be used to monitor the condition of this ORV through time. This is one of the same indicators used to monitor ORV 2. The indicator, management standard, definitions of adverse effect and degradation, monitoring program, and trigger points for management response are the same as ORV 2, as described earlier in this chapter.

### ***Management Concerns and Protective Actions***

Management concerns occur when the condition of a resource has reached a trigger point, or when adverse effects or degradation are present. As noted in the discussion of ORV 2, surveys in 2010 indicate that management concerns are present in terms of the riparian status indicator, with about 20% of the riparian area along the Merced River in Yosemite Valley in low condition and approaching an adverse effect (30% of the riparian habitat) in low condition.

To address this management concern, the NPS will:

- Re-vegetate riverbanks between Clark's Bridge and Sentinel Bridge with native riparian shrubs and trees, and strategically place wood to promote bar formation and natural channel narrowing.
- Utilize temporary closures to sensitive resource areas to allow natural recovery along riverbanks.
- Re-direct visitor use to more stable and resilient river access points such as sandbars, and designate formal river access sites. Establish fencing and signage to protect sensitive areas; install boardwalks where appropriate, and actively re-vegetate where needed.
- Construct hardened structures at designated river access points where needed to facilitate and concentrate safe visitor access. Fence and sign sensitive areas and reestablish riparian vegetation.
- Locate any new structures at least 150 feet from the ordinary high-water mark. Relocate or remove all campsites at least 100 feet away from the ordinary high-water mark.
- Move Yosemite Village Day-use Parking Area north more than 150 feet away from the ordinary high-water mark.

### ***Management Considerations and Enhancement Actions***

Management considerations regarding fundamental alluvial processes in Yosemite Valley include accelerated riverbank erosion in localized areas, lack of natural levels of large wood in the river system, altered surface and groundwater flow patterns, and alterations to the distribution and extent of connected floodplain. Accelerated riverbank erosion is associated with high levels of foot traffic and resulting loss of riparian vegetation. Without riverbank vegetation, the potential for erosion increases, as vegetation holds unconsolidated soils in place. Since the beginning of the 20th century, the river in Yosemite Valley widened an average of 27% and up to 100% between Clark's Bridge and Sentinel Bridge, compared to widening downstream of this location of just 4% (Madej, 1991 and 1994).

The NPS removed large wood from the river channel for many decades to reduce risks to bridges and other infrastructure during flood stages, and to improve safety by removing in-stream obstacles. The long-term removal of large wood in Yosemite Valley altered the structure and complexity of the river channel (Cardno ENTRIX, in review). Long-term wood removal also affected riparian habitat, as large wood is a source of nutrients, cover, and substrate for aquatic organisms (Montgomery and Piégay 2003). Removal of wood

reduces connectivity between the river and its floodplain (Abbe et al., 2003). The following action would take place under Alternatives 2-6 to address this issue:

- Manage large wood according to the management policy,<sup>28</sup> leaving large wood in the channel that does not compromise visitor safety or infrastructure.
- Incorporate large wood into riverbanks to provide structure for highly eroded riverbanks and increase habitat quality.
- Place large wood in the Merced River to enhance channel complexity and mitigate scouring from bridges.
- Place eight constructed log jams in the river channel between Clark’s Bridge and Sentinel Bridge.

Development and infrastructure, such as roads, ditches, trails, and abandoned utility lines, has likely altered surface and subsurface hydrology associated with the Merced River (Cooper and Wolf 2008).

Actions to address these considerations overlap with those listed under ORV 2 and the Free-flowing Conditions sections in this chapter.

***Conclusion: Protecting and Enhancing ORV 6 (a rare, mid-elevation, alluvial river)***

This ORV integrates geologic/hydrologic processes and the condition of aquatic, riparian, and floodplain communities in Yosemite Valley. Management concerns and considerations are both present. To remedy these, the *Merced River Plan/DEIS* proposes a variety of actions to address specific considerations in “Alternatives” (Chapter 8) to protect river values. In riparian zones under all alternatives, the NPS would direct river use to more stable and resilient access points, protect sensitive areas, and remove or relocate campsites within 100 feet of the ordinary high-water mark. The NPS would explore a range of options among the action alternatives for large-scale ecological restoration in historic riparian/ floodplain complexes, reduce hydrological impacts of the road that runs through Sentinel Meadow, and consider and evaluate a range of options to re-vegetate denuded riverbanks and limit future development directly adjacent to the Merced River.

To ensure this ORV is protected and enhanced through time, the NPS would monitor the condition of the ORV using the status of riparian habitat as an indicator, and the CRAM methodology, and take specific actions should conditions reach trigger points. These trigger points are selected to inform managers well in advance of adverse effects or degradation impacts on this ORV.

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<sup>28</sup> “Management of Fallen Trees in the Merced River in Yosemite Valley,” NPS, 2012.

## Geological/Hydrological ORV—Boulder Bar in El Portal

**ORV 7—The boulder bar in El Portal was created by changing river gradients, glacial history, and powerful floods. These elements have resulted in accumulation of extraordinarily large boulders, which are rare in such deposits.**

**Location:** Segment 4 (El Portal)

**Rationale:** When river gradients lessen, rivers lose the energy needed to transport larger sediments. In such areas, bar-type deposits, such as the large boulder bar at the east end of El Portal, are built up. This is no ordinary boulder bar, however, for it contains massive boulders over a meter in diameter and weighing many tons. It is the combination of boulder availability, the steepness of the river in the gorge, the major change in gradient at El Portal, and the size of the Merced River’s peak floods that enables the river to build such a boulder bar. As illustrated by the January 1997 flood, the Merced continues to sort and build this bar, providing evidence in all seasons of its potential power.

**Management Objective:** Manage to allow natural processes to shape the landscape and associated geologic values.

### *ORV Condition at the Time of Designation (1987)*

This Geologic ORV was unaffected by human activities at the time of designation.

### *Current ORV Condition*

Additional large boulders were deposited by a natural flooding event in 1997.

### *Management Program for ORV 7*

It is very unlikely that this ORV would ever be affected by human intervention. Because the ORV is essentially impervious to intended human activities, no indicator will be used to monitor it. For the same reason, management standard, adverse effect, and degradation are not defined for this ORV, and the NPS will not monitor the condition of this ORV as part of the *Merced River Plan/DEIS*.

### *Management Considerations and Enhancement Actions*

Natural processes would continue to shape the landscape and the geologic value. The NPS has no immediate management considerations with respect to the El Portal boulder bar. Because there are no considerations regarding the condition of this ORV, no actions other than continued protection under WSRA are necessary.

### *Conclusion: Protecting and Enhancing ORV 7 (the El Portal Boulder Bar)*

The El Portal Boulder Bar ORV is determined to be absent of adverse effects and degradation. No immediate management considerations are present, and it is unlikely that this ORV would be affected by human intervention in the future. The NPS would not monitor the condition of this ORV as part of the *Merced River Plan/DEIS*.

## CULTURAL ORVs

The continuum of human use along the Merced River and South Fork Merced River encompasses millennia of diverse peoples, cultures, and uses. American Indian and late 19th-century American cultures flourished along these rivers because they provided reliable, year-round water in extraordinary settings. Evidence that reflects trade, travel, and settlement patterns abounds in an intricate and interconnected landscape of archeological sites, traditional use sites, and historic resources representing this cultural history. The ongoing cultural traditions of contemporary American Indians and other ethnic heritages are linked through space and time to their respective prehistoric and historic pasts via these ethnographic and cultural landscapes. This landscape holds outstandingly remarkable scientific, interpretive, and cultural value for traditionally associated peoples and the public. This section describes how the NPS would protect and enhance the Cultural ORVs as proposed in the *Merced River Plan/DEIS*. As the parts of the cultural ORV are a linked landscape, in essence they are one ORV separated into seven parts. Each part is related to specific segment(s) of the river (Table 5-18). They shall be referred to as seven ORVs, from ORV 8 to ORV 14.

**TABLE 5-18: CULTURAL ORVs AND ASSOCIATED INDICATORS**

ORV Number and Key Resource	Segment	Indicator to be Monitored through Time
8. Yosemite Valley American Indian ethnographic resources	2	1. Meadow fragmentation due to the proliferation of informal trails 2. Status of riparian habitat 3. California black oak – number of adults and ratio of saplings to adults
9. The Yosemite Valley Archeological District	2	1. Condition of Yosemite Valley Archeological District
10. Yosemite Valley Historic Resources	2	1. List of Classified Structures Condition Assessments
11. The El Portal Archeological District	4	1. Condition of El Portal Archeological District
12. Regionally rare archeological features along the South Fork Merced River at archeological sites with rock ring features.	5	1. Condition of archeological sites
13. The Wawona Archeological District	5, 6, 7 and 8	1. Condition of Wawona Archeological District
14. The Wawona Covered Bridge	7	1. List of Classified Structures Condition Assessment

The characteristics of the Cultural ORV related to its condition are based on the same seven aspects of integrity that contribute to the National Register eligibility of each ORV element: location, design, setting, materials, workmanship, feeling, and association. *Location* is the place where the historic property was constructed or where the historic event occurred. *Design* is the combination of elements that create the form, plan, space, structure, and style of a property. *Setting* is the physical environment of a historic property. *Materials* are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property. *Workmanship* is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory. *Feeling* is a property’s expression of the aesthetic or historic sense of a particular period of time. *Association* is the direct link between an important historic event or person and a historic property (NPS 1997d). Specific examples of the characteristics evidencing the integrity of the Cultural ORV include, but are not limited to:

**Archeological Site Integrity:** Archeological sites reflect millennia of human use and cultural evolution in relation to the river. Prehistoric and historic resources in the Yosemite Valley and Wawona Archeological Districts include American Indian villages, camps, and special purpose sites dating from at least 6,000 years

ago to a period of historical occupation. In the El Portal Archeological District, some resources may be as old as 9,500 years. Benchmarks of integrity for archeological sites are primarily concerned with the *in situ* preservation of intact artifacts and features (the attributes of location, design, and setting discussed above), so that spatial associations between site components can be observed in surface and subsurface assemblages. The integrity of features—such as pictographs, rock rings, or rock alignments—are judged on the clarity with which the outlines of such features can be delineated. Additions of cultural elements not related to the site (e.g., modern campfire rings, trails, roads, graffiti, buildings, or structures) can negatively affect the integrity of an archeological site’s setting, association, and feeling. Historical remains can provide clear evidence of former use and association and may retain integrity as archeological resources, such as the physical remains of U.S. Army Calvary Camp A.E. Wood.

As a regular part of ongoing archeological research, inventory, and accountability, Yosemite utilizes the Archeological Site Management Information System (ASMIS). Throughout the NPS, ASMIS is the primary monitoring tool for the condition of archeological sites, documenting site conditions, threats, disturbances, treatments, and management actions, as well as providing descriptions and locations for all known archeological sites in the park (NPS 2005, 2007). The ASMIS condition assessment (“good,” “fair,” “poor,” “unknown,” or “destroyed”) addresses the stability of a site compared to the previous site visits, but is not an indicator of cumulative impacts over time (Middleton [NPS] 2008). The disturbance severity level at a site is determined through the combined assessment of individual disturbances (NPS 2010c). This component of the ASMIS data system is determined independently of site condition and reflects a cumulative impact level that the site has sustained (Darko 2011).

***Ethnographic Resource Integrity:*** Traditionally associated American Indians assign strong spiritual value to the Merced River and Yosemite Valley, continuing their sense of place and cultural association with the river that is both a destination and a place of refuge. American Indians attached names and stories to geologic and other features in the Merced River corridor and consider many of these to be sacred or of spiritual significance. Villages or campsites were sited along the river to take advantage of seasonal resources, riparian plant species, or migrations of game animals. The integrity of the association with the community’s cultural practices and beliefs is a critical consideration in assessing the condition of the ethnographic resources in Yosemite Valley. Benchmarks for the integrity of this component of the Cultural ORV in the Yosemite Valley segment could include unobstructed views of and/or access to sacred or significant geologic features, maintenance of and access to healthy populations of traditional ethnobotanical resources, and preservation and access to archeological remains or locations of historic, spiritual, or traditional significance.

***Built Environment Integrity:*** Conditional benchmarks for the integrity of the historic-era built environment include:

- continuity of original uses (association)
- maintenance of original physical form and materials (design, workmanship, and materials)
- a feeling of related association between the resource and contemporaneous elements (location, setting, feeling, and association)

## Cultural ORV—Yosemite Valley American Indian ethnographic resources

**ORV 8—Yosemite Valley American Indian ethnographic resources include a linked landscape of specifically mapped traditional-use plant populations, as well as the ongoing traditional cultural practices that reflect the intricate continuing relationship between indigenous peoples of the Yosemite region and the Merced River in Yosemite Valley.**

**Location:** Segment 2 (Yosemite Valley)

**Rationale:** Yosemite Valley Native American ethnographic resources include relatively contiguous and interrelated places that are inextricably and traditionally linked to the history, cultural identity, beliefs, and behaviors of contemporary and traditionally-associated American Indian groups. These areas include specifically mapped traditional plant gathering areas rooted in the history of traditionally associated peoples that are important to maintain and continue their cultural identity (Bibby 1994; Parker and King 1998). The traditional use plants gathered at such areas within Yosemite Valley comprise a complete system that is culturally significant. Both river-related and non-river related traditional use plants are included in this ORV.

**Management Objective:** Maintain ethnographic resources, and encourage future propagation to meet cultural restoration purposes to the extent ecologically feasible. Support access for traditional practitioners and other traditionally associated American Indians through the administrative elements of the user capacity and non-recreational tribal pass programs, and ongoing consultation with traditionally associated tribal groups to ensure the success of these programs.

### *ORV Condition at the Time of Designation (1987)*

The landscape of Yosemite Valley is a product of both natural and cultural processes. Many of the meadow and riparian species of this landscape are important ethnographic resources. While natural processes, such as those that drive hydrologic functions, have shaped the meadow complexes of the Merced River, cultural processes including American Indian burning to promote hunting and gathering have also shaped the Yosemite Valley landscape. Vista clearing to maintain views of the iconic scenery in Yosemite Valley also affected the condition of the landscape.

The discontinuation of traditionally associated American Indian practices such as seasonal burning, selective pruning, tilling, timely harvesting, and propagation were the primary impacts to ethnographic resources at the time of designation (Anderson 2005), triggered by a federal government policy of Indian removal. Clearing of vegetation for construction of facilities, homesteading, farming, and grazing of range animals occurred historically in traditionally used meadow and oak habitat (Bibby 1994). Effects on oak habitat may have been compounded by an overabundant deer population, leading to overbrowsing of oak seedlings and high mortality rates. The introduction of non-native plant species also encroached on populations of traditional use plants in Yosemite Valley at the time of designation. All of these changes have likely led to alterations in the abundance and integrity of ethnographic resources.

### *Current ORV Condition*

Many of the impacts to this ORV identified at the time of designation continue to the present, though the current NPS preservation mission encourages and seeks to facilitate ongoing cultural connections between traditionally associated American Indian communities and ancestral park lands and resources through the continuation of important cultural practices, religious ceremonies, and unimpeded access to sacred sites (Bibby 1994). Recognition of the ecological and ethnobotanical value of the open meadows found on the Valley floor has begun to result in restoration of some of these sensitive areas to conditions resembling those found in the period before intensive historic-era settlement (NPS 2010a). Several traditional use areas

have been identified within Yosemite Valley, and some of the plant species within them are now actively being managed to encourage healthy plant populations (Bibby 1994; Deur 2007).

Increasing visitation to Yosemite Valley since the time of designation has likely resulted in changes or impediments in access for traditional practitioners and other traditionally associated American Indians.

### ***Management Program for ORV 8***

This section discusses the proposed management program for this ORV, including the indicator(s) to be used; the definitions of management standard, adverse effect, and degradation; and the monitoring program. Three distinct indicators would be used to protect and enhance the values of the ethnographic ORV: a meadow fragmentation indicator, a riparian indicator, and a California black oak indicator. The meadow and riparian indicators overlap with indicators already described in this chapter under different ORVs. The California black oak indicator is introduced and described in this section. Although each indicator reflects different aspects of the ethnographic ORV and different potential impacts, they would be evaluated on a regular basis to ensure that the combination of these metrics protects the ethnographic ORV.

#### **Indicator 1 – Meadow fragmentation due to the proliferation of informal trails**

Some of the plant populations constituting this ORV occur in Yosemite Valley meadows. To monitor the condition of meadow ethnographic resources, the meadow fragmentation indicator will be used, as described under biological ORV 1 – Meadow Fragmentation due to the Proliferation of Informal Trails. The management standards, definitions of adverse effect and degradation, monitoring program, and trigger points are the same as described under ORV 1.

#### **Indicator 2 – Status of Riparian Habitat**

Other plant populations constituting this ORV occur in Yosemite Valley riparian areas. To monitor these riparian ethnographic resources, the Status of Riparian Habitat indicator will be used, as described under biological ORV 2 – Status of Riparian Habitat. The management standards, definitions of adverse effect and degradation, monitoring program, and trigger points are the same as described under ORV 2.

#### **Indicator 3 – California Black Oak**

California black oak acorn has been an important staple food for American Indians in Yosemite Valley for millennia (Anderson 1991; Hull and Moratto 1999). According to Bibby (1994:17), its historic importance is likely one reason why acorn, and the cultural knowledge regarding its preparation, has survived strongly among the contemporary associated tribes and groups. Although black oak acorn is no longer a staple food, it has become symbolic of ancestral traditions and an important aspect of contemporary culture. For example, acorn soup is prepared for special occasions, especially traditional gatherings and ceremonial events. Several of the former inhabitants of the last American Indian village in Yosemite Valley recall gathering acorn with their parents and/or grandparents, attesting to the multi-generational historical and place-based personal connections between black oaks and the people. Certain groups of trees, or even individual trees, continue to be associated with particular individuals who gathered in historic times (Bibby 1994:22).

The current structure of the California black oak population in Yosemite Valley follows a familiar pattern for many oak species throughout California – a frequency distribution with a peak frequency in the medium

adult size class but few, if any, saplings and young adults. For one or more reasons, survivorship from the seedling stage into the larger sapling and young adult stages is very low for many oak species. This apparent lack of regeneration (also known as recruitment) is a widespread pattern in California (Holzman, 1993; Swieki et al., 1993), the United States (Loftis & McGee, 1992; Russell & Fowler, 1999), and other parts of the world (Watt, 1919; Shaw, 1968; Saxena & Singh, 1984; Singh et al., 1997; Abrams et al., 1999). Many factors have been proposed to account for the poor regeneration or lack of survivorship from seedling to sapling, leading to the absence of saplings and young adults (Tyler et al., 2006). Little data exists on the structure of black oak populations throughout its distribution in California and Oregon (Tyler et al., 2006), but some recent data from Yosemite Valley (Angress, 1985; Kuhn & Johnson, 2008; Ripple & Beschta, 2008) and anecdotal accounts indicate the black oak population structure also resembles those of others where regeneration is lacking or very low.

Although black oaks may be an exception, a typical size class frequency distribution for a tree species is one called the reverse-J curve where the smallest size classes (i.e. seedlings and saplings) have the most individual trees, each larger size class (i.e. saplings, adults) has fewer individual trees, and the largest size class (i.e. adults) has the fewest number of trees (Harper, 1977). This demographic structure is caused by density-dependent competition for limited resources such as light, water, and nutrients, and predation. In the early life stages (i.e. smaller size classes), mortality rates are high, with a small proportion of a size class surviving into the next, larger size class. Mortality rates decrease as individuals get older. Once a tree becomes large enough, mortality rates decline considerably and most then live to an old age.

A leading hypothesis to explain the commonly found lack of regeneration in oaks and other species in protected areas is that an overabundant ungulate (deer or elk) population is overbrowsing the seedlings, leading to high mortality rates. This hypothesis is supported by considerable research and observations from Yosemite (Dixon, 1944; Gibbens & Heady, 1964; Heady & Zinke, 1978; Kuhn & Johnson, 2008; Ripple & Beschta, 2008), California (Kuhn, 2010), other parks (Wolf & Cowling, 1981; Hebblewhite et al. 2005; Bestcha, 2005; Ripple & Bestcha, 2006), and the United States (Stromayer & Warren, 1997; Waller & Alverson, 1997). Cote et al. (2004) offer an excellent literature review on the impacts of overabundant deer populations on many forest tree species. It has long been known and documented that protected areas such as national parks contain an overabundance of ungulate species such as deer and elk (Cahalane, 1941; Leopold et al., 1963; Porter & Underwood, 1999).

This indicator has two components that monitor the status and long-term health of adults in two key stands of black oaks in Yosemite Valley (the Schoolyard and El Capitan stands). Status is monitored by tracking the number of adults over time, and long-term health is monitored by measuring saplings and non-saplings (i.e. adults) and calculating the ratio of saplings to non-saplings. Together, these two components provide a quick but informative look at the status and long-term health of the stands.

For the first component, it is important that the number of adults remain within an acceptable range. The number of adults should stay relatively steady in order to maintain the quality and character of the woodlands, as well as to reproduce and create new individuals. Although uncertain and variable, California black oaks likely become reproductive adults when they reach a size of between 10 and 20 cm diameter at breast height (dbh). Although many individuals in the "sapling" stage (<20 cm dbh) produce acorns and are technically adults, adults are defined as individuals > 20 cm dbh. The number of adults has likely been fairly stable over the recent past, though there continues to be slow punctuated adult mortality. The number of adults should not experience a further significant decline.



For the long-term health of the two stands, there should be adequate recruitment into the critical sapling stage. Between 1.3 meters (the height at which dbh measurements can be taken) and 2.0 meters in height, saplings are able to escape deer browsing and survival rates are much higher than for earlier stages of growth. Thus, saplings are defined as individuals > 1.3 meters tall and < 20 cm dbh. Based on the assumption that California black oak follows an expected demographic frequency distribution (based on the common reverse-J curve model), there should be many more saplings than the number of adults in the largest size classes.

The proposed management standards are based on the assumption that a healthy black oak population size structure should follow the common reverse-J curve model. However, it is possible that black oaks and even oaks in general have highly episodic recruitment. This would create a population size structure frequency distribution with multiple peaks and troughs. Existing data indicate that there has not been strong episodic recruitment in at least the last 90 years. While recruitment may still be episodic, it is unlikely that episodes occur on time scales of 90 years or longer. Given the current size structure of the Yosemite Valley black oak population and the extensive research on the effects of ungulates on oak and other tree population demographics, it is likely that the pattern of very low recruitment in the last 90 years is not a naturally occurring pattern.

### ***Management Standard***

There are two components to the management standard for two key stands of black oaks in Yosemite Valley (the Schoolyard and El Capitan stands): 1) the number of adults; and 2) the ratio of saplings to non-saplings for all black oaks taller than 1.3 meters. For adult oaks, the proposed management standard is at least 85% of adult oaks, when compared to the 2008 baseline. For the ratio of saplings to non-saplings, the proposed management standard is a ratio greater than 0.5. The expected size class frequency distribution based on data collected by Kuhn & Johnson (2008) is a ratio of saplings to non-saplings of 0.65. Since the management standard applies to the entire segment, the management standard considers the total number of adults and the ratio in the two stands; however, the trigger points described below apply to the individual stands, since trigger points are designed to maintain conditions above the management standard.

### ***Adverse Effect***

An adverse effect would be the number of adult California black oaks (i.e. > 20 cm dbh) declining by at least 20% compared to the 2008 baseline.

### ***Degradation Standard***

Degradation would be the number of adult California oaks (i.e. >20 cm dbh) declining by at least 25% compared to the 2008 baseline.

### ***Monitoring - California Black Oak***

California black oak is a slow growing species, and adult mortality rates are also low (though quite variable year to year), thus monitoring can be conducted on long time scales. The two key stands of black oaks in Yosemite Valley (the Schoolyard and El Capitan stands) would be monitored every five years.

The first trigger point would be a decline in the total number of adult oaks of 15% in either stand compared to 2008 baseline, or a decline in the sapling-to-non-sapling ratio to 0.55 or less (Table 5-19). Management actions to respond to trigger points would be active restoration, including deer and rodent exclusion for

individual seedlings, saplings, parts of the stand, or all of the stand; planting acorns or seedlings; and possibly a reduction in visitor use. Deer protection can be applied to naturally recruited seedlings, and protection from deer and rodents can be applied to planted acorns or seedlings. Methods to protect planted acorns and seedlings have been used successfully in other restoration projects (Swiecki & Bernhardt 1991; Tyler et al. 2008) and can be applied in Yosemite.

**TABLE 5-19: MANAGEMENT ACTIONS AND TRIGGER POINTS TO MAINTAIN DESIRED CONDITIONS FOR YOSEMITE VALLEY AMERICAN INDIAN ETHNOGRAPHIC RESOURCES (CALIFORNIA BLACK OAK)**

Trigger Point(s) at Which Management Action Would Be Taken	Possible Management Actions	Rationale for Management Actions
<p><b>Trigger Point 1:</b> In either stand, total numbers of adults decline by 10% OR the ratio of saplings to non-saplings falls below 0.55.</p>	<p>Protect existing adults (particularly if the adult trigger is tripped)</p> <p>Protect existing saplings (particularly if the ratio trigger is tripped)</p> <p>Ecological restoration, primarily through planning of seedlings, possibly over a number of years</p> <p>Protect individuals of all age and size classes through fencing, removal of competing plants, fuel reduction, fencing, public awareness, signs, removal of facilities.</p> <p>Reduce deer browsing</p> <p>Reduce rodent pressure</p> <p>Reduce public use</p>	<p>0.65 is the expected ratio, notwithstanding natural variability, and management action when the ratio reaches 0.55 allows for a declining trend to be reversed before the management standard is reached. Similarly, management action when adult decline reaches 10% allows for a declining trend to be reversed before the management standard is reached.</p>

During ecological restoration, the success of management actions will be monitored annually to determine the success and further actions taken to mitigate any failures. Young saplings will require protection from deer until they are tall enough to escape heavy browsing. Mortality rates of all seedlings and saplings will be monitored annually to ensure sufficient survival rates into larger size classes. Periodically (every 3-10 years), the current population structure can be compared to an expected frequency distribution based on data collected by Kuhn & Johnson (2008) to determine relative success of the restoration actions. Saplings and young adults will continue to experience some mortality as they grow larger. Depending on conditions, it will take approximately 55 - 85 years (mean of 69 years) (Kuhn & Johnson, 2008; Ripple & Bestcha, 2008) for California black oak to grow into the adult size classes (> 20 cm dbh) in Yosemite Valley.

***Management Concerns and Protective Actions***

Management concerns arise when a trigger point is exceeded, indicating a river value does not meet management standards. Recent California black oak data from Yosemite Valley (Angress, 1985; Kuhn & Johnson, 2008; Ripple & Beschta, 2008) indicate that the sapling to non-sapling ratio is less than 0.55, requiring immediate ecological restoration to increase the number of saplings.

***Management Considerations and Enhancement Actions***

Management considerations related to ethnographic resources involve park operations, crowding, and visitor use.

Park operations have triggered changes in ethnographic resources by disturbing traditional use plant populations or changing access to these places. The *Merced River Plan/DEIS* would address these considerations through the following actions:

- Best management practices would ensure for the continuation of coordination between traditionally associated American Indian tribes, groups, and traditional practitioners (through the Park American Indian Liaison) with law enforcement, fire management, interpretation, invasive species, ecological restoration, and facilities management programs
- Best management practices would include operational guidelines for material staging areas, parking, etc. to protect ethnographic resources
- Crowding and high visitor use in Yosemite Valley during peak season can impact the ability of traditionally associated American Indians to access traditional use areas for various traditional cultural practices. The *Merced River Plan/DEIS* would address these considerations through the following actions: Under Alternatives 2-6, the visitor use management program would ensure access for traditionally associated American Indians for participation in annually scheduled traditional cultural events. In addition, tribal access for the personal conduct of traditional cultural practice would be assured through the Yosemite tribal fee waiver pass program.
- Document the Yosemite Valley Traditional Cultural Property, consisting of traditional use areas, spiritual places and historic villages. Work would build upon other focused mapping and condition assessment for traditional use plants and archeological sites proposed as part of a detailed assessment of the ethnographic component of the Cultural ORV in Segment 2. Work would happen in close collaboration with park-associated Indian tribes and groups, using staff expertise in cultural anthropology, botany, archeology and oral history. Methods would include compiling existing information gathered during previous ethnographic studies, filling gaps in the historical record through research in archival repositories, updating and expanding the oral history documentation, and complete detailed field mapping. Resulting information would be synthesized into a National Register nomination and interpretive summary for the Yosemite Valley Traditional Cultural Property.

Threats to traditionally used plant populations include invasive species such as Himalayan Blackberry (*Rubus armeniacus*), drainage and hydrology impacts to meadows, and erosion and revegetations that affect riparian vegetation. The *Merced River Plan/DEIS* would address these considerations through the following actions:

- The ecological restoration actions associated with this planning effort implemented in concert with the existing invasive plant management program would address impacts to some traditionally used plant populations in some locations.
- Restoration actions to protect riparian areas, meadows, and hydrological resources would further contribute to the protection and enhancement of the traditional use plant communities included in this ORV.

### ***Conclusion: Protecting and Enhancing ORV 8 (ethnographic resources in Yosemite Valley)***

The ethnographic component of the cultural ORV is determined to be absent of adverse effects and degradation. Management concerns and considerations are present, as a trigger point for the ratio of sapling to adult trees is exceeded. As a response, the NPS will introduce new seedlings in to the affected stands and protect as necessary to ensure high survival rates, with a goal to establish enough saplings so the ratio of saplings to all adults is at least 0.65. To address the management considerations, the *Merced River Plan/DEIS* proposes a variety of actions including continued coordination between traditionally associated American Indian tribes, groups, and traditional practitioners and the NPS; continued access for traditionally associated American Indians for participation in annually scheduled traditional cultural events; and

ecological restoration actions to protect and enhance traditionally used plant populations. To prevent future impacts, the NPS will monitor the condition of the ORV and take specific actions should additional trigger points be exceeded. Trigger points are selected to inform managers well in advance of this ORV's conditions falling to the level of the management standard.

## Cultural ORV—Yosemite Valley Archeological District

**ORV 9—The Yosemite Valley Archeological District is a linked landscape that contains dense concentrations of resources that represent thousands of years of human settlement along this segment of the Merced River.**

**Location:** Segment 2 (Yosemite Valley)

**Rationale:** Drawn by the year-round availability of water and the diversity of plants available for sustenance in Yosemite Valley, people have inhabited the valley for thousands of years, leaving behind an exemplary collection of archeological sites in the Yosemite Valley Archeological District. Many pre-contact and historic-era archeological sites are identified in ethnographic literature and native oral traditions, providing a rare example of the long and continuing association of people and places. While the landscape itself provides exemplary documentation of land use practices, many of the individual sites contain exceptional information with the potential to interpret not only ancient lifeways, but also cultural change at the period of contact with Euro-Americans. In addition to this regional and State-wide scientific and interpretive value, the sites have value to American Indian tribes and groups as a connection to their ancestors and an important component of their cultural patrimony. Because the archeological sites within the Yosemite Valley Archeological District comprise a complete system that is culturally and scientifically significant, both river-related and non-river related archeological sites are included in this ORV. Furthermore, archeological sites contained within this district but existing outside of the river corridor boundaries contribute to the significance and integrity of the historic property and are therefore included in this ORV.

**Management Objective:** Ensure protection and enhancement of the Yosemite Valley Archeological District as a whole, and ensure that human impacts are not adversely affecting the district's essential character and integrity.

### *ORV Condition at the Time of Designation (1987)*

The archeological district nomination completed in 1979 indicates that archeological resources retained integrity despite administrative and facility-related impacts, visitor use-related impacts, and ecological process-related impacts. At the time of designation, the following impacts had been documented to sites within the Yosemite Valley Archeological District:

- Construction of historic and contemporary facilities such as roads, trails, buildings, and utilities.
- Unauthorized excavation at one site - damage assessment determined that the site still contained intact subsurface deposits (Mundy and Hull 1988).
- Informal trails
- Intentional or inadvertent movement of artifacts or feature elements (such as displacement of rock alignments)
- Soil compaction
- Bouldering/rock-climbing and camping impacts that included ground-disturbing actions
- Tree falls
- Bioturbation - The disturbance of soil by living things (e.g., rodent tunneling).
- Erosion
- Rock fall

### ***Current ORV Condition***

The same types of impacts that were occurring at the time of designation continue to affect current site conditions. 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). The majority (47% or 56 sites) of Yosemite Valley Archeological District sites within the Merced River corridor are rated in “good” condition according to their most recent assessment scores (ASMIS). An additional 33% (39 sites) are in fair condition, and 18% (22 sites) are in poor condition. The corresponding disturbance severity levels for the visited sites show that 39% of the sites (47 sites) have low disturbance severity, with an additional 33% (39 sites) showing moderate disturbance severity, and 25% (29 sites) displaying severe disturbances (Darko 2011). Impacts may include soil compaction, vegetation damage, movement of artifacts, feature disturbance, and vandalism. Impact severity ranges from minor to severe, although most visitor-use impacts were characterized as minor or moderate. Seven sites were identified during recent visits as having experienced a moderate to severe degree of impact from visitor use (Middleton [NPS] 2009, 2010). One of the sites within the River corridor could not be relocated during a recent attempted field assessment (Darko 2011). The same types of impacts that were occurring at the time of designation continue to affect site conditions now.

### ***Management Program for ORV 9***

This section discusses the proposed management program for this ORV, including the indicator(s) to be used; the definitions of management standard, adverse effect, and degradation; and the monitoring program.

#### **Indicator – Condition of Yosemite Valley Archeological District**

The Yosemite Valley Archeological District is listed on the National Register of Historic Places (NPS 1978). The National Register of Historic Places (NRHP) defines an archeological district as “. . . a grouping of sites, buildings, structures, or objects that are linked historically by function, theme, or physical development or aesthetically by plan” (NRHP). Within the Yosemite Valley Archeological District, individual prehistoric sites form the collective character and significance of the district. Sites discovered after nomination would be evaluated and may be added to the district.

The NPS selected ‘archeological site condition’ as an indicator for this ORV. The indicator is the aggregate condition of the collection of archeological sites within the district. Site condition includes the general physical state of the site and associated material remains. Other key components of site condition are site stability, the potential for physical deterioration over time; and site integrity, the potential to convey information, setting, feeling, and association of previous historical eras to researchers, the public, and traditionally associated peoples.

Since 2007, the Archeology Visitor Use Program has annually monitored the range of visitor impacts and changes in site condition at a sample of archeological sites within the Tuolumne and Merced Wild and Scenic River corridors. Program methodology was originally modeled after similar archeology programs at NPS Flagstaff Area Monuments (Donnermeyer 2005; Gossart 2005) and Grand Canyon National Park (Dierker and Leap 2005, 2006), with subsequent modifications specific to Yosemite site types and visitation patterns (Middleton 2009:1). Project protocols were designed to fit within the larger Yosemite Visitor Use and Impact Monitoring Program framework and reporting standards (see NPS 2008a, 2008b, 2009a, 2009b).

The site monitoring protocol uses the NPS Archeological Sites Management Information System (ASMIS) format (NPS 2007a, 2007b), supplemented with data collection specific to human impacts. ASMIS, a management database developed by the NPS, tracks a broad range of information about documented archeological sites: site components, disturbances, current condition, cumulative disturbance effects, and management actions. ASMIS functions as a “tool to support improved archeological resources preservation, protection, planning, and decision-making by parks, regional offices, and the national program offices” (NPS 2007b). Archeological site condition has been assessed in Yosemite for several decades, but prior data collection does not always meet current professional standards. The visitor use protocol was designed to assess site condition and impacts using a systematic, consistent methodology.

ASMIS quantifies impacts (disturbances) in two ways: the effect on site condition and site damage severity levels. Condition effects are ranked on an ascending scale: negligible, partial loss repairable, partial loss irretrievable and total loss irretrievable. Impacts with negligible effects can cause minor damage to the physical condition of the site, with little to no loss of data potential or site integrity. Partial loss repairable effects result in minor damage to the site that can be reversed or ameliorated through treatment or repair, such as careful removal of campfire rings or hand removal of fire fuel buildup. Partial loss irretrievable effects result in more serious damages that are not repairable, such as the partial collapse of a prehistoric rock feature from human alteration, or artifact movement from original context. Total loss irretrievable effects result in complete loss of the resource, as in site destruction from fire or vandalism (NPS 2007a).

Site damage from a disturbance is measured as low, moderate, or severe, based on areal extent or the amount of site integrity compromised (NPS 2007a; Bane 2011). These measurements take into consideration site type, data potential, and impact to site integrity. Destruction of a pictograph, for example, is highly damaging to site data potential even if the pictograph represents only a small physical area of site. Loss of the densest portion of a lithic scatter may be small in areal extent, but critically large for research potential if temporally diagnostic tools had been present in that locus. Previous data recovery at the site may mean some impacts are less damaging for data potential/integrity at the excavated locations.

The Archeology Visitor Use Program augments ASMIS data collection on each site disturbance with an assignment of disturbance causation: natural, park operations, visitor, or unknown. Both park operation and visitor disturbances are included in total site counts of human impacts. Potential park operation disturbances include road construction and maintenance, trail construction and use, utilities installation, building construction, controlled fire, ecological restoration, or scientific research. Unlike natural and visitor impacts, many park operation impacts in the last two decades are considered “undertakings”, and are addressed through treatment measures implemented before or during disturbance. The most common types of visitor disturbances include camping impacts, informal trails, climbing, and use by hikers and/or horses. Other less common visitor disturbances include damage to vegetation, damage to archeological ruins, stock use (picketing or corralling), soil compaction, dumping, off-road vehicle use, vandalism, and unauthorized collection of artifacts (looting).

### ***Management Standard***

For the Yosemite Valley Archeological District, the management standard is at least 80% of sites free from current serious human impacts that have not otherwise been addressed through treatment measures noted above for sites with low data potential, and at least 85% for sites with high data potential. Serious human impacts are single disturbances with partial or total loss irretrievable disturbance effects at moderate to severe site damage levels, or a series of three or more disturbances with partial or total loss - irretrievable

disturbance effects at low site damage levels. Unmitigated impacts are disturbances that have not been addressed through treatment measures noted above.

Current site conditions and human impact values for a sample of relevant Yosemite Valley Archeological District sites are shown below (Table 5-20). Results are drawn from Archeology Visitor Use site monitoring, 2007-2011, for a sample set of 60 sites (53%) from a total of 113 Yosemite Valley District sites relevant to the Merced River corridor ORV. Over a five year interval (2007-2011), 95% of high data potential sites and 93% of low data potential sites in the sample were considered free of serious human impacts, meeting the target management standards for the indicator.

**TABLE 5-20: PERCENTAGE OF YOSEMITE VALLEY ARCHEOLOGICAL SITES FREE OF CURRENT SERIOUS UNMITIGATED IMPACTS<sup>a</sup> IN A MONITORED SAMPLE SET (N=60)**

High data	Low data
95%	93%
<sup>a</sup> Note: Impacts with partial loss irretrievable effects with moderate to severe damage levels or multiple (≥3) impacts with low damage levels.	

In balancing visitor use and site preservation, some disturbances to resources can be acceptable if the site retains context and integrity (Fairley and Downum 2000). For archeological sites with estimated low data potential (i.e. small sites with few materials and no diagnostic artifacts, sites with a single feature such as a bedrock mortar, sparse lithic scatters, or heavily deteriorated sites), some amount of irretrievable damage may be allowable. This is particularly true for common site types in the district, such as small lithic scatters. The Management Standard allowance for numbers of low data sites with human impacts (20%, or 80% of sites free of serious unmitigated human impacts) represents a realistic management threshold for protection of the largest portion of sites (Donnermeyer 2005:33).

For sites with estimated high data potential (i.e. sites with multiple features, sites with diagnostic artifacts or dense artifact concentrations, documented historical sites, or sites with uncommon or unique attributes), the potential resource loss is greater, as is the impact to the district. A serious human impact or series of minor impacts resulting in irretrievable damage and loss at high data sites is less acceptable (Donnermeyer 2005). The Management Standard allowance for numbers of high data sites with human impacts for these effects (15%, or 85% of sites free of serious unmitigated human impacts) is therefore less.

***Adverse Effect***

An adverse effect, as defined in this context under WSRA, occurs when the number of sites free from current serious unmitigated human impacts falls to 60% for sites with low data potential, and 70% for sites with high data potential in a ten year monitoring interval.

The adverse effect represents a higher level of serious impact for both low and high data potential sites over a ten year interval of representative site sampling within the district. The 20% increase serves as a warning of long term downward trends in site condition, requiring stronger protective management actions before widespread individual site damages threaten the essential character of the aggregate archeological district (Donnermeyer 2005:33).

**Degradation Standard**

The ORV would be considered degraded should the archeological district be impacted to the extent that it is no longer eligible for listing in the National Register of Historic Places. This would occur if the district no longer meets the criteria for listing in the NRHP through deterioration and loss of integrity, of the “qualities which caused it to be originally listed have been lost or destroyed” (NPS 1997; 2004). A “degraded cultural resource” would typically no longer have status as a historic property, and its National Register status could not be restored through mitigation efforts, however would continue to exist as tangible cultural remains.<sup>29</sup>

**Monitoring – Condition of Yosemite Valley Archeological District**

Site condition assessments would be conducted for a representative sample of archeological sites within the district at 5-15 year monitoring intervals, following the assigned assessment (ASMIS) site inspection schedule (NPS 2007:66). The key source of feedback for adaptive archeological site management is the periodic, systematic analysis of collected site data, focused on management objectives (Kintigh et al. 2007). To achieve this feedback and assess trigger points for management actions, summary reporting of site monitoring results for the district would be compiled at five-year intervals to determine maintenance of the management standard. This five year interval for summary reporting and analysis of site data is the minimum reporting period necessary for accurate capture of human impacts over longer time spans (Bane 2011).

District re-evaluations would be completed at minimum of 25-year intervals to verify that the district has not been degraded. Table 5-21 lists triggers and specific management responses that would take place.

**TABLE 5-21: MANAGEMENT ACTIONS AND TRIGGER POINTS TO MAINTAIN DESIRED CONDITIONS FOR THE YOSEMITE VALLEY ARCHEOLOGICAL DISTRICT (CONDITION OF DISTRICT)**

Trigger Point(s) at Which Management Action Would Be Taken	Possible Management Actions	Rationale for Management Actions
The number of individual sites free from serious unmitigated human impacts falls to 90% or less for sites with low data potential, and falls to 95% or less for sites with high data potential in a monitoring interval.	<ol style="list-style-type: none"> <li>1. Increased monitoring frequency for affected sites.</li> <li>2. Increased management protection designed to counteract or minimize impacts, crafted to individual site specifications. Examples include:                             <ul style="list-style-type: none"> <li>• Site documentation, research, testing, or NRHP evaluation;</li> <li>• Site stabilization, re-vegetation, trail reroutes, trail removal;</li> <li>• Increased public interpretation and education;</li> <li>• Increased education for local user communities such as residents or climbers;</li> <li>• NRHP re-evaluations and/or data recovery at affected sites;</li> <li>• Development of comprehensive site management plans for large, complex sites in developed areas.</li> <li>• Initiate hard closures of individual affected sites, utilizing increased visitor education about human impacts and the necessity for closures. Site closure regulations would be represented within the superintendent’s compendium in order to allow legal enforcement.</li> </ul> </li> <li>3. At the district-wide level, NRHP nomination amendments to reflect changes in district integrity.</li> </ol>	The trigger range is set at 10% above standard violation, allowing identification of individual problem sites and localized areas and timely prescriptive actions before management standard levels are violated. The trigger range was selected from sampling results for five years of site impact monitoring within the district, and is based on best professional judgment of thresholds necessary to retain desired management standard.

<sup>29</sup> Because this ORV is defined by archeological districts, where the archeological ORV in the Tuolumne River Plan/DEIS is defined corridor-wide, the Merced River Plan/DEIS uses loss of eligibility as degradation. A more precise definition is needed in the Tuolumne River Plan/DEIS because that ORV includes several districts.



### ***Management Concerns and Protective Actions***

Management concerns occur when the condition of a resource has reached one of the trigger points identified in Table 5-21 below. There are currently no management concerns associated with the Yosemite Valley Archeological District.

### ***Management Considerations and Enhancement Actions***

The following site-specific management considerations occur in Yosemite Valley:

- Stock trail through sensitive midden deposit and formal hiking trail near a rock art feature impact sensitive cultural resources on archeological site CA-MRP-0046/47/74. Modern graffiti desecrates the rock art boulder.
- Stock use and operational staging cause impacts to archeological resources at site CA-MRP-0052/H.
- Exceptional site located at the modern-day Yosemite Village encompasses key characteristics of the Archeological District. The location of this site has many complex uses which may impact its integrity; however, the archeological site record has not been comprehensively updated in almost two decades.
- Heavily used formal trails and informal trails, as well as illegal campfires, graffiti, and trampling cause impacts to the prehistoric rock shelter and associated artifacts at archeological site CA-MRP-0057.
- Parking, rock climbing, camping, vandalism, human waste, fire rings and informal trails are impacting a prehistoric rock shelter and associated artifacts at site CA-MRP-0062.
- Camping, trampling, and trash are causing impacts to bedrock mortars (pounding rocks) at site CA-MRP-0080. Impacts to these important archeological features affects continuing use and association with these culturally significant resources.
- Rock climbing activities (“bolt ladder”) at a rock shelter boulder cause trampling of the near surface archeological deposit at CA-MRP-0082/H.
- Rock climbing (bouldering) activities on a rock art boulder and informal trails impact the archeological and ethnographic resources at CA-MRP-0158/309.
- Vehicular and bike traffic along a dirt access road affects surface and subsurface archeological resources at CA-MRP-0190/0191.
- Non-technical climbing on a large bedrock mortar (pounding rock) causes impacts to the archeological resource at site CA-MRP-0240/0303/H. This type of visitor use on the bedrock mortar affects continuing use and association with these culturally significant resources.

Archeological resource protection would be achieved through actions in this plan to manage visitor use levels, using natural features to conceal and divert foot traffic around sites, removing informal trails, and formalizing river and meadow access locations, mitigating ecological restoration practices by using noninvasive techniques wherever possible. Many of the actions related to ecological restoration in Segment 2, such as delineating roadside parking, would also help protect archeological sites by diverting foot traffic away from sites and into less sensitive areas.

Site-specific treatment actions would be developed through site management plans, where necessary, to avoid resource loss through park actions (such as development, repair, and maintenance of facilities and underground utilities to support visitor use or natural forces).

Management considerations for this ORV also involve continuing survey and documentation needs. The national register nominations for all three archeological districts require updating to include additional inventory, discussion of archeological studies conducted in the past 30-plus years, refinement of research issues, a list of which sites are contributing elements, a more inclusive approach to the National Register criteria, and development of a more comprehensive approach to management of the district. Although Darko (2011) made substantial progress in bringing site documentation up to current standards for the resources in the corridor, additional work remains for all three of the districts, which the NPS will continue to do.

**Conclusion: Protecting and Enhancing ORV 9 (Yosemite Valley Archeological District)**

The Yosemite Valley Archeological District is absent of adverse effects, degradation, and management concerns (conditions that exceed management triggers, for example). Management considerations are present. To remedy management considerations, the Merced River Plan/DEIS proposes a variety of actions to address specific considerations in Alternatives 2-6 including removal of informal trails, non-essential roads, and infrastructure that are either causing ongoing impacts to archeological sites or facilitating visitor use that is in turn causing ongoing impacts. The NPS would also delineate bike paths, roads, and other infrastructure away from sensitive cultural and ethnographic resource areas; remove graffiti at rock art and other sensitive features, conduct public education to discourage climbing, and remove climbing hardware from sensitive features. To prevent these considerations, or others, from redeveloping, the NPS would monitor the condition of the ORV, and take specific actions should conditions exceed specific trigger points. Trigger points are selected to inform managers well in advance of adverse effects or degradation impacts.

**Cultural ORV—Yosemite Valley Historic Resources**

<p><b>ORV 10—The Yosemite Valley Historic Resources represent a linked landscape of river-related or river-dependent, rare, unique or exemplary buildings and structures that bear witness to the historical significance of the river system.</b></p>	
<p><b>Location:</b> Segment 2 (Yosemite Valley)</p>	
<p><b>Rationale:</b> Yosemite Valley is an intact and always controversial experiment between people and place, one that began in the mid-19<sup>th</sup> century within a few years of the arrival of non-native settlers intent on preserving a “natural” landscape through its development and management as a public park. The Yosemite Valley Historic Resources ORV, and the complex Yosemite Valley Historic District cultural landscape it sits within, is the direct result of this profoundly significant experiment. The Yosemite Valley Historic Resources ORV reflects the remarkable historical values of the Merced River, and is tangible evidence of the dynamic relationship between people and place as preserved in the nationally significant Yosemite Valley Historic District.<sup>1</sup> Together, the river corridor, its attendant resources, and the Yosemite Valley Historic District form the cultural landscape of the Yosemite Valley Historic Resources ORV.<sup>2</sup> The Yosemite Valley Historic Resources ORV thus represents a collection of river-related or river dependent, rare, unique or exemplary<sup>23</sup> buildings and structures. These include The Ahwahnee and the LeConte Memorial Lodge (the National Historic Landmarks within the river corridor) and other important buildings and structures noteworthy for their historic, architectural, engineering, or aesthetic values.<sup>4</sup> Many of the valley’s historic bridges, such as Stoneman, Ahwahnee, Sugar Pine, Yosemite Creek, Tenaya Creek, Clarks, and Happy Isles bridges, represent the first series of bridges built by the Bureau of Public Roads specifically for the National Park Service.<sup>5</sup> The following individual elements comprise the collective Yosemite Valley Historic Resources ORV:</p>	
<ul style="list-style-type: none"> <li>• The Ahwahnee (NHL)</li> <li>• The LeConte Memorial Lodge (NHL)</li> <li>• Yosemite Valley Chapel</li> <li>• Vernal Fall Comfort Station</li> <li>• Nature Center at Happy Isles (Fish Hatchery)</li> </ul>	<ul style="list-style-type: none"> <li>• Sugar Pine Bridge</li> <li>• Clark’s Bridge</li> <li>• New Happy Isles Bridge</li> <li>• Tenaya Creek Bridge</li> <li>• Yosemite Creek Bridge</li> </ul>

- Residence 1 (Superintendent’s House)
- Ahwahnee Bridge
- Pohono Bridge
- Stoneman Bridge
- El Capitan Bridge
- 3 Bridalveil Fall Trail bridges
- Mist Trail

The ORV is the collective or collection of these character defining elements, which together make up the Yosemite Valley Historic Resources ORV; no single element defines the ORV. The Yosemite Valley Historic Resources ORV is embedded within the larger natural and cultural systems of Yosemite Valley, and therefore represents the river-related or river-dependent elements of the Yosemite Valley Historic District and its landscape characteristics:<sup>6</sup>

**Buildings and Structures:** The buildings and structures included in the collective are those that lie within the river’s corridor and are related to the river through design, siting or function. They continue to support ongoing human use of the river, and represent development spanning the years between the mid-19<sup>th</sup> and mid-20<sup>th</sup> centuries related to Euro-American settlement, Army administration, and important stages in development of the National Park Service Rustic Architectural style, chronicling the evolving definition of what is considered “appropriate” park architecture in a prized natural setting.

**Circulation:** The bridges included in the collective support the looping patterns of circulation north and south, east and west across the Merced River and its tributaries in Yosemite Valley

**Spatial Organization:** The design, composition, and sequencing of outdoor spaces in Yosemite Valley is reflected in the patterning of historic development

**Management Objective:** The Yosemite Valley Historic Resources ORV will be managed to ensure protection and enhancement of this historic development system and its setting. Protection and enhancement entails ensuring that human activities do not adversely affect (per WSRA) the collective ORV or the landscape characteristics of the Yosemite Valley Historic District, within the river corridor, described above. While individual elements of the collective ORV may be lost, the collective of elements will continue to represent the important historic patterns of development in Yosemite Valley, and reflect the important landscape characteristics of the Yosemite Valley Historic District.<sup>7</sup>

<sup>1</sup> The Yosemite Valley Historic District is a historic property listed in the National Register of Historic Places. The district is comprised of 929 contributing resources: 302 buildings, 16 sites, and 611 structures. Significant character-defining features of this district include its spatial organization, historic land uses, and architecture. The district is nationally significant under Criterion A for its association with the history of natural resource conservation and western expansion and exploration. It is also nationally significant under Criterion C for its nationally significant architecture represented by three National Historic Landmarks, and historic developed areas (Yosemite Village and Camp Curry). The nomination can be accessed online at <http://www.nps.gov/yose/historyculture/upload/Yosemite-Valley-Historic-District.pdf>.

<sup>2</sup> The Yosemite Valley cultural landscape is described in the National Register of Historic Places Nomination for the Yosemite Valley Historic District. The landscape characteristics of natural systems and features, spatial organization, vegetation, circulation, land use, and views and vistas contribute to the historically significant character of the Yosemite Valley Historic District; however, they are not counted as contributing resources in the nomination.

<sup>3</sup> These terms reference Wild and Scenic Rivers Act criteria for an outstandingly remarkable value (ORV).

<sup>4</sup> These values are defined as the criteria for inclusion in the National Register of Historic Places: The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or (b) that are associated with the lives of persons significant in our past; or (c) that embody distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or (d) that have yielded, or may be likely to yield, information important in prehistory or history.

<sup>5</sup> These were designed and constructed as models for bridges in national parks, with review by the Commission of Fine Arts, personal involvement from Stephen Mather and Horace Albright, and careful consideration for their architectural authenticity. Previously (and incorrectly) documented as reinforced concrete with stone veneer (see the 1977 National Register Nomination for the Yosemite Valley Bridges), they were instead constructed using authentic arched stone vaults. They are significant for their engineering, their architecture, and their aesthetics -- as intrinsically beautiful structures, as important vantage points for viewing the river, and as scenic features in a sublime natural setting. (National Park Service: “Historic American Engineering Record: Written Historical and Descriptive Data, Yosemite National Park Roads and Bridges, Yosemite National Park, Mariposa County, California [HAER No. CA-117].” USDI National Park Service, Washington D.C., 1991).

<sup>6</sup> The term landscape characteristics is defined in the National Register Bulletin: Guidelines for Evaluating and Documenting Rural Historic Landscapes, available online at <http://www.nps.gov/history/nr/publications/>. According to the bulletin, “landscape characteristics are the tangible evidence of the activities and habits of the people who occupied, developed, used, and shaped the lands to serve human needs; they may reflect the beliefs, attitudes, traditions, and values of these peoples.” The characteristics include both processes influential in shaping the land, and physical components that are evident on the land: Land Uses and Activities; Patterns of Spatial Organization; Response to the Natural Environment; Cultural Traditions; Circulation Networks; Boundary Demarcations; Vegetation Related to Land Use; Buildings, Structures, and Objects; Clusters; Archeological Sites; and, Small-scale elements.

<sup>7</sup> The concept of “integrity” used here is defined in relation to the National Register of Historic Places as “the authenticity of a property’s historic identity, evidenced by the survival of physical characteristics that existed during the property’s prehistoric or historic period. Historic integrity is the composite of seven qualities: location, design, setting, materials, workmanship, feeling, and association.”

### ***ORV Condition at the Time of Designation (1987)***

The landscape of Yosemite Valley is a continually evolving natural and cultural system that has changed in response to successive American Indian, private, state and federal government management strategies, increasing visitation, and incremental loss of historic features and land uses. At the time of designation (1987), the individual elements of the Yosemite Valley Historic Resources ORV were in essentially the same physical condition and largely served the same function as they did historically. The primary impacts to the Yosemite Valley Historic Resources ORV at the time of designation were incremental changes in the historic setting, such as evolution of the circulation system (e.g., converting the eastern part of the system to shuttle-only, adding bicycle paths, accessible walkways, parking, shuttle stops, etc.), and the addition of new buildings and structures. Two of the buildings within the Historic Resources ORV had been adapted for new uses—the former Fish Hatchery was rehabilitated for public use a Nature Center, and Residence 1 (the Superintendent’s House) was abandoned as a residence and used for administrative offices until the 1997 Flood, when all use of it ceased. The Yosemite Valley Historic Resource ORV’s setting, consisting of the Yosemite Valley Historic District and cultural landscape, had been altered by changes in vegetation management practices, removal and replacement of bridges and other facilities, and addition of new facilities. Changes in the natural systems and features are documented under other ORV discussions above, largely consisting of conifer encroachment into meadows, scenic vistas, and black oak woodlands.

### ***Current ORV Condition***

Many of the changes to this ORV identified above continue to the present. It is important to recognize that change is inherent in the Yosemite Valley landscape, and that the Yosemite Valley Historic Resources ORV cannot be managed as a museum piece. As with any cultural system, change is not only tolerated, but it is also embraced for the system to remain vibrant. For example, The Ahwahnee has undergone initial phases of a planned comprehensive rehabilitation to address code compliance for fire protection, egress, accessibility, and other issues to improve its functionality and operational efficiency as a luxury lodging establishment. The work will adversely affect some aspects of the NHL historic property (for example, introduction of non-historic elements to provide emergency egress, reconfiguration of some significant interior spaces to achieve accessibility); however, measures have been implemented to minimize these effects to the extent feasible, as part of the process for complying with Section 106 of NHPA. Buildings and structures have been added to the setting of the Yosemite Valley Historic Resources ORV as part of the ongoing programs of visitor-use management and park administration in Yosemite Valley. Examples of these are the shuttle stop shelters constructed at The Ahwahnee and the LeConte Memorial Lodge NHLs. These structures were designed to complement the existing historic settings. Other elements of the Historic Resources ORV, most notably the Yosemite Valley Chapel and Residence 1 (the Superintendent’s House), were affected by the 1997 winter flood. The Chapel received preservation maintenance treatment to remediate the effects of inundation, while use of the Superintendent’s House was discontinued. The building was mothballed until a decision could be made regarding its disposition; it is currently in poor condition. The remaining buildings and structures of the Yosemite Valley Historic Resources ORV receive regular inspection and preservation maintenance.

### ***Management Program for ORV 10***

This section discusses the proposed management program for this ORV, including the indicator(s) to be used; the definitions of management standard, adverse effect, and degradation; and the monitoring program. This ORV may be influenced by management actions concerning visitor use management,

development and redevelopment, removal, loss or damage through catastrophic natural events, or changes in physical condition due to neglect. Management actions that change the individual elements and/or the larger cultural landscape setting can impact this ORV. The indicator discussed below monitors a primary aspect of the ORV's importance, the physical condition of the individual elements.

### **Indicator – List of Classified Structures Condition Assessments**

Given that the Yosemite Valley Historic Resources ORV is comprised of buildings and structures, this indicator is a collective measure of the physical condition of these individual elements. The NPS' List of Classified Structures (LCS) provides a mechanism that captures physical assessments of the condition of individual buildings and structures. The LCS will be used to obtain individual assessments of each building and structure at five-year intervals, and these individual assessments will be aggregated to form a collective assessment of the condition of the ORV.

The LCS Conditions provide a consistent means for assessing the condition of historic structures on a national basis. Condition levels are defined as follows:

**Good:** The structure and significant features are intact, structurally sound, and performing their intended purpose. The structure and significant features need no repair or rehabilitation, but only routine or preventative maintenance.

**Fair:** The structure is in fair condition if either of the following conditions is present:

- There are early signs of wear, failure, or deterioration, though the structure and its features are generally structurally sound and performing their intended purpose; or
- Deterioration or damage affects more than 15% of the structure.

**Poor:** The structure is in poor condition if any of the following conditions are present:

- The significant features are no longer performing their intended purpose;
- Significant features are missing;
- Deterioration or damage affects more than 25% of the structure; or
- The structure show signs of imminent failure or breakdown.

### ***Management Standard***

The management standard for this indicator is protection of at least 70% of the existing elements of the Historic Resources ORV in "good" condition, and none in "poor" condition, as defined by the LCS guidance. The condition of the NHL elements is weighted by a factor of two to account for their elevated level of significance.

Of the elements comprising this ORV, two of the NHL elements are in "good" condition, and 14 non-NHL elements are in "good" condition. Using the weighted factor described above, 60% of the collective's elements are in "good" condition, and one building—Residence 1 (Superintendent's House)—is in "poor" condition.

### ***Adverse Effect***

An adverse effect, as defined under WSRA, would be a noticeable deterioration in the condition of the collection of existing elements that comprise the ORV. Adverse effect would occur if either or both of the following conditions were met:

- 50% or more of the individual elements of the Historic Resources ORV assessed in “fair” condition
- Any NHL element assessed to be in “poor” condition, as defined by the LCS guidance
- 15% of the non-NHL elements assessed to be in “poor” condition, as defined by the LCS guidance

**Degradation Standard**

Degradation is quantified for this indicator as the point at which 50% or more of the ORV elements were assessed to be in “poor” condition.

**Monitoring – LCS Condition Assessments**

Monitoring would be conducted at all of the contributing elements at a five-year interval, in keeping with NPS standards for List of Classified Structures (LCS) condition assessments. This schedule would be augmented to provide reactive condition assessments at individual buildings and structures in response to unforeseen natural events (such as extreme flooding, fire, etc.) that are likely to have affected their condition. Monitoring results would be summarized and analyzed in this same five-year interval, or in response to any extreme unforeseen natural events.

**Management Concerns and Protective Actions**

Management concerns occur when the condition of an ORV has reached one of the trigger points identified in Table 5-22 below. The NPS monitors the condition of the individual elements of the Historic Resources ORV to assess whether its condition has reached or exceeded the trigger point value for this indicator.

**TABLE 5-22: MANAGEMENT ACTIONS AND TRIGGER POINTS TO MAINTAIN DESIRED CONDITIONS FOR YOSEMITE VALLEY HISTORIC RESOURCES (LIST OF CLASSIFIED STRUCTURES CONDITION ASSESSMENT)**

Trigger Point(s) at Which Management Action Would Be Taken	Possible Management Actions	Rationale for Management Actions
Damage or deterioration of five or more individual buildings or structures (15% of the collective ORV) that results in an LCS condition assessment of “fair”	<ol style="list-style-type: none"> <li>1. Increase the frequency of condition assessments for buildings and structures in “fair” condition</li> <li>2. Develop prioritized list of preservation actions based on severity of deterioration (addressing deterioration at NHL buildings and structures first)</li> <li>3. Preservation maintenance or repair to arrest ongoing deterioration and reverse damage</li> </ol>	The rationale for taking action at this threshold is to ensure repairs are made to reverse damage or deterioration noticeable at the collective level, and prevent the condition of buildings or structures from deteriorating to a “poor” condition. These corrective actions should arrest any ongoing deterioration, and return at one or more of the buildings or structures to “good” condition.

A management concern is present regarding the number of buildings and structures that have a currently-assessed condition of “fair.” Furthermore, Residence 1 (the Superintendent’s House) is in “poor” condition, which is also below the management standard. To address these concerns, general and specific responses would be required. Generally, preservation maintenance and/or repairs would occur, in keeping with the Secretary of the Interior’s Standards for Treatment of Historic Properties (NPS 1995), sufficient to return all of the NHL elements to “good” condition, and to arrest ongoing deterioration of other elements. The following specific measures would be implemented to address these management concerns:

- Follow the recommendations from the Ahwahnee Historic Structures Report (1997) and the Ahwahnee Cultural Landscape Report (2010) when redesigning the Ahwahnee Parking Lot to bring the Ahwahnee stone gate house and the Ahwahnee Parking Lot to “good” condition.

- Develop a Historic Structures Report for the LeConte Memorial Lodge NHL to determine the rehabilitation needs to bring the building to “good” condition.
- Rehabilitate Residence 1 (the Superintendent’s House) per the Historic Structure Report (Lingo 2012) to bring the building to “good” condition. This rehabilitation of the building will occur under all action alternatives, regardless of whether the building is relocated.

These specific actions would be further developed through consultation with the California State Historic Preservation Office and reflected in detail in the plan-specific programmatic agreement.

### ***Management Considerations and Enhancement Actions***

Management considerations related to the Yosemite Valley Historic Resources ORV would target improving the condition of buildings and structures that are currently in “fair” condition, and maintaining the condition of buildings and structures that are currently in “good” condition. There are no specific actions unique to the *Merced River Plan/DEIS* that would address these management considerations. Following is a list of current standard operating procedures that would enhance the contributing elements of the Yosemite Valley Historic Resources ORV:

- Continuing the active program of historic buildings and structures maintenance and repair in Yosemite Valley
- Maintaining the essential qualities of the individual historic developed areas in Yosemite Valley through documentation in the NPS’ Cultural Landscape Inventory program as well as by guidance in treatments identified in management documents, such as Cultural Landscape Reports and Historic Structure Reports
- Employing the Design Guidelines for Yosemite National Park’s recommendations for Yosemite Valley to ensure new development or redevelopment protects the Yosemite Valley Historic District’s essential historic character
- Periodically assessing and updating the National Register documentation for the Yosemite Valley Historic District as EIS-related management actions are implemented, to support its long-term management
- Periodically assessing and updating documentation for individual elements of the Historic Resources ORV or Yosemite Valley Historic District (historic structure reports, cultural landscape reports, individual National Register nominations for historic districts, National Historic Landmark documentation, for example), as management actions are implemented to support their long-term management

### ***Conclusion: Protecting and Enhancing ORV 10 (Yosemite Valley Historic Resources)***

The Yosemite Valley Historic Resources ORV is determined to be absent of adverse effects and degradation as defined by WSRA. Management concerns are present, with one structure in poor condition and the aggregate condition of the collection of elements falling below the management standard. As a response, the NPS will rehabilitate the Superintendent’s House (Residence 1) in keeping with the Secretary of the Interior’s Standards, with a goal of returning the building to “good” condition and utilizing it for a compatible contemporary use. The NPS will also document and interpret any building or structure threatened with removal or relocation. In this manner, while the individual tangible element or elements may be lost or moved, a record of their existence and historical significance will still be available to the public. To address management considerations, the *Merced River Plan/DEIS* does not propose any actions

beyond current standard operating procedures that include continuing the active program of maintenance for historic buildings and structures; employing existing design guidelines to ensure that new development or redevelopment complements the ORV and the Yosemite Valley Historic District; and periodically assessing and updating professional documentation for the historic resources.

### Cultural ORV—El Portal Archeological District

**ORV 11—The El Portal Archeological District contains dense concentrations of resources that represent thousands of years of occupation and evidence of continuous, far-reaching traffic and trade. This segment includes some of the oldest deposits in the region including the archeological remains of the Johnny Wilson Ranch, a regionally rare historic-era American Indian Homestead.**

**Location:** Segment 4 (El Portal)

**Rationale:** El Portal’s location midway between Yosemite Valley and the San Joaquin Valley made it an important place of settlement, subsistence, and trade along the Merced River. The steep, narrow canyon at El Portal includes river terraces with level lands on which villages were built. The presence of Great Basin and Pacific Coast artifacts indicates that El Portal was a location of continuous, far-reaching traffic and trade. The El Portal Archeological District encompasses an archeological landscape containing dense concentrations of resources representing some of the oldest deposits in the Sierra foothills, with data important to interpreting regional cultural history as old as 9,500 years. Particularly significant are the archeological remains of the Johnny Wilson Ranch, a rare example of an American Indian Homestead, which took advantage of the river as an irrigation source. In addition to the regionally significant scientific and interpretive value of the archeological district, the sites have value to park-associated American Indian tribes and groups as a connection to their ancestors. These groups maintain their rights to practice their religion and ceremonies as they have for thousands of years.

**Management Objective:** Archeological sites within the El Portal Archeological District would be monitored to ensure protection and enhancement of the district as a whole, and to ensure that human impacts are not adversely affecting the district’s essential character and integrity.

### *ORV Condition at the Time of Designation (1987)*

Sites within the El Portal Archeological District have been impacted by from historic development and more recent NPS administrative uses. Construction of the Yosemite Valley Railroad and Highway 140, logging, mining, concession operations, and park facility or residential construction had damaged 30% or more of eight sites listed in the district (NPS 1976). Four sites are known to have experienced particularly severe damage, most notably a large ancient village and cemetery developed for park infrastructure needs.

Sites have also experienced impacts from visitor use. Unauthorized collection of surface artifacts was presumed at several sites, although this type of impact is very difficult to document (NPS 1976). During excavations in 1959-1960, a significant amount of information was intact beneath the surface at some sites within the district (Fitzwater 1962).

### *Current ORV Condition*

The condition of the El Portal Archeological District has not changed significantly from the time of designation (Darko 2011). Recent information suggests that one site in the district exhibits evidence of moderate visitor use impacts. Also, bioturbation and impacts from the 1997 flood have impacted sites within the district.



## ***Management Program for ORV 11***

This section discusses the proposed management program for this ORV, including the indicator(s) to be used; the definitions of management standard, adverse effect, and degradation; and the monitoring program. This ORV utilizes the same indicator to monitor the aggregate condition of the collection of archeological sites within the district as the indicator described under Cultural ORV 9 – Yosemite Valley Archeological District (Table 5-21). The management standards, definitions of adverse effect and degradation, monitoring program, and trigger points are the same as described under ORV 9.

Human impact values for a sample of relevant El Portal Archeological District sites are shown below (Table 5-23). Results are drawn from archeology visitor use yearly site monitoring for a sample set of six sites (27%) from a total of 22 El Portal District sites relevant to the Merced River corridor ORV. Over a five-year interval (2007-2011), 100% of high data potential sites and 100% of low data potential sites in the sample were considered free of serious human impacts, meeting the management standards for the indicator.

**TABLE 5-23: PERCENTAGE OF EL PORTAL ARCHEOLOGICAL SITES FREE OF CURRENT SERIOUS UNMITIGATED IMPACTS<sup>a</sup> IN A MONITORED SAMPLE SET (N=6)**

High data potential	Low data potential
100%	100%
<sup>a</sup> Note: Impacts with partial loss irretrievable effects with moderate to severe damage levels or multiple ( $\geq 3$ ) impacts with low damage levels.	

## ***Management Concerns and Protective Actions***

Management concerns occur when the condition of a resource has reached one of the trigger points identified in Table 5-21. There are no management concerns associated with the El Portal Archeological District.

## ***Management Considerations and Enhancement Actions***

Management considerations for this ORV include abandoned infrastructure located on CA-MRP-0181/H in Rancheria, which impact an exceptional site containing diverse components and extremely sensitive cultural materials that are highly valued by traditionally associated American Indians. Also, informal trails, non-essential gravel roads, and visitor use contribute to archeological site disturbances at CA-MRP-0250/H and CA-MRP-0251/H in Old El Portal. To address these management considerations, the NPS will undertake the following actions:

- In recognition of the high cultural significance of CA-MRP-181 for traditionally associated American Indians, the site will be protected from any further development. A plan of action for addressing the abandoned infrastructure on the site will be developed in consultation with traditionally associated American Indian tribes and groups. Any solution(s) developed will also include a recommended approach for deterring visitor use within the site.
- Informal trails, non-essential roads, and abandoned infrastructure would be removed to protect and enhance the archeological resources contributing to the ORV in Segment 4.
- Remove informal trails and non-essential roads.

**Conclusion: Protecting and Enhancing ORV 11 (El Portal Archeological District)**

This cultural ORV is absent of adverse effects and degradation. No management concerns are present, but some management considerations are present. These considerations will be remedied by removing informal trails and roads and addressing the abandoned infrastructure in site CA-MRP-181. To protect and enhance this ORV in the future, the NPS will monitor the condition of the ORV and take specific actions should specific trigger points be reached. Trigger points are selected to inform managers well in advance of adverse effects or degradation impacts on this ORV.

**Cultural ORV—Regionally Rare Archeological Features, including Rock Rings**

<p><b>ORV 12—This segment includes regionally rare archeological features representing indigenous settlement and use along the South Fork of the Merced River at archeological sites with rock-ring features.</b></p>
<p><b>Location:</b> Segment 5 (South Fork Merced River above Wawona)</p>
<p><b>Rationale:</b> Three regionally rare prehistoric archeological sites are located in this segment of the South Fork of the Merced Wild and Scenic River corridor. The sites contain unique stacked rock ring constructions and rock alignments. Two sites also contain pine timber remains within the ring interiors or incorporated into the stacked rock courses. Stacked rock ring structures are highly uncommon in the park (Hull and Moratto 1999:27) and their function is unknown. The rings may be associated with hunting activities at the nearby soda springs, a natural source of salt for animals (Knieriemen 1976). To date, no sub-surface testing, dendrochronological analysis, or data recovery has been conducted at the rings.</p> <p>Rock constructions are considered fragile and highly subject to human alteration from camping and campfire building disturbances. Two of the South Fork sites are adjacent to formal NPS trails, increasing the likelihood of disturbance. Damage assessments at similar rock ring sites near Johnson Lake in the southern portion of the park over two decades have noted rock ring features disassembled for use in fire rings, alignments cleared for sleeping or tent placement, and recent fire rings within features (Jackson 2005; Curtis 2011; Curtis and Darko, 2012). The latter disturbance is particularly threatening for rare wood elements at the South Fork sites, opening the possibility of opportunistic use as campfire fuel before scientific analysis can be conducted. Human impacts noted, but not formally documented, at Wilderness Historic Resource Survey (WHRS) Structure 53 include campfire rings and garbage within the rock feature, structural alterations, and rock “furniture” constructed near the feature (Montague 2005).</p> <p>Two of the sites, CA-MRP-2296 and CA-MRP-2363, were documented and monitored for site condition in 2010. A third site, WHRS Structure 53, has not been recorded to current Yosemite standards (Snyder 1992; Montague 2005). The vicinity of the sites has not been systematically surveyed, and it is possible that additional rock ring sites may be present along the South Fork. Should additional rock ring sites be discovered in the monitoring process, they will also become a part of the South Fork ORV.</p>
<p><b>Management Objective:</b> Prehistoric archeological sites with rock rings along the South Fork of the Merced River above Wawona will be monitored to ensure that human impacts do not adversely affect the essential character and integrity of the sites.</p>

**ORV Condition at the Time of Designation (1987)**

Knierieman (1976) penned a short paper that described stacked rock rings with timbers within this river segment, their locations, associated artifacts, estimated temporal affiliations, and known impacts (1976). At the time, Wilderness campers had reportedly destroyed at least one feature in a different area. Knierieman described the features as being in a “dilapidated condition” from natural processes. To date, no sub-surface testing, dendrochronological analysis, or data recovery has been conducted at the rings.

### ***Current ORV Condition***

A Wilderness Historic Resources Survey conducted in 1992 reported that campers had built a bonfire in one of the rock-ring features, destroying any remnants of the wooden timbers (Snyder 1992). No impacts were noted at a second rock-ring feature. Re-visitation and formal documentation as part of the park's archeological assessment program in 2000 (Quinn 2001) and 2002 (Jackson and Hagen 2007) reported two of the sites in fair and good condition, with natural erosional processes and vegetation growth the only sources of impacts. A 2005 visit of the sites noted that one of the features had been partially rearranged by campers to create campfire rings and a rock "table;" this was the same feature that Snyder had earlier reported a bonfire (Montague 2005). Garbage was also noted at this feature, approximately 10 meters from a hiking trail.

### ***Management Program for ORV 12***

This section discusses the proposed management program for this ORV, including the indicator(s) to be used; the definitions of management standard, adverse effect, and degradation; and the monitoring program. The NPS would monitor the condition of this ORV in conjunction with the Wawona Archeological District (ORV 13), using the same management standards, definitions for adverse effect and degradation, indicators, triggers, and management response to triggers.

### **Indicator - Condition of Individual Rock-Ring Sites**

The indicator is the condition of individual rock-ring sites. Site condition includes the general physical state of the site and associated material remains; site stability, or potential for physical deterioration over time; and site integrity, the potential to convey information, setting, feeling, and association of previous historical eras to researchers, the public, and traditionally associated peoples.

Archeological site condition was chosen as an indicator because this characteristic is sensitive to human disturbance, an observable harmful effect on the integrity or data potential of a site resulting from human activity. There is a direct relationship between the degree of site disturbance and current site condition (NPS 2007a). Site disturbances, or impacts, can lead to the irretrievable loss of archeological resources at the individual site level (NPS 2007b). The cumulative loss of individual site resources within the ORV group can ultimately result in degradation of the ORV as a whole.

### ***Management Standard***

The management standard for the sites is to sustain three or fewer serious human impacts to the rock-ring ORV site group in a five-year monitoring interval. This impact maximum may occur at a single site (one site receives three disturbances) or be spread over multiple sites (each site receives one disturbance). Serious unmitigated human impacts are single disturbances with partial or total loss irretrievable disturbance effects at moderate to severe site damage levels, or a series of three or more disturbances with partial or total loss—irretrievable disturbance effects at low site damage levels. Unmitigated impacts are disturbances uncorrected by management action under regulatory context such as Section 106 of the National Historic Preservation Act.

Current site condition and impact numbers are indicated in Table 5-24. Results are drawn from Archeology Visitor Use yearly site monitoring, 2007-2011, Wilderness Historic Resources Survey (WHRS) in 1992, and project field reports in 2005. The two recorded sites are currently in good condition with no reported

human impacts and meet the management standard. A third undocumented prehistoric site, WHRS Structure 53, has 1-2 informally reported human impacts. While the site appears to meet the management standard, the purported impacts may trigger immediate management actions for site preservation.

**TABLE 5-24: CURRENT SITE CONDITIONS OF INDIVIDUAL ROCK RING ARCHEOLOGICAL FEATURES**

Site No.	Site Condition 2010	Human Impacts
CA-MRP-2296	Good	0
CA-MRP-2363	Good	0
WHRS Structure 53	Unknown	1-2*
* Noted but not formally documented or condition assessed by Montague (2005).		

In balancing visitor use and site preservation, some disturbances to resources can be acceptable if the site retains context and integrity (Fairley and Downum 2000). For sites with estimated high data potential, such as rock ring sites with unique attributes, the potential resource loss is greater, particularly given the small number of sites known to make up the ORV. A serious human impact or series of minor impacts resulting in irretrievable damage and loss at high data sites is less acceptable in such cases (Donnermeyer 2005:43), and the management standard (a maximum of three impacts in a monitoring interval) targets appropriate site protection levels based on professional judgment of condition assessments at similar sites within the southern portion of the park (Jackson 2005; Curtis 2011; Curtis and Darko 2012).

***Adverse Effect***

Adverse effect occurs when human disturbances to the rock ring ORV site group exceeds three serious human impacts in a five-year monitoring interval. This impact may occur at a single site (i.e. one site receives four disturbances) or be spread over multiple sites (i.e. each site receives one or more disturbances).

The adverse effect represents a 33% increase in site standard violations over a five-year time span. The increase serves as a warning of long term downward trends in site condition, allowing for protective management actions before widespread site damages threaten the essential character of the ORV (Donnermeyer 2005:33).

***Degradation Standard***

Degradation occurs when two or more sites comprising the ORV show severe disturbance severity levels and poor site conditions due to human impacts.

Severe disturbance levels indicate a prior history of disturbances causing major site damage. Sites or major portions of sites will likely be lost if actions to protect and/or preserve are not taken within two years. Poor site conditions result from multiple current disturbances causing loss of site features or key areas that define primary site function and are critical to site data potential for historical or scientific research. Such losses make it difficult to utilize any remaining site data (NPS 2007). The combination of prior and current damage causes a near total loss of site significance and integrity. When the majority of sites (≥2) within this small collection of rare site types lose significance and integrity, the essential value of the ORV is lost.

**Monitoring – Condition of Archeological Sites in High Elevations of the South Fork Merced River**

Monitoring would occur in Segment 5, South Fork above Wawona. Site condition assessments will be conducted for the rock ring sites at 5-10 year monitoring intervals, following the assigned ASMIS site inspection schedule. Given the sites’ remote locations, a 10 year monitoring interval may be appropriate if site documentation is fully completed (NPS 2007b). Monitoring and full site recording at WHRS Structure 53 will be regarded as a high priority due to lack of formal documentation and unknown condition, and will be conducted at the earliest possible opportunity in the site monitoring schedule.

The key source of feedback for adaptive archeological site management is the periodic, systematic analysis of collected site data, focused on management objectives (Kintigh et al. 2007). To achieve this feedback and assess trigger points for management actions, summary reporting of site monitoring results for the aggregate site group will be compiled at five year intervals to determine maintenance of the management standard and avoidance of adverse effects or degradation. This five year interval for summary reporting and analysis of site data is the minimum reporting period necessary for accurate capture of human impacts over longer time spans (Bane 2011:43). Table 5-25 lists triggers and specific management responses that would take place should conditions reach the trigger points.

**TABLE 5-25: MANAGEMENT ACTIONS AND TRIGGER POINTS TO MAINTAIN DESIRED CONDITIONS FOR REGIONALLY RARE ARCHEOLOGICAL FEATURES (INDIVIDUAL ROCK RING SITES)**

Trigger Point(s) at Which Management Action Would Be Taken	Possible Management Actions	Rationale for Management Actions
A. One (1) serious human impact to a rock ring site in a five-year monitoring interval.	A. Increased monitoring frequency at affected sites and other ORV sites within vicinity. This may include archeological monitoring and /or Law Enforcement/ backcountry ranger monitoring.	A. Extreme component vulnerability and high research potential at rare rock ring sites requires increased monitoring frequencies after single cases of serious disturbances.
B. Two (2) serious human impacts to the rock ring ORV site group in a five year monitoring interval. This impact may occur at a single site (i.e. one site receives two disturbances) or spread over multiple sites (i.e. two sites receive one disturbance each).	B. Increased management protection designed to counteract or minimize impacts, crafted to individual site specifications or to site group. Examples include: <ul style="list-style-type: none"> <li>• Site documentation, research, testing, or NRHP evaluation;</li> <li>• Dendrochronological analysis of rare wood elements;</li> <li>• Site stabilization, re-vegetation, trail reroutes, trail removal;</li> <li>• Increased outreach/education to permitted users such as backpackers;</li> <li>• Data recovery at affected sites;</li> <li>• Closure of areas to camping, utilizing law enforcement monitoring and increased visitor education about human impacts and the necessity for closures. Area closure regulations will be represented within the superintendent’s compendium in order to allow legal enforcement.</li> </ul>	B. Extreme component vulnerability and high research potential at rare rock ring sites requires timely management prescriptive actions before management standard levels are violated.

**Management Concerns and Protective Actions**

Management concerns occur when the condition of a resource has reached one of the trigger points identified in Table 5-25 above. There are no management concerns associated with the two recorded sites along the South Fork Merced River. A third undocumented prehistoric site (WHRS Structure 53) has one to two informally reported human impacts. While the site appears to meet the management standard, the purported impacts may meet one or both of the triggers identified in Table 5-25, depending on whether the

human impacts are serious. If they are, management concerns are present at that site, and NPS will take immediate management actions for site preservation.

**Management Considerations and Enhancement Actions**

Management considerations for this ORV include wilderness camping, which can disturb rock ring features when campers move rocks to create fire pits or use wooden material associated with archeological features for firewood, and informal trails and visitor use, which can cause ground disturbing impacts to surface and sub-surface archeological resources at CA-MRP-0218.

To remedy these considerations, NPS will:

- Complete documentation of the features. Restrict Wilderness camping in the area of the rock rings (camping allowed past particular marker). Remove informal trails and charcoal rings.
- Increase education and outreach to Wilderness travelers.

**Conclusion: Protecting and Enhancing ORV 12 (regionally rare archeological features)**

This cultural ORVs is determined to be absent of adverse effects and degradation, although management considerations are present. To remedy these considerations, the NPS would complete documentation of rock ring features, evaluate the need for scientific study through dendrochronological analysis, remove informal trails in the vicinity of archeological sites, and increase education and outreach to Wilderness travelers. To prevent future impacts, the NPS would monitor the condition of the ORVs, and take specific actions should specific trigger points be reached. Trigger points are selected to inform managers well in advance of adverse effects or degradation impacts on this ORV.

**Cultural ORV—Wawona Archeological District**

<p><b>ORV 13—The Wawona Archeological District encompasses numerous clusters of resources spanning thousands of years of occupation, including evidence of continuous, far-reaching traffic and trade. Segment 7 includes the remains of the U.S. Army Cavalry Camp A. E. Wood documenting the unique Yosemite legacy of the African-American buffalo soldiers and the strategic placement of their camp near the Merced River.</b></p>
<p><b>Location:</b> Segments 5 (South Fork Merced River above Wawona), 6 (Wawona Impoundment), 7 (Wawona), and 8 (South Fork Merced River below Wawona)</p>
<p><b>Rationale:</b> Because there are few springs and no talus shelters in the Wawona area, sites of human activity reaching back thousands of years are concentrated along the river. The presence of Great Basin and Pacific Coast artifacts indicates that Wawona was a location of continuous far-reaching traffic and trade. Sites in this district contain important information relevant to research regarding permanent and semi-permanent settlement along a particularly long mid-elevation meandering river. In addition to the regionally significant scientific and interpretive value of the archeological district, the sites have value to park-associated American Indian tribes and groups as a connection to their ancestors. These groups maintain their rights to practice their religion and ceremonies as they have for thousands of years.</p> <p>Physical remnants of the African-American Buffalo Soldiers’ late 19<sup>th</sup> and early 20<sup>th</sup> century federal protection of Yosemite National Park are present along the South Fork Merced River in Wawona. These reflect extremely rare African American army troop guardianship of national park lands. These are represented in the archeological remains of Camp A.E. Wood, the first Army headquarters in the park, which was situated near the South Fork and its year-round water source.</p>
<p><b>Management Objective:</b> Archeological sites within the Wawona Archeological District would be monitored to ensure protection and enhancement of the district as a whole, and to ensure that human impacts are not adversely affecting the district’s essential character and integrity.</p>

### ***ORV Condition at the Time of Designation (1987)***

When the Wawona Archeological District was determined eligible for listing in the National Register of Historic Places in 1979, it had undergone very little in the way of archeological testing or excavation. The statements of significance on the National Register nomination form were based largely on surface assemblages and the potential for subsurface deposits, rather than explicit knowledge of the nature of such deposits. This potential was confirmed when Ervin (1984) carried out limited auger testing at 24 sites and performed test excavations at nine of the sites during the field seasons of 1983 and 1984 in anticipation of a water/wastewater infrastructure project. The results of this investigation proved that many sites within the Wawona Archeological District contained intact, and in some cases deeply buried, cultural deposits with the potential to reveal much about the pre-contact inhabitants of the area. As a result of this fieldwork, plans for the infrastructure development were modified to avoid or reduce impacts to known sites, which kept them in overall excellent condition. Although substantial historic-period development has occurred within portions of the Wawona Archeological District, Ervin (1984) concluded that impacts mainly affected surface artifact assemblages and only limited portions of subsurface deposits, leaving intact cultural materials with the potential to address important research questions related to the long history of human habitation and use of the Wawona area.

After the departure of U.S. Army troops from Camp A.E. Wood, the area was abandoned for several years until a public campground—known as “Camp Hoyle”—was established in the same location. In 1951, the campground was enlarged, improved, and renamed Camp A.E. Wood (Sargent 1961). The Wawona Campground grew around the site, with the portion known as Camp A.E. Wood eventually incorporated into the popular camping spot. Archeological survey work conducted for the National Register nomination of the Wawona Archeological District noted the presence of significant historic-era cultural materials but did not explicitly connect any of these remains to the early Army camp or to the African-American soldiers assigned to park duty (NPS 1978). Further evaluation of several sites in the district during 1983-1984 fieldwork revealed a wealth of military and domestic artifacts related to Camp A.E. Wood, and possibly the early homestead of 1860s settler Stephan Cunningham, located within and adjacent to the current Wawona Campground (Ervin 1984). Square-cut nails, gun cartridges (a majority dating to 1899-1905), bullets, can fragments, bottle and window glass, and rotting wood were discovered in the top 6 centimeters of one of the test excavation units. During the 1983 field season, Ervin (1984) noted that disturbances to the historic-era component of the site were mainly a result of formal campground construction and maintenance, beginning with campsite and road grading, restroom construction, and other infrastructure development in the 1940s and continuing with the burial of modern campsite trash, casual collection of artifacts, and tent trenching practices. However, Ervin (1984) concluded that despite these impacts, the historic component of the site contained important information related to the U.S. Army’s use of the area and possibly to early homesteading activities, as well.

### ***Current ORV Condition***

Of the 29 Wawona Archeological District sites visited during the 2007-2009 field seasons, 13 sites were estimated to have experienced severe impacts. Nine additional sites had a moderate degree of disturbance, and seven sites had a low rate of impact. Visitor use impacts were present at all but three of the monitored sites (Middleton [NPS] 2008, 2009, 2010). A recent condition assessment of the total 59 sites in the Wawona Archeological District within the Merced River Corridor found that 33% (19 sites) are in good condition, with an additional 38% (23 sites) in fair condition (Darko 2011). Eleven of the sites are in poor condition,

while four could not be relocated during an attempted field visit, and two with unknown conditions were not visited as part of the project because they were outside the MRP study area. Darko’s 2011 report corroborated the earlier estimations of disturbance severity levels, with 20 sites (35%) exhibiting a low level of disturbance, 17 (29%) having a moderate disturbance severity level, and 12 (19%) showing severe impacts. Ten (17%) of the sites within the 2011 Wawona Archeological District study area could not be assessed for disturbance severity levels.

Ongoing use and maintenance of the Wawona Campground continues to present potential impacts to the archeological remains of U.S. Army Calvary Camp A.E. Wood. Extensive flooding in 1997 may also have contributed to impacts. Flood-related impacts to this site and others in the Wawona Archeological District were assessed in 1999 and 2004 (Montague and Valdez 2004). As of the most recent assessment, Camp A.E. Wood and the other examined sites in the district still possessed intact cultural deposits, but additional investigation of these sites was needed to more fully define their horizontal and vertical extent and integrity. Additional historical research was recommended to correlate the historic-era artifacts within the Wawona Campground to the occupation of the site by the U.S. Army Calvary troops (Montague and Valdez 2004).

Impacts seen at archeological sites within this ORV segment fall into largely the same categories as those noted in the Yosemite Valley and El Portal archeological districts: administrative/facilities-related impacts such as campground and infrastructure maintenance, visitor use impacts (including general trampling, artifact collection, and creation of informal trails), and natural impacts such as flooding and erosion.

**Management Program for ORV 13**

This section discusses the proposed management program for this ORV, including the indicator(s) to be used; the definitions of management standard, adverse effect, and degradation; and the monitoring program. This ORV utilizes the same indicator to monitor the aggregate condition of the collection of archeological sites within the district as the indicator described under Cultural ORV 9 – Yosemite Valley Archeological District. The management standards, definitions of adverse effect and degradation, monitoring program, and trigger points are the same as described under ORV 9 (Table 5-21).

Human impact values for a sample of relevant Wawona Archeological District sites are shown below (Table 5-26). Results are drawn from Archeology Visitor Use yearly site monitoring for a sample set of 36 sites (42%) from 86 Wawona District sites relevant to the Merced River corridor ORV. Archeological sites outside of the river corridor judged not to be river-related (Wawona Meadow) and sites completely or mostly on private land are not included in the district site total. Over a five year interval (2007-2011), 92% of high data potential sites and 94% of low data potential sites in the sample were considered free of serious human impacts, meeting the target management standards for the indicator.

**TABLE 5-26: PERCENTAGE OF SITES FREE OF CURRENT SERIOUS UNMITIGATED HUMAN IMPACTS<sup>a</sup> FOR A MONITORED SAMPLE SET (N=36), WAWONA ARCHEOLOGICAL DISTRICT, 2007-2011**

High data potential	Low data potential
92%	94%
<sup>a</sup> Note: Impacts with partial loss irretrievable effects with moderate to severe damage levels or multiple (≥3) impacts with low damage levels.	



Portions of the Wawona Archeological District fall outside of the Merced Wild and Scenic River corridor boundaries. Portions of the Wawona District are also privately owned or in mixed public/private ownership areas. Sites located completely or mostly on private land would not be included in monitoring assessments due to lack of NPS jurisdiction. Monitoring at CA-MRP-168/329/H, the location of historic Camp A. E. Wood, would be regarded as a high priority, and conducted at the earliest possible opportunity in the site monitoring schedule.

### ***Management Concerns and Protective Actions***

Management concerns occur when the condition of a resource has reached one of the trigger points identified in Table 5-21 under ORV 9, above. There are no management concerns associated with the Wawona Archeological District, as indicated by a five-year monitoring interval between 2007 and 2011.

### ***Management Considerations and Enhancement Actions***

There are several management considerations for this ORV: the Wawona Archeological District is subject to site-specific impacts from park operations, visitor use, artifact collection, vandalism, and ecological processes; visitor use at Wawona Campground is potentially causing localized adverse effects to site CA-MRP-168/329/H (Camp A.E. Wood), with ground disturbing activities potentially causing impacts to the shallow deposit of historic artifacts and features and modern campsites sometimes obscuring the historic setting of Camp A.E. Wood; informal trails and variety of operational and visitor uses cause ground disturbing impacts to surface and sub-surface archeological resources at CA-MRP-0008/H; and shoulder and off-road parking causing impacts to archeological resources on archeological site CA-MRP-0171/172/254/516/H. The following actions would help to address these issues:

- Increase monitoring frequency at affected sites.
- Increase management protection designed to counteract or minimize impacts, and craft to individual site specifications.
- At the district-wide level, revise the existing National Register nomination to reflect changes since its original writing, for example, incorporating newly discovered resources and documenting impacts.
- Remove seven campsites from Wawona Campground that cause potential impacts to the archeological site.
- Consider need for archeological site treatment measures to address impacts to shallow deposits of artifacts and features. Remove informal trails and develop site management plan.
- Remove informal trails and fire rings adjacent to shoulder and off-road parking in proximity to the site to prevent continuing disturbance.

### ***Conclusion: Protecting and Enhancing ORV 13 (Wawona archeological district)***

The Wawona Archeological District is absent of adverse effects, degradation, and management concerns (conditions that exceed management triggers). Management considerations are present. To address management considerations, the NPS would remove seven campsites that cause impacts to the Camp A.E. Wood archeological site, and initiate a variety of actions to address specific considerations including removal of informal trails, non-essential roads, and infrastructure that impact archeological sites under Alternatives 2-6. To prevent these considerations, or others, from redeveloping, the NPS would monitor the condition of the

ORV, and take specific actions should specific trigger points be reached. These trigger points are selected to inform managers well in advance of adverse effects or degradation impacts on this ORV.

## Cultural ORV—Wawona Historic Resources

**ORV 14—The Wawona Historic Resources ORV includes one of the few covered bridges in the region and the National Historic Landmark Wawona Hotel complex. The Wawona Hotel complex is the largest existing Victorian hotel complex within the boundaries of a national park and one of the few remaining in the United States with this high level of integrity.**

**Location:** Segment 7 (Wawona)

**Rationale:** Galen Clark, Yosemite’s first guardian, built the original Wawona Covered Bridge in 1868, which became the bridge as it is today. The Bridge boasts state significance within transportation, entertainment, and recreation contexts. The bridge embodies the distinctive characteristic of a unique type of construction and is the only historic covered bridge in the western region of the NPS. The Wawona Covered Bridge is individually listed in the National Register of Historic Places, and is also a contributing resource to the Pioneer Yosemite History Center Cultural Landscape Inventory, determined eligible for listing in the National Register of Historic Places.

The National Historic Landmark (NHL) Wawona Hotel is a complex of buildings and structures built between 1876 and 1918 adjacent to the South Fork Merced River. It was built on the site of Galen Clark’s Station, the original stop along one of the main access trails (and later wagon road) to Yosemite Valley. The complex includes seven buildings laid out in a formal pattern along perpendicular axes on a rolling hill, accessed by a circular drive with a central fountain. The complex is unique in its historical integrity – the architectural unity, the formal placement on the rural landscape, the original building materials, and their form and massing. The hotel complex retains exemplary integrity of function given its use as a resort complex for over one hundred years. It is of national significance in architecture, unique as the largest existing Victorian hotel complex within the boundaries of a national park, and rare for its high level of integrity. It is also of national significance in art because it contains the Thomas Hill Studio. Landscape painter Thomas Hill, one of the last painters of the Hudson River School, painted here during summers between 1886 and his death in 1908.

**Management Objective:** These structures will be managed to ensure the protection and enhancement of their historical integrity. Protection and enhancement will ensure that management actions, including managing for visitor uses, do not adversely impact the ORV.

### *ORV Condition at the Time of Designation (1987)*

The Wawona Covered Bridge is listed in the National Register of Historic Places. At the time of the 1987 Wild and Scenic River designation, the Wawona Covered Bridge had recently undergone structural safety improvements. The NPS had dismantled and restored the bridge in 1956 and 1957, employing hand-hewn timber construction in the same style as the original bridge. Some timbers were replaced in 1961 and again in 1983 when NPS corrected structural safety hazards following an inspection of the bridge (Greene 1987).

The Wawona Hotel, including the Thomas Hill Studio, is listed in the National Register of Historic Places as both a nationally significant historic property and a national historic landmark (NHL). The NHL nomination is included in the larger publication *Architecture in the Parks*,<sup>30</sup> which was published in 1986 - just prior to designation of the Merced as a Wild and Scenic River. Thus, at the time of designation, the hotel complex met the very high standards of integrity necessary to qualify as an NHL. This was the case despite the fact that it had transferred from the private holdings of the Washburn Family to NPS ownership in the 1930s and had undergone recent rehabilitation to install a fire sprinkler system. According to the 1998 condition assessment, the building exteriors “are generally highly intact and are composed of historic wood siding, with original door and window openings and trim. Roof cladding, while not original, is of the original

<sup>30</sup> Laura Soulliere Harrison: *Architecture in the Parks: A National Historic Landmark Theme Study*. USDI National Park Service, U.S. Government Printing Office, Washington, D.C., 1986.

type.”<sup>31</sup> The NHL nomination notes that the buildings of the complex had “undergone certain changes in recent years to improve the quality of the seasonally-offered guest services and to make the structures safer for occupancy.”<sup>32</sup> Given these general statements, it is clear that the Wawona Hotel and Thomas Hill Studio had endured incremental change since their construction in the late 19<sup>th</sup>-century, but survived largely intact and with an extremely high degree of integrity.

### ***Current ORV Condition***

Between 2002 and 2005, the Wawona Covered Bridge underwent a restoration effort to improve the deteriorating timber structure. Hand-hewn timbers were used to repair the structure in a manner similar to the original 19<sup>th</sup>-century construction. Restoration of the bridge also included:

- Constructing shoring to support the 115,000-pound timber-frame of the bridge
- Removing the 8-inch sag from the superstructure, leveling the bridge
- Removing and replacing all seven of the deteriorated 14-square-inch by 30-foot transverse floor beams
- Repairing the bridge pier masonry in the riverbed
- Restoring the structural stability of the upstream and downstream timber-frame truss assemblies
- Replacing the undersized timber components in order to resist wind and snow loading
- Replicating hand-hewed timbers using broad axes and traditional craftsmanship from 19<sup>th</sup>-century practices

All recent bridge restoration activities were designed to meet the Secretary of the Interior’s *Standards for the Treatment of Historic Properties*, thereby ensuring that the bridge retains its historical integrity. (The Secretary’s standards were adopted in 1976, and earlier work was not designed to meet these specific standards.) Completion of the bridge restoration project inaugurated the creation of the interpretive Pioneer Yosemite History Center, with the restored bridge as a central feature.

A recent condition assessment of the Wawona Hotel Complex indicates that the hotel complex continues to retain a high degree of historical integrity.<sup>33</sup> Individual buildings within the complex are assessed to be in good condition, with some minor deterioration of historic fabric. The NHL complex has undergone recent upgrades to address seismic stability and ADA compliance as well as a series of cyclic repair and maintenance projects. The Thomas Hill Studio was recently rehabilitated and adapted for use as a visitor contact station. The fountains at the main hotel and the studio were recently restored to their historic appearance and function. Each of these projects has been accomplished consistent with the *Secretary of the Interior’s Standards for Treatment of Historic Properties*, thereby ensuring that the complex retains its historical integrity. Interior furnishings and finishes such as paint, wallpaper, carpeting, and some fixtures have been updated to maintain functionality and serviceability.

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<sup>31</sup> Carey & Co. Inc., “Wawona Hotel Complex Condition Assessment, Yosemite National Park, California.” Report on file, Yosemite National Park Resources Management and Science Library, 1988, p. ii.

<sup>32</sup> National Park Service: “National Register of Historic Places Inventory – Nomination Form for the Wawona Hotel and Thomas Hill Studio.” USDI National Park Service, n.d.

<sup>33</sup> National Park Service: “Wawona Hotel Complex Historic Structures Report.” USDI National Park Service, Yosemite National Park, California, 2012.

Table 5-27 details the current condition of the buildings and structures that comprise the Wawona Historic Resources ORV. There are eight buildings and structures, seven of which are in “good” condition, resulting in 87% in good condition.

**TABLE 5-27: CURRENT CONDITION OF WAWONA HISTORIC RESOURCES ORV**

Building/Structure	Overall Condition	Contributing Elements in “Good” to “Fair” Condition	Contributing Elements in “Poor” Condition	Source
Wawona Covered Bridge	Good	All		
Thomas Hill Studio	Good	All		LCS 2008
Clark Cottage	Fair	Porch Columns, balustrade, and trim Porch flooring and apron Wood window sash Window balance system Exterior wood doors and transoms Exterior door hardware All interior finishes, fixtures, and hardware Roof Wood Shingles and Flashing	Exterior wood siding Porch Ceiling (3-1/4 inch boards) Roof dormers	2012 HSR
Main Hotel	Good	Roof wood shingles and flashings Veranda ceiling boards Veranda trim and balustrade Main entry stair and stone abutments Wood window sash Window balance system Exterior wood doors and transoms Exterior wood channel rustic siding Brick chimneys Exterior door hardware All interior finishes, fixtures, and hardware	Exterior wood doors (with glazing) and transoms	2012 HSR
Manager’s Cottage	Good	Porch ceiling 1x4 tongue and groove Porch columns, balustrade, and trim Porch flooring and apron Wood window sash Exterior wood doors and transoms Exterior door hardware Roof wood shingles and flashings Interior finishes, hardware, and fixtures	Exterior wood siding and trim	2012 HSR
Moore Cottage	Good	Exterior wood siding Roof wood shingles and flashings Porch columns, balustrade, and trim Porch flooring and apron Porch ceiling Wood window sash Window latches Exterior wood doors and transoms Exterior door hardware Interior finishes, hardware, and fixtures		2012 HSR
Washburn Cottage	Good	Exterior wood siding and trim Window balance system Roof wood shingles and flashings Porch columns, balustrade, and trim Porch flooring and apron Porch ceiling Wood window sash Exterior wood doors and transoms Exterior door hardware Exterior stairs: north, east, west porch stairs		2012 HSR

**TABLE 5-27: CURRENT CONDITION OF WAWONA HISTORIC RESOURCES ORV**

Building/Structure	Overall Condition	Contributing Elements in "Good" to "Fair" Condition	Contributing Elements in "Poor" Condition	Source
		Interior finishes, hardware, and fixtures		
Annex Building	Good	Roof wood shingles and flashings Roof gutter and downspouts Chimneys Exterior wood shingle siding Exterior wood doors (4-panel) and transoms Porch columns, balustrade, and exposed timber structure Porch Wood window sash Window lifts and latches, obscure glass at bathrooms Exterior door hardware Interior finishes, hardware, and fixtures	Porch flooring and apron Window balance system Exterior wood doors (with glazing) and transoms	2012 HSR

**Management Program for ORV 14**

This section discusses the proposed management program for this ORV, including the indicator(s) to be used; the definitions of management standard, adverse effect, and degradation; and the monitoring program.

**Indicator – List of Classified Structures Condition Assessment**

Given that the Historic Resources ORV is comprised of buildings and structures, this indicator is a measure of the physical condition of the individual elements – the Wawona Covered Bridge, and the Wawona Hotel and Thomas Hill Studio complex. The NPS’ List of Classified Structures (LCS) provides a mechanism that captures physical assessments of the condition of the buildings and structures. The LCS will be used to obtain individual assessments of each building and structure at five-year intervals, and these individual assessments will be aggregated to form a collective assessment of the condition of the ORV.

The LCS Conditions provide a consistent means for assessing the condition of historic structures on a national basis. Condition levels are defined as follows:

**Good:** The structure and significant features are intact, structurally sound, and performing their intended purpose. The structure and significant features need no repair or rehabilitation, but only routine or preventative maintenance.

**Fair:** The structure is in fair condition if either of the following conditions is present:

- There are early signs of wear, failure, or deterioration though the structure and its features are generally structurally sound and performing their intended purpose; or
- Deterioration or damage affects more than 15% of the structure.

**Poor:** The structure is in poor condition if any of the following conditions are present:

- The significant features are no longer performing their intended purpose; or
- Significant features are missing; or
- Deterioration or damage affects more than 25% of the structure; or
- The structure show signs of imminent failure or breakdown.

**Management Standard**

The management standard would be to protect the Wawona Covered Bridge in “good” condition as defined by the LCS guidance. The management standard for the Wawona Hotel Complex is protection of 80% of the elements in “good” condition, and none in “poor” condition, as defined by the LCS guidance. LCS Conditions provide a consistent means to assess the condition of historic structures on a national basis. Condition levels are defined as follows:

**Adverse Effect**

An Adverse Effect would occur if either of the following situations developed: 1) The Wawona Covered Bridge condition diminished from “Good” to “Fair” using LCS definitions; or 2) Any of the individual buildings within the Wawona Hotel complex diminished to “poor” using LCS definitions.

**Degradation**

Degradation would occur if either of the following situations developed: 1) The Wawona Covered Bridge condition diminished from “Good” to “Poor” using LCS definitions, or if critical structure failures are allowed to continue without repair for a period of longer than six months; or 2) The condition of more than 50% of the buildings in the Wawona Hotel complex diminished from “good” or “fair” to “poor” using LCS definitions, or if critical structural failures were allowed to continue without repair for a period of longer than six months.

**Monitoring – List of Classified Structures**

The Park Historical Architect in concert with the Park Historic Preservation Specialist would periodically assess the condition of the Wawona Covered Bridge and Wawona Hotel complex and identify any critical structural system failures or weather impacts. Preservation and Cultural Resources Specialists who assess the structure and buildings must meet the qualifications outlined within NPS Director’s Orders 28.

Table 5-28 lists the trigger points and management actions related to the Wawona Covered Bridge and the Wawona Hotel Complex.

**TABLE 5-28: MANAGEMENT ACTIONS AND TRIGGER POINTS TO MAINTAIN DESIRED CONDITIONS FOR THE WAWONA HISTORIC RESOURCES (LIST OF CLASSIFIED STRUCTURES CONDITION ASSESSMENT)**

Trigger Point(s) at Which Management Action Would Be Taken	Possible Management Actions	Rationale for Management Actions
Damage or deterioration of 5% or more individual buildings or that results in an LCS condition assessment of “fair”	<ol style="list-style-type: none"> <li>1. Increase the frequency of condition assessments for buildings and structures in “fair” condition</li> <li>2. Develop prioritized list of preservation actions based on severity of deterioration (addressing deterioration at NHL buildings and structures first)</li> <li>3. Preservation maintenance or repair to arrest ongoing deterioration and reverse damage</li> </ol>	The rationale for taking action at this threshold is to ensure repairs are made to reverse damage or deterioration noticeable at the collective level, and prevent the condition of buildings or structures from deteriorating to a “poor” condition. These corrective actions should arrest any ongoing deterioration, and return at one or more of the buildings or structures to “good” condition.

### ***Management Concerns and Protective Actions***

Management concerns occur when the condition of a resource has reached one of the trigger points identified in Table 5-28 above. A management concern is present regarding the number of buildings and structures that have a currently-assessed condition of “fair.” To address this concern, general and specific responses would be required. Generally, preservation maintenance and/or repairs would occur, in keeping with the Secretary of the Interior’s Standards for Treatment of Historic Properties (NPS 1995), sufficient to return all of the NHL elements to “good” condition, and to arrest ongoing deterioration of other elements. Additionally, the following specific measure would be implemented to address this management concern:

- Follow the recommendations from the Wawona Hotel Historic Structures Report (2012) to bring the Clark Cottage to “good” condition.

### ***Management Considerations and Enhancement Actions***

Management considerations related to the Wawona Historic Resources ORV would target improving the condition of contributing elements of the buildings that are currently in “poor” condition and maintaining the condition of buildings and structures that are currently in “good” condition:

- Follow the recommendations from the Wawona Hotel Historic Structures Report (2012) to address contributing elements in “poor” condition at the Main Hotel, Manager’s Cottage, and Annex Building.
- Regular and routine preservation maintenance, conducted in accordance with the Secretary of the Interior’s Standards, to ensure that this upkeep protects the historic character of the buildings
- Periodic rehabilitation will involve subject-matter specialists in planning, design and implementation to ensure actions do not compromise the historical integrity of the complex
- Concessioner operations will ensure that any operational modifications or updates are appropriate and in keeping with the historic character of the complex

### ***Conclusion: Protecting and Enhancing ORV 14 (Wawona Historic Resources)***

The Wawona Historic Resources ORV is absent of adverse effects and degradation. A management concern is present, as are some management considerations; NPS will follow the recommendations of the recent historic structures report for the Wawona Hotel to correct these problems and return the ORV condition to the management standard. To prevent future impacts, the NPS will monitor the condition of the ORV, and take specific actions should conditions exceed trigger points. Trigger points are selected to inform managers well in advance of adverse effects or degradation impacts on the bridge and hotel complex.

## **SCENIC ORVs**

This section describes the program to protect and enhance each Scenic ORV as proposed in the *Merced River Plan/DEIS*. Four Scenic ORVs exist in the Merced River corridor, each related to specific segment(s) of the river (Table 5-29).

**TABLE 5-29: SCENIC ORVs AND ASSOCIATED INDICATORS**

ORV Number and Key Resource	Segment(s)	Indicator to be Monitored through Time
15. Scenic Views in Wilderness	1	No indicator is proposed, as Wilderness designation precludes development.
16. Iconic Scenic Views in Yosemite Valley	2	Application of the Visual Resource Management System
17. Scenic Views in the Merced River Gorge	3	Application of the Visual Resource Management System
18. Scenic Wilderness Views along the South Fork Merced River	5	No indicator is proposed, as Wilderness designation precludes development.

**Scenic ORV—Scenic Views in Wilderness**

**ORV 15—Visitors to this Wilderness segment experience scenic views of serene montane lakes, pristine meadows, slickrock cascades, and High Sierra peaks.**

**Location:** Segment 1 (Merced River above Nevada Fall)

**Rationale:** Starting at the headwaters, the Merced River passes through chains of paternoster lakes, enters the upper montane forest, and becomes walled in by a classic U-shaped glacial valley. Scenic landmarks visible from the river or its banks include Washburn and Merced Lakes, Echo Valley, Bunnell Point, and Little Yosemite Valley. The long river segment of great visual variety and its uncompromised natural setting provide diverse, exceptional scenery—all with the river in the foreground.

**Management Objective:** The NPS will focus efforts primarily on development in the river corridor. While visitor density or encounter rates can affect one’s ability to appreciate scenery, visitor use is more appropriately addressed by the Recreation ORV. Similarly, bare soils and river bank erosion can affect foreground views, but are better addressed by the Biological ORV. This high country segment is also susceptible to regional air quality impacts, so the NPS will participate in regional efforts to reduce air pollution. Human activity contributes only to highly localized air quality problems. The NPS would maintain the visitors’ ability to experience and appreciate the Scenic ORV by providing a river corridor that is relatively free of development.

***ORV Condition at the Time of Designation (1987)***

The river and its tributaries flowed through glacially-carved landscapes with very few human-made features, and the scenic ORV was largely unaffected by human activities. The river corridor and adjacent lands were located in protected Wilderness, with the exception of the Merced Lake High Sierra Camp, which was established in the early twentieth century. A recreational trail, initially developed in the 1930s, follows the river corridor as far as the Lyell Fork, then continues up Red Peak Fork. The trail includes wooden foot bridges at multiple locations. Backpackers campgrounds existed at Little Yosemite Valley, Moraine Dome and Merced Lake. A historic ranger station existed, just off the trail, a short distance upstream from Merced Lake. The landscape was otherwise comprised of natural features such as granite rock formations, meadows and forests.

***Current ORV Condition***

Views from the river and trails along this segment are valued for their isolation from the developed world, their ecological integrity and Wilderness qualities. Trail conditions and opportunities for visitor access remain the same as in 1987. Scenic vistas can sometimes be obscured by regional air pollution, which is manifest in occasional haze during the summer months (NPS and Colorado State University 2002). Local wild and prescribed fires sometimes limit the visual range from higher elevations and vistas or views located within the



river corridor. Existing conditions include rustic structures, trails, footbridges, utility buildings and tents at the historic Merced Lake High Sierra Camp, and primitive campsite development in Little Yosemite Valley.

### ***Management Program for ORV 15***

Because Segment 1 is classified as a wild segment and the river corridor—aside from Merced Lake High Sierra Camp—includes designated Wilderness, no further development or resource extraction can occur and scenery will remain unimpaired in perpetuity. Management standard, adverse effect, and degradation are not defined for this ORV because it is essentially impervious to intended human activities, and any structures proposed in the Wilderness would be subject to the Minimum Requirements Analysis (MRA), as well as the contrast analysis discussed below under ORV 16. Therefore, the NPS would not monitor the condition of this ORV as part of the *Merced River Plan/DEIS*. The NPS will continue to participate in regional efforts to monitor air quality throughout the park. Because of the ambient nature of air quality, it cannot be managed exclusively for the river corridor.

### ***Management Considerations and Enhancement Actions***

Management considerations regarding this ORV pertain to the Merced Lake High Sierra Camp. The NPS will ensure that Merced Lake High Sierra Camp is maintained in a clean and tidy condition. If the camp remains, as proposed in Alternatives 5 and 6, the NPS will ultimately replace the tent fabric with colors that blend within the landscape, such as gray, brown or green, so as to reduce contrast (the tents are currently white canvas). These changes, as well as any other structures proposed at the camp or elsewhere in Segment 1, would be expected to blend quite well with the native landscape. The extent to which the proposed structure would blend with the native landscape would be assessed using the Visual Resource Management system contrast analysis discussed below in ORV 16, with an allowable contrast rating of only 4 or less (the discussion under ORV 16 provides a lengthy explanation of the contrast analysis; this number indicates that the structure must have very little contrast with the surrounding landscape). If the camp is removed, as proposed in Alternatives 2, 3, and 4 (with a temporary pack camp remaining in Alternative 3), the site would be restored to natural conditions and added to the Yosemite Wilderness. There will be no visual resource contrasts.

### ***Conclusion: Protecting and Enhancing ORV 15 (scenic views in wilderness)***

As a segment located almost entirely within protected Wilderness, except for the potential Wilderness addition at Merced Lake High Sierra Camp, the Scenic ORV for Segment 1 will remain wild and will not be affected by human activity. The NPS will not monitor visual resources or conditions at site-specific scenic vista points. The ORV is determined to be in the protected state, as defined by an absence of adverse effects and degradation, although intermittent air quality concerns are present. The NPS will continue to participate in regional air-quality improvements and cooperate with state agencies to manage air quality.

## Scenic ORV—Iconic Scenic Views in Yosemite Valley

**ORV 16—Visitors to Yosemite Valley experience scenic views of some of the world’s most iconic scenery, with the river and meadows forming a placid foreground to towering cliffs and waterfalls.**

**Location:** Segment 2 (Merced River in Yosemite Valley)

**Rationale:** The Merced River enters Yosemite Valley at Nevada Fall, flowing through Emerald Pool and then over Vernal Fall. Once in the flat valley, the Merced provides the foreground to many of Yosemite’s most famous landmarks. From the river or its banks, views consist of Yosemite Falls, Bridalveil Fall, El Capitan, Half Dome, and other named and unnamed parts of the cliffs and hanging valleys rimming Yosemite Valley. Meandering through a sequence of compound oxbows, wetlands, and meadows, the river and its related features provide broadened panoramas. Throughout Yosemite Valley, views from the river or its banks encompass the lower montane forest as it rises up to sheer rock faces of granite cliffs and talus slopes with a flat valley bottom serving as a contrasting foreground. The juxtaposition of granite domes and waterfalls is unique, as is the concentration of river-related views found in Yosemite Valley.

**Management Objective:** Segment 2 is the most highly accessible portion of the Merced River, visited by the greatest numbers of park visitors. Here the NPS provides the highest levels of service and accommodations for visitor use, and here the NPS has the greatest obligation to manage visual resources and visitors, and to protect and enhance the conditions that provide for the best possible viewing experiences. The NPS will remove unnecessary facilities from the river corridor and ensure that all future development satisfies objectives that provide low contrast ratings under the Visual Resource Management system analysis: form, line, color and texture. A Sense of Place: Design Guidelines for Yosemite Valley (NPS 2004) established architectural and site design guidelines that are intended to promote harmony between the built and natural environments.

Actions intended to manage natural resources may include the use of prescribed fire or controlled burns to thin forests that are encroaching on meadows; cutting trees, tree branches or other vegetation by mechanical means; and the application of herbicides to control invasive species. Related actions intended to protect the Recreation ORV would limit the number of visitors to lessen visitor density and congestion at attraction sites and make improvements to the transportation system that will reduce automobile congestion. The NPS will cooperate with regional authorities to reduce airborne contaminants caused by combustion, including carbon dioxide emissions, smoke caused by fire, particulate matter generated by construction, and to improve air quality conditions.

### *ORV Condition at the Time of Designation (1987)*

Multiple scenic resources and natural landmarks are visible from the river corridor. Scenery was a key reason why Yosemite Valley was set aside as a national park (GMP EIS draft 1978, Olmsted 1865). Numerous roads, buildings and other features were developed with scenic resources in mind (SVMP 2011, DuBarton 2007, Davis 2004, Carr 1998). In the late 1970s, the NPS conducted an assessment for the General Management Plan (GMP) to determine existing and historic viewing conditions and to identify the prominent landscape features in Yosemite Valley (NPS 1980). The most prominent features noted were 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. Other important scenic resources that could be seen from within the Merced River corridor include: Nevada, Illilouette, Vernal, and Ribbon falls; the cliffs at Yosemite Point and Lost Arrow Spire; and the scenic interface of river, rock, meadow, and forested valley floor. Existing viewpoints were identified along with historic viewpoints of paintings and photographs, and the quality of their views and their proximity to roads and trails were noted.

### ***Current ORV Condition***

Views from the Merced River corridor, roadside locations, trails and vista points continue to retain high aesthetic value. The built and natural environments have changed subtly since the river was designated as Wild and Scenic. Some structures were damaged by flood or rock fall and removed over time. Meadow and riparian conditions are affected by encroaching vegetation and exotic species, park visitation patterns fluctuate, and conditions at scenic viewpoints are variable.

The 1997 flood caused a general reduction in buildings and facilities that were previously located in the Merced River floodplain. Curbing was installed along Northside and Southside Drives to limit the numbers of cars that could be parked in the foreground of scenic resource views. The Yosemite Falls project removed idling buses from views of the falls.

The NPS protected and restored meadows by removing obsolete or abandoned utility lines, removing non-native vegetation and encroaching conifers, planting and re-establishing native vegetation, constructing meadow boardwalks, and implementing monitoring programs. Direct views of meadows have improved, as have the importance of meadows in foreground views toward prominent scenic assets. However, river bank erosion and vegetation trampling associated with visitor access to river points continues to detract from visitor use and enjoyment of park scenery.

The Scenic Vista Management Plan for Yosemite National Park Environmental Assessment (NPS 2010a) described vegetation changes that have intruded on scenic viewpoints, rated and ranked the quality of viewpoints, and defined limits on management actions based on ecological conditions. The *Scenic Vista Management Plan* (SVMP) prioritized sites based on a visual resource assessment (NPS 2009a, 2009b). Descriptions of these vista points, assessment results for sites within the Merced River corridor and for sites that provide views of scenic landmarks, views of the river and river-dependent resources are provided in *Scenic Vista Management in the Merced River Corridor* (Appendix H). The assessment includes recommendations for vegetation management actions that would improve scenic views. Views of scenery are commonly hampered by encroachment of conifers on meadows and in certain cases by exotic species. Scenic vistas can also be obscured by regional air pollution, which results in occasional haze during the summer months (NPS and Colorado State University 2002).

### ***Management Program for ORV 16***

This section discusses the proposed management program for this ORV, including the indicator(s) to be used; the definitions of management standard, adverse effect, and degradation; and the monitoring program.

#### **Indicator—Application of the Visual Resource Management System**

The NPS will apply the Visual Resource Management (VRM) system developed by the U.S. Forest Service (USDA 1995) and further refined by the Bureau of Land Management (BLM 2007) (Table 5-30) to monitor this ORV. The VRM system has been used for over three decades and has proven to be a process that can articulate and document conditions that viewers consider inappropriate to the natural environment (Galliano 2000). VRM classifies landscapes on a scale from I to IV, with Class I denoting landscapes that merit the highest order of protection for natural scenery. Classes II through IV allow increasingly larger amounts of landscape modification. A final category (V) is sometimes used to describe a landscape that is altered to the extent that it cannot be classified or managed for natural scenic qualities.

**TABLE 5-30: VISUAL RESOURCE MANAGEMENT (VRM) SYSTEM**

<b>Wild and Scenic Rivers Act (WSRA)</b>	<b>BLM Visual Resource Management (VRM) System Classifications (BLM 2007)</b>	<b>USFS Visual Management System (VMS), Visual Quality Objectives (USDA 1995)</b>
Wild: Free of impoundments, generally inaccessible except by trail with watersheds or shorelines essentially primitive and waters unpolluted; vestiges of primitive America.	Class I Objective – Preserves existing character of the landscape and provides for natural ecological changes, but does not preclude limited management activity. Any changes in the landscape should be minimal and must not attract attention.	Preservation – Provides for ecological changes only. Management activities, except for very low visual-impact recreation facilities or actions, are prohibited. (Wilderness areas, primitive areas, other special classified areas and unique management units)
Scenic: Free of impoundments with shorelines or watersheds still largely primitive and shorelines undeveloped, but accessible in places by roads.	Class II Objective – Retains existing character of the landscape. Any changes in the landscape should be minimized. Management activities may be seen, but should not attract attention. Any changes must repeat or maintain basic elements of form, line, color and texture found in predominant natural features and characteristics of the broader landscape.	Retention – Provides for management activities or actions that are not visually evident. Activities may only repeat aspects of form, line, color and texture, frequently found in the characteristic landscape. Changes in qualities of size, amount, intensity, direction, and pattern should not be evident.
Recreational: Readily accessible by road or railroad, may have some development along shorelines, and may have undergone impoundment or diversion in the past.	Class III Objective – Partially retains existing character of the landscape. Any changes to the landscape should result in moderate differences. Management activities may be noticeable but should not dominate views. Any changes should repeat the basic elements found in the predominant natural features of the landscape.	Partial retention – Management activities or actions remain visually subordinate to the characteristic landscape. Activities and actions may repeat the visual aspects of the characteristic landscape, but changes in the qualities of size, amount, intensity, direction or pattern remain subordinate to the characteristic landscape.
Areas not designated	Class IV Objective – Provides for management activities that result in major modifications of the existing landscape. Changes in the landscape may be significant. Management activities or actions may dominate views or become a focus of viewer attention. Every attempt should be made to minimize the impact of activities or actions through careful location, minimal disturbance, and repetition of basic elements.	Modification – Management activities or actions may visually dominate the original characteristic landscape. Activities of vegetative and land form alteration must borrow from naturally established form, line, color or texture so completely that visual characteristics are those of naturally occurring features of the surrounding area of the same character type. Component parts of these activities (structures, roads, slash, root wads) must remain visually subordinate.
Areas not eligible for designation	Class V – Development or other landform changes predominate; the natural landscape is compromised to the extent that it can no longer be managed for natural scenic qualities.	Maximum Modification – Management activities and landform alterations may dominate the characteristic landscape. Background views must be those of natural occurrences within the surrounding area or character type. Foreground and middle-ground areas may not appear consistent with the characteristic landscape. Alterations may be out of scale or contain detail that is incongruent with natural occurrences in foreground or middle-ground.

There are two steps involved in the application of VRM system: an inventory of the existing landscape and an analysis of the contrast of a potential structure with the affected landscape. The inventory is required to classify current conditions and develop a baseline for comparison over time. In the initial inventory, visual resources and landscapes are qualified through surveys and documented from places or points that provide optimal viewing experience from visitors. River access points and the river itself will provide the primary points of reference for viewing experience and evaluation (the park's *General Management Plan* used historic photographs and landscape paintings to identify the best locations for viewing scenery) (NPS 1980).

Within the context of the Wild and Scenic Merced River, the VRM landscape classification is determined by the river segment designation of Wild, Scenic or Recreational. As presented in Table 5-30, there is a natural parallel between wild and scenic river classifications and VRM classes.

As indicated above, these classifications determine management goals for the protection of scenic areas. The VRM analysis proposed for this indicator also considers naturally-occurring landscape changes (such as fire or rock fall) and cumulative management actions over time.

The contrast analysis is done on proposed developments to ensure the degree of contrast is acceptable for the given landscape class. "Contrast" refers to a difference between the key components of a landscape (form, line, texture, and color, of both the landscape's vegetation and also its land and water) and the same components of the proposed structure. The contrast analysis is systematized, yielding a documented and quantified result ranging from 0 to as high as 36. Higher scores indicate a higher level of potential contrast between the proposed action and the existing surroundings; lower scores indicate that a proposed structure can be said to blend in (or not distract from) and thus preserve the surrounding landscape and its VRM landscape class rating.<sup>34</sup>

For the monitoring program, the contrast analysis will be performed using photographs from vista points. The acceptable contrast varies by landscape class, with those at higher levels (classes III and IV) accommodating a higher level of possible contrast. The analysis will be further refined as the total area of visual human impact is determined and scores are calculated as a percentage using the photographs taken or captured from other points.

### ***Management Standard***

The management standard is defined according to river segment classification, with scenic segments meeting VRM Class II definitions and the recreational segment meeting VRM Class III definitions.

### ***Adverse Effect***

Scenic river segments managed as VRM Class II would be adversely impacted if human constructions or actions resulted in the segment falling into VRM class III management class. The recreational river segment managed as VRM Class III would be adversely impacted if human constructions or actions resulted in the segment falling into VRM Class IV management class.

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<sup>34</sup> While scores have some subjectivity, variations in scoring between scorers decline with user training and experience (NPS 2009). For example, the NPS in the Blue Ridge Parkway has used this system using large numbers of volunteers to assess scenic value and monitor change over time. Using those results, park managers have been able to successfully communicate the need of adjacent land owners to modify developments to reduce the possible contrasts with the native landscape. Results were also introduced in a 2008 lawsuit case against Tennessee Valley Authority and cited by the judge in the ruling to justify requirements for three coal plants to operate above Clean Air Act standards (NPS 2009).

**Degradation Standard**

Scenic river segments would be degraded if human constructions or actions resulted in the segment falling into VRM class IV management class. Recreational river segments would be degraded if human constructions or actions resulted in the segment falling into VRM class V management class.

**Monitoring ORV 16 — Iconic Scenic Views in Yosemite Valley**

An inventory of the Merced River corridor has not yet been performed, but will be no later than the completion of the *Merced River Plan/FEIS*. As noted above, the inventory will classify current conditions and develop a baseline for comparison over time.

Monitoring will occur every four years after completion of the inventory to ensure that any new or modified structures preserved the segment within the management class rating. Further, any new structures or modifications of existing structures would be subject to the contrast analysis as described above. Table 5-31 describes the triggers and mandatory management actions that would take place should the contrast analysis reveal that a proposed structure, or modification thereof, would unacceptably contrast with its native landscape. Acceptable contrast ratings for the scenic river segments in the Merced River corridor are 0-12 with no strong contrast, and acceptable contrast ratings for the recreational segment are 0-21 with no more than two strong contrast ratings per feature.

**TABLE 5-31: MANAGEMENT ACTIONS AND TRIGGER POINTS TO MAINTAIN DESIRED CONDITIONS FOR ICONIC SCENIC VIEWS IN YOSEMITE VALLEY (VISUAL RESOURCES MANAGEMENT)**

Trigger Point(s) at Which Management Action Would Be Taken	Possible Management Actions	Rationale for Management Actions
Planned construction of any new structure or exterior modifications to any existing structure	Contrast analysis	The contrast analysis is intended to reveal effects on the outstandingly remarkably scenic value before a new structure is built.
A moderate contrast rating in any category of within the Scenic river segment, or a strong rating for Recreational.	Mitigation, such as change in color, for any a proposed action should be considered. Reductions in the area of visual impacts would occur such as removing signs or other non-historic structures, or reducing temporary impacts.	Actions or structures within this segment should attempt to minimize the contrast to the surrounding landscape to the best extent possible.
Within the Scenic river segment, an overall contrast rating greater than 12, or a strong contrast in any category. In a Recreational segment a contrast rating of 21 or more with two strong contrasting categories.	Mitigations to reduce the contrast rating, or an alternative location found if no mitigation is practical.	A contrast rating above a 12 is beginning to attract more attention than is acceptable to the casual observer. A score over 21 begins to dominate the landscape.

**Management Concerns and Protective Actions**

Management concerns occur when the condition of a resource has reached one of the trigger points identified in Table 5-31. No management concerns are present because no structures are currently proposed for construction or modification in the corridor, though some may be when an alternative in this plan is chosen and implemented, whereupon contrast analyses will be performed on any structures proposed within the Merced River corridor.

## *Management Considerations and Enhancement Actions*

Management considerations pertaining to this ORV include visual intrusions associated with human made structures in Yosemite Valley (including roads and traffic through meadows and the presence of certain visitor and administrative facilities in the river corridor), vegetation growth that has intruded on scenic viewpoints historically available to park visitors, and riverbank erosion, informal trails, and riparian vegetation that affect direct and foreground views of the river, river-dependent resources, and the peaks and walls rising above the river.

NPS will take the following actions to address these considerations:

- To meet WSRA requirements, the NPS will consider the presence of existing structures, major facilities and services provided for visitor use and will eliminate several structures and facilities. Common to all the alternatives are actions that will remove certain structures, such as pools, abandoned bridge footings and infrastructure and rip-rap from riverbanks; and to address denuded, eroded riverbanks through restoration techniques. Alternatives 2-6 in the *Merced River Plan/DEIS* propose modifications to many previously-developed areas or disturbed sites that are located within the river corridor. Some Alternatives propose development in undisturbed sites including a new Upper Pines Walk-in Campground, a dormitory at Yosemite Lodge, and east of Curry Village. Under Alternatives 2-6, campsites would be removed from a minimum 100-foot riparian setback in Yosemite Valley. Alternatives 2-6 consider a range of additional actions at campgrounds, ranging from removal of campsites from the 100-year floodplain to addition of campsites. Under some alternatives, permanent lodging units are proposed in Curry Village to replace units removed from the rock-fall hazard zone. Various modifications are proposed to formalize visitor parking at Yosemite Village Day-use Parking Area and in the vicinity of the Village Store. Alternatives 2-6 consider a range of options to address temporary concessioner employee housing at the Lost Arrow parking facility, Yosemite Lodge, Boys Town, and the Huff House area of Curry Village. Under some alternatives, the need for housing is reduced. Under other alternatives, temporary housing is replaced with permanent housing structures. The existing number of guest lodging units would be reduced at Housekeeping Camp under Alternatives 2-6. An overflow day use parking facility is proposed in west Yosemite Valley in Alternatives 5 and 6, and a campground in Alternative 6. This would be development in previously undisturbed sites. The VRM system will be applied with design guidelines to ensure that future development does not result in VRM scores exceeding 21.
- All alternatives propose a 150-foot riparian buffer, which would generally insulate the river from development and protect views from its bed and banks. Restoration efforts common to Alternatives 2-6 and the 100-foot riparian buffer would provide for the protection and enjoyment of scenery that is river related or river dependent.
- New development or re-development in Yosemite Valley would be designed to be compatible with historic districts and preservation of rustic architecture, using “*A Sense of Place: Design Guidelines for Yosemite Valley*.” These design guidelines are intended to promote harmony between the built and natural environments.

Additionally, NPS will proceed with implementation of the Scenic Vista Management Plan for Yosemite National Park Environmental Assessment (NPS 2010a). The SVMP initially assessed 83 vista points in the Merced River corridor. Fourteen of the 83 points have prominent views of the river in the foreground:

- Cathedral Beach Picnic Area from river terrace and the beach
- Ferry Bend Turnout from Southside Drive
- Sentinel Beach picnic area from the beach
- Swinging Bridge from the bridge and adjacent picnic area
- Sentinel Bridge from pedestrian sidewalks

- Housekeeping Bridge from the pedestrian bridge
- Stoneman Bridge from pedestrian sidewalks
- Clark’s Bridge from pedestrian sidewalks
- Happy Isles Bridge from the Happy Isles Loop Road
- Vernal Falls Footbridge from the pedestrian bridge
- Superintendent’s Bridge from the flood interpretive sign on the pedestrian bridge
- Devil’s Elbow from the beaches
- Hanging Valley and Bridalveil Fall from Northside Drive
- Valley View from Northside Drive

Another 33 scenic vista points occur within the broader river corridor, involving views of rock formations from the roadside, views from certain buildings or attraction sites, and views of meadows.

For these 47 vista points, NPS will implement the management treatments presented in Appendix H (all actions recommended by the SVMP but falling within the Merced River corridor are included in the *Merced River Plan/DEIS* and are no longer part of the SVMP). Primary actions to manage these vista points are mechanical thinning or removal of conifer trees. No management actions would occur at the other 36 vista points although they will be monitored over time.

***Conclusion: Protecting and Enhancing ORV 16 (Scenic Views in Yosemite Valley)***

The Scenic ORV for Segment 2 is absent of management concerns, adverse effects, and degradation, though management considerations exist, such as visual intrusions, vegetation growth and loss, and air quality impacts. The *Merced River Plan/DEIS* proposes a range of options to address specific concerns and considerations, including removal of unnecessary major facilities in the river corridor and protection and restoration of natural resources. To prevent these concerns, or others, from redeveloping, the NPS would monitor the condition of the Scenic ORV 16 by inventorying the Yosemite Valley landscape, performing contrast analyses on all new proposed structures, taking action to keep those proposed structures appropriate to VRM Class III for Segment 2A and VRM Class II for Segment 2B, and coordinating with regional air quality authorities. NPS will also implement recommendations developed by the SVMP including removal of conifers encroaching on meadows and vista points.

**Scenic ORV—Scenic Views in the Merced River Gorge**

<p><b>ORV 17—The Merced River drops 2,000 feet over 14 miles—it is a continuous cascade under spectacular Sierra granite outcrops and domes.</b></p>
<p><b>Location:</b> Segment 3 (Merced River Gorge)</p>
<p><b>Rationale:</b> Descending from Yosemite Valley, the river becomes a continuous cascade in a narrow gorge littered with massive boulders. Arch and Elephant Rocks and other landmarks rise above, all visible from the river or its banks. Dropping 2,000 feet in 14 miles, canyon walls rise steeply from the river and have many seasonal waterfalls cascading down to the river. Spring and fall bring special parades of colors, from redbuds and other plants warmly flowering in spring to bigleaf maples and other trees turning bright colors in fall.</p>
<p><b>Management Objective:</b> Segment 3 is classified as a scenic reach of the river, fully accessible by El Portal Road, and will be managed to promote visitor enjoyment from the river, from roadside pullouts, and from the roadway itself. Any further development is precluded.</p>



### ***ORV Condition at the Time of Designation (1987)***

El Portal Road was originally built on the edge of the Merced River as a connecting route between Yosemite Valley and the Yosemite Valley Railroad terminal in El Portal. Pullouts allowed for short and long-range views of the river and nearby rock formations. The river and Cascades Fall were visible from passing vehicles using El Portal Road or Big Oak Flat Road when entering or exiting the park. Some structures intruded upon views from within the Merced River corridor in the Gorge, such as the Arch Rock entrance station, Cascades Dam powerhouse, Cascades housing units, and Cascades Diversion Dam.

In 1987, the Cascade Diversion Dam and associated features, including the powerhouse building, were visible from the river and its bank. The dam spanned the entire river, with an intake structure on the right bank of the river, and the associated powerhouse was a short distance downstream. The dam was no longer in use, in a dilapidated state. The powerhouse building was still present, but no longer used to generate power, instead being used as a high voltage substation. Portions of the El Portal Road were visible from the river and its banks, particularly in the Cascades and Arch Rock areas, where the river gradient is less severe and the road is close to the river.

### ***Current ORV Condition***

El Portal Road and the underlying sewer main were severely damaged by the 1997 flood. Both were rebuilt soon thereafter, with road conditions updated according to contemporary safety standards. Rock walls and barriers were rebuilt in keeping with the historic character that existed before the flood and new walls were built in keeping with the historic character. Cascades picnic area was developed and river resources were subsequently restored. The dam was removed in 2004, with the historic powerhouse, Arch Rock entrance station and comfort station remaining in place today. The visual or scenic resources in the Merced River Gorge are largely unchanged from those present at the time of Wild and Scenic River designation.

The scenic quality in the area of the river at the Big Oak Flat Road-El Portal Road junction has significantly improved since NPS removed the Cascades Diversion Dam and associated features in 2004 and restored the river to free-flowing conditions. The powerhouse remains and continues to be used as a high voltage substation. The scenic quality in the vicinity of the dam returned to a natural condition within six years.

The SVMP evaluated only one scenic viewpoint at Cascade Falls. Views from the river and roads in the Merced River Gorge continue to have high aesthetic value.

### ***Management Program for ORV 17***

This section discusses the proposed management program for this ORV, including the indicator(s) to be used; the definitions of management standard, adverse effect, and degradation; and the monitoring program.

#### **Indicator — Application of the Visual Resource Management System**

The program would use the same VRM system as described under ORV 16, which would apply the following definitions of management standard, adverse effect, and degradation.

#### ***Management Standard***

This segment has a 'scenic' classification, which is held to a Class II VRM standard.

Due to the rugged terrain of the gorge, inherent limitations on visitor use and facilities, and the established relationship between the river and El Portal roadway, significant changes are neither proposed nor anticipated. The gorge is subject to rock fall and scenery will evolve with natural processes.

*Adverse Effect*

This ORV would be adversely affected if human constructions or actions resulted in the segment falling into VRM class III management class.

*Degradation*

This ORV would be adversely impacted if human constructions or actions resulted in the segment falling into VRM class IV management class.

*Monitoring Scenic Views of the Merced River Gorge*

Monitoring will occur every four years to ensure that any recommended mitigations and actions are within the management class rating.

*Management Concerns and Protective Actions*

Management concerns occur when the condition of a resource has reached one of the trigger points identified in Table 5-31. There are no management concerns present related to scenic values in the Merced River Gorge, Segment 3. No new development or landscape changes are proposed within the river corridor aside from minor improvements to existing roadside pullouts. The only changes in landscape, except for minor trail reroutes and life-safety upgrades, will occur as natural processes prevail over present conditions.

*Management Considerations and Enhancement Actions*

Management considerations for this river value include overhead power lines, which are scheduled to be removed from the powerhouse to a point at Wawona Road, below the Tunnel View scenic area. Roadside turnouts will be added to the scenic ORV indicator monitoring program for future analysis and possible treatment.

*Conclusion: Protecting and Enhancing ORV 17 (scenic views in Merced River Gorge)*

The scenic ORV for Segment 3 is absent of adverse effects, degradation, management concerns, and management considerations. To monitor conditions and protect or enhance scenic ORV 17 in the future, the NPS will inventory the landscape using the VRM system and perform a contrast analysis on any new development anticipated within the selected alternative. Segment 3, however, is unlikely to be affected by human activity in the future, due to the deep topography and rugged terrain of the Merced River Gorge and absent any needs to provide more facilities or visitor services.

## Scenic ORV—Scenic Wilderness Views along the South Fork Merced River

### ORV 18—The South Fork Merced River passes through a vast area of natural scenic beauty.

**Location:** Segments 5 and 8 South Fork Merced River, both above and below Wawona

**Rationale:** The South Fork Merced River in these stretches is largely inaccessible, with just a few trail crossings above Wawona and none below it. The scenery from the river or its banks is that of an undeveloped Sierra Nevada river valley, with views dominated by forest-cloaked hills, distant peaks, and an untamed river. These are some of the wildest views in the Sierra Nevada.

The landscape spanning wild Segments 5 and 8 includes distant, dramatic vistas of mountains and waterfalls and close, beautiful views of forests and gorges. Both segments are accessible only by foot, or by mule or on horseback.

**Management Objective:** The NPS will maintain primitive conditions in Wilderness areas adjacent to the river, within the river corridor and beyond. The NPS will continue to manage visitor use through the Wilderness permit system, and to manage vegetation through prescribed fire and controlled burning practices when necessary and appropriate.

### *ORV Condition at the Time of Designation (1987)*

No visual resource studies were conducted for these segments of the Merced River and none are planned. The wild segments of the South Fork Merced were largely natural and undisturbed at the time of designation, including no roads and few trails.

Scenery viewed from within the Merced River corridor above Wawona, in Segment 5, was limited primarily to views of the South Fork itself at trail crossings, and long range views from the trails to nearby ridges granite features such as Wawona Dome, and forests. Below Wawona, Segment 8 of the Merced River passes into an area of dense montane forest, with limited views of rugged mountains and steep canyons.

### *Current ORV Condition*

Views from the river, banks, and trails in the South Fork Merced River, both above and below Wawona, continue to have high aesthetic value, as they did at the time of designation. Three scenic viewpoints of the South Fork below Wawona, Segment 8, were identified by the Scenic Vista Management Plan. None have views of the river itself, but refer to the gorge and surrounding mountains. No scenic vista viewpoints have been identified in Segment 5, above Wawona.

Both segments are susceptible to regional air quality impacts. The rates of visitor use here are among the lowest in the park. Unlike Segment 1, no trail follows the river. Segment 5 is accessible only from a trail that crosses the river at a perpendicular angle and is not open to rafting. Segment 8 is not accessible by trail and is rarely visited by kayak. Scenic resources are primarily appreciated from a distance.

### *Management Program for ORV 18*

Because Segments 5 and 8 are classified as wild and the river corridor includes designated Wilderness, no further development or resource extraction can occur and scenery will remain unimpaired in perpetuity. Management standard, adverse effect, and degradation are not defined for this ORV because it is essentially impervious to intended human activities, and any structures proposed in the Wilderness would be subject to the Minimum Requirements Analysis (MRA), as well as the contrast analysis discussed above. Therefore, the NPS would not monitor the condition of this ORV as part of the *Merced River Plan/DEIS*.

The NPS will continue to participate in regional efforts to monitor air quality throughout the park. Because of the ambient nature of air quality, it cannot be managed exclusively for the river corridor.

**Management Considerations and Enhancement Actions**

There are no management considerations present in this Wilderness segment related to this scenic ORV. Project alternatives propose no changes in the river corridor.

**Conclusion: Protecting and Enhancing ORV 18 (Scenic Views along the South Fork)**

As a segment located almost entirely within protected Wilderness, the Scenic ORV for Segments 5 and 8 will remain wild and will not be affected by human activity. The NPS will not monitor visual resources or conditions at site-specific scenic vista points. The ORV is determined to be in the protected state, as defined by an absence of adverse effects and degradation although intermittent air quality concerns are present. The NPS will participate in regional air quality efforts and cooperate with state agencies to manage air quality.

**RECREATIONAL ORVs**

This section describes the program to protect and enhance each Recreational ORV as proposed in the *Merced River Plan/DEIS*. Two Recreational ORVs exist in the Merced River corridor, each related to specific segment(s) of the river (Table 5-32).

**TABLE 5-32: RECREATIONAL ORVs AND ASSOCIATED INDICATORS**

ORV Number and Key Resource	Segment(s)	Indicator to be Monitored through Time
19. Wilderness Recreation above Nevada Fall	1	1. Wilderness Encounters
20. River-related Recreation in Yosemite Valley	2	1. Vehicles at One Time 2. Visitor Densities

**Recreational ORV—Wilderness Recreation above Nevada Fall**

**ORV 19—Visitors to federally designated Wilderness in the corridor engage in a variety of river-related activities in an iconic High Sierra landscape, where opportunities for primitive and unconfined recreation, self-reliance, and solitude shape the experience.**

**Location:** Segment 1 (Merced River above Nevada Fall)

**Rationale:** Wild segments of the Merced River and South Fork Merced River flow from the heart of the Sierra Nevada, with its towering granite peaks and impressive forests. The spectacular, rugged expanses along these segments provide exemplary landscapes for Wilderness experiences characterized by solitude, personal reflection, closeness to nature, independence, and self-reliance. Activities are oriented toward primitive travel, camping, exploration, and adventure.

Of the many exemplary recreational activities, a few are particularly distinctive. Hiking or backpacking close to the river gives visitors the experience of spectacular cascades that vary by season. In spring, visitors experience the sight, sound, and feeling of the powerfully crashing waters. In drier months, the beauty of delicate water plumes becomes the center of attention. Backpacking on a popular segment of the John Muir Trail offers access to a multi-day Sierra Nevada Wilderness trip that is internationally renowned for gorgeous riverside views, undeveloped settings, opportunities for solitude along the trail, and Wilderness camping near the river. Horseback riding is also popular in this segment.

**Management Objective:** Provide for high quality river-related recreational opportunities oriented toward Wilderness values of unconfined, self-reliant and solitude experiences in a setting that is consistent with the Wilderness character of the area.

### ORV Condition at the Time of Designation (1987)

The description of ORV 19 condition at the time of designation is broken into three subject areas: recreational activity participation, setting attributes, and recreational experience quality.

**Recreational Activity Participation:** The most common visitor activities within the corridor at the time of designation included hiking, backpacking, and lodging at the Merced Lake High Sierra Camp. Both day-use and overnight camping took place within the river corridor, and both dispersed and designated camping opportunities were available. Visitors could also stay in tent cabins at the Merced Lake High Sierra Camp, access restroom and shower facilities, purchase meals, and temporarily keep stock.<sup>35</sup>

As shown in Table 5-33 below, there were 170 daily Wilderness permits issued in 1986 from six trailhead locations for overnight Wilderness use in the Merced River corridor. While the permits identified park visitors' entrance points into the Wilderness, users were free to choose where they wished to recreate. Consequently, the amount of time permit holders spent in the Merced River corridor is unknown. Similarly, some park visitors could have entered the Wilderness from elsewhere and hiked out through the Merced River corridor as part of their Wilderness trip. As a result, Wilderness permit data provide only a limited indication of the actual extent of visitor overnight use for River Segment 1 (Fincher 2010).

**TABLE 5-33: TRAILHEAD QUOTAS PRIMARILY FOR MERCED RIVER WILDERNESS ACCESS**

Trailhead	Wilderness Permit Quota <sup>a,b</sup>
	# of People in 1986
Happy Isles (to Little Yosemite Valley)	35
Happy Isles (LYV Pass Through Access) <sup>c</sup>	10
Glacier Point (to Little Yosemite Valley)	25
Mono Meadow	15
Rafferty Creek	35
Lyell Canyon <sup>d</sup>	50
<b>Total</b>	<b>170</b>

<sup>a</sup> The Wilderness trailhead quotas were modified in the mid- to late 1990s. Identified trailheads are only those primarily providing direct access to the Merced River corridor Wilderness.  
<sup>b</sup> Quotas represent maximum number of people per day permitted.  
<sup>c</sup> "Pass Through Access" requires permit holders to hike through Little Yosemite Valley to camp further up river or elsewhere outside of LYV.  
<sup>d</sup> Generally, only a minor proportion of Wilderness visitors out of the Lyell Canyon trailhead will travel down to the Merced River corridor as part of their Wilderness trips. Visitors wishing to access the Merced River corridor from Tuolumne Meadows mostly use the Rafferty Creek Trailhead.

SOURCE: Fincher 2010; NPS 2012a

**Setting Attributes:** At the time of designation, the location of hiking trails and camping areas allowed park users close contact with the river. Other setting attributes included the park's Wilderness permit system, parking capacity at trailheads, and the availability of other transportation services to and from trailheads. Additionally, the recreational experience was influenced by the scenic value of the high-elevation landscape in this segment and by the river itself. The Scenic ORV section provides a description of these scenic values.

<sup>35</sup> The High Sierra Camps are potential Wilderness additions within the Yosemite Wilderness where lodging is operated by the park concessioner. Visitors with horses are permitted to board their animals at the camp's corral during their stay. However, very few visitors with horses stay overnight within this river segment.

**Recreational Experience Quality:** At the time of Wild and Scenic River designation, the river corridor in these segments provided Wilderness experiences characterized by solitude, personal reflection, immersion in nature, independence, and self-reliance. Although no formal surveys documenting visitor satisfaction, perceptions of crowding, or encounter rates had been conducted, the Yosemite Wilderness (which includes the river corridor) was one of the most highly visited Wilderness areas in the nation (NPS 2005b). Recreationists could expect to encounter other hikers as well as stock users, both on the trail and at some campsite areas.

**Current ORV Condition**

As with the condition at the time of designation, the current condition description for ORV 19 is broken into three subject areas: recreational activity participation, setting attributes, and recreational experience quality.

**Recreational Activity Participation:** Similar to Wilderness activities prior to designation, the most common visitor activities within the corridor are hiking, backpacking, stock use, and lodging at the Merced Lake High Sierra Camp. The area continues to see both day and overnight visitation. NPS has reduced the number of Wilderness permits given to visitors for the main access trailheads from 170 in 1989 to 130 under current conditions (Table 5-34), to protect park resources and Wilderness experiences. During the same time period (between designation and today), NPS also formalized the camping area at Little Yosemite Valley and constructed the composting toilet, again to protect park resources (especially water quality in the Merced River).

Table 5-34 displays what these trailhead quotas translate into regarding actual trail use above Little Yosemite Valley in 2010. Additionally, NPS instituted an interim Half Dome permit system in 2010 to manage the number of Half Dome hikers. This change may influence the length of stay and number of backpackers who use the Little Yosemite Valley Campground and the trail from Nevada Fall to Half Dome and Little Yosemite Valley.

**TABLE 5-34: TRAIL USE ABOVE LITTLE YOSEMITE VALLEY TO MERCED LAKE (2010)  
(WILDERNESS-BOUND HIKER TRAFFIC)\***

Month	Average People per Day	Total People per Month
July	31	952
August	34	1,063
September	23	677
October <sup>a</sup>	10	117
Season (July to September)	30	2,864
NOTE: <sup>a</sup> Use counts were taken from October 1 through October 12. SOURCE: NPS 2011a * As measured by automated counter data at the segment of trail from Little Yosemite Valley to Bunnell Cascade (which omits hikers hiking from the Echo Valley area to Merced Lake).		

**Setting Attributes:** The recreational experience in the river corridor is primarily influenced by the scenic value of the landscape in this river segment and by the river itself. The section on Scenic ORVs above (specifically ORV 16—Iconic Scenic Views in Yosemite Valley) describes the visual qualities that contribute to the recreational experience in the river corridor.

Based on trail/campground use and encounter rates, the majority of users are concentrated in the river corridor between Nevada Fall and the Merced Lake High Sierra Camp. As observed by actual observations from Yosemite staff in 2010, the average rate of encounters with other parties per hour along the Merced River corridor were: 1.9 parties per hour from Little Yosemite Valley Lewis Creek, and 0.63 parties per hour from Lewis Creek to the Lyell Fork (NPS 2011u).<sup>36</sup> Recreational opportunities in Segment 1 have been influenced by Wilderness permit allocations (described above), the Half Dome day-use permit system, and other transportation services to and from trailheads. Since 1987, problems with the Little Yosemite Valley Camping Area toilet have been remedied by installing a composting toilet facility that improved water quality in the area, but also impacted the wilderness nature of the segment by adding a permanent structure. Additionally, in the mid-1990s the Merced Lake Backpackers' Camping Area was converted from dispersed camping to a designated camping area away from the lake to protect the meadow and lakeshore quality. In 2001, the camping area's previous toilet sump and sewer line were also removed. The utility systems at the Merced Lake High Sierra Camp have also been upgraded.

***Recreational Experience Quality:*** A 2001 (Newman & Manning) study conducted at the Yosemite Valley and Tuolumne permit stations indicated that Wilderness users' experience is most negatively impacted by signs of other campers at campsites, encounters with other groups, and encountering stock.

Segment 1 continues to provide a diversity of recreational and educational opportunities in the Merced River corridor. These opportunities have not changed since the time of designation, with the exception that the trailhead quotas have been reduced in response to changing use patterns. The same total number of visitors still access the corridor, though they may access this segment from different locations. These findings, when compared to the findings regarding the condition of this ORV at the time of designation, suggest that visitors today are still able to obtain high quality recreational experiences where they are able to relax and obtain solitude.

### ***Monitoring Program***

This section discusses the proposed management program for this ORV, including the indicator(s) to be used; the definitions of management standard, adverse effect, and degradation; and the monitoring program.

### **Indicator – Wilderness Encounters**

One of the components of the Recreational ORV of the Merced River is the opportunity for primitive and unconfined recreation, self-reliance, and solitude. Solitude is an enduring characteristic of a Wilderness experience (Lucas 1964). Expectations for solitude and actual numbers and types of groups encountered have been shown to have a measurable effect on the quality of visitor experiences (Newman and Manning 2002; Patterson and Hammitt 1990; Vaske et al. 1986).

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<sup>36</sup> This data is baseline reporting from 2010, representing actual encounter observations by RMS staff. Future evaluations will be made utilizing automated counters (herein referred to as indirect counts). The data reported here also represents the average encounter rate and is not evaluated as a percent of total time observed as is stipulated in the proposed standards. These data indicate that we might be approaching the management standard, but for alternative 2 only. Should Alternative 2 be adopted, and should indirect counts reveal that the management standard is being violated (or any of the triggers in Table 5-32), some or all of the management responses identified in Table 5-32 will be implemented to reduce encounter rates below the management standard for that alternative (two parties per hour).

The number of Wilderness encounters has been chosen by Wilderness managers as an indicator for the social setting. Encounters among groups have an effect on solitude and such field measurements are relatively easy to accomplish (Watson, et al. 1998). Researchers and managers have at times chosen to monitor the number of individuals encountered, rather than the number of groups, due to difficulties distinguishing individuals’ affiliations with one another, especially in busy areas (Shelby and Heberlein 1986). However, where possible, documenting each group encountered as well as the number of people in the group would provide the most flexibility for subsequent analysis (Broom and Hall 2010).

Encounters are also an excellent way to assess use levels and density, which can affect other ORVs, such as the biological and cultural values identified for the Merced Wild and Scenic River. Although some studies have shown that there is a weak relationship between encounters and visitor perceptions of solitude and crowding (Graefe et al. 1984; Lee 1977; Stewart and Cole 2001), a more substantial body of literature supports the use of encounters as an indicator of solitude opportunities in Wilderness (Broom and Hall 2009; Graefe et al. 1984; Lee 1977; Manning et al. 2000; Stewart and Cole 2001; Vaske and Donnelly 2002).

**Management Standard**

Table 5-35 shows the range of standards across trail sections in Alternatives 2-6 of the *Merced River Plan/DEIS*, which must be met 80% of the sampled time to be within the management standard (if exceeded more than 20% of the sampled time, the management standard for this ORV would not be met). As is clear, the management standard will vary both by trail segment and by alternative. The management standard varies because trail sections have different degrees of access, with use levels generally dropping by distance from trailheads. As capacities for the corridor will vary across proposed alternatives, the standards for this indicator will also reflect this variation. This threshold takes into account sections of trail that have high, moderate, and low use, which was demonstrated as being an effective sampling schema in a study of encounter rates in the Tuolumne Meadows area (Broom and Hall 2010). All of the proposed standards provide full protection of the ORV 20, while allowing for a range of management objectives across alternatives.

**TABLE 5-35: AVERAGE ENCOUNTER RATES (PER HOUR, 80% OF TIME) FOR MANAGEMENT STANDARDS BY TRAIL SECTION**

Trail Segment	Alt 1 (No Action)	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Little Yosemite Valley to Lewis Creek	-	2	3	3	3	4
Lewis Creek to Lyell Fork	-	1	1	1	1	1
South Fork Merced	-	1	1	1	1	1

In all cases, this standard would take the mean encounter rate with other groups per hour across all designated trail sections, with that rate being met within any given segment at least 80% of the sampled time. The encounter rates in this table reflect the fact that these trails are all beyond the typical day-hike distance, so most users are backpackers, those taking packstock trips, and High Sierra Camp users. Therefore, these rates are substantially below the management standards proposed in the *Tuolumne River Plan/DEIS*, where most corridor trails experience substantial day-hiker use in addition to overnight users.

The numbers selected as standards for this indicator reflect preferences found in other studies and trends of encounter rates on the selected trail segments in Yosemite. Collectively, these studies represent years of data collection on trails with varying levels of use, both in Yosemite and elsewhere (Broom & Hall, 2009; Broom & Hall, 2010; Pettebone, Meldrum, Leslie, King, & Meath, 2010; NPS 2010g; and Cole & Hall, 2008). The



selection of the management standard also considered the encounter rates on the Half Dome Trail and the trail section from Nevada Fall to the Half Dome Trail Junction, which represent areas of high visitor use (Pettebone et al. 2010).

### *Adverse Effect*

An adverse effect would be present under this ORV should the mean encounter rate exceed 12 parties per hour 20% of the sampled time, across all trail sections sampled within the corridor, is exceeded for three consecutive years. This point is evaluated as the mean encounter rate with other groups per hour across all designated trail sections.

This number takes into account the mean number of parties per hour found along the Wilderness section of the Half Dome Trail on permit days and group encounters along the Dog Lake trail during the 2010 field season (Broom and Hall 2010; Pettebone et al. 2010). This threshold is also consistent with management guidelines at Mount Rainer National Park for the standard for high-use climbing zones (Lah 2000). In the Merced River corridor, 12 encounters would be a “trigger” that denotes adverse effect. The level of adverse effect in the river corridor was determined through multiple years of indirect and direct sampling, use in other areas of the park, and the high use of adjacent trails (Pettebone et al. 2010), and also reflects visitor preferences in studies of high-use destination in Wilderness (Cole and Hall 2008).

### *Degradation Standard*

Degradation would be present under this ORV should a mean encounter rate exceed 20 parties per hour 20% of the sampled time across all designated trail sections in a river segment, for three consecutive years. This point is evaluated as the mean encounter rate with other groups per hour across all designated trail sections.

Degradation for Wilderness encounters is defined at the level at which visitors perceive crowding is beyond an acceptable level. Encounter rates above this level cause displacement of visitors and detract from the visitor experience (Cole and Hall 2008). Cole and Hall found that on moderate use level trails, visitors who identified themselves as encounter tolerant would begin to be displaced at 80 encounters with other parties per day (roughly 20 encounters per hour) (Cole and Hall 2008). This standard is based on observations from several years of encounter data in the Merced River corridor, as well as preferences from hikers in studies of Wilderness use in the Pacific Northwest (NPS 2010g, Cole and Hall 2008, Broom and Hall 2010; Cole et al. 1997).

### *Monitoring – Wilderness Encounters*

Several locations would be monitored within the Merced River corridor, representing varying levels of use along trails within the Merced Wild and Scenic River. A total of three to five trail sections would be monitored in Segment 1. Trail sections along the South Fork Merced River would be monitored for Segment 5. All sites would be monitored during the high-use season. High-use sections of trails would be monitored on annual basis, utilizing automated trail counters. As monitoring will only capture the use on these sections during the busiest season (from May through October), winter and shoulder season use will not be captured. Traffic numbers and wilderness permits indicate substantially less wilderness use within the corridor during that time. Actual encounters or direct counts would be collected on a five-year rotation at low use and moderate-use sites, or with more frequency, depending on trends or trigger points being reached. Direct counts would be conducted in the high-use sites as needed to ensure that there is no

significant downward trend to the level of an adverse effect. Pack stock are counted during actual counts and these numbers are taken into consideration when analyzing encounter rates. Table 5-36 lists trigger points and specific management responses that would take place should conditions reach the trigger points.

**TABLE 5-36: MANAGEMENT ACTIONS AND TRIGGER POINTS TO MAINTAIN DESIRED CONDITIONS FOR WILDERNESS RECREATION ABOVE NEVADA FALL (ENCOUNTER RATES)**

Trigger Point(s) at Which Management Action Would Be Taken	Possible Management Actions	Rationale for Management Actions
<p><b>Trigger Point 1:</b> Individual trail sections (not the whole segment) demonstrate exceedence of management standard for given trail section more than 20% of the sampled time.</p>	<ul style="list-style-type: none"> <li>• Increase sampling intervals at low-use and moderate-use sites for direct observation. Increase direct observation sampling interval at high-use trail sections.</li> <li>• Continue to disseminate information to visitors regarding alternative trails within corridor. Encourage visitors to hike during days and times of day at which lower encounter rates occur.</li> </ul>	<p>To protect and assure that trail use is in compliance with our desired conditions, the NPS would gather additional information to determine that conditions are not trending toward adverse effects.</p>
<p><b>Trigger Point 2:</b> Individual trail sections (not the whole segment) demonstrate exceedence of management standard more than 15% of sampled time for three consecutive years.</p>	<ul style="list-style-type: none"> <li>• Make necessary changes in Wilderness quota system to better manage for opportunities for solitude.</li> <li>• Measures would be put in place that control visitor-use numbers at trailheads that are feeding to trail sections exceeding standards, including establishing day-visitor parking permits, and instituting changes to the shuttle system.</li> </ul>	<p>Quotas control the amount of overnight use in the Wilderness segments of the Merced River corridor. This standard would assist in determining if the existing quotas provide sufficient opportunities for solitude.</p>
<p><b>Trigger Point 3</b> All sections across the river segment exceed the designated standard more than 20% of the sample time for three consecutive years.</p>	<p>Establish day use permitting system for trailheads feeding trail sections that have exceeded standards. Make necessary changes in Wilderness quota system to better manage for opportunities for solitude. Institute hard closures of trailheads or parking as necessary to regulate use of Wilderness corridor.</p>	<p>If the management standard is exceeded for the segment level, and an opportunity for solitude is not provided, aggressive actions would be necessary to regulate the flow of individuals into Wilderness.</p>

***Management Concerns and Protective Actions***

Management concerns occur when the condition of a resource has reached one of the trigger points identified in Table 5-36. There are currently no management concerns associated with this ORV.

***Management Considerations and Enhancement Actions***

The list below is a summary of management considerations associated with this recreational ORV in Segment 1. Proposed management actions are presented immediately below each management consideration.

- Crowding at Little Yosemite Valley Camping Area impacts the Wilderness experience integral to the recreational ORV.

Alternatives 2 and 3 would reduce visitor use (thus crowding) at Little Yosemite Valley by converting the designated camping area to dispersed camping. Alternatives 2, 3, and 4 would reduce trailhead quotas at trailheads that lead to Little Yosemite Valley.

- High levels of use at the Merced Lake Backpackers Camping Area would affect the Wilderness experience integral to the recreational ORV in this segment.
 

Alternatives 2 and 3 would convert the camping area to dispersed camping. Under all alternatives, monitoring would continue for wilderness encounters as described in chapter 5, with actions specified that NPS would take to remedy any encounter rates that exceed standards.
- Merced Lake High Sierra Camp affects the Wilderness experience integral to the recreational ORV in this segment as it affects the undeveloped quality of Wilderness. Additionally, it has a visual impact on the scenery ORV.
 

Alternatives 2-5 consider options to reduce, repurpose, or remove the Merced Lake High Sierra Camp. When tents are replaced, the NPS would use fabrics that are either tan, beige, or light gray, so that the tents harmonize with their surroundings, thereby reducing contrast.
- Crowding at Moraine Dome Camping Area impacts the Wilderness experience integral to the recreational ORV.
 

Actions to address this consideration range from removal of Moraine Dome Camping Area (in Alternatives 2 and 3) to disperse use, to retention of this camping area as designated to concentrate use.
- High encounter rates on trails between Little Yosemite Valley and Merced Lake indicate that Wilderness experience integral to the recreational ORV in this segment could be experiencing negative effects, particularly on busy weekends. By addressing high levels of use and crowding at Little Yosemite Valley Camping Area and Merced Lake Backpackers Camping Area, a subsequent decrease in encounter rates on the trails is expected.
 

Alternatives to reduce encounter rates in this segment include reducing the Wilderness zone capacities in some alternatives from 25 to 100 people per day (current levels are 150 people per day). Also, implementation of the Half Dome permit system will control most day use in this segment.

### ***Conclusion: Protecting and Enhancing ORV 19 (Wilderness Recreation above Nevada Fall)***

Based on the analysis conducted for and represented in the Baseline Condition Report, the current condition of this ORV is at or above the management standard. Given the acceptable condition of this ORV, no actions to protect this ORV are necessary at this time. Some alternatives propose reductions in user capacity to reduce encounter rates and increase solitude in this Wilderness segment.

The *Merced River Plan/DEIS* proposes a variety of actions to address specific management considerations. To prevent these considerations and others from redeveloping, the NPS would monitor visitor encounter rates to ensure that they are not exceeding established standards. Should specific trigger points be reached, the NPS would be required to implement a series of specific actions to reduce visitor levels to an acceptable level. These actions increase in severity as the current condition ORV condition moves away from the management standard to ensure proper course correction and re-establishment of the management standard. These trigger points were selected to inform managers in advance of any adverse effects or degradation to this ORV.

## Recreational ORV—River-related Recreation in Yosemite Valley

**ORV 20—Visitors to Yosemite Valley enjoy a wide variety of river-related recreational activities in the Valley’s extraordinary setting along the Merced River.**

**Location:** Segment 2 (Yosemite Valley)

**Rationale:** Every year millions of visitors from around the world come to Yosemite Valley to recreate in and along the Merced River. Well-known and iconic features such as El Capitan, Yosemite Falls, and Half Dome provide a dramatic backdrop shaping the experience of first-time and return visitors alike. Visitors realize these experiences through a wide variety of activities occurring in and along the river. Activities include active pursuits such as hiking, biking, swimming, floating and water play, climbing, camping, or fishing; creative pursuits such as writing, painting, photography, and other arts; and educational and interpretive pursuits such as attending ranger-led walks and programs. Social elements, such as group camping and picnicking, are integral to many activities, while others offer opportunities for solitude and reflection.

Overall, the Yosemite Valley segment offers a variety of outstanding opportunities for front-country river recreation for people of all ages and abilities. The Merced River in this segment allows people to immerse themselves in their surroundings, taking in the sights, sounds, and feel of the river and its dramatic backdrop. These experiences, in turn, relieve stress and promote connection to the natural world.

**Management Objective:** Provide for a diversity of high quality river-related recreational opportunities that allow visitors to directly connect with the river and its environs amidst the spectacular scenery of Yosemite Valley.

### *ORV Condition at the Time of Designation (1987)*

The description of ORV 20 condition at the time of designation is broken into three subject areas: recreational activity participation, setting attributes, and recreational experience quality.

**Recreational Activity Participation:** In 1987, recreational opportunities in the Yosemite Valley segment were similar to those currently available. The most common visitor activities in this river segment at the time of designation included sightseeing, scenic driving, day hiking, wildlife viewing, picnicking, floating, creative arts, camping, bicycling, nature study, rock climbing, and engaging in ranger-led programs. In 1987, both day-use and overnight camping were popular in this river segment. In 1987, a larger number of riverside campgrounds were available. As a result of the 1997 flood, some of these areas were damaged and closed.

**Setting Attributes:** Throughout the Yosemite Valley segment, the river has provided major visual attractions—such as Vernal and Nevada Falls—and the setting for visitor recreational experiences such as fishing, floating, and sightseeing. The natural hydrologic forces that result in periodic Valley flooding have also influenced the Recreational ORV by affecting visitor access and facilities.

**Recreational Experience Quality:** Since designation, Yosemite Valley has afforded a variety of opportunities to view scenery and to travel along and interact directly with the Merced River. Gramann (1992) reported that at or near the time of the Merced designation, visitors to the park had a relatively high level of overall satisfaction with 93% reporting that their experience was “very good” or better.<sup>37</sup> This study also looked at visitor evaluations of satisfaction specific to Yosemite Valley. In general, most summer visitors to Yosemite Valley in 1991 reported that the level of conditions and facilities in Yosemite Valley was either “the right amount” or “not enough.” Two exceptions to this were the amount of vehicle traffic and the number of people. In general, a significant number of respondents felt that there was too much vehicle traffic and too many people in Yosemite Valley. These two issues are indicators of the pervasive capacity issues related specifically to Yosemite Valley at the peak times of day during the park’s busy summer season.

<sup>37</sup> Gramann 1992 presents useful information about the condition of the ORV at time of designation, as the park visitation remained relatively stable between these years (3.2 million in 1987 and 3.4 million in 1991).

**Current ORV Condition**

As with the condition at the time of designation, the current condition description for ORV 19 is broken into three subject areas: recreational activity participation, setting attributes, and recreational experience quality.

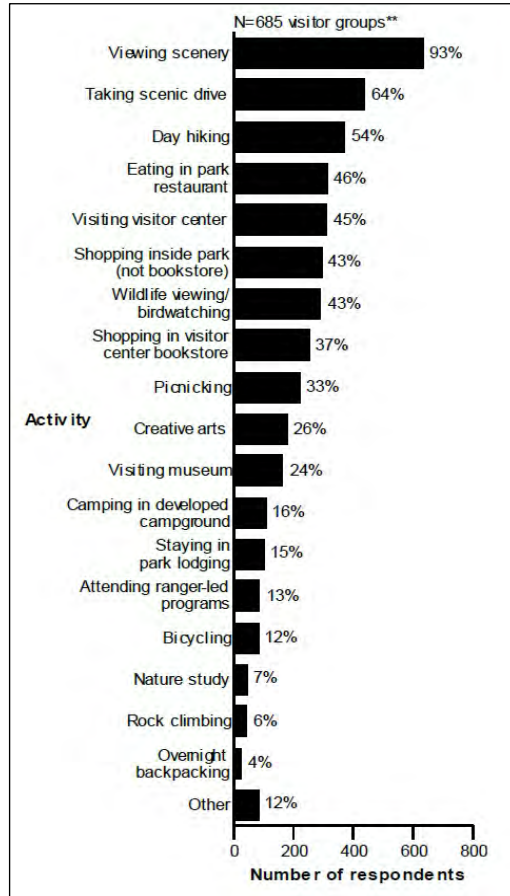
**Recreational Activity Participation:** Similar to 1987, the river corridor provides for a variety of opportunities to view scenery within Yosemite Valley and to travel along the river and interact directly with it. The most common visitor activities in the Yosemite Valley segment include scenic viewing, day hiking, wildlife viewing, picnicking, creative arts, camping, ranger-led programs, bicycling, floating, nature study, and rock climbing (Figure 5-3). Both day-use and overnight camping and lodging are available in this river segment. Campground sites in Yosemite Valley are in very high demand and often fill to capacity. Within Yosemite Valley, there are recreational opportunities available for visitors of all ages and ability levels. Visitors of all ages tour Yosemite Valley, with about one-fifth comprised of children and youth and 7% comprised of visitors 66 years or older. The uniqueness of Yosemite Valley attracts many visitors, who engage in a wide variety of activities.

**Setting Attributes:** While the flood of 1997 reshaped parts of the river corridor, the fundamental hydrological and setting components that attract visitors to the Merced River in Yosemite have changed very little since designation.

**Recreational Experience Quality:** In 2010, Yosemite Valley received approximately 3.56 million visitors (89% of total park recreational visitation during that year) (NPS Public Statistics Office). As part of the NPSwide Visitor Services Project, a survey conducted in summer 2005 recorded visitor perceptions of crowding and, in the absence of facility or visitor population changes, the study’s findings may offer a reasonable representation of the 2010 conditions. Approximately 55% of the survey respondents reported feeling crowded by other visitors in Yosemite Valley (Littlejohn et al. 2006, Blotkamp et al. 2010). In a 2008 visitor survey, 40% of the park’s winter visitors stated that they chose to visit Yosemite during the wintertime to avoid crowds (Le et al. 2008), providing another indication of perceived Yosemite Valley crowding.

The river and related attraction sites are focal points for visitor use and provide opportunities to experience Yosemite Valley’s Recreational ORVs. Visitor perceptions of crowding were measured as part of several past visitor surveys (Manning 1998, 1999; White and Aquino 2008; Lawson et al. 2009).<sup>38</sup> While

**FIGURE 5-3: SUMMER VISITOR ACTIVITY PARTICIPATION (BLOTKAMP ET AL. 2010)**



<sup>38</sup> NPS is currently undertaking an additional river-specific use study during summer 2011, the results of which should be available late in 2012.

methodologies and results varied between these surveys, all of these studies found some perceptions of crowding among the visitors sampled. Notably, up to 80% of those sampled in one survey (regarding Bridalveil Fall) stated that they felt crowded during their visit (Manning 1998, 1999). Across these studies, that span more than a decade of research, all visitors surveyed reported a perception of crowding though the specifics of each of these studies varied depending on the visitor, place, and time of survey.

Currently, visitors to the Merced River in Yosemite Valley continue to report a relatively high level of overall satisfaction. According to the most recent visitor survey, most visitor groups (92%) rated the overall quality of facilities, services, and recreational opportunities at Yosemite National Park as “very good” or “good” (Blotkam et al. 2010).

### ***Management Program for ORV 20***

This section discusses the proposed management program for this ORV, including the indicator(s) to be used; the definitions of management standard, adverse effect, and degradation; and the monitoring program. A recent study of river recreational users suggests that crowding resulting from the current transportation system had the most negative effect on their recreational experience (Whittaker and Shelby 2012). If users are negatively affected in how they access the river, then this may directly impact their experience of this ORV. In other words, if visitors are not able to reach the river in an efficient manner to engage in their preferred recreational activities, then their experience of—and therefore the quality of—the recreational ORV is diminished. To monitor the conditions of this ORV, two distinct indicators will be used across a variety of settings in Yosemite Valley. The number of vehicles parked at one time in Yosemite Valley is the first indicator; this indicator will provide managers with information about users’ experience accessing the river. The second indicator will evaluate densities of people at iconic destinations known to be visited by most Valley visitors, as a way of understanding use conditions. This array of indicators is thought to be most effective in understanding the dimensions of Recreational ORV 20 that most, if not all, people would interact with while visiting Segment 2. This information can be compared to visitor perceptions of crowding at particular sites. The compilation of this evaluative social science data can be applied to further understand how visitor use is occurring along the river segment as a whole.

#### **Indicator 1 – Vehicles at One Time**

Transportation is considered an important part of the visitor experience in Yosemite and other National Parks (White et al. 2008), because it is the means of access to ORV 20. Sixty-four percent of summer visitors reported taking a scenic drive, and 11% considered it their primary activity while in the park (Littlejohn et al. 2009). Additionally, the Yosemite Valley transportation experience (perhaps the most-studied system in the national parks) is multi-dimensional, with three major roads terminating in Yosemite Valley. The experience can be influenced by travel times, parking availability, entrance station queuing, and a variety of other measurable experiential factors, most of which can be influenced by park management.

Vehicles at one time (VAOT) is the total number of vehicles on the ground at any one time in Yosemite Valley. This figure, along with parking utilization rates (the percentage of available parking spots occupied by vehicles), constitutes this indicator. Through both traffic volume counters and direct observation, this single indicator evaluates the total vehicles at one time in all river segments and compliance with authorized parking locations. Vehicles at one time would be assessed in two ways: 1) through automated traffic counters that factor inbound and outbound travel to the river segment; and 2) through direct observation of parking utilization, which would determine if parking is occurring at unauthorized locations.

This indicator builds from Yosemite Valley parking inventories conducted in 2004 and updated in 2011. Given the current configurations of the roadway and parking locations, daily accumulations of 5,000 vehicles arriving in east Yosemite Valley appear to provide for sufficient parking and manageable traffic circulation (DEA 2012). Parking availability for this level would meet supply if 5,091 spaces are available (total), with employee/administrative parking comprising 670 of those parking spaces. (The exact locations of formal parking outlined in the plan may change depending on which alternative is selected.)

This indicator would document any parking shortages during the busiest days of the year and determine management effectiveness in keeping overflow parking out of unauthorized, inappropriate locations. Additionally, vehicle accumulations will be documented for both overall Yosemite Valley and East Valley locations through an automated traffic counting system. To ensure consistency across alternatives, standards would be communicated through proportions of parking supply at peak hour. Monitoring sites will include a representative sample of parking locations and may occur during the most crowded times of the year. This sampling approach is consistent with scientific literature and allows the park to understand any variability in parking occurring at site specific levels (such as seasonal fluctuations to access river or climbing sites, etc.) while understanding its relation to larger Yosemite Valley vehicle accumulations.

### ***Management Standard***

Vehicles parked in east Yosemite Valley during the summer season would not exceed supply more than 10% of the time at peak hours (defined for this indicator as 10 a.m. to 4 p.m.) including the holiday weekends of Memorial Day, Fourth of July, and Labor Day.

### ***Adverse Effect***

An adverse effect would occur should the vehicles parked in east Yosemite Valley exceed the parking supply 25% of the time at peak hours, or a change of 20% in exceeding parking supply over a three-year sample period, including the holiday weekends of Memorial Day, Fourth of July, and Labor Day.

### ***Degradation Standard***

Degradation would be present under this ORV should vehicles parked in east Yosemite Valley exceed parking supply 50% of the time at peak hours, including the holiday weekends of Memorial Day, Fourth of July, and Labor Day.

### ***Monitoring – Vehicles at One Time***

The NPS would monitor vehicles at one time annually for the first three years of implementation. Implementation of the plan may change the configuration of the parking and the baseline for parking supply may have to be adapted to account for these infrastructure and associated behavioral changes. After three years of initial monitoring, it would take place every three years to detect change. This monitoring schedule would ensure that both segment-wide and site-specific information is gathered. Unauthorized parking that occurs in sensitive resource areas would be monitored, particularly during busier times of the peak visitor season. Table 5-37 lists triggers and specific management responses that would take place should conditions reach the trigger points.

**TABLE 5-37: MANAGEMENT ACTIONS AND TRIGGER POINTS TO MAINTAIN DESIRED CONDITIONS FOR RIVER-RELATED RECREATION IN YOSEMITE VALLEY (VEHICLES AT ONE TIME)**

Trigger Point(s) at Which Management Action Would Be Taken	Possible Management Actions	Rationale for Management Actions
<p><b>Trigger Point 1:</b> For three consecutive monitoring periods, vehicles parked would not exceed parking supply 5% of the time between the hours of 10 am and 4 pm.</p>	<ul style="list-style-type: none"> <li>• Increase monitoring efforts to further investigate vehicle volumes, parking, and travel time conditions.</li> <li>• Develop suggested itineraries to re-direct visitors to other areas of the park during systematic and empirically based diversions of vehicles at the El Capitan crossover.</li> <li>• Increase natural barriers, communication, and signage emphasizing compliance with endorsed parking locations.</li> <li>• Increase delineation of parking type (short-term and long-term) to ensure parking availability to a greater number of visitors but for shorter periods of time.</li> </ul>	<p>Exceeding this trigger point routinely warrants further identification of the issue, or assurances that visitors are not parking in unendorsed locations.</p>
<p><b>Trigger Point 2:</b> For three consecutive monitoring periods, vehicles parked would not exceed parking supply 9% of the time between the hours of 10 am and 4 pm.</p>	<ul style="list-style-type: none"> <li>• Establish visitor day use permitting system for Yosemite Valley prior to the management standard is exceeded.</li> </ul>	<p>If the management standard is exceeded for the segment level, parking is not available for the amount of vehicles being allowed into Yosemite Valley.</p>

Traffic conditions as measured in 2011 from the Chapel Straight vehicle counter indicate that conditions are below the management standard, trending toward an adverse effect. For this one summer, parking exceeded endorsed parking 25% of the time between 10 am and 4 pm during the summer season (Memorial Day to Labor Day weekends) (*three* summers exceeding 25% of the parking supply would constitute an adverse effect). As discussed in more detail below, Alternatives 2-6 consider a variety of management responses to address this adverse effect.

**Indicator 2 – Visitor Densities**

This indicator serves as a proxy for the quality of the visitor experience in the Yosemite Valley segment. Visitor densities refers to the number of people in a given area; it is a common measure for the degree to which the amount of use causes crowding or negative impact to aspects of a visitors’ experience. Densities would be monitored at various locations depending on the activity type in the area (e.g. the number of people per area at a beach versus the number of boats at one time on the river). In some cases, two metrics would be implemented at the same location to ensure that accurate levels of use are captured, especially at more complex locations where use levels are high and a variety of different activities take place. The site locations have been chosen from many years of data collection and evaluation of the relationships between person densities at specific locations and overall use levels. Namely, the attraction sites of Bridalveil Fall and Yosemite Falls are iconic, visited by more than half (52% and 59% respectively) of all visitors to the park in the summer (Blotkamp et al 2010), and are documented to exhibit some of the highest levels of visitation in Yosemite Valley (Pettebone et al 2008).

The following definitions are important to the explanation of this indicator:

- **Person Densities:** Densities are a calculation of people or boats within a known geographic space displayed as X feet<sup>2</sup> per person. Not all locations have been measured spatially, so at one time counts are still used in those instances.
- **BAOT:** Boats at one time is the number of boats visible in a geographically defined section of the river at one point in time.



These measures have been chosen to reflect crowding and related recreational experience quality impacts at the key activity areas in and along the river. As such, they serve as proxies for the quality of the recreational ORV. Crowding, in terms of people or boats, has been shown to negatively affect a visitors' experience (Whittaker and Shelby 2010). To address this consideration, the use of at-one-time measures at popular destinations at specified intervals can give park managers a full understanding of the temporal and spatial use of the site. Normative research has found that an ideal site-crowding condition exists for visitors' recreational experiences and that these norms can help inform social indicators and standards (Manning et al. 1999; Shelby et al. 1983; Shelby et al. 1989). BAOT is commonly used as an indicator in river recreation (Hannon et al. 2002), and has been used to determine how many boats are on a larger (than the geographically defined area) river segment (Whittaker and Shelby 2010). BAOT has also been shown to strongly influence perceived crowding and encounter norms (Needham et al. 2011).

Two studies conducted in Yosemite Valley utilized normative research and compared the differences among attraction sites, forming the basis for the development of the at-one-time indicators in Yosemite, (Lawson et al. 2008; Manning et al. 1999). Research data were collected through a survey-based photo evaluation technique in which the visitor was presented with a set of images depicting different amounts of use at a given location (see chapter 6, part III). At-one-time measures like this collect data on visitor use in the same fashion, counting only individuals within the constraints of the area in the photo frame. These ways of quantifying visitor use levels allow us to correlate use levels across locations (Lawson et al. 2009). Management standards for this indicator have been developed based on the analysis of current use and previous research, both within Yosemite NP and in other like locations.

### ***Management Standard***

No more than three (50%) locations exceed their site level standard, provided in Table 5-38, 50% of the time for three consecutive years. This standard for social preference is based on peer-reviewed literature (Lawson et al. 2008; Manning and Lawson 2003) and professional judgment. Management would take action at those specific site level standards that are exceeded and/or increase segment-wide monitoring

### ***Adverse Effect***

An adverse effect would occur when four or more locations exceed their site level standard, provided in Table 5-38, 50% of the sampled time for three consecutive years. Management would take action at those specific sites that are exceeded and/or increase segment-wide monitoring. Adverse effect for social standards is based on peer-reviewed literature (Lawson et al. 2008; Manning and Lawson 2003) and professional judgment.

### ***Degradation Standard***

Degradation would be present under this ORV when four or more (66% of) locations exceed their site level standard, provided in Table 5-38, 80% of the sampled time for three consecutive years. Using the level of adverse effect and adjusting the percentage of time that this use level occurs, allows for visitor experience to remain at a specified level, until there is little opportunity for that experience to occur. Increasing the percentage of time that the standard is violated decreases visitor acceptability, leading to visitor displacement. Degradation for social standards is based on peer-reviewed literature (Lawson et al. 2008; Manning and Lawson 2003) and professional judgment.

**TABLE 5-38: SITE-LEVEL STANDARDS FOR THE RECREATION ORV AT-ONE-TIME AND PERSON DENSITY INDICATOR, COMPARISON ACROSS ALTERNATIVES**

Alternatives		1	2	3	4	5	6
		Current condition	Self-reliant experiences and extensive floodplain restoration	Dispersed experiences and extensive riverbank restoration	Resource-based experiences and targeted restoration	Enhanced experiences and essential riverbank restoration	Diversified experiences and selective riverbank restoration
<b>Visitor density indicators</b>							
Primary viewing areas / attraction sites	(ft <sup>2</sup> /person)	50	70	70	60	50	40
Vernal Fall trail	(ft <sup>2</sup> /person)	40	60	60	50	40	35
Multi-use trails / East Valley hiking trails	(ft <sup>2</sup> /person)	40	60	60	50	40	35
West Valley hiking trails	(ft <sup>2</sup> /person)	100	140	120	100	80	80
Shore use East Valley (High use)	(Linear feet / person)	10	20	20	10	5	5
Shore use East Valley (Medium use)	(Linear feet / person)	10	20	20	10	5	5
Shore use West Valley (Low use)	(Linear feet / person)	10	10	10	10	10	10
<b>Boating indicators</b>							
Boats at One Time: Stoneman Bridge to Sentinel Beach	BAOT per 400 feet	6	1	2	6	3	9
1. Standard: average cannot violate standard more than 10% of time between 10 a.m. and 4 p.m.							

**Monitoring – Visitor Densities**

All monitoring sites are located within Yosemite Valley segment 2 and are considered river dependent and related. The Vernal Fall trail site is a 50-meter section approximately 0.25 mile up the paved trail to the fall. The beaches at Devil’s Elbow and Housekeeping East are two other sites, each of which would have one PAOT count. The Superintendent’s River Section, still another sites, is monitored using a BAOT count. Each site has an area of a different size that is sampled, and each site has been geo-referenced so that the area of each site can be quantified in terms of the amount of area afforded to each person in that space. Additionally, the sites described above were chosen because they are Valley attraction sites and are important in determining the quality of visitor experiences in Yosemite Valley (Lawson et al. 2008; Manning et al. 1999). The trail sites also provide areas where counters can be utilized with greatest accuracy for predicting visitor-use estimates (Pettebone et al. 2010). Monitoring would take place on randomly selected sample days throughout the summer field season (defined as at least 10 days between Memorial Day to Labor Day weekends) annually. Table 5-39 lists segment-level triggers and specific management responses that would take place should conditions reach the trigger points.

**TABLE 5-39: MANAGEMENT ACTIONS AND TRIGGER POINTS TO MAINTAIN DESIRED CONDITIONS FOR RIVER-RELATED RECREATION IN YOSEMITE VALLEY (VISITOR DENSITIES)**

	Trigger Point(s) at Which Management Action Would Be Taken	Possible Management Actions	Rationale for Management Actions
	Two locations exceed their site level standard 10% of the time over a three-year interval between the hours of 10 a.m. and 4 p.m.	Increase monitoring interval. Educate visitors about crowding issues and inform them of alternate recreation opportunities.	To protect and assure that recreation use is in compliance with NPS target conditions, the NPS can gather additional information to determine that conditions are not trending toward the management target. To maintain the level of acceptable preferences, as reported by Lawson et al. (2008), management actions, such as education and outreach to the visitors, would help to maintain the level of use within the target condition.
	Five locations exceed their site level standard 10% of the time over a three-year interval.	Permitting of affected areas (restrict east or west Valley). Segment-wide permit system.	

### *Management Concerns and Protective Actions*

Management concerns occur when the condition of a resource has reached one of the trigger points identified in Table 5-37 or Table 5-39. As noted above, this ORV is not currently meeting the management standard, as indicated by the parking indicator. See the next section for a discussion of the actions proposed in the alternatives in this plan to address this situation.

### *Management Considerations and Enhancement Actions*

In addition to the management concern that is occurring, there are also several management considerations pertaining to this ORV. The list below presents these considerations, each of which is followed by a discussion of the actions proposed in this plan to address them. There are also actions proposed in this plan that would improve aspects of the visitor experience that affect recreation activities in the Merced River corridor, including actions affecting restoration of the natural and scenic setting, paddling and boating, camping, picnicking, and wayfinding. However, this analysis of the recreational ORV is focused on the management considerations and corrective actions that affect the measurable indicators, which are targeted to vehicles present at any one time and people present at any one time on trails, at attraction sites, in boats, and along riverbank sites. For this reason, the following list only includes actions that would affect transportation and visitor-use management in Segment 2.

- Throughout the peak summer season, significant delays in outbound traffic flow are experienced at the intersection of Northside Drive and Village Drive (Yosemite Village Day-use Parking Area intersection). Yosemite Village Day-use Parking Area, formally called Camp 6, is a six-acre dirt lot currently used to park a maximum of 517 vehicles on peak days, with the use of directed parking. Demand for visitor day parking exceeds supply during summer peak-use periods. This unimproved parking area, which is in the 5- to 10-year floodplain, has no design mitigations to protect water quality. In addition, it is a former meadow and is located in the channel migration zone. Some areas of the Yosemite Village Day-use Parking Area are constructed with fill, decreasing the extent of overbank flooding. To address this management consideration, Alternatives 2-6:

Consider options that range from locating the parking to the north of the road, to constructing a vehicle roundabout and a pedestrian undercrossing to address congestion of the intersection and pedestrian/vehicle conflicts.

Consider options that range from ecological restoration of the 10-year floodplain to restoration within a 150-foot buffer from the ordinary high water mark.

Consider parking capacity options that range from a lot with 550 to 850 spaces.

- Throughout the peak summer season, significant delays in outbound traffic flow are experienced at the intersection of Northside Drive and Village Drive (Yosemite Village Day-use Parking Area).

Actions at this intersection range from realigning this intersection to a proper four-way in Alternatives 2 to 4, to construction of a roundabout under Alternatives 5 and 6. Alternative 6 also considers an additional roundabout at Northside Drive and Sentinel Drive (Bank 3-Way).

- Demand for day-visitor parking exceeds supply during summer peak-use periods.

Alternatives consider different amounts of day use parking and related management actions. Some alternatives expand day use parking supply and alternative transportation, while others limit day use to levels lower than current demand.

Additional parking proposed across the alternatives is provided at an area west of Yosemite Lodge (Alternatives 2 and 4 would accommodate 150 spaces, Alternatives 5 and 6 would accommodate 300 spaces), West Valley (alternative 5 provides 100 parking spaces and alternative 6 provides 250 spaces), and at a remote parking lot in El Portal (200 spaces in alternatives 4 to 6).

- The shoulder of Sentinel Drive is used for overflow day-use parking. Sensitive habitat in this location is being trampled and destroyed.

Under Alternatives 2-6, roadside parking along Sentinel Drive would be removed and restored to natural conditions.

- Wilderness-related parking area was not designed as a formal parking area and therefore does not include Best Management Practices.

Under Alternatives 2-6, the Curry Village former landfill site at the Wilderness parking lot would be remediated and parking would be formalized in such a way that provides for proper drainage.

- Parking supply at The Ahwahnee is inadequate to meet overnight and day-visitor demand.

Under Alternatives 2-6, the existing parking lot would be redesigned and parking would be formalized to provide for proper drainage. Parking would also be expanded to the area west of the hotel to accommodate current demand and make up for the parking lost in the recent rock fall event.

- Crowding is common during peak season along the river and at popular attraction sites.

Crowding, as it pertains to the Recreation ORV in Segment 2, is managed through the day-visitor capacity management strategies outlined in Chapter 8. Not all actions are required in the current state of each alternative, but could be leveraged in the future of any alternative as directed by indicators and ongoing monitoring efforts. Specific actions as they apply to each Alternative are outlined in Chapter 8 and may include the following tools:

- Utilize parking and traffic management staff to improve parking efficiency and traffic flow in Yosemite Valley and other locations throughout the river corridor where needed. (This may include limiting day-use parking to West Valley overflow or diverting traffic to checkpoints throughout the park and at entrance stations.)
- Expand public transit to additional corridors and the Yosemite Valley shuttle to West Valley locations.
- East Valley day-use parking permits would be issued by advanced reservation and on a first-come-first-serve basis—checked at park entrance stations and secondarily at Valley locations or parking areas.

Visitors participating in boating and other river-based recreation activities have caused localized impacts to the riverbanks at the put-in and take-out locations (Cardno ENTRIX 2012). Additionally, local impacts to riverbanks have been caused by allowing easy access for non-boating visitors to sensitive riverbanks all along the river. The riverbank is highly eroded and widened at rafting put-in below Stoneman Bridge. Public comment also has indicated a desire to have more boating opportunities in the river corridor.

- Under all alternatives, swimming and waterplay are allowed in all segments, except short sections where noted in the Superintendent's Compendium due to health and safety risks. Private boating is by permit only in Alternatives 2-6.
- Alternatives range from private-use boating only to a combination of private and commercial use.
- Chapter 8 provides more detailed descriptions of the range of actions to address this management consideration under each alternative.

***Conclusion: Protecting and Enhancing ORV 20 (River-related Recreation in Yosemite Valley)***

Based on the analysis conducted for and represented in the Baseline Condition Report, the current condition of this ORV is below the management standard, with a management concern present. To return the condition of this ORV to the management standard, a variety of actions are proposed in Alternatives 2-6. The *Merced River Plan/DEIS* proposes a variety of other actions to address the management considerations pertaining to this ORV. To prevent these considerations, and others, from redeveloping, the NPS will monitor parking rates and vehicles at one time to ensure that they are not exceeding the management standard. Should specific trigger points be reached, the NPS would implement a series of specific actions to improve parking to an acceptable level. Similarly, should visitor densities begin to approach specific triggers, NPS would take steps to keep such densities within the management standard.

## CONCLUSION

Protecting and enhancing the river values will be accomplished through the means identified in this chapter. To ensure that visitation does not adversely affect or degrade those river values, the *Merced River Plan/DEIS* also specifies the user capacity of each alternative as well as the means by which those capacities will be enforced. This user-capacity discussion is the subject of the next chapter.

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## 6. VISITOR USE AND USER CAPACITY

This chapter is divided into three sections to describe how the following user capacity requirement of the Wild and Scenic Rivers Act (WSRA, Section 3(d) (1)) is addressed in the Merced River Plan:

*“ . . .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.”*

**Part I: Introduction and Background to User Capacity** includes definitions and background material for understanding how user capacity has been addressed in the *Merced River Plan/DEIS*. This section includes a list of “Frequently Asked Questions” to address common misunderstandings or assumptions about user capacities and to establish a basis for the technical components of the next two sections.

**Part II: Process to Address User Capacity** provides an overview and explanation of the process used to address user capacity in the *Merced River Plan/DEIS*. Each process step is explained in general terms here while the specific outcomes of each step are discussed in Part III.

**Part III: User Capacities** provides more detail about the specific user capacity decisions in the *Merced River Plan/DEIS*, organized by river segment. The content for each segment includes the relevant management goals and considerations to be addressed, selected indicators and standards, quantitative determinations of user capacities, and specific actions related to managing capacity.

### Road Map to User Capacity Information in the *MERCED RIVER PLAN/DEIS*

User capacity and visitor management information is provided throughout this DEIS. The following is a “road map” to user capacity topics or related information that is contained in the various plan chapters.

**CHAPTER 1: Planning goals** for the *Merced River Plan/DEIS* have been summarized in Chapter 1, the Merced Wild and Scenic River. These include capacity and visitor management goals from the 1980 General Management Plan (GMP) and those developed specifically for the *Merced River Plan/DEIS*. They provide overall direction to protect natural and cultural resource values, provide high quality visitor experiences related to the river, and address crowding and traffic impacts through a visitor management program.

**CHAPTER 2:** The **need for addressing user capacity** and some background on Merced planning litigation is summarized in Chapter 2, the Purpose and Need for the *Merced River Plan/DEIS*. More specific information about the capacity requirement in the WSRA is provided in Part 1 of this chapter. Chapter 2 also includes a summary of public involvement in the planning process, including a description of **public workshops focused on the subject of user capacity**.

**CHAPTER 3:** The *Merced River Plan/DEIS's* **river segments** are defined in Chapter 3, Merced River Boundaries and Segment Classifications. These define the locations where capacities apply. River classifications help inform the kinds and amounts of use and support facilities that are appropriate for various river segments.

**CHAPTER 4:** The **Section 7 determination process** guides decisions pertaining to development within the bed and banks of the river.

**CHAPTER 5: River values** are defined in Chapter 5, River Values and Their Management. This chapter summarizes the process to protect and enhance the river's values, and then defines the river's free flowing condition, water quality, and segment-specific “outstandingly remarkable values.” For each value, the chapter summarizes **baseline conditions now and at the time of designation** and **management indicators and standards by alternative**.

**CHAPTER 6:** This chapter provides greater detail on the subject of user capacity than is found elsewhere in the document.

**CHAPTER 7:** Contains the *facilities and services analysis* that helped inform decisions in the plan regarding the appropriate types and levels of infrastructure and related visitor services.

**CHAPTER 8:** A *description of current management* or the “no action alternative” is provided in Chapter 8. Current management includes existing user capacities (e.g., for overnight accommodations, campgrounds, and backcountry use).

Management *actions to protect and enhance river values that are “common to all” alternatives* are also provided in Chapter 8. These include several restoration and infrastructure decisions that affect capacities (e.g., overnight accommodation levels, space available for parking, or transportation infrastructure development). Specific measurable limits on use that are common to all action alternatives are included in this section.

*Individual alternative descriptions* are provided in Chapter 8. These include information about user capacities by river segment for overnight, day and administrative uses throughout the corridor. This chapter also includes the various management actions that would be taken in each alternative to protect and enhance river values. Specific measurable limits on use that are unique to a particular action alternative are included in this section.

**CHAPTER 9:** *The environmental consequences of the alternatives* (which include user capacities) are provided in Volume II of the DEIS. These NEPA-based assessments are largely qualitative descriptions of environmental effects, but include some *quantitative analyses based on capacity decisions* (e.g., local economic impacts, meadow or riparian conditions, peak season densities at recreation attraction sites).

## PART I. INTRODUCTION AND BACKGROUND

The WSRA requires the National Park Service (NPS) to protect river values while allowing for recreational and other public use that does not “substantially interfere” with those values. The WSRA gives “primary emphasis to protecting the river area’s esthetic, scenic, historic, archeological and scientific features.” The *National Wild and Scenic Rivers System: Final Revised Guidelines for Eligibility, Classification and Management of River Areas* (Secretarial Guidelines) define “carrying capacity” in the context of a management plan to mean “the quantity and mixture of recreation and other public use which can be permitted without adverse impact on the resource values of the river area.”<sup>1</sup> Under the Secretarial Guidelines, public use should be regulated and distributed where necessary to protect and enhance river values. Public use may be controlled by limiting public access to the river, by issuing permits, or by other means available to the managing agency through its general statutory authorities.

The U.S. Court of Appeals for the Ninth Circuit has interpreted these mandates to mean that a comprehensive river management plan “must deal with or discuss the maximum number of people that can be received” in the river area, and that the NPS must “adopt specific limits on user capacity” that “describe an actual level of visitor use that will not adversely impact” river values.<sup>2</sup> The *Merced River Plan* has been developed to be consistent with WSRA and the Guidelines, as interpreted by judicial opinions.

As indicated by recent literature (Whittaker, Shelby, Manning, Cole, and Haas, 2010), user capacities have three basic components: units of use, location, and timing.

<sup>1</sup> Guidelines at 39459. WSRA and the Secretaries’ Guidelines use the terms “carrying capacity” and “user capacity” interchangeably.

<sup>2</sup> *Friends of Yosemite Valley v. Kempthorne*, 520 F.3d 1024 (9th Cir. 2008).



## Units of Use

In the *Merced River Plan/DEIS*, user capacities are organized into three major categories: 1) overnight use, 2) day use, and 3) administrative use.

**Overnight use:** This category includes people who stay in a campsite in the Merced River corridor, in one of the Yosemite Lodges or the Merced Lake High Sierra Camp, or who backpack in the Yosemite Wilderness. Overnight use levels are calculated as the maximum occupancy of all camping, lodging, and wilderness zones per night.

**Day use:** This category includes people who come for all or part of a day to sightsee, hike, or pursue other activities, spending the night outside the river corridor. Much of this use is concentrated in the Yosemite Valley and Wawona segments, although day users also visit wilderness segments that can be reached on a day hike from Yosemite Valley or Wawona. This category also includes people passing through on Highway 140 who make a brief stop at the roadside pullouts in the El Portal and Gorge river segments.

**Administrative use:** This category includes NPS, park concessioner, park partner, and volunteer personnel. Specific examples include trail crews, maintenance workers, resource protection staff, scientific research teams, commercial delivery drivers, and campground staff. Specific examples of concessioner uses include employees working at the hotels and lodges, visitor center, store, and food service outlets.

## Location

User capacities are location-specific and defined for specific river segments (and in some cases for smaller areas within segments, such as boating reaches). Areas where use levels are more highly concentrated in the river corridor include the following:

- The Merced River upstream of Nevada Fall, specifically the more concentrated backcountry use and overnight development found in the vicinity of the Merced Lake High Sierra Camp;
- Yosemite Valley, the most developed and high use area in the corridor, which has implications for use in other segments;
- Wawona, a small community with a concentration of use and development; and
- El Portal, a NPS administrative site and community with residential facilities, a hotel under private ownership, and other services that affect use in the Valley and elsewhere in the corridor.

## Timing

Timing for user capacities can also vary. For example, user capacities can be expressed in terms of the number of people per day, or annual visitation, or some other time period. In the *Merced River Plan/DEIS*, user capacities are expressed in terms of the number of “people at one time” (PAOT) during high use periods. This recognizes that peak use conditions for lodging, camping, roads, parking areas, viewing areas, or beaches are particularly important, and are different from total daily visitation (see below). These capacities ensure acceptable conditions during peak use times. By extension, they also ensure that lower use time periods, such as early or late in the day or during shoulder seasons will provide even lower use levels.

## User Capacities and Visitation

The park calculates and reports estimated visitation each year. Visitation estimates are based on traffic volumes, as recorded by automated vehicle counters at entrance stations, and assumptions about the number of people per vehicle. Trends in visitation are of interest to local gateway communities, the park concessionaire, and park managers because the number of people coming to the park each year directly affects local employment, business revenues and park programming. It is important to understand the relationship between user capacities (which are the focus of this plan), annual visitation estimates for a given capacity, and assumptions about the effects of varying use levels on river values. The following sections explain how these different measures are related.

**User Capacities:** Most user capacities for the Merced River Plan/DEIS are expressed as People at One Time (PAOT), defining the maximum number of people that can be received in the corridor at one time without adversely impacting or degrading river values, and without substantially interfering with public use and enjoyment of those values. These at-one-time user capacities have implications for overall visitation; they help determine the total number of people that access different segments throughout the course of a day.

**Visitation:** Visitation is an expected use level over a specified period of time (e.g. 24 hours), given a specified user capacity. Visitation levels are estimated on the basis of several assumptions that are verified by periodic monitoring. These assumptions include: (1) average number of people per vehicle; (2) average occupancy rates of various overnight accommodations; and (3) expected turnover rate of day-use parking spaces as people enter and exit the park during the course of a day.

## Visitor Use Patterns, Behavior and Impacts

User capacities and related visitation are based on assumptions about visitor use patterns and behaviors. These use patterns and behaviors have been studied and documented over a number of years (see for example, Manning et al. 1998; Manning et al. 1999; Lawson et al. 2008). These assumptions relate to whom and how many people visit the park, when they arrive, what activities they participate in, where they go, and how they behave. Because visitor use patterns and behaviors are well documented and generally predictable, each alternative anticipates likely impacts from different levels of visitation and balances facility improvements with other management actions (such as restoration or other mitigation) to protect river values and prevent unacceptable impacts. More intensive actions are generally needed to accommodate higher use levels.

### BACKGROUND ON USER CAPACITY

User capacity, or “carrying capacity” as it has traditionally been referred to, has a long history in natural resource management and has been applied to timber, rangelands, fish and wildlife populations, and recreation use. With philosophical roots that stretch back to Malthus’ population principle (1803) and Hardin’s “tragedy of the commons” (1968), capacities recognize that environments have limits and that ever-increasing use is likely to degrade conditions and become unsustainable. Applications of capacity in park and recreation settings followed rapid growth in outdoor recreation after World War II, prompting public concern over wild lands being “loved to death” (Wagar 1946; DeVoto 1953; Clawson and Held 1957). Focusing on the amount and type of use that recreation areas can accommodate without impairing their values, user capacity continues to play a fundamental role in the effort to protect high quality environments and experiences.

Several natural resource decision-making processes developed in the 1960s and 70s recognized the importance of capacities. The National Environmental Policy Act (NEPA 1969) provided the overarching planning framework for federal lands, ensuring that multiple uses and values were systematically addressed by developing alternatives and evaluating consequences. Several land management initiatives (e.g. Wilderness Act 1964), the Land and Water Conservation Fund Act (1964), the Wild and Scenic Rivers Act (1968), the National Trail System Act (1968), and the National Park and Recreation Area Act (1978) also addressed capacity or related issues. These initiatives encouraged increases to the supply of wildland resources for recreation while recognizing the need to manage the type and amount of recreation use to protect experiences and resources.

Research explored many ecological and experiential impacts in these settings, showing that some impacts may occur even with low levels of use. Deciding which conditions are desirable, how much impact is unacceptable, how use levels affect conditions, and how much use should be accommodated became the focus. To answer these questions, researchers recognized the importance of clear management goals and specific objectives for ecological, cultural, and experiential resources. Several researcher-developed planning frameworks identified specific terminology and steps that could be used to identify and manage impacts from recreation use. Although there are differences in orientation and emphasis among these processes, they all recognize potential trade-offs between different use levels, conditions, and management actions while providing high quality experiences (Whittaker et al, 2011).

User capacities are a common management tool used by many local, state, and federal agencies (Brown 2001), and the topic has been the focus of several national conferences, recent review papers (Whittaker et al., 2011; Graefe et al, 2011), and federal interagency task forces (Haas et al, 2002; Cahill, et al, 2012). Many managers have established capacities or considered them in their planning, even if they did not employ all of the steps or ideas in the researcher-developed planning frameworks. Capacities have been applied to protect natural, cultural, and experiential resources in diverse recreation settings (e.g., rivers, lakes, trails, backcountry areas, mountains, and islands); to help define the appropriate size and type of facilities (e.g., campgrounds, marinas, boat launches, transportation systems, and visitor centers); to shape the size of agency programs (e.g., interpretation, maintenance); and to determine appropriate levels of commercial and non-commercial uses. Several recent court rulings, including those for the Merced River Plan, have contributed to the evolution of capacity practices. In each case, rulings have set precedents, contributed capacity-related judicial doctrine, and helped clarify defensible and legally sufficient processes for capacity-related decision-making.

Adapted from "Capacity Reconsidered – Finding consensus and clarifying differences"  
by Whittaker, Shelby, Manning, Cole, and Haas (2011).

## Frequently Asked Questions About User Capacity

The following questions and answers address important user capacity issues that are commonly raised by stakeholders and the public. The purpose of this section is to help readers understand the key ideas that drive user capacity decisions in the *Merced River Plan/DEIS*.

### *Is user capacity intrinsic to an area, solely determined by resource characteristics?*

No. User capacities are an outcome of a decision-making process and part of a larger management program. They are the result of a series of judgments in the plan about the desired future environmental and experiential conditions. Capacity is not a single number solely derived from mathematical equations or calculations.

***What are “indicators” and “standards?”***

Indicators are variables selected to represent important ecological, cultural, or experiential conditions in a given setting. Standards define thresholds for those indicators, establishing the benchmark for acceptable conditions.

Establishing indicators and standards is an important step in addressing user capacity. For the WSRA, indicators are typically chosen to evaluate the conditions of specific river values. The *Merced River Plan/DEIS* identifies at least one indicator for each river value, to assess and monitor conditions. Some indicators are more related to visitor use impacts than others. For example, to assess the quality of recreational values in wild segments, park staff members monitor encounter rates, or the number of other people encountered along a trail per hour. This indicator is directly related to the amount of use occurring in this segment. However, water quality is more closely tied to point sources of contaminants, which may be linked to a number of variables other than visitor use. For more on indicators and standards, see Chapter 5.

***Do user capacities involve value judgments?***

Yes, several parts of the user capacity process involve decisions that include value judgments. While scientific inquiry can tell us a lot about the consequences of different choices, research cannot usually tell us what the “right” choices are. Research-informed judgments start at a general level when river values are defined. Other decisions feed into the development of management objectives for the types of visitor experiences to be provided and the development of acceptable standards for river value conditions. Judgments are implicit in the combination of management actions included in each alternative.

***How do biological values relate to user capacities?***

Some biological conditions may be sensitive to the amount of use, in which case they may be the limiting factor in determining capacity. Most often, though, biological conditions are more related to the *type of use occurring* and *how it is managed*. For example, a trail crossing a sensitive meadow could be vulnerable to widening more by stock than by human foot traffic. In this situation, the type of use would have more of an effect on the trail condition—and the associated meadow—than the amount of use. Such a problem could be remedied through trail construction, building a trail that can withstand packstock use. In such cases, the limiting factor for capacity may be some other factor such as kind of use, transportation circulation, parking, or social conditions, not the amount of use.

***What analyses describe how user capacities affect conditions of river values?***

Transportation circulation and parking models, capacity studies and related monitoring, riparian and meadow monitoring, and targeted research are all examples of such analyses. The goal of these use-condition analyses is to show how use levels affect important variables that define high quality conditions. A “road map” to capacity information in the *Merced River Plan/DEIS* is provided in this chapter, and Part III includes the details of the analyses. While this work relies upon knowledge of historical events and current conditions, it also requires predictions about the likely effects of the new management actions proposed in the alternatives.

***Why does the Merced River Plan/DEIS have different user capacities in the alternatives? Do they all protect river values?***

The National Environmental Policy Act requires environmental impact statements to consider a range of alternatives. The *Merced River Plan/DEIS* includes such a range, and all alternatives contained herein protect river values, but they do so in different ways. Alternatives produce different conditions by having different

combinations of user capacities, infrastructure, and related programs of management actions. All protect and enhance river values, as required by WSRA.

*What are the choices inherent in alternatives with higher vs. lower user capacities?*

User capacities, resource conditions, and the infrastructure to support visitation are foundational elements to the alternatives. Changing one of these components often has implications for the others. User capacities in the different alternatives show how higher and lower amounts of use fit with infrastructure and other management actions to produce different resource conditions, protecting river values in different ways. These represent choices for the kind of place the Merced River corridor will be and the visitor experiences available there in the future, all of which must protect river values as required by WSRA.

*Does the Merced River Plan/DEIS consider how user capacities will affect other Park uses?*

Yes. The river values to be protected under WSRA are limited to the river corridor and must be river-related or dependent, and regionally or nationally significant. But NPS also considered how use levels affect other attractions and uses in the park. For example, transportation system modeling and analysis looked at the effect of different parking capacities on the entire roadway network and related traffic conditions outside of the river corridor. The interconnectedness of user capacity and transportation is particularly important in Yosemite. High quality recreation and enjoyment of the river depends on an efficient transportation system that minimizes congestion and time spent traveling on roads, looking for parking, or waiting for shuttles or regional transit.

*What are the limiting factors to user capacity?*

The amount of use an area can sustain depends on its resource characteristics, the type and quantity of use anticipated, and the effectiveness of management actions. Ultimately, the factors that determine how much use is “too much” depend on the conditions being managed for and the type of use being considered. This will vary by river segment, each representing a different type of river area providing different opportunities for use.

*Does a given level of encounters equate to crowding?*

No, as crowding can be subjective. Defined as a negative evaluation of the number of people encountered, crowding involves an individual’s judgment about the number of other people s/he encounters as compared to his/her personal norms or expectations for that particular type of experience. Despite this seeming subjectivity, social norms for encounters are usually lower for more remote, solitary backcountry experiences, and higher for more social frontcountry experiences that involve more interaction with other people.

In setting indicators and standards for the various segments in the Merced River corridor, as well as devising the use levels under the various alternatives, park managers turned to studies done both in Yosemite and in other, similar natural resource areas. Planners then set the standards based on the desired experiences being sought in each segment and in each alternative. For example, one alternative may allow up to four encounters with other parties on a given stretch of trail while another offers half that amount; similarly, one alternative may allow up to 100 people on a given viewpoint in Yosemite Valley while another allows 120.

*How do you analyze the condition of recreational ORVs?*

Yosemite has a wealth of historic and current social science research and related studies that park managers utilized in understanding the condition of Merced River recreational values. These studies include visitor surveys, computer simulation modeling, and resource impact studies. Collectively, this robust body of

research helps describe the Merced recreational river values, and shows how use levels affect the quality of experiences in the Merced River corridor. Much of this information can be found on the park's website ([www.nps.gov/yose/parkmanagement](http://www.nps.gov/yose/parkmanagement)). Chapter 5 also summarizes much of this literature.

*How is transportation system performance and user capacity related to river issues?*

An efficient transportation and parking system is a key part of high quality recreation in the Merced River corridor. The transportation system, including roads, parking, and transit, is the primary means of access for most visitors to the river corridor, so any crowding or delays therein directly affect one's ability to recreate in the Merced River corridor. Moreover, scenic driving is the second most commonly reported recreation activity in Yosemite (64% of all park visitors take a scenic drive).

*Can user capacities be changed after the plan is completed?*

Yes. However, depending on the situation, such changes may be subject to renewed planning and environmental compliance for the National Environmental Policy Act and the Wild and Scenic Rivers Act. The NPS has applied the best available scientific information in the *Merced River Plan/DEIS* to make decisions related to management standards and user capacities. Monitoring and adaptive management allow the NPS to evaluate the success of these decisions and any future changes needed.

## PART II. PROCESS TO ADDRESS USER CAPACITY

The process used to develop the user capacity components of the *Merced River Plan/DEIS* is illustrated in Figure 6-1 and described below. User capacities are not independent of other decisions in the plan; they are embodied within comprehensive management prescriptions that include many other management actions (Haas 2003; Whittaker et al. 2010). For example, decisions about the extent and size of overnight facilities (hotels and campgrounds) to be provided in an alternative will equate to an associated room count and maximum occupancy (to be counted as part of the user capacity).

**FIGURE 6-1: USER CAPACITY PROCESS STEPS**

User Capacity Process Steps
1. Define river values and management goals
2. Document conditions and identify management considerations
3. Analyze kinds of use
4. Develop concepts and themes for alternatives
5. Identify indicators and standards
6. Analyze use and impacts to river values
7. Define draft alternatives and initial capacities
8. Relate capacities to river value conditions
9. Monitor and adjust capacities/management actions

## Step 1. Define River Values and Management Goals

River values (including free-flowing condition, water quality and outstandingly remarkable values) and management goals are the starting point for developing alternatives and associated capacities. River values focus attention on the most important resource conditions and recreation experiences, while goals are a commitment to management actions that will protect or enhance those values while providing for public use. River values and management goals stem from agency mandates and enabling legislation (see Chapter 2). They provide a foundation for the development of specific management standards that guide decisions about user capacity.

Management goals (see Chapter 1) of the Merced River Plan that are related to user capacity include: (1) protecting natural processes; (2) promoting visitor enjoyment; and (3) reducing traffic congestion and crowding. These goals were translated into desired future conditions for key components of river values, such as providing intact meadow or riparian areas and high quality recreation opportunities.

NPS identified segment-specific outstandingly remarkable values (ORVs) using guidance in the Interagency Guidelines (see Chapter 5 for a discussion). Inputs to the identification of river values and their conditions included public input and the best professional judgment of resource specialists and park scientists. Outputs of this process step included detailed descriptions of all river values and their mapped locations.

Not all ORVs are sensitive to variations in the *amount* of visitor or administrative use that occurs. For example, some of the geologic/hydrologic ORVs, like the Upper Merced's glacially carved canyon and the "Giant Staircase" river morphology, are not affected by how many people visit them. In contrast, other ORVs that *are* sensitive to use levels directly or indirectly influence capacity decisions in the *Merced River Plan/DEIS*. These include riparian and meadow conditions in Yosemite Valley, and recreation quality in the Merced River corridor above Nevada Fall and through Yosemite Valley. Although the ORVs are the primary focus of user capacity decision-making, NPS also considered effects of user capacities on other uses and destinations in the corridor (e.g., Bridalveil Fall, Wawona Swinging Bridge, scenic driving on park roads) or adjacent areas outside the river corridor (e.g., Yosemite Falls).

## Step 2. Document Conditions and Identify Management Considerations

For this step, the NPS documented the baseline condition of the river values. This included a comprehensive review of existing research and monitoring information, as well as additional research to fill information gaps. An important component of this assessment was the identification of the extent to which visitor use affects river values. NPS also developed maps of physical site constraints, which helped guide choices about facility locations and infrastructure design such that ORVs, wetlands, flood plains, archeological sites, rare plants, water quantity and quality, and other special resources were protected.

The planning team then used the baseline assessment, understanding of visitor use impacts, and personal observations of field personnel to generate a comprehensive list of management considerations that the Plan needed to address to improve conditions in the river corridor and ensure the protection of river values. A subset of these considerations was directly related to user capacity, or the kinds and amounts of use that could be accommodated.

### Step 3. Analyze Kinds of Use

Recreational use accounts for the greatest amount of public use that occurs in the river corridor (administrative use to support recreational use and resource protection are the other sizable contributors). During plan initiation and scoping, park planners asked the public to describe what they liked to do in the Merced River corridor and which facilities and services these activities would require. The resulting public scoping report (NPS 2006m) provided important feedback to the NPS regarding the level of public interest in different activities. This information gave planners a better sense of the uses that members of the public wanted to keep as well as those they preferred to see reduced or restricted.

Planners also conducted visitor surveys and studies to understand use patterns, and reviewed the findings of social science research completed for similar settings for its relevance to the Merced River (Littlejohn et al. 2005; Le et al. 2008; Blotkamp et al. 2010). This effort provided additional insight into the types of activities and experiences visitors preferred. Finally, NPS planners compiled information on the historic, current, and projected levels of visitor use along the Merced River (DEA 2007; NPS 2008d; NPS 2008e; NPS 2009c; and NPS 2009e).

Recreational and other public uses that do not meet the definition of an ORV (river related or dependent and rare, unique, or exemplary) are permitted under the Wild and Scenic Rivers Act and Guidelines as long as those uses do not “substantially interfere” with the use and enjoyment of ORVs and other river values.<sup>3</sup>

### Step 4. Develop Concepts and Themes for Alternatives

This step packaged management actions around themes to develop a reasonable range of preliminary alternative concepts, as required by NEPA. As discussed in Chapter 5 and shown in the descriptions of alternatives in Chapter 8, management actions include infrastructure changes (e.g., roads, parking, boardwalks, fences, or trails), restoration, and education/regulation programs that affect user capacities and work with them to protect and enhance river values. Several principles guided the development of alternative concepts:

- User capacities should vary across alternative concepts.
- Alternative concepts should represent a reasonable range of different futures (as required by NEPA), but all must protect ORVs by ensuring that river values are maintained at a management standard well above adverse impact (see Chapter 5).
- Some restoration actions, new developments, or infrastructure changes would be common to all alternative concepts, but others would vary across them.
- Similar management actions would be combined within alternative concepts to create conceptually meaningful and distinct themes.

At this stage, alternative concepts were not full management prescriptions, but were sufficient for more detailed analyses (see next steps) to assess the different choices related to the level of infrastructure, river value conditions, and user capacities (as discussed in the FAQ’s earlier in this chapter) inherent in each alternative.

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<sup>3</sup> WSRA Section 10(a); Guidelines, at 39456.



## Step 5. Identify Indicators and Standards

The next step established the desired conditions for all river values in terms of quantifiable indicators and standards. Indicators are variables selected to represent important resource or experiential conditions; standards define the line between “acceptable” and “unacceptable” conditions. For each indicator, park scientists identified management standards that would maintain conditions far above the critical levels of “adverse impact” and “degradation” specified for each river value (see Chapter 5). This step also included the identification of indicators that would be most sensitive to the effects of visitor use, particularly use levels. This subset of indicators was used in subsequent steps to further determine the amounts of use that could be received while maintaining conditions at or above management standards.

## Step 6. Analyze Use and Impacts to River Values

With indicators and potential standards developed, analyses shifted to further analyzing and understanding the relationships between use and the condition of each river value. This step built upon the foundational descriptive information developed in steps 2 and 3. Analyses applied the best available scientific data and included predictive modeling where available. A summary of the specific use-impact analyses for each segment is provided in Part III of this chapter. Examples of these analyses include:

- Correlations between use densities at Valley attraction sites and overall park visitation (based on various studies conducted in 1998, 1999, and 2007-2010).
- Correlations between Valley beach and boating use densities and overall use levels (Whittaker and Shelby, 2011).
- Transportation system modeling, including traffic circulation and parking supply and demand analyses (DEA and NPS, 2007-2011).
- NPS resource monitoring data (NPS 2005 – 2011).
- Professional judgments about relationships between use and riparian and meadow conditions.

## Step 7. Define Draft Alternatives and Initial User Capacities

This step took the alternatives concepts developed under step four and more fully articulated them as draft alternatives. Park planners fully integrated the suite of management actions for each alternative, connecting indicators and standards to river values and determining the user capacities that would meet those standards and protect river values. Planners based initial user capacities on river value conditions, related mapping of resource site constraints, analysis of transportation system performance and the limitations therein. Park planners developed the draft alternatives to provide different visitor experiences and use levels within these constraints.

## Step 8. Relate Capacities to River Value Conditions

Park planners reviewed the initial user capacities developed in step 8 to ensure that proposed capacities in each alternative would be consistent with the protection and enhancement of river values. Using the same literature from previous steps, as well as any new information that had been generated in completing earlier steps, park planners re-analyzed the capacities to confirm that they would not adversely impact river values. Part III of this chapter summarizes user capacity information across alternatives for each segment.

## **Step 9. Monitor and Adapt Management**

As part of the plan, park planners designed a monitoring program to ensure that use and conditions remain at predicted levels, such that river values are protected and enhanced. As indicated in Chapter 5, each indicator also specified management actions that would be taken should resource conditions fall below the management standard (the “triggers” in Chapter 5). This step recognizes that predictions made during planning may change, new uses or impacts may arise, or unanticipated consequences may produce unacceptable impacts to river values. The Secretarial Guidelines encourage such monitoring and adaptive management, as does the visitor use management literature (see Cole 1990; Cole and Stankey 1997; Marion 1998; Hammit and Cole 1998; Cole et al. 2005, Manning 2007, McCool et al. 2007; Manning, 2011; Whittaker et al., 2011).

## **PART III. USER CAPACITIES**

This part of Chapter 6 provides a summary of the user capacities established for each alternative in the plan by river segment. The discussion of the capacities under each segment is further divided into the following sections:

### **Management Goals and Considerations**

This section discusses the river values, management goals, and capacity considerations relevant to each river segment.

### **Indicators and Standards**

This section summarizes the specific indicators and management standards that are incorporated into the user capacities established for each river segment. The section also includes a discussion of how the amount of use affects the condition of river values.

### **Overview of Capacities**

This section summarizes the user capacities established for each river segment, along with related management actions and other implications. These capacity figures are organized by the overall types of use that occur in the river corridor: visitor overnight capacity, visitor day-use capacity, and administrative capacity.

### **Capacity Management**

This section summarizes user capacity management actions for each segment. It describes the key infrastructure, forms of education and regulation, and other management actions that ensure the kinds and amounts of use allowed in each segment do not exceed stipulated levels or adversely affect river values. Each alternative is a complete management prescription that includes user capacities and a variety of other management actions.

### **Conclusion**

This section summarizes the key choices inherent in the capacities that have been established for each river segment across the alternatives.

## Segment 1: Merced River Above Nevada Fall

### *Management Goals and Considerations*

Management goals related to user capacity in this segment include: (1) protecting natural processes; (2) promoting visitor enjoyment; and (3) reducing crowding.

The outstandingly remarkable value in this segment most sensitive to user capacities is river-related recreation in an iconic high Sierra setting. This river value features “opportunities for primitive and unconfined recreation, self-reliance, and solitude which are intimately tied to the corridor’s wilderness character.” The entire segment is also in designated Wilderness (with the exception of the Merced Lake High Sierra Camp area). The associated management objective is to “provide for high quality river-related recreation opportunities oriented toward wilderness values,” including “unconfined, self-reliant, and solitude experiences.”

The corridor above Nevada Fall has other biological, geologic/hydrologic, and scenic outstandingly remarkable values, but none are substantially affected by the amount of current or potential visitor or administrative use. Although trails, dispersed campsites, designated camping areas, and the Merced Lake High Sierra Camp have site-specific impacts, these are due more to type and location of use than the amount of use. In addition, most site impacts can be adequately addressed by good trail design, appropriate campsite location, and “Leave No Trace” behavior encouraged by existing and largely effective education or regulation programs. Similarly, the scenic impacts associated with development at those camps and associated ranger/trail crew facilities can be addressed via design guidelines employed within processes that are independent of user capacity.

A review of baseline and existing conditions, studies, monitoring, and public involvement information identified several specific user capacity-related issues for the recreation ORV, including:

- Solitude vs. crowding on trails.
- Densities of campers at designated camping areas.
- Level of development at Merced Lake and effects on wilderness character.
- Level of development at Little Yosemite Valley (LYV) and effects on wilderness character.

Other management considerations that affected the determination of capacities in this segment were as follows:

***Level of development.*** The Wilderness Act states that a wilderness is “an area of undeveloped federal land retaining its primeval character and influence, without permanent improvements or human habitation” (16 U.S.C. 1131-1136, Section 2c). Similarly, the river classifications contained in the Wild and Scenic Rivers Act guide the level of development appropriate in river segments. According to the WSRA, ‘wild’ river segments are generally inaccessible except by trail, with watersheds and shorelines essentially primitive and waters unpolluted.” Wild river segments represent “vestiges of primitive America.” A “wild” classification suggests limited development and infrastructure, thereby limiting the kinds and amounts of use that are appropriate for the segment.

***Resource constraints and site suitability.*** These constraints include topography, meadow and riparian areas, rare and sensitive plant and animal populations, scenic vista points, and cultural resource sites

Generally, plans for visitor use and access to the river corridor will identify and avoid these sensitive resource areas to minimize the risk of unacceptable impacts.

**Wilderness experience.** As described by the recreational outstandingly remarkable values and the Wilderness Act, outdoor recreation in the Merced River’s wild segments are primarily oriented toward “outstanding opportunities for solitude or a primitive and unconfined type of recreation.” Therefore, for the wilderness segments of the Merced, the key constraint for user capacity is the recreational outstandingly remarkable value where wilderness-related recreation and opportunities for solitude are emphasized.

### **Indicators and Standards**

The primary indicator that affects capacity determinations in this segment is trail encounters. Encounters have a long history of management application in backcountry areas (Vaske et al, 1986; Shelby et al, 1996; Manning, 2010). In lower-density backcountry areas, most studies address encounters per day, with considerable research suggesting standards of about five encounters per day or less for “wilderness experiences” (Vaske et al, 1986). In higher density settings (including Tioga Road backcountry, several national forest wildernesses in Oregon and Washington) encounters have been measured and managed per hour. As discussed in Chapter 5, trail encounters are measured as the number of encounters per hour during the middle of the day (10 to 4 pm) in the high-use summer season. Table 6-1 shows the encounter standards for this segment across the different alternatives in the *Merced River Plan/DEIS*:

**TABLE 6-1: SUMMARY OF KEY USER CAPACITY INFORMATION: MERCED CORRIDOR ABOVE NEVADA FALL**

Alternatives	1	2	3	4	5	6
	Existing situation	Self-reliant experiences and extensive floodplain restoration	Dispersed experiences and extensive riverbank restoration	Resource-based experiences and targeted restoration	Enhanced experiences and essential riverbank restoration	Diversified experiences and selective riverbank restoration
<b>Indicators/standards: Encounters with other groups per hour on trail segments</b>						
LYV to Lewis Creek	-	2	3	3	3	4
Lewis Creek to Lyell Fork	-	1	1	1	1	1

As shown, the indicator is delineated by trail segments (LYV to Lewis Creek, and Lewis Creek to Lyell Fork); this is because use levels in this segment vary widely on different parts of the trail system. The relationship between use and *trail encounters* appears to be direct and linear, with lower use and encounters on trail segments farther from trailheads and developed areas, such as Lewis Creek to Lyell Fork (Newburger et al. 2009-2011).

Most stock use in the corridor is associated with supply of, and visitor transport to, the Merced Lake High Sierra Camp. Alternatives that reduce or eliminate the camp will equate to less stock use in this segment.

The one-mile segment of the corridor from Nevada Fall to LYV experiences high density use dominated by Half Dome climbers. To address user capacity on this trail segment, the *Merced River Plan/DEIS* adopts the day-use permit system recently established through management planning for Half Dome, which limits ascents to 300 users per day. Although this results in higher encounter rate than is allowed elsewhere in the segment, this is a short trail section, Half Dome use levels are limited to a third of historical peak use levels, and many Half Dome users (knowing what the daily limit is) probably expect a higher-density experience.

## Overview of Capacities

A summary of user capacities by alternative for this segment is presented in Table 6-2. All user capacities in this table refer to people spending the night in the segment (overnight use); using it for part of one day (day use); or administrative overnight and day use.

**TABLE 6-2: SUMMARY OF USER CAPACITIES BY ALTERNATIVE: MERCED CORRIDOR ABOVE NEVADA FALL**

Alternatives	1	2	3	4	5	6
	Current management or "No action"	Self-reliant experiences and extensive floodplain restoration	Dispersed experiences and extensive riverbank restoration	Resource-based experiences and targeted restoration	Enhanced experiences and essential riverbank restoration	Diversified experiences and selective riverbank restoration
<b>Visitor overnight capacity</b>						
Wilderness zone user capacities						
LYV Zone	150	25	75	100	150	150
Merced Lake Zone	50					
Washburn Lake Zone	100					
Mount Lyell Zone	10					
Clark Range Zone	10					
Merced Lake HSC	60	0	15	0	42	60
<b>Total</b>	<b>380</b>	<b>195</b>	<b>260</b>	<b>270</b>	<b>362</b>	<b>380</b>
<b>Visitor day-use capacity</b>						
Half Dome "pass through" use	300					
Other day use	50					
<b>Total</b>	<b>350</b>					
<b>Administrative capacity</b>						
Employee housing	15	5	10	10	15	15
Administrative day patrols	5					
<b>Total</b>	<b>20</b>	<b>10</b>	<b>15</b>	<b>15</b>	<b>20</b>	<b>20</b>
<b>TOTAL SEGMENT CAPACITY</b>	<b>750</b>	<b>555</b>	<b>625</b>	<b>635</b>	<b>732</b>	<b>750</b>

### Visitor Overnight Capacity

The overnight capacities for this segment are expressed in terms of the maximum number of people that can camp in a given wilderness zone each night. These zone capacities are part of the wilderness overnight permit system, which is described in the "affected environment" section of this plan. Most overnight use in this river segment occurs in the LYV wilderness zone, which has a maximum capacity of 150 people. Due to the higher amounts of use allowed in this zone, overnight camping is focused in designated camping areas at LYV, Moraine Dome, Echo Valley and Merced Lake. These designated areas allow for consolidation of overnight use to minimize the geographic extent of impacts. The other zones allow for dispersed overnight use because use levels are lower and impacts can be mitigated by allowing campsite locations to vary by individual preference.

The *Merced River Plan/DEIS* proposes changes in the wilderness zone capacities for the LYV zone to allow for a range of visitor experiences in this segment. Alternatives 2, 3, and 4 reduce the LYV zone capacities from 150 to 25, 75, and 100 respectively. These changes offer visitors the opportunity to camp in a dispersed manner out of sight and sound of others. In all other wilderness zones, capacities remain at current levels, ranging from a maximum of 50 to 150 people per night, depending on location.

The Merced Lake High Sierra Camp is a designated camp area operated by the primary park concessioner. The camp is located within a potential wilderness addition. The camp contains a number of tent cabins, which accommodate 2-4 persons per tent. The *Merced River Plan/DEIS* includes several options for the camp, including its removal (capacity of zero) to reduced capacities of 15 people per night in Alternative 3 (in the form of a temporary outfitter camp, which would have a reduced level of service over today's camp) and 42 people per night in Alternative 5. Alternative 6 proposes retaining the camp at its current capacity of 60 people per night.

### **Visitor Day-use Capacity**

Day use along this segment is low compared to the three segments downstream on the Merced River. Most day use occurs on the trail between the top of Nevada Fall and LYV, and is primarily associated with climbing Half Dome. As noted previously, day use on Half Dome is limited by a hiking permit and reservation system to a maximum of 300 people per day. The small amount of other day hiking that occurs in this segment is estimated at 50 people per day, bringing the total maximum daily capacity for day use in this segment to 350 people.

### **Administrative Capacity**

Administrative use along this segment is primarily associated with wilderness patrols, trail crews, utility and maintenance crews, and search and rescue operations. An overnight administrative camp is maintained at LYV during the summer. The camp and its operation are located away from the river and have been shown to have no adverse effect on river values. The camp currently accommodates up to fifteen employees. The *Merced River Plan/DEIS* alternatives propose reducing the administrative capacity of the camp consistent with the reductions proposed in the wilderness zone capacities discussed above. These options range from five employees in Alternative 2, to 10 in Alternatives 3 and 4, and 15 in Alternatives 5 and 6.

Minimal administrative day use occurs along this segment, estimated at no more than five employees on day patrols originating from the Valley or passing through. This level is consistent across alternatives.

### ***Capacity Management***

This section provides an overview of the key capacity management actions for this segment: the infrastructure decisions and policy and regulation measures to enforce the user capacity numbers and ensure the kinds and amounts of use proposed in the different alternatives do not adversely affect river values. Table 6-3 provides a summary of the user capacity management actions across the plan alternatives for this segment.

### **Infrastructure**

The LYV designated camping area would be removed in Alternatives 2 & 3, whereas the other alternatives retain the area. The composting toilet facility is removed in Alternative 2 to improve wilderness character but retained in all the other action alternatives to accommodate both day and overnight use. The LYV ranger camp is retained in all alternatives, though the size of the camp is reduced in Alternatives 2, 3 and 4 commensurate with reductions in zone capacity. Similarly, the alternatives consider different options for the Merced Lake High Sierra Camp, including elimination, conversion to a temporary outfitter camp, downsizing, and retaining it in its present form.

TABLE 6-3: SUMMARY OF KEY USER CAPACITY-RELEVANT INFORMATION: SEGMENT 1

Alternatives	1	2	3	4	5	6
	Existing situation	Self-reliant experiences and extensive floodplain restoration	Dispersed experiences and extensive riverbank restoration	Resource-based experiences and targeted restoration	Enhanced experiences and essential riverbank restoration	Diversified experiences and selective riverbank restoration
<b>Infrastructure</b>						
LYV Backpackers camping area structures	Toilet	Removed	Toilet retained			
LYV ranger camp	3 tent cabins	Reduced	Reduced	Reduced	Retained	
Merced Lake HSC (structures and beds)	22 units 60 beds	Removed	Temp camp 15 beds	Removed	11 units 42 beds	22 units 60 beds
<b>Policy and Regulation</b>						
Overnight permits	Continue use of wilderness permit system					
Overnight group size limits	15 on trails, 8 off trails					
Camping restrictions	Camping in designated areas at ML and LYV Camp 100 feet from water	Dispersed camping in LYV and ML zones Camp 100 feet from water		Camping in designated areas at ML and LYV Camp 100 feet from water		
Stock use management	Maximum 25 head of stock per group on trail and 12 on other routes Travel in single file line whenever possible Use weed-free feed Must be picketed at least 100 feet from any stream, lake or spring Watering facilities must be used when provided					
Leave-No-Trace regulations	No fires above 9,600 feet Fires in fire rings only otherwise Mandatory bear-resistant food canisters Carry out all trash Bury human waste No bicycles/strollers No mechanized / motorized travel					
Half Dome use limits	None	300 per day				
Other day use on trails in river corridor	50	50				

## Policy and Regulation

The *Merced River Plan/DEIS* proposes the continued use of the wilderness overnight permit and trailhead quota system with numeric adjustments in certain alternatives. Overnight use of the wilderness in Yosemite National Park, including the river segment above Nevada Fall, has been managed for about 30 years using a zoning and trailhead quota system. The entire wilderness area within the park has been split into zones and each has been assigned a maximum daily capacity for the number of people that can stay overnight in each zone. The zone capacities are allocated to the relevant trailheads and managed by permit. Permits are available on a mixed first come-first served and advanced reservation basis.

This system has been in place for many years and effectively limits the number of people starting from each trailhead and spending the night in different parts of the wilderness. It protects recreation values in this segment by spreading use over a wide area to keep trail encounters and camping concentrations low (with exceptions for areas like Little Yosemite Valley). Other regulations and education programs address other ORVs to mitigate visitor use impacts (e.g., site impacts, ecological impacts) in combination with use limits, including:

- Camping restrictions (designated areas at Merced Lake and LYV; 100 feet from water otherwise);
- Stock use regulations (maximum group size limits, and others);
- Fire restrictions (none above 9,600 feet; in fire rings otherwise);
- Food storage restrictions (mandatory bear-resistant food canisters);
- Carry out trash regulations;
- Human waste disposal regulations and education;
- Regular trail and camping area maintenance addressing site impacts (e.g., trail cutting, campsite boundary encroachment, etc.),
- Half Dome hiking permits

### ***Conclusion***

The primary choices related to user capacities above Nevada Fall were driven by the management standards and goals for the recreational river values in this segment. These include choices between the amount of access to be provided, the level of infrastructure, and the amount of relative solitude that could be experienced along this segment as measured by encounter rates. For example, in the higher-use alternatives, encounter levels in the LYV to Lewis Creek trail segment are double those of the lower-use alternatives. The higher-use alternatives also maintain LYV, Lake Merced camping, and the Merced Lake High Sierra Camp at use levels similar to recent management, requiring more infrastructure (LYV toilet, HSC facilities) and yielding higher encounter rates with other users.

## **Segment 2: Yosemite Valley**

### ***Management Goals and Considerations***

Management goals related to user capacity in Yosemite Valley include: 1) protecting natural processes; 2) promoting visitor enjoyment; and 3) reducing traffic congestion and crowding.

The two outstandingly remarkable values in this segment that are most sensitive to user capacities are the meadows and riparian communities of Yosemite Valley and the outstanding opportunity for frontcountry river recreation. The management objective for the meadow/riparian ORV is “to manage human use within the corridor to minimize habitat fragmentation in meadows, maintain high ecological condition, and protect the integrity of riverbanks to conserve ecosystem processes.” The management objective for the recreation ORV is to “provide for a diversity of high quality river-related recreation opportunities that allow visitors to directly connect with the river and its environs.”

Yosemite Valley’s other categories of outstandingly remarkable values (including geologic/hydrologic, cultural and scenic), are not substantially affected by the current or projected levels of visitor or administrative use. For example, use does not affect the large scale geological/hydrological features such as the “Giant Staircase” (Nevada and Vernal Falls). However, some of these values clearly interact with user capacity decision-making by limiting choices about infrastructure placement and design.



Other considerations affecting the kinds and amounts of use that can be accommodated in the Valley segment include the following:

**Resource constraints and site suitability.** These constraints include floodplains, rock fall hazard areas, meadow and riparian areas, rare and sensitive plant and animal populations, scenic vista points, and cultural resource sites. Maps of river values and resource constraints show that there is limited space in the Valley that is available for visitor or administrative activities and related infrastructure. Bridges and river bank revetments (riprap) impact the river’s free-flowing condition from Happy Isles to the Gorge, and improvements to allow for river migration will limit the range of transportation options available to handle additional use (e.g., bridge removals, road realignments).

**Transportation system performance.** Most visitors (64%) report “taking a scenic drive” during their trips to Yosemite, and riverside travel routes provide views that contribute to the Valley’s scenic and recreation outstandingly remarkable values (Blotkamp et al. 2010). Congested roads reduce the quality of viewing and limit visitor access to recreation sites. Therefore, an efficient transportation and parking system is a prerequisite for a quality recreation experience in this segment.

Park planners used transportation modeling to determine how the levels of vehicle use allowed in each alternative would affect traffic circulation (DEA 2012). Transportation models also allowed planners to explore the relationships between improved circulation and changes to infrastructure, such as pedestrian underpasses, roundabouts, and additional parking. The use-impact relationships described below helped shape infrastructure choices in the alternatives.

**Visitor experience and crowding.** Providing outstandingly remarkable recreation opportunities requires managing user densities to avoid congestion and crowding as visitors hike, bike, relax, picnic, swim, and fish along the Merced River or while visiting attractions in or near the corridor. Several social science studies have documented crowding and congestion problems in Yosemite Valley during peak use periods (Gramann 1992; Manning 1998 and 1999; Newman 2002; NPS 2005 and 2009, Whittaker and Shelby, 2012). Further research has demonstrated the link between visitation, densities at popular attraction sites, and the quality of visitor experience (DeGroot and Meldrum, in review). These relationships have been explicitly considered in the development of user capacities for the *Merced River Plan/DEIS*.

### **Indicators and Standards**

Table 6-4 summarizes the key indicators and standards used to monitor the condition of the Segment 2 ORVs that are most vulnerable to user effects (Chapter 5 provides more detail on all of these indicators and standards). Capacities that limit use are needed to ensure that standards are not exceeded and ORVs are protected.

### **Meadow Conditions**

As explained in Chapter 5 (under ORV 2), the Largest Patch Index Five or LPI<sub>5</sub> measure is sensitive to the size of intact areas and the amount of informal trails, and indicates impacts related to meadow hydrology, soil moisture, non-native species, habitat quality, and barriers to small mammals (see Chapter 5 for a more detailed discussion). The standard for this indicator is common to all alternatives, so alternatives vary the amount of infrastructure (boardwalks, trails, and split rail fencing) used to manage the amount, location, and type of use associated with the range of user capacities across alternatives.

**TABLE 6-4: SUMMARY OF USER CAPACITY-RELEVANT INDICATORS AND STANDARDS**

Alternatives	1	2	3	4	5	6
	Current condition	Self-reliant experiences and extensive floodplain restoration	Dispersed experiences and extensive riverbank restoration	Resource-based experiences and targeted restoration	Enhanced experiences and essential riverbank restoration	Diversified experiences and selective riverbank restoration
<b>Biological indicators and other management actions</b>						
Meadow fragmentation – average		> 93% average for all; > 90% for individual				
Riparian condition -- % of reaches in high classification		> 20%				
Riparian condition -- % of reaches in moderate or high classification		90%		80%		
<b>Densities at attraction sites or on trails</b> (square feet per person; higher number means less dense/more space) <sup>1</sup>						
Primary viewing areas	50	70		60	50	40
Vernal Fall trail	40	60		50	40	35
East Valley multi-use and hiking trails	40	60		50	40	35
West Valley hiking trails	100	140	120	100	80	80
<b>Waterfront per person at beaches</b> (linear waterfront per person; higher number means less dense/more space) <sup>1</sup>						
East Valley high use shore areas	10	10	20		10	5
East Valley medium use shore areas	10	10	20		10	5
West Valley low use shore areas	10	10				
<b>Boating densities</b> (Boats per 400 feet; higher number means more dense/less space) <sup>1</sup>						
Stoneman Bridge to Sentinel Beach	6	1	2	6	3	9
<b>Transportation indicators</b> (Vehicles on the ground at one time - VAOT)						
Parking occupancy (VAOT)		< 90% of parking supply occupied				
1. Standard: average cannot violate standard more than 10% of time between 10 am and 4 pm.						

Lower fragmentation scores are associated with meadows containing more informal trails. Informal trails are more likely when visitors have multiple access points, allowing them to spread out throughout meadow areas, creating more trails. Higher fragmentation scores, by contrast, are associated with meadows having few informal trails. As shown in Chapter 5, such meadows may have high levels of use on formal trails, with nearby formalized parking. For example, Stoneman Meadow used to have a fragmentation index of only about 40 percent, but NPS improved this score to over 99 percent by developing a single formal trail with a boardwalk, even though park visitation increased by more than 50 percent during the same time period. Fencing can also be used to funnel use into more resistant areas.

The types of measures described above address impacts by changing human behavior or by employing more intensive action where use levels are greater. New designs would remove most roadside parking in all alternatives, and trails and fencing would be used to control impacts from development (new or expanded campgrounds) in higher use alternatives (5 and 6).

## Riparian Conditions

Riparian conditions will be assessed through the *California Rapid Assessment Method (CRAM)*, as discussed in Chapter 5, ORV 2. As with the fragmentation indicator, standards for this indicator would vary across alternatives, as shown in Table 6-4. Baseline assessments using this evaluation tool show that lower condition classes were generally associated with higher use areas near campgrounds and accommodations,

although riverbank development (especially revetments) also appears to be important. Riparian recovery is slower when informal trails are allowed to proliferate between camps/developed areas and the river, and this may be related to use levels. However, the problem is not primarily the amount of use. The number of people who camp or hike in a riparian area is unlikely to have a direct or linear relationship with total CRAM scores because the type, location, and behavior of users have substantial effects. Directing visitors to appropriate locations and closing sensitive areas, in combination with the availability of hardened or designated trails, can substantially reduce impacts.

A riparian development buffer (no development within 150 feet of the river's edge) is common to all alternatives. It is designed to substantially improve riparian condition throughout the Valley by removing facilities and associated use concentrations from riparian areas. Some alternatives further reduce riparian-proximate development (e.g., campsites or Housekeeping units) or identify additional riparian restoration efforts to further enhance this ORV.

Neither the riparian development buffer nor restoration actions directly limit numbers of visitors in Valley riparian areas. They affect total Valley user capacities only to the extent that they change the number of camping sites, lodging units, and day use parking spaces. Riparian conditions are most directly addressed through more intensive management of the location and type of use in site-specific areas. The major management actions involve designating formal trails (with boardwalks or other hardening as needed) and fencing to direct use away from sensitive areas. These actions are most effective to reduce existing impacts, prevent new ones, and allow rehabilitation.

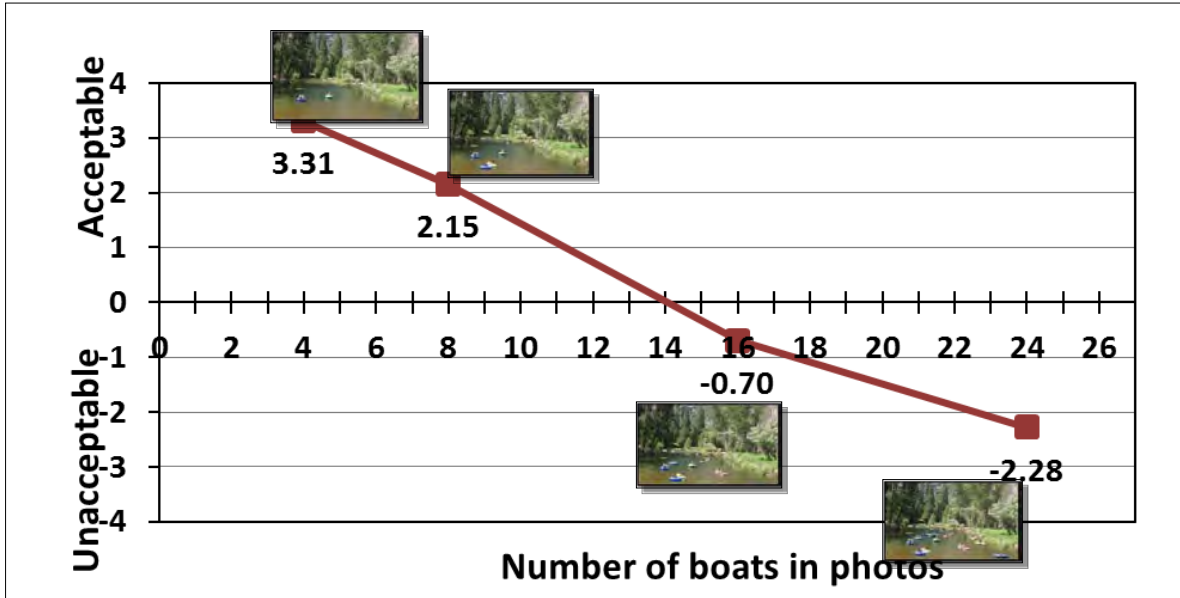
Planners used information about CRAM scores, baseline conditions, transportation modeling results, available research results, and professional judgment to estimate linear feet of new fencing and boardwalks needed for each alternative. Alternatives with higher capacities (and associated higher levels of development closer to riparian areas) have higher levels of infrastructure (boardwalks and fences) to mitigate the impacts of higher use. This appropriately-sited trail infrastructure would keep visitor impacts to acceptable levels (standards) while directing visitors to more resistant riparian areas that can handle higher use (e.g., beaches and bedrock banks). Because these mitigation measures have been incorporated, riparian condition does not act as a limiting factor for user capacities in Valley segments.

## Social Conditions

The primary indicators selected to represent social conditions were visitor densities at ORV-related attractions or on the way to them (e.g., beaches, boating, and the trail to Vernal Fall), as shown in Table 6-4 above. The focus on attraction site densities follows from research in many frontcountry settings (Manning, 2011), and is the higher density analogue of encounters in backcountry settings. Information about these indicators comes from studies at popular high-use sites (Manning et al. 1998; Manning et al. 1999; Lawson et al. 2008), as well as research on shore and boating use in East Yosemite Valley (Whittaker and Shelby 2012).

In these studies visitors are asked to evaluate the “acceptability” of a series of photographs depicting different levels of use or social conditions by identifying the photograph that best represents the level of use that they expected (*expectation*); prefer to see (*preference*); represent a condition where they feel the NPS should take action (*management action*); or represented a condition that would cause them not to visit the site again in the future (*displacement*). When plotted on a graph, average ratings show visitors’ acceptability evaluations (or norms) for use levels and related social conditions (Figure 6-2).

FIGURE 6-2: VISITOR'S' ACCEPTABILITY EVALUATIONS FOR USE LEVELS



All densities in these studies can be translated into people at one time, people per viewscape, or boats at one time (PAOT, PPV, or BAOT) in a specific photo, as evaluated in the studies. They can also be translated into daily use in an area, as discussed later in this chapter in a sidebar on “How Capacities Were Calculated: Assumptions and Protocols.”

For trail segments and viewing areas with defined boundaries, densities were measured as square feet per person. For beaches, densities were represented as linear feet of waterfront per person. For boating, densities refer to boats per 400 feet (a typical viewshed). All density indicators refer to the average for five-hour daily peak use periods measured during the high-use summer season. Standards can be exceeded by 10 percent at any given site to account for random but infrequent spikes in use. If use during these peak times is managed to meet standards at the highest-use attractions (e.g., Yosemite Falls, Vernal Fall, high-use beaches in East Valley), observed use patterns suggest that lower use will occur at these same sites during other times of the day, week, or season. These off-peak periods will provide higher quality experiences for visitors who are sensitive to crowding. Even on the days with highest use levels, when some beaches approach density standards, nearby beaches (sometimes within a few hundred feet) usually have densities closer to “preference” levels (Whittaker and Shelby 2012). Overall, user capacities that manage use to meet standards for the highest-use places will also provide a diversity of lower-use paces with better conditions.

## How Capacities Were Calculated for the Valley: Example Assumptions and Protocols

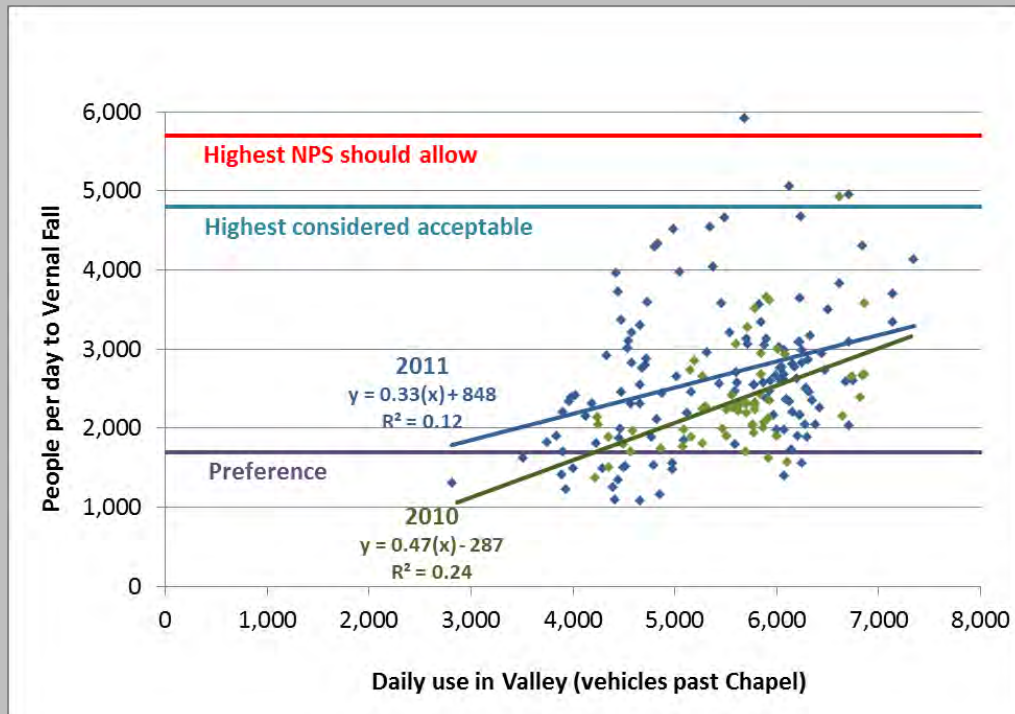
There were many calculations involved in developing capacities for each alternative. Some involve “translations” between use levels for different locations, times, or units of use (see capacity definition in Part I of this chapter), while others document or predict use-condition effects. This sidebar provides a few examples of capacity calculations or assumptions. The goal is to allow readers to understand these issues without all the details from research, modeling, or analyses.

### Translating densities at attraction sites to Valley use levels

#### Vernal Fall Example

- Surveys of visitors identified evaluations for preference, acceptability, and NPS action, based on photos of at-one-time densities on the Mist Trail (Manning et al., 1998).
- Trail counters identified hourly use levels (in each direction and total) along the trail.
- Simulations estimated total daily use on the trail to meet the preference, acceptability, or NPS action evaluations (assuming evaluations were exceeded no more than 10% of the time).
- Additional analyses correlated site use with daily traffic levels into East Yosemite Valley (measured at the Chapel on Southside Drive).
- Figure 6-3 (below) shows the relationship between 2010 and 2011 daily use levels on the Vernal Fall trail (vertical axis) vs. daily traffic levels into East Yosemite Valley (horizontal axis). Evaluation levels for preference, acceptability, and NPS action are also shown.
- Relationships between use and densities were generally direct, linear, and moderately strong. Explained variance (R<sup>2</sup>) for the number of vehicles arriving in East Valley and site use was higher for iconic roadside attractions (e.g., 0.81 for Bridalveil Fall and 0.64 for Yosemite Falls) than for activities or sites farther from the road (e.g., Vernal Fall; 0.12 and 0.24 in different years) or that require more time to experience (e.g., river rafting; 0.11).

**FIGURE 6-3: RELATIONSHIP BETWEEN DAILY USE LEVELS IN EAST YOSEMITE VALLEY**



The standards for these density indicators vary by type of site and alternative, as discussed in Chapter 5. Higher use sites and alternatives have higher density standards, and range from 35 to 70 square feet per person at moderate to higher-use areas (e.g., the trail to Vernal Fall, several popular trails in East Yosemite Valley) and 80 to 140 square feet per person on low-density trails in the West Valley. Moderate to high-use beaches ranged from five to 20 linear feet of waterfront per person, while lower use beaches were set at 20 linear feet per person for all alternatives. Boating standards focus on boats per viewshed and range from one to nine boats per 400 feet. In all cases, standards are “better” than current visitors say they will “accept” or are the highest use they want the “NPS to allow” in studies, while more stringent standards (for lower-use sites or alternatives) are closer to visitors’ preference evaluations.

In addition to standards for densities at ORV-related recreation attractions, park planners assessed the effects of capacities for Bridalveil Fall and Yosemite Falls, two other locations that were the focus of recent social science research. Even the highest-capacity alternatives would not produce densities higher than acceptability evaluations at Yosemite Falls. At Bridalveil Fall, however, all alternatives would continue to produce densities higher than visitors consider acceptable; accordingly, all alternatives include redesign options or other actions to reduce congestion in the vicinity of Bridalveil Fall.

**Vernal Fall:** The number of people present at any one time at this location is directly related to the number of vehicles, and therefore people, that enter the park each day. Relationships between Vernal Falls trail densities and overall Valley use (measured by vehicles per day passing the Chapel on Southside Drive) are direct, linear, and moderately strong. Variables that affect this relationship include river flows (more water over the falls improves aesthetics), the Half Dome permit system (which controls some portion of use on the trail associated with Half Dome), and the higher proportion of overnight visitors on the trail (relatively stable through the peak season when all accommodation is typically filled). Only a few high-use days had use levels greater than *management action* or *acceptability* evaluations (about 5,000 to 6,000 visitors per day on the trail), and most were between preference and acceptability evaluations (Manning et al. 1998; Manning et al. 1999; Lawson et al. 2008). Some of the highest days were artificially high (when the trail reopened after a search and rescue incident).

Park planners further used these relationships to predict trail densities associated with different capacities in the alternatives, with some adjustments for proportion of new use that would be overnight vs. day use (overnight visitors are more likely to hike to Vernal Falls).

**East Valley Beaches:** Relationships between peak densities at East Valley beaches and overall Valley use (vehicles passing the Chapel on Southside Drive per day) are direct and linear, but somewhat lower than the use-condition relationship for Vernal Fall (see discussion in Whittaker and Shelby 2012). Whittaker and Shelby also showed how existing densities on several beaches compare to “management action,” “acceptability,” and “preference” evaluations. Only a few high-use days and high-use beaches had existing densities greater than “what NPS should allow” or what river visitors consider “acceptable” (about 3 feet of beachfront per person). Average beach densities ranged from six to 12 feet of beachfront per person during afternoon peak-use periods, and many of these were better than “preference” evaluations at about 10 feet per person.

Using these relationships, park planners predicted beach densities for the alternatives, with some adjustments based on other variables. For example, additional campground or lodge use will probably have larger effects on beach densities because overnight visitors are more likely to use river beaches.

**West Valley Beaches:** The 2012 river study did not assess use levels downstream of El Capitan Bridge. Use is low and sporadic in these areas and most beaches attract only one to two small groups at a time. Using this information, park planners predicted relationships between use and densities at these beaches, finding that alternatives with higher use are not expected to substantially change existing use patterns because the alternatives would not provide additional access or infrastructure to promote or support greater use in these areas.

**Boating:** Relationships between boating use (between Stoneman Bridge and Sentinel Beach) and overall Valley use (measured by vehicles passing the Chapel on Southside Drive per day) are direct, linear, and relatively strong for commercial boating use, although weaker for total boating use (Whittaker and Shelby 2012). As for East Valley beaches, Whittaker and Shelby (2012) also showed how existing boating densities compare to “management action,” “acceptability,” and “preference” evaluations of visitors. In general, existing densities were not greater than visitors’ evaluations of “what NPS should allow” or “what they consider acceptable.”

Using these relationships, park planners predicted boating densities for the alternatives, with some adjustments based on other variables in the alternatives. For example, additional campgrounds or lodges proposed near the boating segment would probably have larger effects on boating densities because overnight visitors are more likely to participate in this activity.

**Yosemite Falls:** Relationships between daily Yosemite Falls trail use and overall Valley use (measured by vehicles per day passing the Chapel on Southside Drive) are direct, linear, and moderately strong. Water level also affects this relationship, with higher use observed when the falls are running at their peak flows.

By translating PAOT evaluations from several earlier studies into daily visits, park planners were able to see how daily use levels compare to “management action,” “acceptability,” and “preference” evaluations at this site (Manning et al. 1999, Lawson et al. 2007). This exercise and recent visitor count data show only a few days with use levels greater than visitor evaluations of “what NPS should allow” or “what they consider acceptable” (about 12,000 to 13,000 visitors per day), and many days were closer to the mid-point between these “acceptable” levels and “preference” levels (about 5,000 per day).

Park planners used general relationships between overall Valley use and use at Yosemite Falls to estimate densities with different capacities in the alternatives, with some adjustments based on proportion of use expected to come from overnight versus day users.

**Bridalveil Fall:** Relationships between daily Bridalveil Fall trail use and overall Valley use (measured by vehicles per day passing the Chapel on Southside Drive) are direct, linear, and moderately strong. Again comparing daily use levels to “management action,” “acceptability,” and “preference” evaluations, park planners found that many days had daily use levels greater than what visitors evaluated as “what NPS should allow” or “what they consider acceptable” (about 2,500 to 3,000 per day), and very few were near “preference” levels about 700 to 800 per day (Manning et al. 1999, Lawson et al., 2007). Consequently, redesign of this site’s parking, circulation, trails, and viewing areas is common to all alternatives, to bring this site’s visitor experience within acceptable levels for each alternative. These changes, coupled with the user capacity measures in each alternative, would resolve the levels of crowding associated with existing use patterns at this site.

**Summary:** Taken together, social indicators and standards define “how much impact is too much” at several important recreation areas and attractions in the Valley. With known relationships between use and these impacts, park planners designed alternatives with user capacities that provide for a range of density conditions.

### **Transportation System Performance**

Transportation modeling was an integral part of the capacity analysis because vehicle congestion has a direct relationship to visitor densities and related experiences at attraction sites as described above. Each alternative assessed how levels of vehicle use (associated with overnight accommodation and day-use parking decisions) would affect traffic circulation (DEA 2012). Modeling also explored the relationships between circulation and infrastructure choices such as pedestrian underpasses, intersection improvements, and additional parking. An understanding of the relationship between use and impacts to river values (see below) helped shape infrastructure choices in the alternatives.

Park planners selected day-use parking availability as the indicator for transportation system performance. This indicator addresses one of the most important parts of the transportation system. The parking supply (number of parking spaces) varies by alternative as a result of interrelated decisions about amount of restoration, removal or repurposing of existing facilities, and amount of camping and lodging (with associated parking requirements). Circulation, the other major part of transportation, is related to parking availability in Yosemite Valley, as traffic circulation significantly slows when parking lots fill. Circulation problems also arise from the location and design of key intersections and conflicts between pedestrian crossings and vehicle throughways.

East Yosemite Valley currently has approximately 5,000 parking spaces, with about 4,000 available to visitors (the rest are in areas generally designated for administrative or employee/resident use). Transportation models examined parking supply options from 4,000 spaces (3,000 for visitors) to 6,500 spaces (5,500 for visitors). Urban transportation planners generally assume 85% of a parking supply can be utilized efficiently; parking filled at higher levels makes it difficult for drivers to find, enter, or leave spaces without creating bottlenecks. In East Yosemite Valley, where most visitor parking occurs in a few larger lots that can be managed more efficiently (particularly during the peak-use times), 90% occupancy is assumed in all alternatives.

**Summary:** Taken together, transportation performance indicators and standards define “how much congestion is too much” on the Valley’s roads and in its parking areas. Transportation modeling shows how these standards can be met with different levels of use and amounts of infrastructure, all while protecting river values. This approach provides NPS, stakeholders, and the public with an opportunity to make an informed decision about the different use levels presented in the alternatives in Chapter 8.

### ***Overview of Capacities***

Table 6-5 summarizes the capacities for the Valley segment across alternatives. These are expressed in terms of the maximum number of people at one time that can be received. Following the table is an explanation of the assumptions.



TABLE 6-5: SUMMARY OF USER CAPACITIES BY ALTERNATIVE: YOSEMITE VALLEY

Alternatives	1	2	3	4	5	6
	Current management or "No action"	Self-reliant experiences and extensive floodplain restoration	Dispersed experiences and extensive riverbank restoration	Resource-based experiences and targeted restoration	Enhanced experiences and essential riverbank restoration	Diversified experiences and selective riverbank restoration
<b>Visitor overnight capacity</b>						
Camping	2,892	2,916	2,958	4,398	4,032	4,626
Lodging	3,672	1,842	2,069	2,826	3,697	4,380
<b>Total</b>	<b>6,564</b>	<b>4,758</b>	<b>5,027</b>	<b>7,224</b>	<b>7,729</b>	<b>9,006</b>
<b>Visitor day-use capacity</b>						
Day parking	7,260	5,858	5,328	6,497	7,549	7,941
Regional transit	293	241	241	337	684	788
Tour buses	720	720	720	720	720	720
<b>Total</b>	<b>8,272</b>	<b>6,819</b>	<b>6,289</b>	<b>7,554</b>	<b>8,954</b>	<b>9,449</b>
<b>Administrative capacity</b>						
Employee housing	1,315	658	1,086	1,087	1,136	1,136
Employee day parking	332	332	332	332	332	332
<b>Total</b>	<b>1,647</b>	<b>990</b>	<b>1,418</b>	<b>1,419</b>	<b>1,468</b>	<b>1,468</b>
<b>TOTAL SEGMENT CAPACITY</b>	<b>16,483</b>	<b>12,567</b>	<b>12,734</b>	<b>16,197</b>	<b>18,151</b>	<b>19,923</b>

### Visitor Overnight Capacity

Overnight user capacities are calculated differently depending on the type of accommodations provided. For lodging, overnight capacities are based on the "pillow count" (the capacity) of the rooms comprising the four properties in Yosemite Valley (the Ahwahnee, Housekeeping Camp, Curry Village, and Yosemite Lodge). Pillow count at the Ahwahnee is 326 people across all alternatives (the same as at present); all cabins at Housekeeping Camp have a capacity of four; and at both Curry Village and Yosemite Lodge, rooms average 3.5 pillows. Overnight capacity for campgrounds is calculated by multiplying the number of campsites by the maximum number of people per site. For individual campsites the maximum number of people per individual site is six, for group sites it is 30.

For Alternative 5, 326 people would be at the Ahwahnee + 928 at Housekeeping Camp (232 rooms x 4) + 1,586 at Curry Village (453 rooms or cabins x 3.5) + 857 at Yosemite (245 rooms x 3.5), for a combined total of 3,697. Camping capacities would be a 3,792 overnight visitors in the individual campsites (632 sites x 6 people/site), plus 240 in group sites (8 group sites x 30 people/site), for a combined total of 4,032.

The combined overnight capacity of Alternative 5, therefore, equals 7,729 people at one time: 4,032 campers plus 3,697 persons in lodging.

### Visitor Day-use Capacity

Visitor day-use capacity is a combination of people arriving by private vehicle, those arriving by transit buses (public transportation), and those arriving by tour buses.

Private vehicle numbers include both parked vehicles and those in circulation. This analysis assumes an average occupancy rate of 2.9 people per vehicle. For parked cars, the total number of day-use parking spaces is computed and then multiplied by 90 percent, because not all spots are filled at any one time (as explained above, this is the percent of spaces that can feasibly be occupied for efficient utilization). The

assumption for vehicle circulation is that 400 vehicles are on Valley roads at any one point in time which is consistent with transportation models depicting unimpeded traffic flow.

Alternative 5 features 2,448 day-use parking spots for visitors. This number multiplied by 2.9 people per vehicle and a 90 percent utilization rate provides capacity for 6,389 people at one time. Additionally, 400 cars are assumed to be in circulation under all alternatives, providing capacity for an additional 1,160 people (400 x 2.9). Together, parking and circulating vehicles yield a capacity of 7,549 people at one time for day-use.

Transit buses both arrive and depart Yosemite Valley, with arrivals primarily in the morning hours and departures in the afternoon hours. Some passengers are employees, who are not included in visitor counts. More commuting employees travel via Highway 140 than Highway 41. To estimate the visitor component of this bus capacity, maximum transit counts for the Highway 140 and 41 runs were multiplied by 80 percent for the Highway 140 runs and 90 percent for the Highway 41 runs. There is also overlap between arrivals and departures, with some buses arriving after the first few have left. To account for this overlap, the maximum number of people that can arrive by transit bus is multiplied by 60 percent. Only 90 percent of these visitors are *day users*, however; an estimated 10 percent are overnight guests already included in the overnight capacities reported above.

For the Alternative 5, the above transit bus visitor calculations yield the following results: Highway 140 yields 276 visitors at maximum (12 roundtrips x 48 people per bus x 80% visitors x 60% inbound accumulation); Highway 41 yields 311 visitors at maximum (12 roundtrips x 48 people per bus x 90% visitors x 60% inbound accumulation); and the two Highway 120 routes (6 runs combined) yield 173 visitors at maximum (6 roundtrips x 48 people per bus x 100% visitors x 60% inbound accumulation). Collectively, these numbers yield a combined transit capacity of 760. Multiplying 760 by 90 % to account for overnight guests, yields a final day-use transit bus capacity of 684.

Tour bus visitor numbers are computed by multiplying the maximum number of buses that can be accommodated at one time by the maximum number of people per bus (48 people). For all alternatives, the maximum number of buses that can be parked in the Valley is 15, for a total capacity of 720 people at one time.

Again, visitor day-use capacity is the sum of the maximum number of visitors at one time arriving by private vehicle, regional transit, and tour bus. For Alternative 5, adding 7,549 people in private vehicles to 684 in transit buses and 720 in tour buses gives a total day-use capacity of **8,954** (rounding adds one person to the combined number).

### **Administrative Capacity**

Administrative capacity is calculated by summing the total number of employee beds provided within each segment and adding the number commuting into the segment. The additional day parking capacity for administrative use is calculated by multiplying the number of administrative parking spaces by an average of two people per vehicle (reflecting the fact that employees are usually not traveling with their families or friends, but other coworkers going to the same duty station).

For Alternative 5, a total of 1,136 employees reside in the segment, including NPS (164) and concessioner (972) employees. There are an additional 166 employee commuter parking spots; multiplying that number by 2 yields an additional 332 employees, for a total administrative capacity of 1,468 people at one time.

## Capacity Management

Use and development in Yosemite Valley are multifaceted, and user capacities to manage them are similarly complex. Information related to user capacities is provided in Table 6-6. For each alternative, this table and the following sections of explanation summarize key infrastructure metrics that are highly correlated with user capacities, as well as regulations or other management actions that work with user capacities to protect and enhance river values.

**TABLE 6-6: SUMMARY OF KEY USER CAPACITY MANAGEMENT ACTIONS: YOSEMITE VALLEY**

Alternatives		1	2	3	4	5	6
		Current conditions	Self-reliant experiences and extensive floodplain restoration	Dispersed experiences and extensive riverbank restoration	Resource-based experiences and targeted restoration	Enhanced experiences and essential riverbank restoration	Diversified experiences and selective riverbank restoration
<b>Infrastructure</b>							
Lodging units		1,034	556	621	823	1,053	1,248
Camping		466	450	477	701	640	739
Roads and bridges		6 total	3 removed	3 removed	2 removed	1 removed	0 removed
Intersections		4-way	4-way	4-way	4-way	1 Round-about	2 Round-about
Pedestrian crossings	Yosemite Lodge	On grade	On grade	On grade	On grade	Underpass	Underpass
	Yosemite Village	On grade	On grade	On grade	On grade	On grade	Underpass
Length of fencing to protect sensitive areas (ft)		33,570	Same as Alt 1	Same as Alt 1	17,765 additional	17,765 additional	21,560 additional
<b>Policy and Regulation</b>							
Lodging capacities		Concession operated, available by reservation					
Camping capacities		NPS operated by combination of reservation system and first come-first served					
East Valley traffic diversion		Yes	No	No	No	In future if needed	In future if needed
East Valley day-use parking permit system		None	Yes	Yes	Yes	In future if needed	In future if needed
Food storage regulations		Food storage regulations at campgrounds and other areas in the Valley would continue.					

### Infrastructure

The number of lodging and camping units across the alternatives varies, providing a different mix of overnight accommodations in each. Lodging varies according to proposed reductions in units at Curry Village, Housekeeping Camp, and Yosemite Lodge. Similarly, campsites are removed or relocated away from the river to varying degrees. Some camping areas are restored and campsite numbers increased in the Valley, depending on the theme of the alternative. Other key infrastructure options include the consideration of roundabouts and pedestrian underpasses at the Yosemite Lodge and Yosemite Village Day-use Parking Lot areas. These developments are proposed to mitigate impacts to the recreational ORV associated with crowding and congestion. Finally, to further protect river values from pedestrian foot traffic, additional fencing is proposed in Alternatives 4, 5, and 6.

## Policy and Regulation

**Lodging reservation system.** Overnight lodging use in Yosemite Valley is limited to the maximum occupancy of each lodging unit. Lodging units are managed by a concessioner and are available with advanced reservations. The concessioner operates the system as follows:

- Limited numbers of rooms of different configurations (numbers/sizes of beds).
- Maximum numbers of occupants for different types of rooms.
- No “minimum” number of occupants; some groups may not use the full capacity.
- Reservations can be made up to one year in advance.
- Maximum stay per reservation is seven nights.
- Variable pricing for different rooms and locations.
- Limit of two vehicles per room at Housekeeping; no explicit limits for other accommodations.

**Campground reservation system.** Campgrounds in Yosemite Valley are limited and available on a reservation system. The system includes:

- Specified numbers of campsites in different campgrounds.
- Maximum of six campers and two vehicles allowed per drive-in site (all of the Pines Campgrounds) and six campers allowed at walk-in sites (Camp 4 and Backpackers Camp).
- At walk-in camps, NPS may combine smaller groups to efficiently utilize space in a campground.
- Reservations can be made up to six months in advance.
- Maximum stay per reservation is seven nights.

**Day-use traffic diversions.** On high-use days in recent years, the park traffic operations team has periodically instituted a traffic diversion at the El Capitan Crossover (the mid-point of the Valley) to re-direct incoming traffic away from the East Valley. The diversion is currently triggered by full day-use parking lots or very long queues at East Valley intersections, especially those at the Yosemite Village Day-Use Parking Area entrance and the Lodge pedestrian crossing. Rangers meet additional vehicles entering the Valley at the junction of Southside Drive and El Capitan Crossover and guide them to other destinations in the park before returning to the El Capitan Crossover. Rangers give drivers a time-stamped card when first met; drivers who show the card after spending time elsewhere in the park are allowed to enter the traffic queue into the East Valley later in the day.

This is a first-come/first-served, on-site limit, with a delay component. Anecdotal data suggest it is currently used when daily inbound traffic levels to the East Valley exceed approximately 6,500 vehicles. These diversions are not formally announced or tracked and implementation is at the discretion of the traffic manager, with the goal being to avoid gridlock so that emergency vehicles can move quickly. The alternatives presented in Chapter 8 offer different approaches to addressing day-use traffic. The lower-use alternatives (2, 3, and 4) include a day-use parking reservation system for East Yosemite Valley that would eliminate the need for on-site East Valley traffic diversions. In Alternatives 5 and 6, infrastructure changes (e.g., better intersections, more parking, improved pedestrian crossings, better wayfinding) will reduce the need to rely on ad hoc measures, although demand may exceed supply on some days and eventually necessitate implementation of a formal system.

**East Valley Day-use Parking Permit System.** The need for a permit system depends on the amount of day-use parking each alternative provides in relation to the peak visitation levels in those alternatives. Alternatives 2, 3, and 4 would immediately require a system to manage day-use levels in the East Valley because at-one-time visitation demand would be substantially higher than parking availability in these alternatives. In contrast, Alternatives 5 and 6 would provide sufficient day-use parking supply to accommodate some increase beyond current peak day-use levels. In these higher-use alternatives a day-use parking permit system would be implemented in the future if conditions become “unacceptable,” as defined below. Emphasis would be placed on instituting indirect management of day-use traffic first, before moving to a parking permit system. Such indirect management includes information sharing, transit incentives, and transportation system mode sharing to redistribute traffic away from the congested areas of East Yosemite Valley.

For Alternatives 5 and 6, an East Valley Day-use Parking Permit System will be implemented when conditions reach the point where: (1) day-use visitation to the East Yosemite Valley from private vehicles exceeds the parking availability; and (2) formal traffic diversions at El Capitan Crossover have been implemented for at least 14 days during the summer season for two consecutive years.

In general, a day-use parking permit system for East Yosemite Valley will take into account the following:

- **Seasonality** – The permit system would be instituted during the peak-use summer season and daylight hours only.
- **Allocation** - The system would ensure fair and equitable allocation of permits to all visitors on a mixed first-come, first-served and advanced reservation basis.
- **Distribution** – Permits would be available by multiple means including through the Internet, by telephone, and in person.
- **Permit Compliance** – Permits may be checked at park entrance stations and/or on-site at day-use parking areas in the Valley.
- **Costs and Fees** – The permit system will need to address the costs of administration and whether fees would be required.
- **Thru Traffic and other Considerations** - The permit system would need to take into account the various types of day users to the Valley including administrative traffic, pass-thru travelers, special events and groups, etc. Similarly, development of the permit system will also need to address the economic implications (both positive and negative) for gateway communities.

**Other Management Actions.** Several other management actions in this segment would also address visitor impact issues in concert with user capacities. Many are already in place, however education and regulation enforcement will need to be emphasized in higher use alternatives. Actions common to all alternatives include:

- Proactive on-site management program for day-visitor traffic and parking.
- Camping restrictions (in designated areas only).
- Fire restrictions (hours of the day) to reduce smoke.
- Food storage restrictions (mandatory bear-resistant storage rather than in cars or rooms).
- Regular trail and camping area maintenance to mitigate site impacts (e.g., trail cutting, camp boundary encroachment, etc.).
- Split rail fencing, boardwalks, and defined trails as needed to minimize informal trails and other site impacts.

- Improved signage and wayfinding.

Several other management actions to address user capacity-related issues vary across alternatives. These include:

- Additional split-rail fencing, boardwalks, and defined trails to minimize informal trails and other site impacts.
- Eliminating pack stock stables and commercial day rides from the Valley.
- Eliminating commercial rafting from the Valley.
- Changes to the number and location of parking spaces.
- New intersection improvements (e.g., roundabouts).
- Adding below-grade pedestrian crossings.
- Extending the Valley shuttle to Bridalveil Fall.

These actions address many biophysical, scenic, or transportation impacts from the amount of use, while adjustments to capacities more directly responds to desired social conditions at attraction sites or beaches.

### *Conclusion*

Primary user capacity decisions in Yosemite Valley involve choices among the amount of use, infrastructure to support that use (especially lodging, campground, and day-use parking lots), and social conditions as to what use levels are acceptable (densities at attraction sites, roadway travel times, and parking availability). There are also choices between levels of facility development and meadow and riparian restoration.

Tradeoff examples include:

- In the lower-use alternatives, densities at attractions are closer to “preference evaluations” than “acceptability” evaluations. Higher-use alternatives allow more access, but conditions may be less desirable, though still within the acceptable range.
- Alternative 2 eliminates the Lodge and Housekeeping Camp as overnight destinations. This allows greater restoration (improves riparian or meadow conditions), but reduces overnight capacity (the number of people who can stay overnight in those types of lodging). It also changes the type of use in those areas to lower density day-use. Alternatives 5 and 6, meanwhile, provide for a level of accommodations similar to today’s, with less (but still significant) restoration than Alternative 2.
- Overnight vs. day-use. More parking or development for one type of use may mean less for another (if the amount of total developed area is held constant). The largest contrasts are between Alternatives 2 (much lower overnight and day use) and Alternative 6 (higher overnight use; roughly static day use).

## **Segment 3: Merced Gorge**

### *Management Goals and Considerations*

Management goals with capacity implications for the Merced Gorge include: (1) protecting natural processes; (2) promoting visitor enjoyment; and (3) reducing crowding and congestion. The single ORV in this segment is scenery (ORV 18), which features views of “towering cliffs and peaks. . .near continuous cascades. . .and a narrow gorge. . .littered with massive boulders.” These scenic features are not affected by the amount of visitor use, although infrastructure in support of recreation use (e.g., the El Portal Road and

Arch Rock entrance gate) could have some effects on scenic quality. In the absence of ORVs that are sensitive to use levels, capacities are based on standards for high-quality recreation and transportation system performance that are appropriate to this scenic corridor and National Park frontcountry settings.

A review of baseline and existing conditions, monitoring reports, information from staff, and public involvement information identified three user capacity-related issues for this segment:

- Traffic congestion at the Arch Rock entrance gate.
- Crowding and parking availability at specific turnouts popular for: (1) climbing in spring and fall; and (2) relaxing, swimming, and fishing during low water periods.
- Bank trampling and erosion at specific turnouts.

The primary constraints to the kinds and amounts of use in the Gorge segment are the roadway that parallels the river, the number of pull-outs that provide access to it, and the condition of the riverbanks. Most road traffic passes through the segment *en route* to other destinations within or outside the park (depending on the direction of travel). Two-way traffic volumes along this road (not including the entrance gate queues) have not created noticeable congestion, even during peak-use periods.

A limited number of pull-outs and two larger parking lots (13 and 23 spaces per lot, respectively) provide access to the river along this segment. Use in this area is primarily made up of short duration stops by passing vehicles. However, some visitors engage in longer visits that include more immersive recreational activities (e.g., climbing, relaxing, swimming, or fishing). For example, the pull-outs near Arch Rock, Cookie Cliff, and Ribbon Falls are popular for climbing.

Most pull-outs in this segment have been redeveloped and properly designed to reduce impacts to river values. A few popular swimming-related pull-outs, however, have some parking and bank trampling impacts. The *Merced River Plan/DEIS* proposes actions to provide appropriate access, restore trampled vegetation, reduce erosion, and protect river banks.

### ***Indicators and Standards***

The transportation indicator for Yosemite Valley (Segment 2) helped inform user capacity decisions for this segment; it is designed to monitor the ease of access to scenic viewing and other recreation opportunities. This indicator measures parking availability and congestion at turnouts and parking areas. The segment has approximately 180 spaces, depending on size of vehicles and how efficiently unmarked turnouts are used. All alternatives keep this number static and assume 90 percent of spaces can be used efficiently (parking filled at higher levels makes it difficult for drivers to find, enter, or leave spaces without creating bottlenecks).

Relationships between use levels and crowding are direct and linear: more vehicles stopping in the segment will fill the available parking spaces, while more vehicles on the road will decrease average space per vehicle and increase chances of congestion (traffic jams). Using these relationships, park planners assessed the number of vehicles that can be accommodated at one time while meeting identified standards. Based on analyses of traffic levels associated with capacities in the Valley and the proportion of use that is likely to arrive via the Gorge, even the highest use alternatives in the DEIS do not approach “pass through” capacities in this segment (DEA 2012).

The limiting factor for capacity in this segment is parking availability, which constrains the number of visitors that can “stop and stay” in the segment at one time (about 600 visitors). Much higher use levels can

pass through the segment on the El Portal Road, while adhering to a “free-flow” standard. Current peak use averages over 300 vehicles and about 1,000 people per hour, while the “free-flow” standard would allow nearly double this level without unacceptable congestion (DEA 2012).

### *Overview of Capacities*

Table 6-7 provides a summary of the capacities for the Gorge segment. Because no overnight use occurs in this segment, only day-use capacity is reported below.

**TABLE 6-7: SUMMARY OF USER CAPACITIES BY ALTERNATIVE: MERCED GORGE**

<b>Alternatives</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
	Current management	Self-reliant experiences and extensive floodplain restoration	Dispersed experiences and extensive riverbank restoration	Resource-based experiences and targeted restoration	Enhanced experiences and essential riverbank restoration	Diversified experiences and selective riverbank restoration
<b>Visitor day-use capacity</b>						
People at one time from parking areas	470			470		
People at one time on roadway	399			399		
<b>Total</b>	<b>869</b>			<b>869</b>		
<b>Administrative capacity</b>						
Employee housing	9			9		
Administrative day parking	4			4		
<b>Total</b>	<b>13</b>			<b>13</b>		
<b>TOTAL SEGMENT CAPACITY</b>	<b>882</b>			<b>882</b>		

Most administrative capacities refer to people spending the night or working at the Arch Rock entrance gate during the day. All user capacities and administrative use on roads are expressed as people at one time. Parking availability assumed 90% occupancy and 2.9 people per vehicle. It was also assumed that transit and tour buses do not stop at turnouts (transit does not stop due to schedule constraints and tour buses are prohibited from stopping). Road circulation calculations assume 20 vehicles per mile over a 6.9 mile segment to maintain the free flow of traffic.

Administrative use levels at the Arch Rock entrance station were associated with the existing employee room and bed configurations (nine beds) and day-use parking availability (two spaces for four staff).

### *Capacity Management*

This seven-mile segment has no history of established user capacities. User capacities and management actions are the same for all alternatives. Existing parking is sufficient for likely future demand and will not cause unacceptable impacts to river values, even with use in the Valley as high as that proposed in Alternative 6. Proposed actions common to all alternatives include:

- Addressing bank erosion at specific turnouts popular for swimming and relaxing; these involve designating specific parking spaces and trail redesign to minimize riparian trampling impacts.
- Organizing paved turnouts with designated spaces to improve efficiencies and avoid congestion at parking areas.

No alternative examined user capacities higher than present use.



## ***Conclusion***

There are no major user capacity choices in the Gorge segment across the alternatives. As reflected in Chapter 8, the NPS has determined the existing roadway, parking areas, and entrance gate facilities are causing no adverse impacts to river values. Similarly, the use levels that fit with those facilities occur without unacceptable congestion or other impacts on river values. Other management actions address the site-specific visitor use impacts that can be controlled by improved parking and trail design.

## **Segment 4: El Portal**

### ***Management Goals and Considerations***

Use of the El Portal Segment is primarily focused on administrative functions and community activities. The vast majority of this activity occurs in upland developed areas that are set back from the river, although some recreation use occurs in the river or along its banks. Similar to the Gorge segment, several roadside pull-outs provide access to the river for recreational activities. Primary activities are swimming, fishing, and boating, all of which are seasonal in nature.

Management goals related to capacity for El Portal include: (1) protecting natural processes; (2) promoting visitor enjoyment; and (3) reducing crowding and congestion. The only ORVs in this segment are the El Portal Archeological District and the El Portal boulder bar. Neither is affected by the amount of visitor or administrative use, although cultural values are affected by the location of visitor facilities as discussed in Chapter 5. In the absence of ORVs that are sensitive to use levels, capacities were based on standards for high-quality recreation appropriate to National Park frontcountry settings.

The primary constraints to the kinds and amounts of use in the El Portal segment are resource constraints and site suitability. These include topography, floodplains and riparian areas, cultural resource sites, and rare or sensitive plant and animal populations. Similar to Yosemite Valley, these resource issues limit the amount of land available for visitor or administrative activities and related structures. Areas that would accommodate additional use have been identified and included in the plan alternatives.

### ***Indicators and Standards***

The parking availability indicator for Yosemite Valley (Segment 2) helped inform user capacity decisions for this segment. The El Portal segment has approximately 290 spaces, depending on size of vehicles and how efficiently unmarked turnouts are used. All alternatives keep this number static and assume 90 percent of spaces can be used efficiently (parking filled at higher levels makes it difficult for drivers to find, enter, or leave spaces without creating bottlenecks).

Administrative use capacities in residential areas were based on staffing needs and available housing, which vary by alternative and typically derive from decisions about employee numbers and housing in Yosemite Valley. Full occupancy of the employee housing in this segment is assumed.

Relationships between use levels and crowding are direct and linear. More vehicles stopping in the segment will fill the available parking spaces, while more vehicles on the road will decrease average space per vehicle and increase chances of congestion. Using these relationships, park planners assessed the number of vehicles that can be accommodated at one time and meet standards (see assumptions below). Based on

analyses of traffic levels associated with capacities in the Valley and the proportion of use that is likely to arrive via El Portal, even the highest use alternatives in the DEIS will not approach pass-through capacities in this segment (DEA 2012).

Although park planners considered all river values and related site constraints in this segment in developing capacities, the limiting factor is parking availability, which constrains the number of visitors that can “stop and stay” in the segment at one time (about 500 visitors). Much higher use levels can pass through the segment on the El Portal Road, even at a “free-flow” standard (current high-user periods average over 300 vehicles and about 1,000 people per hour, but the “free-flow” standard would allow nearly twice this level without unacceptable congestion).

**Overview of Capacities**

There is no visitor overnight use in this segment (Yosemite View Lodge is private land outside the scope of this planning effort), and most visitors pass through the segment on their way into or out of the park. For most, the recreation experience is scenic driving, but some make short stops at turnouts, and others make longer stops to relax, swim, or fish (especially during low water periods in mid- to late summer). There is some commercial use associated with the store, gas station, and Yosemite View Lodge restaurants. There is considerable administrative use associated with NPS housing, NPS administration facilities, and “commuters” living in El Portal who work in other parts of the park.

For this segment, the *Merced River Plan/DEIS* proposes common-to-all user capacities for people in vehicles for scenic driving or administrative purposes, and for out-of-vehicle recreation opportunities. However, administrative residential and day-use capacities vary by alternatives. A summary of user capacities by alternative is provided in Table 6-8. All visitor capacities refer to people at one time. Administrative capacities refer to number of people spending the night in residential housing or working at NPS facilities during the day. All user capacities for circulating on roads include visitor and administrative use and are expressed as people at one time.

**TABLE 6-8: SUMMARY OF USER CAPACITIES BY ALTERNATIVE: EL PORTAL**

Alternatives	1	2	3	4	5	6
	Current management	Self-reliant experiences and extensive floodplain restoration	Dispersed experiences and extensive riverbank restoration	Resource-based experiences and targeted restoration	Enhanced experiences and essential riverbank restoration	Diversified experiences and selective riverbank restoration
<b>Visitor day-use capacity</b>						
People at one time from parking areas	559			559		
People at one time on roadways	181			181		
<b>Total</b>	<b>740</b>			<b>740</b>		
<b>Administrative capacity</b>						
People in residential housing	192	618	223	300	288	506
Administrative staff PAOT	1,220			1,220		
<b>TOTAL SEGMENT CAPACITY</b>	<b>2,152</b>	<b>2,578</b>	<b>2,183</b>	<b>2,260</b>	<b>2,248</b>	<b>2,466</b>

Specific calculation assumptions include:

- Parking availability assumed 90 percent occupancy, 2.9 people per vehicle and that transit and tour buses do not stop at turnouts in this segment.

- Road circulation calculations assume 20 vehicles per mile over a 3.1 mile segment to meet the “free-flow” standard.
- Use levels at various employee residential areas were associated with the existing or proposed room and bed configurations, or administrative day-use parking availability (2 people per vehicle/parking space).

### ***Capacity Management***

This short segment has no history of established user capacities. Day-use capacities are the same for all alternatives. Existing parking is sufficient for likely future demand and will not cause unacceptable impacts to river values, even with use increases in the Valley as proposed in Alternative 6. Proposed actions common to all alternatives include:

- An additional public restroom would be built in Old El Portal to accommodate visitors recreating in this segment.
- NPS would construct duplexes (as infill) in El Portal Village Center to house up to 12 employees.

No alternative examined visitor user capacities higher than present use; all alternatives consider increasing the amount of employee housing. Also, some alternatives consider a day-use parking area at Abbieville. This parking area would provide overflow parking and transit service to the Valley. Otherwise, this segment would continue to serve as the park’s administrative site.

### ***Conclusion***

There are no major user capacity tradeoffs in El Portal. NPS has identified acceptable visitor infrastructure levels (current roadway and parking area configuration), and has identified use levels that fit with those facilities without unacceptable congestion or other impacts on river values. The only differences in alternatives are the amount of employee housing, which are driven by Valley housing availability (in higher use alternatives, more Valley employees will commute from housing in El Portal).

## **Segment 5: South Fork Merced River Above Wawona**

### ***Management Goals and Considerations***

Management goals related to user capacity in this segment include: (1) protecting natural processes; and (2) promoting visitor enjoyment. There is no recreation ORV in this segment, and use-related impacts that might affect the segment’s biological, archeological, and scenic outstandingly remarkable values (see Chapter 2) are localized and site-specific and more likely to be caused by the type rather than the amount of use.

The entire reach is in designated Wilderness. As with other Yosemite backcountry areas, NPS manages for solitude-oriented recreation experiences. Overnight visitor use is currently limited through a trailhead quota and permit system.

A review of baseline and existing conditions, studies, monitoring results and public comment identified few specific visitor or administrative use issues for the corridor. Designated trails cross the corridor in only three

places, there are very few commonly used dispersed camps, and none are likely to have substantial site-specific impacts at current or proposed use levels.

Other management considerations that affected user capacity decisions in this segment include wilderness encounters and related recreational experiences. As described by the Wilderness Act, outdoor recreation in the Merced River’s wild segments is primarily oriented toward “outstanding opportunities for solitude or a primitive and unconfined type of recreation.” Therefore, the degree of interaction with other visitors can be a constraint on the amount of use that may be accommodated in this segment.

**Indicators and Standards**

Capacities in this segment were based on trail encounters with other groups. Encounters have a long history of management and research attention in backcountry areas (Vaske et al. 1986; Shelby et al. 1996; Manning 2010). In higher density settings (including above Nevada Fall), the measure has focused on encounters *per hour*. In lower density backcountry areas such as the South Fork above Wawona, considerable research suggests standards for “wilderness experiences” should be less than five encounters *per day* (Vaske et al. 1986).

Based on research from several locations, relationships between use and trail encounters in this segment are likely to be direct and linear. Trail encounter standards have been set at five or less per day for all alternatives; these standards are unlikely to be exceeded with current overnight and day-use levels.

**Overview of Capacities**

The *Merced River Plan/DEIS* proposes no changes in overnight visitor capacities for this segment, but considers day use and administrative use for completeness. A summary of user capacities is provided in Table 6-9. Visitor capacities in this table refer to people spending the night in or near the segment (overnight use), or using it for part of one day (day-use); encounters between these groups would most likely occur while traveling during the day.

Administrative use up to five people per day is associated with wilderness patrols, trail crews, or search and rescue operations. All capacities for visitor and administrative use are the same across alternatives, and they will protect or enhance visitor experiences by ensuring that trail encounters will not exceed the standards set for the corridor.

**TABLE 6-9: SUMMARY OF USER CAPACITIES FOR ALL ALTERNATIVES: MERCED CORRIDOR ABOVE WAWONA**

Wilderness Capacities		Comments
<b>Wilderness zone capacities</b>		
Zone 50, South Fork	15	Trail crosses corridor. Very little, if any cross-country use. Corridor is less than 15% of zone. Most camping is outside river corridor. Zone overnight capacity is 150 people per night.
Zone 51, Johnson Creek	5	No designated trails in corridor. Some rare cross-country use. Corridor is less than 5% of zone. Zone capacity is 50 people per night.
Zone 52, Chilnualna Creek	0	No designated trails in corridor. No known use. Corridor is less than 10% of zone. No camping allowed in corridor (within 4 miles of Wawona).
<b>Total</b>	<b>20</b>	
<b>Administrative capacity</b>	<b>5</b>	Estimated based on a limited number of wilderness patrols.
<b>TOTAL SEGMENT CAPACITY</b>	<b>25</b>	

## ***Capacity Management***

Proposed capacities would be managed through the backcountry permit system, which limits people per day using different trailheads; the capacities are the same for all alternatives. Other details about the permit system are provided earlier in this chapter under the section pertaining to the Merced River above Nevada Fall.

Plan alternatives propose no changes to infrastructure (trails, bridges, or related development). However, similar to the Merced above Nevada Fall, several Wilderness management actions work with capacities to protect and enhance river values. These are common across all alternatives:

- Overnight group size limits: 15 for backpacking groups on trails, 8 cross-country; 25 stock + people for stock groups on trails.
- Camping restrictions: Camp farther than 100 feet from water; no camping within 4 miles of Wawona.
- Day use group size limit of 35 people
- Leave-No-Trace regulations:
  - No fires above 9,600 feet; fires must be in designated fire rings
  - Mandatory bear-resistant food canisters
  - Carry out all trash
  - Bury human waste
  - No bicycles/strollers
  - No mechanized or motorized travel
- Regular trail and camping area maintenance addressing site impacts (e.g., trail cutting, campsite boundary encroachment, etc.).

## ***Conclusion***

There are no user capacity tradeoffs in the segment above Wawona; all alternatives maintain the same encounter standards and existing low-use levels. This part of the corridor provides very low density, solitude-oriented recreation experiences and minimal visitor-related impacts, and no stakeholder or public input has advocated higher-use alternatives.

## **Segments 6 and 7: Wawona and Wawona Impoundment**

### ***Management Goals and Considerations***

Management goals related to user capacity in this segment include: (1) protecting natural processes; and (2) promoting visitor enjoyment.

The pertinent outstandingly remarkable values in this segment are biological and cultural. The biological ORV includes the Sierra sweet bay (*Myrica hartwegii*), a rare plant found on river banks of the South Fork Merced River. Uses proposed in the plan alternatives are diverted away from sensitive areas, and fencing, signing, and education are proposed to further protect this ORV.

For the cultural ORV, remains of the U.S. Army Cavalry Camp A.E. Wood document the Yosemite legacy of the African-American buffalo soldiers and the strategic placement of their camp near the Merced River. Campsites currently within this historic area would be removed in some *Merced River Plan/DEIS* alternatives, affecting the overnight capacity of the campground.

Other factors that limit the kinds and amounts of use that can be accommodated in the Wawona segment include the following:

***Resource constraints and site suitability.*** As with the other developed areas in the corridor (Yosemite Valley and El Portal), resource constraints and overall site suitability factor into the constraints on the maximum amounts of use that may be accommodated in the Wawona segment. In this segment, these constraints include topography, floodplains and riparian areas, rare and sensitive plant and animal populations, and cultural resource sites. Collectively, the various resource constraints and limited availability of land in the river corridor in Wawona are a limiting factor for visitor and administrative uses in this area.

***Water consumption.*** Water use and treatment are a limiting factor to the overall kinds and amounts of use in the Wawona segment. Currently the water supply for the Wawona area is drawn from four potable water systems and multiple private wells. One distribution system is operated by the National Park Service and involves drawing surface water from an impoundment on the South Fork Merced. Under its Regional Water Quality Control Board permit, this system is designed to draw a maximum of 480 gallons per minute or 1.1 cubic feet per second. To protect in-stream flows for aquatic habitat, mandatory water conservation measure are implemented whenever the river reaches flows of less than 6 cubic feet per second. At flows of less than 6 cubic feet per second, diversions are limited to 10 percent of the river flow.

### ***Indicators and Standards***

The parking availability indicator for Yosemite Valley (Segment 2) helped inform user capacity decisions for this segment. The segment has approximately 290 spaces, depending on size of vehicles and how efficiently unmarked turnouts are used. All alternatives keep this number static and assume 90 percent of spaces can be used efficiently (parking filled at higher levels makes it difficult for drivers to find, enter, or leave spaces without creating bottlenecks).

Administrative use capacities in residential areas were based on staffing needs and available housing, which are the same across the alternatives for this segment. Full occupancy of the available employee housing is assumed.

Relationships between use levels and crowding are direct and linear. More vehicles stopping in the segment will fill the available parking spaces, while more vehicles on the road will decrease average space per vehicle and increase chances of congestion. Using these relationships, park planners assessed the number of vehicles that can be accommodated at one time and meet standards (see assumptions below) (DEA 2012).

Although park planners considered all river values and related site constraints in this segment in developing capacities, the limiting factor is parking availability, which constrains the number of visitors that can stop and recreate in the segment at one time (about 911 visitors).

### ***Overview of Capacities***

Table 6-10 presents an overview of the capacities proposed for the Wawona segment across the alternatives.

**TABLE 6-10: SUMMARY OF USER CAPACITIES BY ALTERNATIVE: WAWONA**

Alternatives	1	2	3	4	5	6
	Current management	Self-reliant experiences and extensive floodplain restoration	Dispersed experiences and extensive riverbank restoration	Resource-based experiences and targeted restoration	Enhanced experiences and essential riverbank restoration	Diversified experiences and selective riverbank restoration
<b>Visitor overnight capacity</b>						
Wawona Hotel	247	247				
Wawona Campgrounds	618	426	456	456	540	540
<b>Visitor day-use capacity</b>						
Day parking	911	911				
Regional transit	0	26	26	104	311	311
Tour buses	384	384				
<b>Administrative capacity</b>						
Employee housing	121	121				
Administrative day use	60	60				
<b>TOTAL SEGMENT CAPACITY</b>	<b>2,368</b>	<b>2,175</b>	<b>2,205</b>	<b>2,205</b>	<b>2,574</b>	<b>2,574</b>

### Visitor Overnight Capacity

All alternatives would retain the Wawona Hotel at its current capacity of 104 rooms, accommodating a maximum of 247 people per night. The Wawona campground has different user capacities in different alternatives, depending on the number of sites moved away from both the river and the A.E. Wood cultural site. Maximum capacities of the campground are 384, 414, and 498 people per night, compared to the current capacity of 576 people per night. Campground user capacity is calculated by multiplying the number of sites times the maximum of six people per site. Additionally, each action alternative includes one 30-person group site at the Wawona Campground. Segment 7 also has two stock camps that accommodate up to six people per night at each.

### Visitor Day-use Capacity

Day-use capacity in Wawona varies according to the amount of regional transit provided along this corridor in each alternative. Based on the number of inbound bus runs through this segment each day, the maximum number of people at one time from regional transit in Wawona varies from zero in Alternative 1 to 311 in Alternative 6 (the calculations are similar to those in Segment 2, above, with no employees assumed as riders; for example, the preferred alternative has 12 roundtrips per day, with 48 passengers per bus, multiplied by the 60 percent turnover rate and 90 percent day-use factor, for 311 total). The maximum day-use associated with private vehicle parking remains the same across all alternatives, at approximately 911 people at one time (290 parking spaces multiplied by an average of 2.9 people per vehicle, then by 90 percent, with 154 people in circulating cars added to reach 911). The maximum number of people at one time arriving from tour buses is consistent across the alternatives at 384 people (8 tour bus parking spaces multiplied by a maximum of 48 people per bus).

### Administrative Capacity

Administrative use is broken down between employees residing in housing within the corridor and those that use day-use parking not associated with residential areas or visitor parking. Residential capacity for all of the alternatives is 121 employees. Day parking for administrative use would accommodate an additional 60 employees (30 parking spaces multiplied by an average of two people per vehicle, reflecting the fact that employees are usually not traveling with their families or friends, but other coworkers going to the same duty station).

### Capacity Management

This section provides an overview of the key capacity management actions for the Wawona segment. It focuses on infrastructure decisions along with policy and regulation measures that will be taken to ensure the kinds and amounts of use proposed do not adversely affect river values. Again, these are a subset of the full suite of actions being taken in each alternative to protect river values (see Chapters 5 and 8, for example). Table 6-11 presents a summary by alternative of the key capacity management actions for the Wawona segment.

**TABLE 6-11: SUMMARY OF KEY USER CAPACITY MANAGEMENT INFORMATION: WAWONA**

Alternatives	1	2	3	4	5	6
	Existing situation	Self-reliant experiences and extensive floodplain restoration	Dispersed experiences and extensive riverbank restoration	Resource-based experiences and targeted restoration	Enhanced experiences and essential riverbank restoration	Diversified experiences and selective riverbank restoration
<b>Infrastructure</b>						
Wawona Hotel	104 rooms					
Wawona Campgrounds	99 sites	Reduced to 67 sites	Reduced to 72 sites	Reduced to 72 sites	Reduced to 86 sites	Reduced to 86 sites
Wawona stock camp	Located near river	Relocated to Wawona Stables	Relocated to Wawona Stables	Relocated to Wawona Stables	Relocated to Maintenance Yard	Relocated to Wawona Stables
Fencing and boardwalks	Used to denote closed areas and/or divert human foot traffic or parking away from sensitive areas.					
<b>Policy and Regulation</b>						
Lodging management	Concession operated, available by reservation					
Campground regulations	<ul style="list-style-type: none"> <li>• NPS operated by combination of reservation system first come-first served availability.</li> <li>• Length of stay limited to not more than a total of 7 days, and camping within all other portions of the park, during the same period, is limited to not more than a total of 14 days.</li> <li>• Maximum of 6 people per individual site and 30 people per group site.</li> <li>• Maximum of 2 vehicles per site.</li> <li>• Food storage regulations apply.</li> </ul>					
Boating regulations	Allowed downstream of swinging bridge					
Fishing regulations	<ul style="list-style-type: none"> <li>• State regulations apply</li> <li>• No fishing from bridges, including Swinging Bridge</li> </ul>					
Swimming regulations	<ul style="list-style-type: none"> <li>• No jumping or diving from bridges</li> <li>• No swimming within Wawona water intake or 100 yards upstream</li> <li>• No use of soaps, shampoos or detergents (biodegradable or otherwise) in any waters of the park.</li> </ul>					

### Infrastructure

Under all alternatives, the Wawona Hotel, a National Historic Landmark, is retained at its current capacity of 104 rooms. The Wawona campground configuration varies across alternatives, depending on the number of sites removed from river or cultural resource areas. In Alternative 2 the campground is reduced to 67



sites, in Alternatives 3 and 4 to 72 sites, and in Alternatives 5 and 6 to 86 sites. Fencing and signs help delineate parking areas and paths, guiding use away from steep riverbanks or meadow and riparian areas.

### **Policy and Regulation**

As in the other river segments, overnight lodging at the Wawona Hotel would continue to be managed by the primary park concessioner, with rooms available by reservation. The Wawona campground would continue to be managed by the National Park Service with a mix of an advanced reservation and first-come-first-served system. All current camping, boating, fishing, and swimming regulations would continue, as summarized in the table above.

### ***Conclusion***

The primary user capacity choices in the Wawona segment are related to the sites in the current Wawona campground that encroach on sensitive areas and cultural values. Sites have been pulled away from these areas reducing the overnight capacity in this segment to varying degrees.

## **Segment 8: South Fork Merced River Below Wawona**

### ***Management Goals and Considerations***

Management goals related to user capacity in this two-mile segment include: (1) protecting natural processes; and (2) promoting visitor enjoyment. The only identified outstandingly remarkable value is the rare plant Sierra sweet bay, which is more likely to be affected by the type or location of use than by amount of use.

The segment is also rarely visited, so describing potential recreation impacts, defining standards, and determining user capacities is largely conjectural. Nevertheless, some day users hike along the river to fish (leaving from the campground), but this use and its impact are minimal. Similarly, a few highly skilled whitewater boating groups (typically kayakers) may descend the Class V+ South Fork in the narrow range of boatable flows in early summer, but the primary focus of such trips is downstream of the park boundary. Similarly, a few users each year may hike into the corridor seeking places to fish or relax in near-complete solitude, but the reach is short, the terrain is steep and challenging, and there are no known trails. For boating and hiking, management goals focus on wilderness-like settings and very low density recreation opportunities.

### ***Indicators and Standards***

User capacities in this segment are based on encounters with other groups per day; a measure of solitude (similar to the trail-less areas in the South Fork above Wawona segment). Research suggests standards for low density wilderness experiences should be set at less than five encounters per day (Vaske et al, 1986), which has been chosen as the standard across all alternatives.

Based on research from other rivers, relationships between use and encounters in this segment are likely to be direct and linear. With encounter standards set at five per day, use levels of three or less groups per day are unlikely to violate this standard.

### ***Overview of Capacities***

The *Merced River Plan/DEIS* proposes a visitor capacity of three groups per day (with maximum group size of five). Based on NPS estimates, this level of use has rarely, if ever, been exceeded. Administrative use in this segment is also low, but the *Merced River Plan/DEIS* adds administrative use of one group (up to five people) per day for patrols or search and rescue. All capacities for visitor and administrative use are the same across alternatives, and they will protect or enhance visitor experiences by ensuring that encounters will not exceed standards in the corridor.

### ***Capacity Management***

Overnight use in this segment is prohibited (because it is within 4 miles of Wawona), so the backcountry permit system does not apply. Although boaters have not requested permission to run this reach in the past, they would be required to register under all new alternatives. Proposed capacities would be managed through self-registration at Wawona Campground or other access points.

The *Merced River Plan/DEIS* alternatives propose no changes to the undeveloped nature of the segment (no trails, bridges, or related development). As in other wilderness areas that overlap with the corridor, management actions work with capacities to protect and enhance river values. These are common across all alternatives, and include Leave-No-Trace regulations that encourage visitors to avoid building fires, carry out all trash, bury human waste, and use bear-resistant food canisters.

### ***Conclusion***

There are no user capacity tradeoffs in the segment below Wawona; all alternatives maintain the same encounter standards and existing low-use levels. This part of the corridor provides very low density, solitude-oriented recreation experiences and minimal visitor-related impacts, and no stakeholder or public input has advocated higher-use alternatives.

## 7. FACILITIES AND SERVICES ANALYSIS

The Wild and Scenic Rivers Act and the 1982 Guidelines provide direction on the types of facilities that are allowed in designated river corridors. In addition, the Ninth Circuit's 2008 opinion on the Revised MRP questioned whether the level of development in some parts of the river corridor was protective of ORVs. In keeping with this guidance and to address concerns raised by the court, Chapter 7 analyzes structures and facilities within each segment of the river corridor in terms of their effect on river values. This chapter also examines the feasibility of relocating, removing or redesigning facilities that cause management concerns with regard to ORVs. The information presented in this chapter informed the development of the alternatives presented in Chapter 8, including the actions that are common to Alternatives 2 - 6.

The definitions for wild, scenic and recreational river areas in Section 2 of the Act provide important guidance on the type and intensity of development that is allowable in designated river segments. The 1982 Guidelines expand upon these statutory definitions. In essence, the Act and the Guidelines describe the type and intensity of development that may exist in the river areas in terms of a continuum, with the least amount of development tolerated in wild segments. Recreational segments are defined as being readily accessible by road and may have roads paralleling the river on one or both banks as well as bridge crossings. Recreational segments may also have some residential, commercial or similar development, and may have evidence of impoundment or diversion. Scenic river segments have less discernable development. A scenic segment retains its overall natural character but may have structures or concentrations of structures in short reaches of the total area. Scenic segments may be accessible in places by roads. Wild segments are vestiges of primitive America showing little or no evidence of human development, although a few inconspicuous structures are permissible. They generally do not contain roads and are free of impoundment<sup>1</sup>.

The 1982 Guidelines also discuss facilities in terms of whether they are major or basic facilities. The Guidelines state that: "Major public use facilities such as developed campgrounds, major visitor centers and administrative headquarters will, where feasible, be located outside the river area. If such facilities are necessary to provide for public use and/or to protect the river resource, and location outside the river area is infeasible, such facilities may be located within the river area provided they do not have an adverse effect on the values for which the river area was designated." Other facilities, such as picnic areas, public restrooms, roadside pull-outs, shuttle bus stops, and campground kiosks, are considered "basic facilities" by the Guidelines. Basic facilities may be located in river areas as a way to absorb user impacts as long as river values are protected. Finally, the Guidelines also make allowance for structures related to resource management, such as trail bridges, fences and other minor structures. These types of minor structures are allowed if they are compatible with the segment's classification and the structures harmonize with the surrounding environment<sup>2</sup>.

In addition to the direction provided in the Act and Guidelines, the Ninth Circuit's 2008 opinion expressed concern that certain existing development within the Merced river corridor was degrading ORVs. The Court explained that the NPS could not presume that facility levels in existence in 1987 were protective of ORVs or that pre-existing facility levels complied with the Act's requirement to address user capacity<sup>3</sup>.

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<sup>1</sup> 47 *Federal Register* 173: 39457 and 39458, Sept. 7, 1982.

<sup>2</sup> 47 *Federal Register* 173: 39459, Sept. 7, 1982.

<sup>3</sup> *Friends of Yosemite Valley v. Kempthorne*, 520 F.3d 1024, 1035-36 (9<sup>th</sup> Cir 2008)

The Merced River corridor within Yosemite National Park and the El Portal Administrative Site, contains many types of structures used for administrative needs, visitor lodging, employee housing, food and retail services, campgrounds, roads, bridges, and utility infrastructure. This chapter evaluates these types of structures and facilities in order to assess whether they may be retained or whether they should be relocated, removed or redesigned. This analysis is presented in Table 7-1.

Facilities meeting the definition of a basic facility under the Guidelines are not reflected in Table 7-1. There are many basic facilities located in the 81 mile river corridor. It is not practical to reflect each such facility in Table 7-1. Basic facilities are addressed in Chapter 8, which discusses the overall effect of the entire array of structures and facilities envisioned under each alternative on river values.

## RELATIONSHIP OF THIS ANALYSIS WITH OTHER CHAPTERS

### *Chapter 5: River Values and Their Management*

Where it has been determined that development footprints, visitor use and / or administrative use are causing local effects to river values as defined in “River Values and Their Management” (Chapter 5), this plan calls for removal, re-design, and/or relocation of those facilities. All determinations of local effects on river values—defined as free-flowing condition, water quality, and outstandingly remarkable values—are congruent with the information gathered to determine baseline conditions of river values and the management considerations presented in Chapter 5. However, not all public-use facilities and services that are removed or relocated across the range of alternatives, as presented in “Alternatives” (Chapter 8), have been determined to be causing local effects to river values. Some facilities or services are proposed for removal or relocation based on the thematic concept of each alternative.

### *Chapter 8: Alternatives*

Chapter 8 presents a determination as to whether facilities and services are necessary for public use or protection of the river resource as directly correlated to the visitor experience and land-use planning goals for each alternative. New or re-developed facilities across the range of alternatives have been determined to either be necessary or not necessary. Those that are necessary – screened for whether it is feasible to relocate the facility or service outside the river corridor. A summary of all current and potential facilities and services are presented below in Table 7-1.

Extensive studies and site analyses have been conducted at the primary visitor-service areas (Merced Lake; Curry Village and Campgrounds; Yosemite Village and Housekeeping Camp (including the Yosemite Village Day Use Parking Area); Yosemite Lodge and Camp 4 Area; West Yosemite Valley; El Portal; and Wawona. These analyses identify major site constraints that restrict redevelopment and/or relocation of facilities. Such constraints include the locations of floodplains; wetlands; meadows; riparian habitat; rare plants; archeological sites; and historic structures. Studies and site analyses, together with river segment classifications, informed the alternatives under consideration—particularly in terms of sensitive areas that must be protected and of resilient areas where facilities and services could be located.

**TABLE 7-1: ANALYSIS OF LOCAL EFFECTS ON RIVER VALUES**

NPS subject-matter specialists representing a broad spectrum of professional disciplines considered Geographic Information Systems (GIS) data and the results of scientific research to evaluate each facility for its potential to cause local effects to river values.

Facility or Service	River Value Affected by Facility or Service?	Local Effect on River Values?	Mitigation Required or Action Proposed to Address Local Effects
<b>Segment 1: Wild Classification</b> <b>All facilities noted below are consistent through their trail-only access with the wild classification</b>			
Merced Lake High Sierra Camp	Recreation; Scenic	Merced Lake High Sierra Camp affects the wilderness experience integral to the Recreation ORV in this segment and is a visual impact on the Scenery ORV.	Options explored in the alternatives include repurposing the area to dispersed camping and removing lodging infrastructure; removing and restoring to natural conditions, converting to designated wilderness; converting to a temporary pack camp and removing permanent infrastructure; reducing capacity; or replacing white canvas tents with natural colored fabric to blend with surroundings.
Merced Lake Backpackers Camping Area	Recreation	High levels of use at the Merced Lake Backpackers Camping Area affect the wilderness experience integral to the Recreation ORV in this segment.	Convert to dispersed camping
Little Yosemite Valley Camping Area	Recreation	Crowding at Little Yosemite Valley Camping Area impacts the wilderness experience integral to the Recreation ORV in this segment.	Options explored in the alternatives include converting the area to dispersed camping and reducing capacity.
Moraine Dome Camping Area	Recreation	Crowding and infrastructure at Moraine Dome Camping Area impacts the wilderness experience integral to the Recreation ORV.	Convert to dispersed camping and remove infrastructure
<b>Segment 2: Recreational Classification</b> <b>All facilities noted below are consistent through their level of development accessible by road</b>			
<b>Curry Village and Campgrounds</b>			
Upper Pines Campground	Biological	Some campsites are located within 150 feet of the river in sensitive riparian habitat.	Remove campsites within floodplain and restore to natural conditions
Upper Pines Campground	Cultural	Some campsites located near sensitive cultural resource	Relocate campsites to avoid sensitive resource
Lower Pines Campground	Biological	Some campsites are located within 150 feet of the river in sensitive riparian habitat.	Options explored in the alternatives include removing campsites located within 100 ft of river, removing campsites located within 150 ft of river, removing campsites located within the 100 year floodplain, restoring riparian habitat and installing protective fencing to facilitate restoration
North Pines Campground	Biological	Some campsites are located within 150 feet of the river in sensitive riparian habitat.	Options explored in the alternatives include removing campsites located within 100 year floodplain, removing campsites located within 150 ft of the river, removing campsites from within 100 ft of river, restoring riparian habitat, and designating formal river access
Backpackers Campground	Biological	Some campsites are located within 150 feet of the river in sensitive riparian habitat.	Options explored in the alternatives include relocating campsites outside of floodplain, relocating campsites outside of riparian buffer zone, restoring riparian habitat, and designating formal river access
Valley Campground Reservation Center	None	None	No required actions or mitigation measures

Facility or Service	River Value Affected by Facility or Service?	Local Effect on River Values?	Mitigation Required or Action Proposed to Address Local Effects
<b>Segment 2: Recreational Classification (continued)</b> All facilities noted below are consistent through their level of development accessible by road			
<b>Curry Village and Campgrounds (continued)</b>			
Housekeeping Camp Lodging Units	Biological	Some units are located within 150 feet of the river in sensitive riparian habitat.	Options explored in the alternatives include removing all lodging units and restoring 100 year floodplain to natural conditions, removing lodging units located within ordinary high water mark of river, and restoring riparian habitat
Housekeeping Camp Laundry	None	None	No required actions or mitigation measures
Housekeeping Camp Shower Houses and Restrooms	None	None	No required actions or mitigation measures
Housekeeping Camp Grocery Store	None	None	No required actions or mitigation measures
Curry Village Lodging and Shower Houses	None	None	No required actions or mitigation measures
Curry Village Pavilion and Food Service	None	None	No required actions or mitigation measures
Camp Curry Overnight Parking	None	None	No required actions or mitigation measures
Curry Village Orchard Parking	None	None	No required actions or mitigation measures
Curry Village Grocery Store	None	None	No required actions or mitigation measures
Curry Village Pizza Deck and Bar	None	None	No required actions or mitigation measures
Curry Village Raft Rental	None	None	No required actions or mitigation measures
Curry Village Ice Rink	None	None	No required actions or mitigation measures
Curry Village Stables	None	None	No required actions or mitigation measures
Commercial Horseback Day Rides in Yosemite Valley	None	None	No required actions or mitigation measures
Curry Village Bike Rental	None	None	No required actions or mitigation measures
The Ahwahnee Rooms and Cottages	None	None	No required actions or mitigation measures
The Ahwahnee Bar and Food Service	None	None	No required actions or mitigation measures
The Ahwahnee Dining Room	None	None	No required actions or mitigation measures
The Ahwahnee Gift Shop	None	None	No required actions or mitigation measures
The Ahwahnee Sweet Shop	None	None	No required actions or mitigation measures
The Ahwahnee Swimming Pool	None	None	No required actions or mitigation measures
The Ahwahnee Tennis Court	Cultural	Tennis courts are located in a sensitive cultural area	Remove tennis courts
The Ahwahnee Parking Lot	Cultural	Parking at the Ahwahnee, a National Historic Landmark, and a contributing element to the Yosemite Valley Historic Resources ORV, is inadequate to meet day and overnight use	Redesign and formalize the existing parking lot following the Ahwahnee Historic Structures Report (1997) and Ahwahnee Cultural Landscape Report (2010) recommendations for parking lot configuration and gate house restoration

Facility or Service	River Value Affected by Facility or Service?	Local Effect on River Values?	Mitigation Required or Action Proposed to Address Local Effects
<b>Segment 2: Recreational Classification (continued)</b>			
<b>All facilities noted below are consistent through their level of development accessible by road</b>			
<b>Curry Village and Campgrounds (continued)</b>			
Boys Town Employee Housing Area	None	None	There are no local effects from this facility in its current location on river values, therefore no actions or mitigation measures are necessary
Huff House Employee Housing Area	None	None	
Curry Village Stables Employee Housing Area	None	None	
Ahwahnee Employee Dormitory	None	None	
Curry Village Employee Residence Area	None	None	
Happy Isles Nature Center	None	None	No required actions or mitigation measures
Happy Isles Snack Stand	None	None	No required actions or mitigation measures
Le Conte Memorial Lodge (National Historic Landmark)	Cultural	LeConte Memorial Lodge, a National Historic Landmark, and a contributing element to the Yosemite Valley Historic Resources ORV is in "fair" condition and in need of restoration	Develop a Historic Structure Report and address recommendations for treatment to bring the Lodge to "good" condition
Northside Drive (Stoneman Bridge to Yosemite Village Day-use Parking Area)	Biological Cultural	This road bisects a meadow which affects meadow health. This road also bisects culturally sensitive areas.	Options explored in the alternatives include removing 900' of Northside Drive, removing roadside parking to prevent further meadow encroachment and informal trailing, filling ditches, removing informal trails, adding boardwalks, installing culverts to improve hydrologic connectivity, and conducting studies to determine feasibility of removing Northside Drive from the meadow
Southside Drive (through Stoneman Meadow)	Biological	This road bisects a meadow which affects meadow health.	Options explored in the alternatives include removing 1,335 feet of Southside Drive through Stoneman Meadow to enhance connectivity of meadow and floodplain, and removing roadside parking to prevent further meadow encroachment and informal trailing
Happy Isles Loop Road	None	None	No required actions or mitigation measures
Sugar Pine Bridge	Free-Flowing Condition	The historic Sugar Pine Bridge is constricting the free-flowing condition of the Merced River and causing localized impacts to hydrologic function.	Options explored in the alternatives include removing the bridge and restoring the area to natural conditions, retaining the bridge while improving riverbank condition and increasing channel complexity through construction of engineered log jams, strategic placement of large wood, removal of rip rap, use of riverbank bioengineering techniques, and restoring riparian habitat
Ahwahnee Bridge	Free-Flowing Condition	The historic Ahwahnee Bridge is constricting the free-flowing condition of the Merced River and causing localized impacts to hydrologic function.	Options explored in the alternatives include removing the bridge and restoring the area to natural conditions, retaining the bridge while improving riverbank condition and increasing channel complexity through construction of engineered log jams, strategic placement of large wood, removal of rip rap, use of riverbank bioengineering techniques, and restoring riparian habitat
Stoneman Bridge	Free-Flowing Condition	The historic Stoneman Bridge is impacting the free flowing condition of the Merced River by constricting flow within the bed and banks.	Options explored in the alternatives include removing the bridge and restoring the area to natural conditions, retaining the bridge while improving riverbank condition and increasing channel complexity through construction of engineered log jams, strategic placement of large wood, removal of rip rap, use of riverbank bioengineering techniques, and restoring riparian habitat

Facility or Service	River Value Affected by Facility or Service?	Local Effect on River Values?	Mitigation Required or Action Proposed to Address Local Effects
<b>Segment 2: Recreational Classification (continued)</b>			
<b>All facilities noted below are consistent through their level of development accessible by road</b>			
<b>Curry Village and Campgrounds (continued)</b>			
Clark's Bridge	Free-Flowing Condition Geologic/Hydrologic	Clark's Bridge is impacting the free flowing condition of the Merced River by constricting flow within the bed and banks.	Options explored in the alternatives include removing the bridge and restoring the area to natural conditions, retaining the bridge while improving riverbank condition and increasing channel complexity through construction of engineered log jams, strategic placement of large wood, removal of rip rap, use of riverbank bioengineering techniques, and restoring riparian habitat
Happy Isles Road Bridge	Free-Flowing Condition Geologic/Hydrologic	The bridge at Happy Isles is impacting the free-flowing condition of the Merced River by constricting flow within the bed and banks.	Options explored in the alternatives include removing the bridge and restoring the area to natural conditions, retaining the bridge while improving riverbank condition and increasing channel complexity through construction of engineered log jams, strategic placement of large wood, removal of rip rap, use of riverbank bioengineering techniques, and restoring riparian habitat
Upper River Campground (New)	None	None	No required actions or mitigation measures
Lower River Campground (NEW)	None	None	No required actions or mitigation measures
West of Backpackers Campground (New)	None	None	No required actions or mitigation measures
Concessioner Stables repurposed as camping(New)	None	None	No required actions or mitigation measures
Upper Pines Walk-in Campground (New)	None	None	No required actions or mitigation measures
<b>Yosemite Village and Housekeeping Camp</b>			
Housekeeping Camp Bridge	Free-flowing Condition Geologic/Hydrologic	The footbridge at Housekeeping Camp is impacting the free flowing condition of the Merced River by constricting flow within the bed and banks.	Retain Bridge: Improve riverbank condition and increase channel complexity through construction of engineered log jams, strategic placement of large wood, removal of rip rap, and use of riverbank bioengineering techniques and restore riparian habitat
Concessioner General Office	None	None	No required actions or mitigation measures
Ahwahnee Row Employee Housing	Biological	Ahwahnee Row housing sits on former meadow and truncates the current western extend of Ahwahnee Meadow	Options explored in the alternatives include removing housing and restoring to natural conditions, retaining housing while establish a 50 ft buffer from Indian Creek, and restoring riparian vegetation.
Lower Tecoya Employee Housing Area	None	None	No required actions or mitigation measures
Lost Arrow Employee Housing Area	None	None	No required actions or mitigation measures
Concessioner Garage	None	None	No required actions or mitigation measures
Fire Station	None	None	No required actions or mitigation measures
Village Store	None	None	No required actions or mitigation measures
Village Grill	None	None	No required actions or mitigation measures
Village Sports Shop	None	None	No required actions or mitigation measures



Facility or Service	River Value Affected by Facility or Service?	Local Effect on River Values?	Mitigation Required or Action Proposed to Address Local Effects
<b>Segment 2: Recreational Classification (continued)</b>			
<b>All facilities noted below are consistent through their level of development accessible by road</b>			
<b>Yosemite Village and Housekeeping Camp (continued)</b>			
Village Store Parking Lot	None	None	No required actions or mitigation measures
Art Activity Center/ Bank Building	None	None	No required actions or mitigation measures
Superintendent's House (Residence 1)	Cultural	Residence 1, a contributing element of the Yosemite Valley Historic Resources ORV is in "poor condition" and subject to flooding	Relocate and rehabilitate the building per the Secretary of the Interior's Standards (1995) for the Treatment of Historic Properties and the Historic Structure Report (2012)
Yosemite Valley Chapel	None	None	No required actions or mitigation measures
Sentinel Crossover	Biological	This road bisects a meadow which affects meadow health.	Retain Bridge: Improve riverbank condition and increase channel complexity through construction of engineered log jams, strategic placement of large wood, removal of rip rap, and use of riverbank bioengineering techniques. Restore riparian habitat, and remove roadside parking to prevent further meadow encroachment and informal trailing
Intersection of Northside Drive and Sentinel Drive Roundabout (New)	Biological	Potential impacts to Palustrine Forested Wetland	There are opportunities to compensate wetlands through meadow and riparian restoration actions.
Yosemite Village Day-use Parking Area Pedestrian Underpass (New)	Biological	Potential impacts to Palustrine Emergent Wetland	There are opportunities to compensate wetlands through meadow and riparian restoration actions.
Yosemite Village Day-use Parking Area	None	None	No required actions or mitigation measures
Intersection of Northside Drive and Sentinel Drive Roundabout (New)	Biological	Potential impacts to Palustrine Emergent Wetland	There are opportunities to compensate wetlands through meadow and riparian restoration actions.
<b>Yosemite Lodge and Camp 4</b>			
Camp 4 Campground	None	None	No required actions or mitigation measures
Yosemite Lodge Overnight Parking	None	None	No required actions or mitigation measures
Yosemite Lodge Garden Terrace and Cliff Room	None	None	No required actions or mitigation measures
Yosemite Lodge Swimming Pool and Snack Stand	None	None	No required actions or mitigation measures
Yosemite Lodge Nature Shop	None	None	No required actions or mitigation measures
Yosemite Lodge Housekeeping and Maintenance Building	None	None	No required actions or mitigation measures
Yosemite Lodge Gift and Grocery / Convenience Shop	None	None	No required actions or mitigation measures
Yosemite Lodge Mountain Room Bar and Food Service	None	None	No required actions or mitigation measures
Yosemite Lodge Mountain Room Restaurant	None	None	No required actions or mitigation measures

Facility or Service	River Value Affected by Facility or Service?	Local Effect on River Values?	Mitigation Required or Action Proposed to Address Local Effects
<b>Segment 2: Recreational Classification (continued)</b>			
All facilities noted below are consistent through their level of development accessible by road			
<b>Yosemite Lodge and Camp 4 (continued)</b>			
Yosemite Lodge Food Court	None	None	No required actions or mitigation measures
Yosemite Lodge Post Office	None	None	No required actions or mitigation measures
Yosemite Lodge Bike Stand	None	None	No required actions or mitigation measures
Yosemite Lodge Highland Court Employee Housing	None	None	No required actions or mitigation measures
Yosemite Lodge Employee Housing (Thousands Cabins)	None	None	No required actions or mitigation measures
NPS Volunteer Office	None	None	No longer use, would be removed
Swinging Bridge	Free Flowing Condition	The Swinging Bridge is impacting the free flowing condition of the Merced River by constricting flow within the bed and banks.	Retain Bridge: Improve riverbank condition and increase channel complexity through construction of engineered log jams, strategic placement of large wood, removal of rip rap, and use of riverbank bioengineering techniques and restore riparian habitat
Superintendent's Footbridge	Free Flowing Condition	The Superintendent's Bridge is impacting the free flowing condition of the Merced River by constricting flow within the bed and banks.	Retain Bridge: Improve riverbank condition and increase channel complexity through construction of engineered log jams, strategic placement of large wood, removal of rip rap, and use of riverbank bioengineering techniques and restore riparian habitat
Yosemite Lodge Parking Area (New)	None	None	No required actions or mitigation measures
East of Camp 4 Campground (New)	None	None	No required actions or mitigation measures
West of Lodge Campground (New)	None	None	No required actions or mitigation measures
Pedestrian underpass at Yosemite Lodge	Cultural	Construction of underpass may disturb sensitive archeological resources	Mitigation will be developed in consultation with tribes, the State Historic Preservation Office (SHPO) and detailed in a Plan specific programmatic agreement
Yosemite Lodge Housing (New)	None	None	No required actions or mitigation measures
<b>West Yosemite Valley</b>			
Eagle Creek Campground (New)	None	None	No required actions or mitigation measures
El Capitan Crossover	None	None	No required actions or mitigation measures

Facility or Service	River Value Affected by Facility or Service?	Local Effect on River Values?	Mitigation Required or Action Proposed to Address Local Effects
El Capitan Crossover Bridge	Free-flowing Condition	The El Capitan Cross-over Bridge is impacting the free flowing condition of the Merced River by constricting flow within the bed and banks.	Retain Bridge: Improve riverbank condition and increase channel complexity through construction of engineered log jams, strategic placement of large wood, removal of rip rap, and use of riverbank bioengineering techniques and restore riparian habitat
<b>Segment 2: Recreational Classification (continued)</b> All facilities noted below are consistent through their level of development accessible by road			
<b>West Yosemite Valley (continued)</b>			
Pohono Bridge	Free-flowing Condition	The Pohono Bridge is impacting the free flowing condition of the Merced River by constricting flow within the bed and banks.	Retain Bridge: Improve riverbank condition and increase channel complexity through construction of engineered log jams, strategic placement of large wood, removal of rip rap, and use of riverbank bioengineering techniques and restore riparian habitat
West Valley Overflow Parking Area (New)	None	None	No required actions or mitigation measures
<b>Segment 3: Scenic Classification</b> All facilities noted below are consistent through their modest size and scale with the scenic classification			
Arch Rock Entrance Station Kiosk	None	None	No required actions or mitigation measures
Arch Rock Housing (2 duplexes)	None	None	No required actions or mitigation measures
Arch Rock VUA Office	None	None	No required actions or mitigation measures
<b>Segment 4: Recreational Classification</b> All facilities noted below are consistent through their level of development accessible by road			
El Portal Administrative Complex	None	None	No required actions or mitigation measures
Rancheria Employee Housing Area	None	None	No required actions or mitigation measures
Old El Portal Employee Housing Area	None	None	No required actions or mitigation measures
El Portal Market and Gas Station Complex	None	None	No required actions or mitigation measures
Murchison House	None	None	No required actions or mitigation measures
Rancheria Employee Housing (New)	Cultural	None	Avoidance of resources will be ensured through standard mitigation measures including pre-construction consultation and monitoring during construction
Old El Portal Employee Housing (New)	None	None	No required actions or mitigation measures
Abbieville / Trailer Village Employee Housing (New)	Cultural	Located within a sensitive cultural resource area	Avoidance of resources will be ensured through standard mitigation measures including pre-construction consultation and monitoring during construction
El Portal Remote Parking Area at Abbieville / Trailer Village (New)	Cultural	Located within a sensitive cultural resource area	Avoidance of resources will be ensured through standard mitigation measures including pre-construction consultation and monitoring during construction
Abbieville / Trailer Village Administrative Group Campground (New)	Cultural	Located within a sensitive cultural resource area	Avoidance of resources will be ensured through standard mitigation measures including pre-construction consultation and monitoring during construction
El Portal Post Office	None	None	No required actions or mitigation measures
El Portal Elementary School / High school	None	None	No required actions or mitigation measures

Facility or Service	River Value Affected by Facility or Service?	Local Effect on River Values?	Mitigation Required or Action Proposed to Address Local Effects
NPS Offices in Old El Portal	None	None	No required actions or mitigation measures
NatureBridge Office / Employee Housing Building	None	None	No required actions or mitigation measures
<b>Segment 4: Recreational Classification (continued)</b> All facilities noted below are consistent through their level of development accessible by road			
Carroll Clark Community Hall	None	None	No required actions or mitigation measures
Mariposa County Pool	None	None	No required actions or mitigation measures
El Portal Fire Station	None	None	No required actions or mitigation measures
Motor Inn Cabins	None	None	No required actions or mitigation measures
AT&T Building	None	None	No required actions or mitigation measures
Odger's Fuel Storage Facility	None	None	Located within the 100-year Floodplain and would be removed across all alternatives
Old Wastewater Treatment Plant	Cultural	Located within a sensitive cultural resource area	Consult with culturally associated American Indian tribes to determine appropriate method for removing abandoned infrastructure
<b>Segments 5 (Wild), 6 and 7 (Recreational), and 8 (Wild) Classifications</b> All facilities noted below are consistent through their level of development accessible by road			
Wawona Campground	Biological Cultural	The proximity of camp sites to the river causes trampling and riverbank erosion that inhibits riparian vegetation growth. Sensitive archeological sites are located within campground area.	Options considered in the alternatives include reducing capacity at the campground, removing campsites located within the 100 year floodplain, removing or relocating campsites to avoid sensitive cultural resources, removing campsites located within 150 ft of river, and removing campsites within 100 ft of the river
Wawona Hotel Lodging Units	Cultural	The Wawona Hotel National Historic Landmark is in "good" condition, while some contributing elements of the building are in "fair" condition	Follow the recommendations from the Wawona Hotel Historic Structures Report (2012) to address contributing elements in "poor" condition at the Main Hotel, Manager's Cottage, Clark Cottage and Annex building to bring the buildings to "good" condition
Wawona Hotel: Clark Cottage	Cultural	The Clark Cottage is currently in "fair" condition	
Wawona Hotel Restaurant	None	None	
Wawona Hotel Tennis Court	None	None	
Wawona Hotel Golf Course & Shop	None	None	
Wawona Hotel Swimming Pool	None	None	No required actions or mitigation measures
Wawona Maintenance Yard Complex	None	None	No required actions or mitigation measures
Wawona Wastewater Treatment Plant	None	None	No required actions or mitigation measures
Wawona Gas Station	None	None	No required actions or mitigation measures
Wawona Store	None	None	No required actions or mitigation measures
Wawona Stables	None	None	No required actions or mitigation measures
Wawona Commercial Horseback Day Rides	None	None	No required actions or mitigation measures
Pioneer History Center	None	None	No required actions or mitigation measures
Wawona Store Parking Lot	None	None	No required actions or mitigation measures

## 8. ALTERNATIVES

### INTRODUCTION

This chapter presents the six alternatives proposed in the *Merced River Plan/Draft Environmental Impact Statement (DEIS)*. These alternatives represent a range of reasonable alternatives as required by the National Environmental Policy Act (NEPA) including a “No Action” Alternative (Alternative 1), in accordance with Council on Environmental Quality regulations (40 CFR 1502.14). The No Action Alternative represents a continuation of current management practices and provides a basis to compare differences among the alternatives. This chapter addresses the following topics:

- The process used to develop the alternatives and identify the preferred alternative for the *Merced River Plan/DEIS* (Figure 8-1)
- A description of each alternative (page 8-10)
- Identification of the Environmentally Preferred Alternative (page 8-317)
- Alternatives and actions considered and eliminated from further study (page 8-319)
- A Summary of Capacities (Table 8-56)
- A Summary of Alternatives and Actions (Table 8-58)
- River Value Analysis (page 8-331)

### The Process used to Develop the Alternatives

#### *The Merced River Planning Framework*

The National Environmental Policy Act (NEPA) requires federal agencies to rigorously explore a range of reasonable alternatives when planning for a major federal action. NEPA also mandates an early and open process to determine the scope of issues surrounding the proposed action, to develop options for addressing those issues, and to provide for public review and comment on the environmental analyses presented in the project’s draft environmental impact statement (Draft EIS).

Using a full complement of park personnel, including experts in park operations, facilities, and cultural and natural resources, the Merced River planning team devoted several years of effort, from 2009 to 2012, to develop five action alternatives for managing the river corridor (See Figure 8-1). In building the alternatives, the team worked within a planning framework that included eight major steps, which are explained below. Although this framework is described as a series of sequential activities, planning is fundamentally iterative. At each step, new information is uncovered and new insight is gained that can trigger changes to prior decisions. Additionally, extensive internal review and public input affected the process, occasioning still more revisions to it. In the case of the Merced, some of these steps were revisited almost yearly. Although time-consuming, this process of review and revision ultimately lead to a stronger end product, both in form and content.

The NPS has identified its preferred alternative, but all alternatives protect and enhance river values while providing for kinds and amounts of visitor use that are protective of river values. Collectively, the alternatives represent a wide range of choices for the future management of the Merced River corridor. The following sections provide greater detail with regard to each step in the planning process.

Figure 8-1: Creating Alternatives for Merced River Plan



### *Step 1. Define River Values to be Protected and Enhanced*

The Wild and Scenic Rivers Act (WSRA) mandates that each wild and scenic river “. . . shall be administered in such manner as to protect and enhance the values which caused it to be included in said system” (WSRA, Section 10 (a)). The values to be protected include the river’s free-flowing condition, water quality, and those values that are “outstandingly remarkable.” The Interagency Wild and Scenic Rivers Coordinating Council (Interagency Council) criteria for outstandingly remarkable values (ORVs) state that the value must be river-related and rare, unique, or exemplary in a regional or national context.

The National Park Service (NPS) began the process of identifying the ORVs for the Merced River in 1996. After completing other steps in the alternative development process (below), park planners re-visited the ORVs several times (in 2000, 2005, and 2009). Each time, park planners revised and updated the list, with further definitional clarification from the Interagency Council.

The planning team conducted internal ORV workshops, drawing upon scientific information, subject-matter expertise, peer review, government partners, management input, and expert guidance from other wild and scenic river professionals. Public scoping comments regarding ORVs were integrated into the *Draft 2010 Outstandingly Remarkable Values Report* for the Merced Wild and Scenic River, which represented the culmination of this work.

## ***Step 2. Assess Baseline Condition of River Values***

After the release of the 2010 report, workshops were held to solicit additional information on ORV locations and important features; to acquire more knowledge and information about specific ORVs or their components; and to gather suggestions about how river values could best be protected. A revised ORV report was posted to the Yosemite National Park's website in May 2011. Additional opportunities to comment on the ORVs were provided through the release of the fall 2011 and spring 2012 planning workbooks. Public comment and agency and tribal consultation resulted in yet another round of refinement and revision to the Merced River ORVs. Information used to evaluate the baseline condition of the Merced River ORVs included historic photos, maps, and archival materials; research studies and models of natural systems developed specifically for this planning effort; and the professional judgment of experienced subject-matter specialists. External peer reviews of specific research findings and the implications for overall river conditions were solicited.

The park planning team consolidated all of this information into the *Merced Wild and Scenic River Values Draft Baseline Conditions Report*. The assessment was also incorporated into "River Values and Their Management" (Chapter 5) of the *Merced River Plan/Draft EIS*. The report provides an assessment of river values at the time of the river's designation (1987) and represents the existing (or "baseline") condition of those values. This important step in the planning process provides a basis for comparison with the expected outcome of the actions described in the alternatives. It was also essential for identifying areas where actions must be taken to improve conditions in the river corridor.

The first draft of the baseline conditions assessment report, completed in 2011, informed park planners' understanding of river value conditions early in the planning process, guiding the structure and content of the alternatives in response to the identified management considerations.

In an effort to educate the public, the NPS facilitated a series of spring 2011 workshops and associated webinars. The workshops provided an opportunity to learn more about the conditions of the Merced River and the management considerations that needed to be addressed in the Merced River Plan. The *Merced Wild and Scenic River Values Draft Baseline Conditions Report* was subsequently posted on the park's website at [http://www.nps.gov/yose/parkmgmt/mrp\\_documents.htm](http://www.nps.gov/yose/parkmgmt/mrp_documents.htm), and public review and comment was encouraged. All public comments received during this phase of the planning process were posted online in May 2011.

## ***Step 3: Define Desired Condition, Adverse Effect, and Degradation for River Values***

In concert with assessing river values, NPS park managers determined the desired condition for those values, based on guiding legislation, available research and monitoring information, best professional judgment of subject-matter experts, and current trends in the relevant academic and public land management fields. Further, a comprehensive river management plan must contain provisions designed to prevent any adverse effect or degradation from occurring to the river values. Specific thresholds must be stated for mandatory management action that will occur ahead of any such impacts or degradation, to keep the state of river values at or above the desired condition (see "River Values and Their Management" Chapter 5).

Park managers developed indicators of river-value condition that are sensitive to change, along with the monitoring protocols needed to standardize data collection over time. By following these protocols, park managers will have early indications of changing conditions and be able to correct downward trends before they broach management standards. In some cases, a river value may not lend itself easily to monitoring,

such as stairstep river morphology, which is affected only by massive geologic forces that are well beyond human control. Consequently, park managers did not define these terms for that river value. Indicators were developed for all other river values.

#### ***Step 4: Identify Management Concerns and Potential Corrective Actions***

This step involves applying the definitions of river condition (Step 3's management standard, adverse effect, and degradation) to the existing river value conditions (identified in Step 2). By comparing the actual river condition to the management standard, park managers obtained a clear picture of which values needed remedial action to bring them up to the management standard or forestall a downward trend in conditions. In addition, due to the comprehensive and systematic nature of this review, a host of localized areas of concern were identified as places where action could be taken to enhance river values.

The planning team separated this step of the process into two stages, primary and secondary scope. The first stage or primary scope, involved a systematic review of the river corridor to identify management considerations related to the free-flowing condition of the river, water quality, hydrologic/geologic, recreational, cultural, biological, and scenic ORVs. The team used scientific and geospatial data, such as floodplain maps, remote sensing imagery, rock-fall hazard zone models and maps, and channel migration history to support this review. All public comments received during scoping were screened to ensure that location-specific concerns were identified and paired with corrective measures. Finally, subject-matter specialists used their knowledge of the river system to supplement and clarify the findings of the baseline conditions report.

The team ranked the primary scope issues using the following factors:

- Degree of impact from existing infrastructure or current uses on the free-flowing condition of the river (primarily impacts to river flows below the ordinary high-water mark, approximated by the 2- to 10-year floodplain)
- Degree of impact from existing infrastructure or current uses on specific ORVs (biological, scenic, cultural, geological/hydrological)
- Specific locations where potential threats to water quality need to be addressed (point source pollutants, such as nutrients, or petro-chemicals, for example)
- Degree of impact from existing infrastructure or current uses on the Recreation ORV (conflicts between types and locations of activities, density and crowding at key use areas)

The primary scope evaluation was completed first to ensure all alternatives would include protective measures to remedy problems identified with natural and cultural ORVs. The ecological restoration program (detailed in Appendix E) forms the centerpiece of restoration actions in the *Merced River Plan/DEIS*, though there are others (such as removing some structures from riparian areas). Actions must also correct past impacts to the extent possible (earlier impacts can be irreversible—some effects of historic manipulation of the river corridor, such as blasting of the El Capitan Moraine, may never be reversed, for example). By identifying all known areas of concern and options for corrective actions, managers ensured all alternatives would protect and enhance river values. These actions form the core of all action alternatives.

The next stage, or secondary scope evaluation, pertained to issues related to visitor use, including congestion, transportation and visitor experience. Transportation modeling identified the limitations associated with the existing road system design and options for improving traffic flow. Various mixes of



parking, overnight accommodations, camping, and services were packaged to provide for significantly different visitor experiences within the range of alternatives.

A summary of the primary and secondary scope issues, along with potential solutions, was developed and packaged as the *Merced Wild and Scenic River Planning Workbook* (fall 2011). The NPS conducted five workshops in conjunction with the release of the workbook to gather input on the range of potential options developed to protect and enhance river values. Comments on this workbook were posted on Yosemite’s website.

### **Step 5: Determine Location and Size of Necessary Facilities**

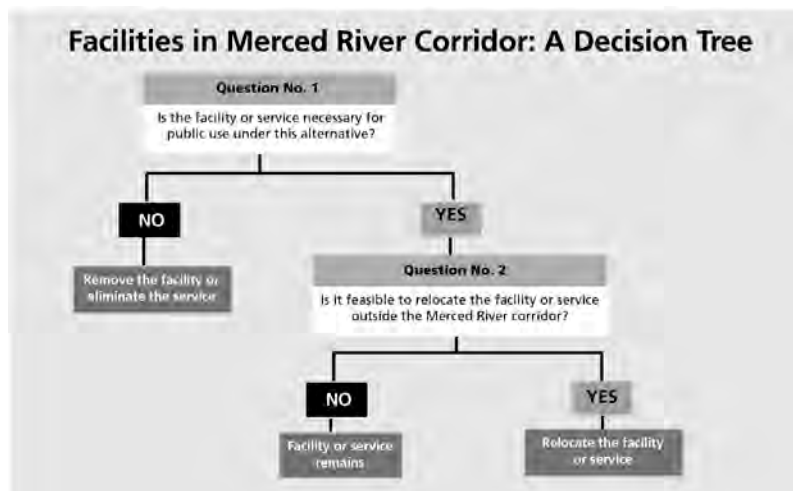
WSRA and the 1982 National Wild and Scenic River System; Final Revised Guidelines for Eligibility, Classification and Management of River Areas provide direction on the types of facilities that are allowed in designated river corridors. In addition, the 2008 opinion of the U.S. Court of Appeals for the Ninth Circuit on the 2005 Revised MRP questioned whether the level of development in some parts of the river corridor was protective of ORVs. The planning team, therefore, evaluated existing facilities and services within the river corridor to determine whether they should be retained, removed or relocated in order to protect and enhance river values.

“River Values and Their Management” (Chapter 5) identifies locations where the development footprint, visitor uses and /or administrative uses were found to be causing local effects to components of river values.

“Facilities and Services Analysis” (Chapter 7) presents the results of the planning team’s analysis of all existing public-use facilities and services to determine whether they are currently impacting any river values and, if so, how those impacts could be eliminated. In particular, the plan calls for removal, redesign, and/or relocation of those facilities. New development (and re-development) proposed across the range of alternatives was also screened using the above criteria.

It is important to note that, across the range of alternatives, changes to facilities and services are made for reasons other than impacts to river values (as shown in Figure 8-2). Some facilities and services are modified to further the thematic goals of the individual alternatives. “Alternatives” (Chapter 8) includes a determination of the location, size and type of facilities and services necessary for public use, as directly correlated to the visitor experience and land-use planning goals for each alternative.

**Figure 8-2: Facilities in the Merced River Corridor: A Decision Tree**



### ***Step 6: Solicit Public Input on Organizing Themes for Alternatives***

Even before beginning the alternatives development process, park managers solicited public input for the plan. While public input is addressed in some of the foregoing steps, it is reported as a separate step because it is foundational to the alternatives development process. Public input was solicited on a regular basis throughout the project, from the earliest public scoping period in 1999 through the review and revision of this *Merced River Plan/DEIS* over the next several months. Major topics discussed included the ORVs, their conditions, and indicators to assess those conditions; user capacity; other planning issues the alternatives needed to address; organizing concepts or themes for the alternatives, site plan concepts, and the preliminary alternatives themselves.

The *Merced River Plan/DEIS* has been developed through consultation with culturally associated American Indian tribes, the State Historic Preservation Officer, and other federal and state agencies. Gateway communities, organizations, and interested members of the public have provided nearly 1,500 public correspondences (including letters, faxes, emails, comment forms, and public meeting flip-chart notes). The NPS has conducted more than 40 public meetings, presentations, workshops, field visits, and open houses in support of the EIS process. Two planning workbooks were prepared and distributed for public review and comment (fall 2011 and spring 2012) prior to completion of the *Merced River Plan/DEIS*.

### ***Step 7: Evaluate Operational and Implementation Feasibility of Draft Alternatives***

Once draft action alternatives were completed, park planners put them through several rounds of review and critique by park managers, field staff, resource experts, and the public. Planners examined all site proposals and management actions, ensuring that no unresolvable operational or logistical conflicts remained within individual alternatives. Cost estimates were developed for the alternatives, subjecting those estimates to scrutiny as well.

### ***Step 8: Establish User Capacities Consistent with Protection of River Values***

WSRA and Secretaries' Guidelines direct managing agencies to address user capacity in river management plans and to establish "the kinds and amounts of public use which the river area can sustain without impact to the values for which it was designated." As with the other steps above, public input was a fundamental part of this step. During the scoping period for the Merced River Plan, the NPS asked the public to describe what activities they enjoy in the Merced River corridor, to help define the Recreational ORV and begin to address the issue of kinds and amounts of use the river can sustain. User-capacity experts developed a nine-step process to address user-capacity mandates (see "Visitor Use and User Capacity" Chapter 6). These steps were integrated into the overall planning process. User capacities were adjusted to reflect the experiences envisioned within each alternative. Planners produced a range of user capacities and recreation types, all within the existing constraints and all protective of river values.

As a part of the supporting research, the planning team compiled visitor-use data (Littlejohn et al. 2005; Le et al. 2008) that provided insight into the types of activities and experiences visitors preferred. The team also compiled information on the historic, current, and projected levels of visitor use along the Merced River (DEA 2007; NPS 2008d; NPS 2008e; NPS 2009c; and NPS 2009e) and conducted scientific studies to determine the extent to which visitor use affects river values. Additionally, comprehensive mapping and spatial data related to river values were gathered and compiled to represent planning constraints. Collectively, research studies,

constraint maps, and best professional judgment informed decisions on the kinds and amounts of visitor and other public use that may be accommodated without adverse effects to river values.

## Implementation Plan

Not all of the actions in the alternatives will be described with enough detail to be considered implementable upon signing of the Record of Decision (ROD). Some actions will require follow-on NEPA compliance and further environmental analysis, in the form of Categorical Exclusions (CE), Environmental Assessments (EA) or Environmental Impact Statements (EIS). The details of the implementation plan and phasing will be outlined in the ROD.

Actions fell under three different categories in this plan; actions that are required to protect and enhance river values and actions that are required to address user capacity elements. The three categories are described below.

1. **Management Concerns:** A *Management Concern* describes a river value that is not presently in a protected state (Chapter 5); requiring immediate corrective actions. Corrective actions are a high priority for the NPS, as the managing agency of the Merced River Wild and Scenic River. These corrective actions will be implemented upon signing of the ROD or follow-on NEPA will be initiated immediately upon signing the ROD.
2. **Management Considerations:** A *Management Consideration* describes a river value that is currently in a protected state; however, corrective actions may be applied to specific localized areas to further enhance the river value. Most of the actions identified as enhancing river values will be implemented upon signing of the ROD, with a few exceptions, particularly those that fall into a CE category.
3. **Issues/Opportunities:** The terms *Issue/Opportunity* are applied to those areas in the river corridor that must be addressed as part of the user capacity mandate required under the Ninth Circuit Ruling on the 2005 Merced River Plan. These actions do not directly protect or enhance river values, but they are integral to generating the user capacity numbers, which are based on parking, overnight accommodations, transportation and circulation and must not through their implementation impact river values leading towards adverse or degraded conditions. Many of these actions were brought-up during scoping and are issues that the public is most interested in. Most of these actions will require follow-on NEPA upon signing of the ROD. Those issues/opportunities that are most integral to user capacity will be a higher priority for implementation.

## How the Alternatives are Organized

Many of the actions described in the alternatives are considered “Common to All” and are detailed in the section “Actions Common to Alternatives 2-6” (see page 8-53). These “Common to All” actions are those actions that would be implemented regardless of individual alternative actions to protect river values as they are considered appropriate management responses to issues or concerns in the river corridor.

The individual alternatives do not repeat these actions; rather, readers should be aware that each alternative is made up of both the Actions Common to Alternatives 2-6 as well as the actions that vary across the alternatives (See Figure 8-5). The actions unique to each alternative (not Common to All) are outlined in each alternative description (See Figure 8-3). The actions that vary across alternatives are reflective of varying degrees of ecological restoration, levels of user capacities, and of varying types of visitor experiences. (See Figure 8-4)

### *Overview*

Each alternative description follows the same structure. At the beginning of each alternative there is an overview of the alternative. This overview contains information on the goals of the alternative, the general guiding principles of the alternative as well as actions in the alternative that are corridorwide.

### *Maps*

Maps of key locations in the Merced River Plan corridor are provided to orient readers to the planning areas and the context in which the actions and facilities are situated.

Figure 8-3: How to Read the MRP Alternatives

<b>How to Read the MRP Alternatives</b>	
<b>Part 1</b>	<b>Overview of Each Alternative</b>
	<ul style="list-style-type: none"> <li>• Overview and Guiding Principles of Alternative</li> <li>• Major Topic Areas and Associated Summary Tables</li> <li>• Summary of Actions to Protect and Enhance River Values</li> <li>• Management of User Capacities, Land Use, and Facilities</li> </ul>
<b>Part 2</b>	<b>Detailed Description of Each Alternative</b>
	<ul style="list-style-type: none"> <li>• Actions to Protect and Enhance River Values (Segment-by-Segment Actions in Alternatives)</li> <li>• User Capacity, Land Use, and Facilities Management (Segment-by-Segment Actions in Alternatives)</li> <li>• Maps Series (Site-specific Management Actions in Major Planning Areas)</li> <li>• Facilities and Services Analysis Tables (Which Facilities are Retained, Relocated, or Removed)</li> <li>• Conceptual Site Drawings (Site-specific Management Actions in Major Planning Areas)</li> </ul>
<b>Part 3</b>	<b>Actions Considered But Dismissed</b>
	<ul style="list-style-type: none"> <li>• List of Suggested Actions with Rationale Why Dismissed</li> </ul>
<b>Part 4</b>	<b>Alternative Cost Comparison</b>
	<ul style="list-style-type: none"> <li>• Details Defining the Potential Cost of Each Alternative</li> </ul>
<b>Part 5</b>	<b>User Capacity Comparison</b>
	<ul style="list-style-type: none"> <li>• Illustrations of Site-specific Actions in Alternatives</li> </ul>
<b>Part 6</b>	<b>River Value Analysis</b>
	<ul style="list-style-type: none"> <li>• Impacts to River Values Defined by Alternative</li> </ul>

Figure 8-4: What Adds Up to An Alternative

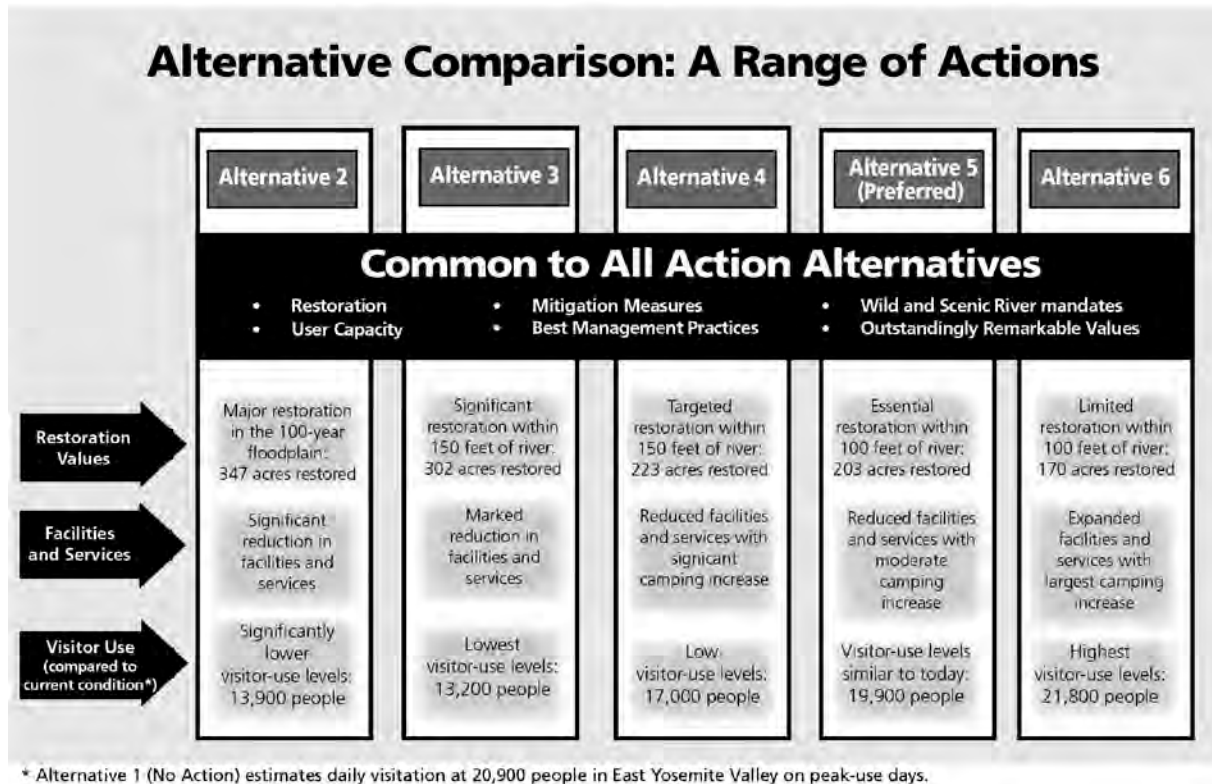
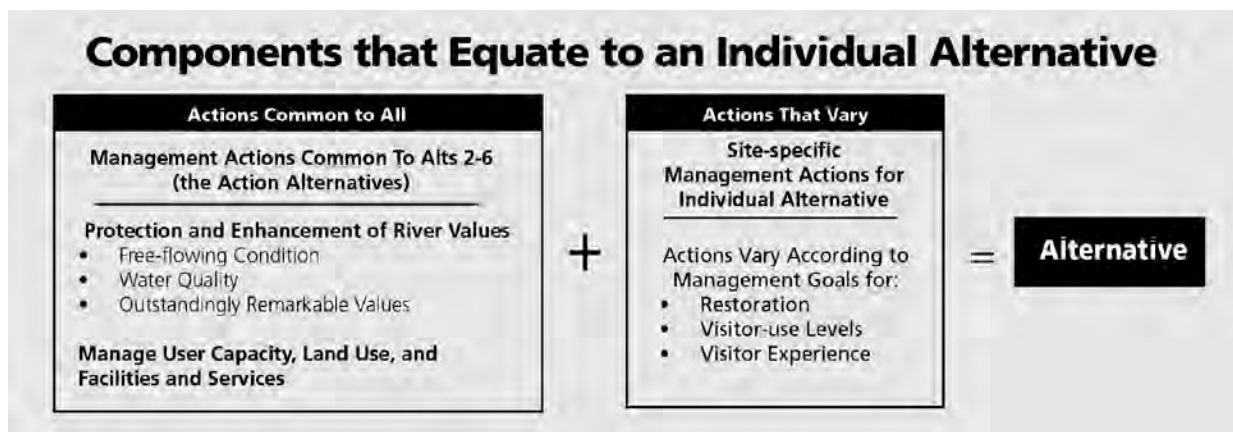


Figure 8-5: Components that Equate to an Individual Alternative



### *Detailed Description of Alternatives by Segment*

Then what follows is a more detailed description of the actions that form the basis of each alternative. These actions are grouped under two main topic areas; summary actions to protect and enhance river values (i.e., Biological Values and Cultural Values) and a summary of User Capacities, Land Use and Facilities Management (i.e., camping, lodging, transportation). These topic areas are organized by segment.

### *Necessity of Facilities and Services*

In each alternative the land use and visitor experience goals, coupled with specific measurable limits on use necessitate a set of facilities and services in accordance with the WSRM mandated discussed in Chapter 7. This section provides a list of facilities by segment, the action to be taken under the corresponding alternative, and presenting a justification for whether it is feasible to relocate the facility or service outside the river corridor.

The NPS used the following definitions as a basis for evaluating whether it would be feasible to relocate facilities outside the river corridor:

- **Feasible:** For the purpose of this analysis, “feasible” is defined as capable of being done, effected, or accomplished.
- **Infeasible:** For the purpose of this analysis, “infeasible” is defined as impracticable, incapable of being put into practice with the available means, or unsuitable for practical use or purposes.

**Feasibility Factors** – To determine whether NPS could accomplish the relocation of a facility, the NPS considered the factors including public safety, economic, engineering- and/or building-code requirements, as well as resource conditions. Additional factors include the availability of land suitable for such uses and the location of the existing road system within and outside the river corridor. Some proposed relocations require a sequencing of actions, such as the relocation of the shuttle maintenance function to the Government Utility Building followed by the removal of the Yosemite Village Garage facility. NPS staff also considered what actions were most important to protect river values and to provide for quality visitor experiences.

With this in mind, park staff has deliberated very fundamental questions about the relocation of facilities:

1. Could this action be implemented in the near term?
2. If not, what impacts are likely to occur prior to implementation?
3. Are there any intermediate steps short of relocation that could mitigate impacts?
4. What actions will be required to continue to operate in the existing location?
5. Would the gain be worth the cost, in terms of real dollars, and direct and indirect impacts to park resources or visitor experiences?
6. If a facility is relocated, is a suitable relocation area located within a reasonable time and travel distance? If a service is discontinued, what options are available outside the park and what would be the effect or requiring park visitors or employees to obtain the service outside the park? Travel time from Yosemite Valley to the gateway communities of Mariposa, Oakhurst, Groveland or Sonora—where commercial services are readily available—ranges from 50-75 miles and takes 1 to 1-1/2 hours to drive to. Much of the land bordering the park is owned by the federal government (U.S. Forest Service, and Bureau of Land Management) and is unlikely to be developed by the private sector to meet visitor needs.

### *Conceptual Site Drawings*

Site Plan drawings are included for a few key locations in the discussion of the Alternative. These locations include Curry Village, Yosemite Village Day-use Parking Area, Valley Maintenance Yard, and Yosemite Lodge Day-use Parking Area. These drawings are provided to demonstrate where facilities would be removed, relocated or constructed according to actions more fully described by project alternatives. These

drawings do not represent a final proposal. More detailed design and construction documents would be developed consistent with the general concept presented here.

### ***River Value Analysis***

At the conclusion of each alternative description, there is an analysis of how each alternative is protective of River Values. Consistent with Section 10(a) of the Wild and Scenic Rivers Act to “protect and enhance the values which cause [the river] to be included in [the wild and scenic rivers] system,” all actions included in each alternative must be protective of river values. This section demonstrates how the actions to address management concerns and considerations (i.e., river value restoration) in combination with the actions addressing issues/opportunities (i.e., user capacity elements) would be protective of river values.

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## ALTERNATIVE 1: NO ACTION ALTERNATIVE

### Overview

Alternative 1, also known as the “No Action Alternative,” is required by NEPA implementing regulations and serves as a baseline from which to compare the action alternatives. Alternative 1 represents existing conditions in 2011, when the NPS completed research studies intended to assess conditions of the Merced River, and the continuation of current park management into the future. This alternative assumes that current trends in the conditions of natural and cultural resources and visitor experiences would continue, consistent with the management activities that are ongoing under currently approved plans. Future actions that would require additional planning and environmental compliance could still occur, independent of the *Merced River Plan/DEIS*, but they are not considered part of the No Action Alternative for the purposes of conducting environmental compliance for the *Merced River Plan*.

The overall management direction of Alternative 1 is based on current guiding management documents. The 1980 *General Management Plan* is the primary guiding document for park management, along with subsequent park-wide management documents such as the *Wilderness Management Plan* (1989), *Concessions Services Plan* (1992), *Fire Management Plan* (2004, with operational updates in 2009), and the *Invasive Plant Management Plan* (updated in 2010). In addition to following park-specific management policy, the NPS would also continue to comply with federal laws, including the NPS Organic Act, the Endangered Species Act, the National Historic Preservation Act, the Clean Water Act, and all other federal laws, directives, policies, and executive orders pertaining to park management.

Under Alternative 1, the NPS would not adopt a comprehensive management plan to protect and enhance river values and address user capacity and land use in the corridor. The two prior versions of the river plan would not be in effect, because the courts determined that prior versions of the plan were invalid. Ecological restoration actions would be limited to those that would only require a Categorical Exclusion in compliance with NEPA, and those identified in the 2009 Settlement Agreement. The river corridor would be ¼ mile on either side of the ordinary high-water mark because the WSRA provides for these default boundaries in the absence of agency designated boundaries. The segment classifications would be the same as those in the 1982 National Rivers Inventory in which the river was designated wild and scenic. There would no Section 7 Determination Process. The ORVs, as articulated in Yosemite’s 1996 *Draft Yosemite Valley Housing Plan*, would continue to be protected and enhanced. There would be no established limit to the number of visitors or vehicles that would be allowed within the corridor. There would be no changes to existing facilities, transportation systems or services.

### *Summary of Current Actions and Issues Affecting River Values*

This section is intended to summarize (1) those actions that would protect and enhance river values that are already underway, and (2) issues that affect river values corridorwide. This section is not intended to summarize all the current management of resources in the river corridor; rather, it focuses on the actions that are directly related to issues identified in Chapter 5. This provides a baseline for comparing the actions that might be taken under the action alternatives (Alternatives 2-6) to protect and enhance river values.

The following conditions would continue throughout all segments of the Merced River corridor under Alternative 1.

## Free-Flowing Condition

Impediments to free flow and their associated impacts would continue in all segments.

- Riprap and revetment – All riprap would remain in place.
- Abandoned infrastructure in river channel – Abandoned underground infrastructure in the river channel and meadow floodplains can alter the free-flowing condition of the river. This infrastructure, including remnants of former sewer treatment facilities, sewer and water lines, man-holes, and former bridge abutments, would remain in place.
- Large Wood Management – Large woody debris would continue to be removed from the river due to safety concerns and infrastructure protection, as it has for decades, particularly in the areas around the campgrounds and areas where rafting occurs.

## Water Quality

As reported in 2010, water quality throughout the corridor would be expected to remain high, with isolated instances of minor contamination especially after storm events, but would not be expected to exceed water quality standards. Water quality would continue to be monitored and managed to meet NPS standards (which are higher than state water quality standards).

## Biological Values

Under Alternative 1 (No Action), ecological restoration actions would be limited to those projects that would only require a Categorical Exclusion in compliance with NEPA, and those identified in the 2009 Settlement Agreement. The Settlement Agreement outlines that the NPS could proceed with restoration projects at the El Portal Greenemeyer sand pit, drainage improvements at Bridalveil, Cook’s, and El Capitan Meadows, comprehensive restoration at El Capitan Meadow, and riverbank restoration at North Pines Campground. Some ecological restoration at North Pines Campground and Cook’s Meadow has already occurred and is listed under cumulative effects (Appendix B). Table 8-1 gives representative examples of ecological restoration actions in the Merced Wild and Scenic River corridor that can take place under Alternative 1.

**TABLE 8-1: SUMMARY OF ACTIONS TO PROTECT AND ENHANCE BIOLOGICAL VALUES - ALTERNATIVE 1 (NO ACTION)**

<b>Yosemite’s Existing Ecological Restoration Program</b>	
Ecological restoration actions assist the recovery of damaged ecological systems with the aim to bring damaged systems back to a condition that is structurally and functionally similar to the pre-disturbance state. Restoration takes place on a case-by-case basis, in compliance with the 2009 Settlement Agreement. Any action taken will comply with NEPA and other laws and policies.	
<ul style="list-style-type: none"> <li>• Re-routing trails out of sensitive areas</li> </ul>	Example: Move established trails farther from the river Example: Add boardwalks across sensitive meadow habitat Example: Restore informal trails to avoid crossing sensitive areas
<ul style="list-style-type: none"> <li>• Removing abandoned infrastructure</li> </ul>	Example: Remove outdated utility infrastructure to restore a wetland’s hydrology and connectivity to adjacent riparian floodplain Example: Remove an old building foundation and bring in topsoil to allow for native plant establishment
<ul style="list-style-type: none"> <li>• Repairing damaged riverbanks</li> </ul>	Example: Fence highly eroded riverbanks Example: Plant willows to stabilize riverbanks
Monitoring: An essential component in any restoration project is to monitor completed projects to ensure that project goals are met.	

Despite some ongoing impacts that would occur under the No Action Alternative, the NPS would continue to mitigate some impacts to biological values. As noted above, the NPS would continue restoration projects in several Yosemite Valley meadows and on the riverbank in certain places (per the Settlement Agreement). Specifically, the NPS would proceed with restoration projects at Bridalveil, Cook's, and El Capitan Meadows, as well as riverbank restoration at North Pines Campground. Ecological restoration at North Pines Campground would be limited to planting willows and alders along approximately 300 linear feet of riverbank, using a bobcat or small excavator to move rocks for planting, planting herbaceous plants on the terrace, and mulching with native leaves and duff. Other riverbank restoration projects that would require a categorical exclusion for NEPA compliance could also occur. The NPS would also continue invasive species control where such plants are present, as well as conifer removal from some meadows.

The following issues identified in Chapter 5 would remain under this alternative:

- Meadow trails – Informal trails in meadows would remain.
- Encroaching conifers in meadows – Conifers would continue to encroach in meadows. The *Fire Management Plan* would continue to be implemented, thus addressing some of these encroachment areas through fire reintroduction.
- Riparian habitat – The current level of protection for the riparian zone along the beds and banks of the Merced River in all segments would remain in place.
- Riparian restoration and river access – Localized riverbank erosion and scouring effect associated with bridges would remain. Visitor use continues on sensitive banks of the Merced River. Locations include those adjacent to Lower and North Pines Campgrounds, Yosemite Lodge beach access, Swinging Bridge Picnic Area, Sentinel Beach Picnic areas, Cathedral Beach Picnic Area, Devil's Elbow, riverside areas between Pohono Bridge and the El Portal Road/Big Oak Flat Road intersection, and along the Valley Loop Trail.

## Cultural Values

Under Alternative 1 (No Action), park staff would continue to identify, document, monitor, evaluate, and protect significant archeological sites in consultation with traditionally associated American Indian tribes and groups through monitoring for changing site conditions, developing and implementing treatment measures, implementing visitor and employee education, and conducting research.

However, many resource impacts deriving from visitor and administrative use in all segments would continue to be present. Undertakings with potential to impact archeological and ethnographic resources and activities would be subject to review through compliance with the National Historic Preservation Act and required consultation with the State Historic Preservation Officer, the Advisory Council on Historic Preservation, and the traditionally associated American Indian tribes and groups.

- Archeological sites (general) – Informal trails, and non-essential roads and infrastructure on archeological sites would remain. Bike paths, campsites, roads, bridle paths, parking, staging areas, and trails remain on sensitive areas. Graffiti and climbing would continue on rock art and other sensitive features.

## Scenic Values

- Scenic vista points – Traffic congestion would continue to affect scenic views, as would vegetation growth that blocks views, social trails, and trampled vegetation and riverbanks. Under the No Action Alternative, no scenic vista management actions would be taken in the Merced River corridor.

### *Summary of User Capacities, Land Use and Facilities Management*

Alternative 1 (No Action) would perpetuate the kinds and amounts of use that exist today (See Table 8-2).

Under the No Action Alternative, existing user capacity management actions would continue. These include the use of the wilderness permit system for overnight use of the backcountry and the reservations systems for camping and lodging accommodations. Day use capacity would be managed through the active management of day-use parking. Traffic staff would be needed to direct parking in Yosemite Valley, in particular, and during peak use days inbound traffic may be diverted.

Pilot transit programs would continue to provide limited additional service to destinations within the river corridor and Yosemite Valley in particular.

**TABLE 8-2: USER CAPACITIES BY USE TYPE AND LOCATION- ALTERNATIVE 1 (NO ACTION)**

	Unit Type	Units	People
<b>Wilderness Above Nevada Fall</b>			
Visitor Overnight Use	Zone Capacities & Beds	380	380
Visitor Day Use	Day Hikers	350	350
Employee Housing	Employee Beds	15	15
Administrative Day Use	Day Patrols	5	5
<b>Yosemite Valley</b>			
Visitor Overnight Use	Rooms & Campsites	1,500	6,564
Visitor Day Use	Parking Spaces	-	8,272
Employee Housing	Employee Beds	1,315	1,315
Administrative Day Use	Parking Spaces	166	332
<b>Gorge</b>			
Visitor Overnight Use	Rooms & Campsites	-	-
Visitor Day Use	Parking Spaces	180	869
Employee Housing	Employee Beds	9	9
Administrative Day Use	Parking Spaces	2	4
<b>EI Portal</b>			
Visitor Overnight Use	Rooms & Campsites	-	-
Visitor Day Use	Parking Spaces	214	740
Employee Housing	Employee Beds	192	192
Administrative Day Use	Parking Spaces	610	1,220
<b>South Fork Above Wawona</b>			
Visitor Overnight Use	Permits	20	20
Visitor Day Use	Day Hikers	6	6
Employee Housing	Employee Beds	-	-
Administrative Day Use	Day Patrols	1	1
<b>Wawona</b>			
Visitor Overnight Use	Rooms & Campsites	203	865
Visitor Day Use	Parking Spaces	-	1,295
Employee Housing	Employee Beds	121	121
Administrative Day Use	Parking Spaces	30	60
<b>South Fork Below Wawona</b>			
Visitor Overnight Use	Backpackers	3	3
Visitor Day Use	Day Hikers	3	3
Employee Housing	Employee Beds	-	-
Administrative Day Use	Day Patrols	1	1

## Visitor Overnight Capacity

### Camping

Under Alternative 1, campgrounds in the Merced Wild and Scenic River corridor, including Yosemite Valley, would remain in their present locations and configuration, and at their existing capacities. The total camping capacity in the corridor under Alternative 1 would be 565 campsites accommodating up to 3,510 people per night. Table 8-3 outlines existing campground locations in the Merced Wild and Scenic River corridor and the capacities of those campgrounds.

**TABLE 8-3: CAMPING FACILITIES- ALTERNATIVE 1 (NO ACTION)**

Existing Locations	Alt 1 (No Action)
<b>Segment 2: Yosemite Valley</b>	
Backpackers Campground	25 walk-in sites
Camp 4 Campground	35 walk-in sites
Lower Pines Campground	76 sites
North Pines Campground	86 sites
Upper Pines Campground	240 sites
Yellow Pine Administrative	4 group sites
<b>Segment 7: Wawona</b>	
Wawona Campground	99 sites (one group site and two stock use sites)
<b>Total Camping in Corridor</b>	<b>565 sites</b>

### Lodging

Under Alternative 1, lodging facilities in the Merced Wild and Scenic River corridor, including Yosemite Valley, would remain in their present locations and configuration, and at their existing capacities. The total lodging capacity in the corridor under Alternative 1 would be 1,160 units accommodating up to 3,979 people per night. Table 8-4: Lodging – Alternative 1 (No Action)

outlines the existing lodging locations in the Merced Wild and Scenic River corridor and their capacities.

**TABLE 8-4: LODGING – ALTERNATIVE 1 (NO ACTION)**

Existing Locations	Alt 1 (No Action)
<b>Segment 1: Wilderness</b>	
Merced Lake High Sierra Camp	22 units (60 beds)
<b>Segment 2: Yosemite Valley</b>	
Ahwahnee Hotel	123 rooms
Housekeeping Camp	266 units
Curry Village	400 units*
Yosemite Lodge	245 rooms
<b>Segment 7: Wawona</b>	
Wawona Hotel	104 rooms
<b>Total Lodging in Corridor</b>	<b>1,160 units</b>
*Curry Village's number accounts for the removal of temporary guest lodging units at Boys Town, per the 2009 Settlement Agreement.	

## Visitor Day Use Capacity and Transportation Options

Under Alternative 1, parking and transportation infrastructure remain the same as existing conditions. Parking areas would remain at their current locations and the supply of spaces would be the same. During peak use periods parking demand would generally exceed the formally designated parking supply, and the number of vehicles searching for parking remains in the transportation circulation system and cause considerable traffic congestion and crowding.

In 2011, for example, 68 out of the 100 days of the peak summer season had more vehicles in Yosemite Valley than there were parking spaces. On the highest visitation day in 2011, as many as 6,300 vehicles were in East Yosemite Valley at one time with only 5,200 available spaces (200 of which producing vegetation or related impacts), and an estimated 1,200 vehicles were on East Valley roadways that can handle only 400 circulating vehicles without unacceptable congestion impacts (long travel times or growing queues at intersections and searching/waiting for parking spaces). On many high use days in recent years, vehicle queues form in mid-to-late afternoon along Northside Drive from Yosemite Lodge to Camp 6. On some days, the queue may reach past Curry Village as far as Stoneman Bridge (1.5 miles). This increases average travel times from Curry Village to Camp 4 to 30 minutes or more; under “free flow” conditions the trip takes about 8 minutes. It also increases the likelihood of traffic jams that may last for hours.

Under these conditions, traffic management staff try to react to specific traffic circulation, flow, and parking problems, sometimes implementing temporary access restrictions to East Yosemite Valley or maintaining emergency lanes (which further congests traffic).

Under Alternative 1, transportation models indicate that during the peak 100 days of summer use, there would be 81 days where inbound traffic exceeds the supply of parking spaces in East Yosemite Valley and creates congestion on roads as described above. Under this no-action alternative, use would also be allowed to increase in future years because there are no formal user capacities prescribed for day use. Taken together, the ad hoc traffic management actions (the shunt, emergency lane closures, directed parking at lots, traffic management at pedestrian crossings) are stop-gap measures to control impact and avoid gridlock, but traffic and parking conditions on these days will be poor.

The total day-use parking spaces available in Yosemite Valley under Alternative 1 would be 2,337 and corridorwide the total day-use parking spaces available under would be 3,021. Table 8-5 summarizes the number of parking spaces for day use for each relevant segment of the river corridor.

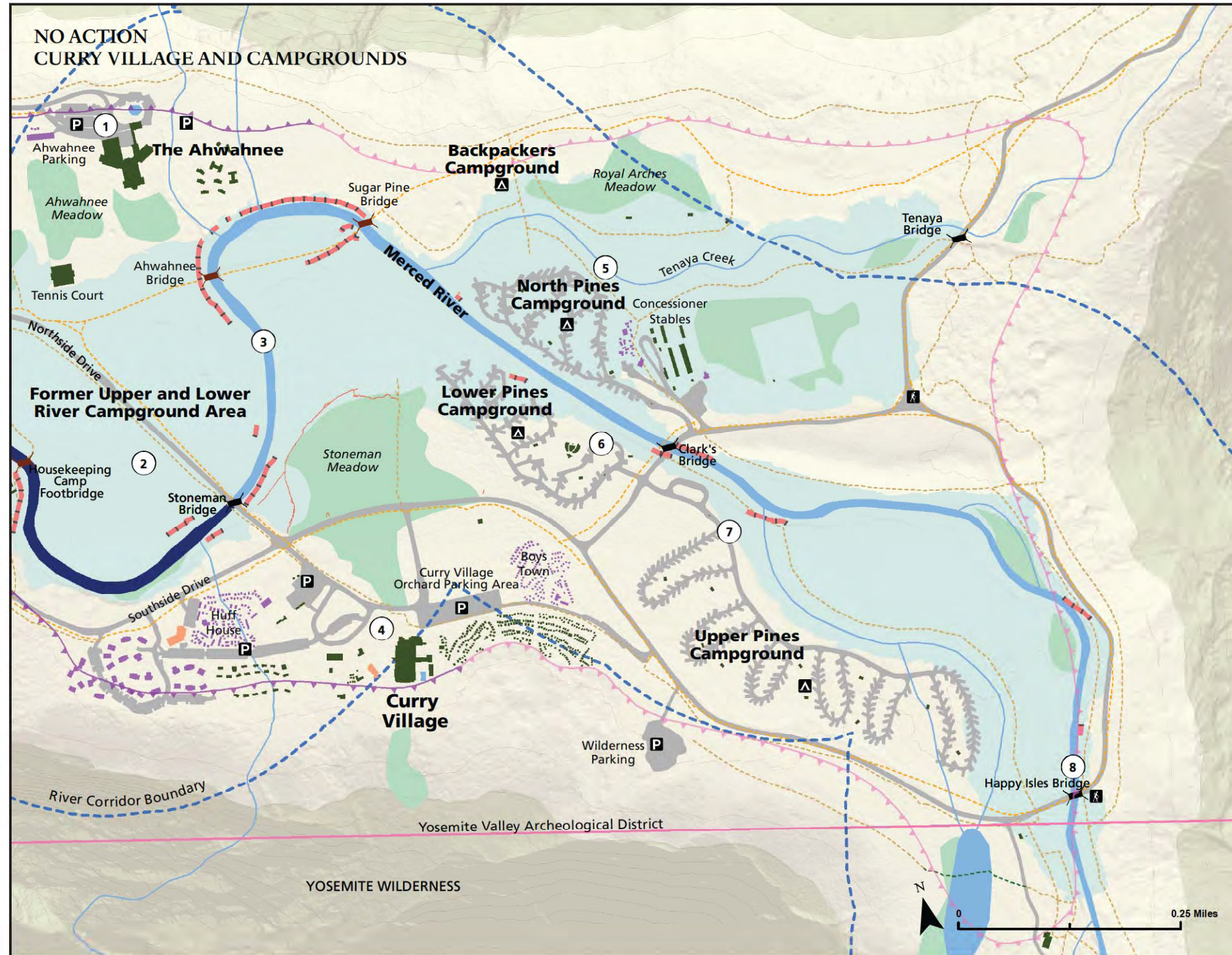
Under Alternative 1, transit would be provided to and around Yosemite Valley using a combination of in-valley free shuttle bus service, regional transit, and private tour buses. Under Alternative 1, public transit options would include all existing routes and continuation of the 2012 summer pilot program for expansion of transit on the Highway 120 corridor.

**TABLE 8-5: DAY-USE PARKING AREAS – ALTERNATIVE 1 (NO ACTION)**

Location	Alt 1 (No Action)
Segment 2: Yosemite Valley	2,337 spaces
Segment 3: The Gorge	180 spaces
Segment 4: El Portal	214 spaces
Segment 7: Wawona	290 spaces
Total Parking	3,021 spaces



# ALTERNATIVE 1: NO ACTION



## EAST YOSEMITE VALLEY: CURRY VILLAGE AND CAMPGROUNDS

- The Ahwahnee**
  - Ahwahnee Meadow Former Golf Course and Tennis Court: Meadow and oak habitats around The Ahwahnee would continue to contain ditching, fill material, encroaching conifers and abandoned infrastructure.
  - Ahwahnee Hotel Parking: Parking at The Ahwahnee would not meet overnight and day-use demand, and the historic gate house would not be restored.
  - Ahwahnee Hotel Services and Facilities: The National Historic Landmark would have 123 lodging units and provide visitor services, including food service, dining, bar, gift shop, sweet shop and pool.
- Former Upper and Lower River Campground**
  - Former Upper and Lower River Campground: This area, which is critical to the hydrologic connectivity between Ahwahnee and Stoneman meadows, and once contained 262 campsites before the 1997 flood, would continue to passively restore to natural conditions.
- River Reach Between Clark's and Sentinel Bridge**
  - River Reach Between Bridges: Between Clark's and Sentinel bridges, the river channel would continue to lack channel complexity and be shallower and wider than naturally would occur.
- Curry Village Area**
  - Residential Area: Temporary accommodations at Huff House would continue to house concessioner employees.
  - Curry Village Lodging: There would be 400 guest units, which accounts for the removal of temporary guest lodging units at Boys Town, per the 2009 Settlement Agreement.
  - Stoneman Meadow: Ditching, roads, and informal trails would remain in Stoneman meadow.
  - Curry Orchard Parking Area: The parking lot would be unimproved and contain 424 parking spaces.
  - Curry Village Services and Facilities: The facilities and services would be unchanged. The grocery store, pizza deck and bar, pavilion, swimming pool, bike stand, raft rental, ice rink, Happy Isles Snack Stand, and the Nature Center at Happy Isles would continue to provide visitor services.
  - Curry Village Wilderness Parking Area: The parking lot would be unimproved and contain 190 parking spaces.
- North Pines and Backpackers Campground Area**
  - Backpackers Campground: There would be 25 sites in close proximity to Tenaya Creek.
  - Royal Arches Meadow: The meadow would contain tiles, pipes and conifer saplings, as well as the remains of a former road bed.
  - North Pines Campground: There would be 86 campsites.
  - Concessioner Stables in Yosemite Valley: The stables would be used by the concessioner to provide day rides in the Valley and house stock animals used to operate the High Sierra camps. The kennel service would continue to operate.
  - Valley Campgrounds: Campsites would remain in close proximity to the river, without formal designated river access points.
  - Eroded Riverbanks: Heavy visitor use of the riverbanks along some river reaches would continue, leading to denuded areas and accelerated riparian erosion.
- Lower Pines Campground Area**
  - Western Portion of Lower Pines Campground Loop: The closed portion of Lower Pines campground, damaged by the 1997 flood, would continue to passively restore. Compacted soils and fill material would remain.
  - Lower Pines Campground: There would be 76 campsites.
- Upper Pines Campground Area**
  - Upper Pines Campground: There would be 240 campsites.
  - Upper Pines RV Dump Station: The dump station would remain in close proximity to the river.
- Happy Isles Area**
  - Happy Isles: Inadequate way-finding and unclear pedestrian circulation would continue, contributing to vegetation trampling.
  - Happy Isles Road Bridge, Stoneman, Clark's, Ahwahnee and Sugar Pine Bridges: The historic bridges would continue to have footings within the bed and banks of the Merced River, constricting the hydrologic flow of the river. The berm connecting the Ahwahnee and Sugar Pine Bridge would remain.
  - Pack Stock Trail: Trail from Concessioner Stables to Happy Isles would continue to be within the bed and banks of the river, subject to seasonal flooding, accelerated erosion, and sediment deposition in the river.

**Legend**

Parking Area	Calculated Rock-fall Hazard Line	100-year Floodplain	Housing	Stream
Campground	Inferred Rock-fall Hazard Line	Meadow & Riparian Vegetation	Management Activities & Services	Merced River (Rafting Prohibited)
Ranger Station	Informal Trail	Sierra Sweet Bay Vegetation	Visitor Based Activities & Services	Merced River (Rafting Permitted)
Picnic Area	Valley Loop Trail	Surfaced Area	Recreational Segment	
Trailhead	Bike Path	Designated Wilderness	Wild Segment	
100 ft. Contour	Boardwalk	Archeological District	Scenic Segment	
Revetment	Trail			

**Scenic Vista Management:** Conifers would continue to impinge views of iconic viewpoints and locations.

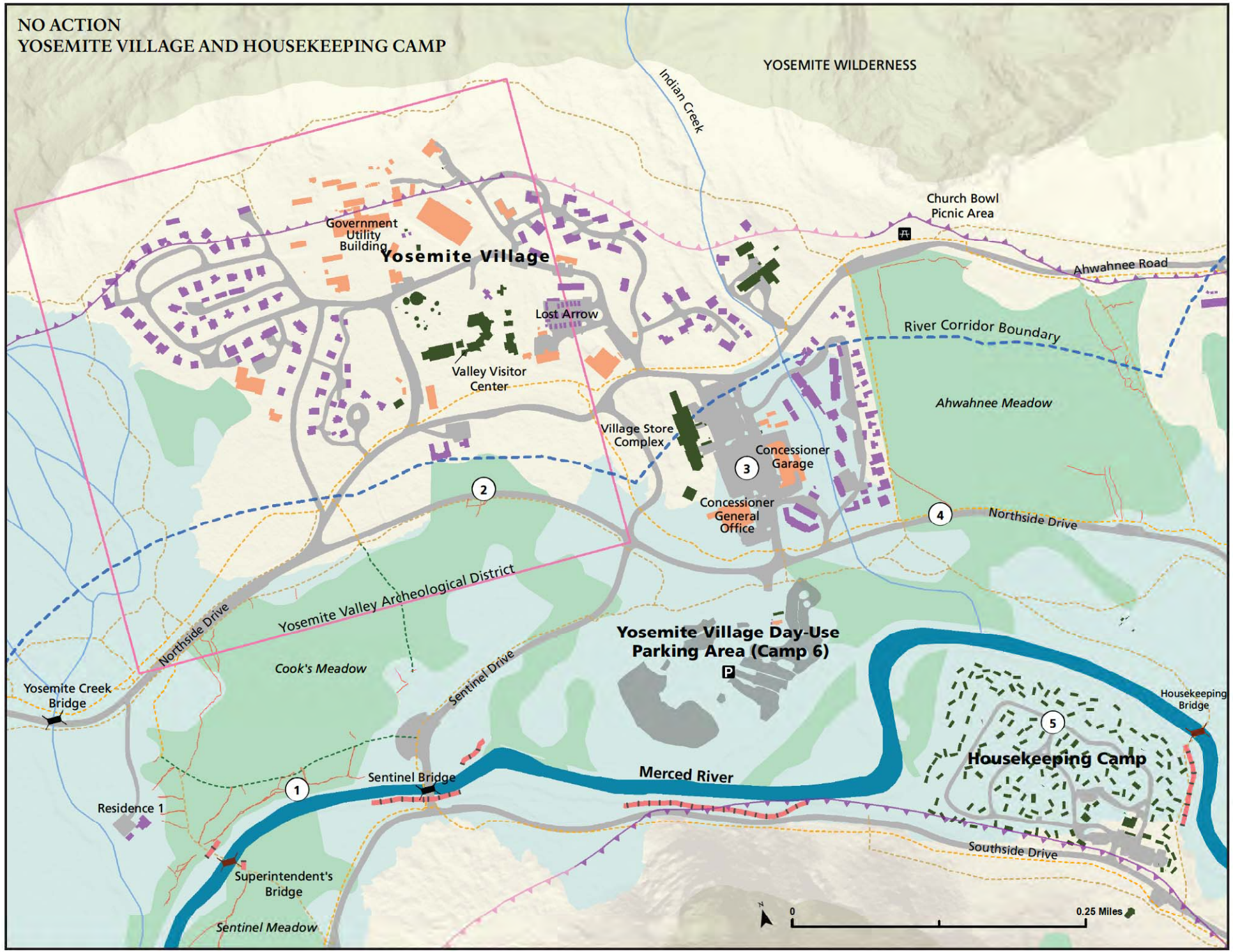
**Cultural Resources:** Informal and formal trails, pack stock trails, stock use and operational staging, vehicles and bicycles, camping, illegal campfires, graffiti, and trash would continue to impact culturally sensitive areas.



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# ALTERNATIVE 1: NO ACTION



## EAST YOSEMITE VALLEY: YOSEMITE VILLAGE AND HOUSEKEEPING CAMP

- 1. Superintendent's and Sentinel Bridge Areas**
    - Superintendent's and Sentinel Bridges: The bridges would continue to have footings within the bed and banks of the Merced River.
    - Southside Drive Intersection: The three-way intersection at Sentinel Drive and Southside Drive would remain.
  - 2. Cook's Meadow Area**
    - Informal Shoulder Parking Along Meadows and Sensitive Habitat: Informal parking would continue along meadow edges and sensitive habitats at Cook's Meadow.
    - Cook's Meadow Abandoned Roadbed: The old roadbed north of Northside Drive between the Rangers' Club and the three-way stop would remain in meadow habitat.
  - 3. Yosemite Village**
    - Way-finding from the Yosemite Village Day-use Parking Area: Visitors would continue to have difficulty finding the Village visitor center from the Camp 6 day-use parking area.
    - Yosemite Village Day-Use Parking Area: This parking area would continue to be a six-acre unimproved parking lot in close proximity to the river (portions in the 5- and 10-year floodplain). Approximately 517 vehicles would be accommodated. The Yosemite Village parking lot would continue to have approximately 237 parking spaces.
    - Concessioner General Office Building: The Concessioner General Office would remain in the river corridor and the 100-year floodplain.
    - Lost Arrow: Concessioner employees would continue to be housed in these temporary accommodations.
    - Intersections: The three-way intersection at Sentinel Drive and Southside Drive would remain, and the offset four-way intersection at Village Drive and Northside Drive (Camp 6) would remain.
    - Yosemite Village Services and Facilities: The level of services and facilities offered in Yosemite Village would remain unchanged.
    - Valley Garage: The Valley Garage, located in the river corridor and 100-year floodplain, would continue to service shuttles, tour buses, and visitor and concessioner vehicles.
    - Concessioner Employee Housing: Tecoya and Ahwahnee Row employee housing would continue to house concessioner employees.
  - 4. Ahwahnee Meadow Area**
    - Ahwahnee Meadow: Northside Drive, the adjacent bike path and other formal trails would continue to bisect the meadow.
    - Ditches in Meadows: Human-constructed ditches would remain in meadows throughout Yosemite Valley.
  - 5. Housekeeping Camp Area**
    - Housekeeping Camp Lodging: Many of the 266 Housekeeping Camp lodging units would continue to exist in the 2- to 10-year floodplain. The riprap that armors the riverbank to protect this infrastructure would be retained. High visitor use in this area would continue to result in denuded riverbanks in some areas.
    - Housekeeping Camp Services and Facilities: Visitor-use facilities would remain unchanged. Services would include shower houses, restrooms, laundry, and groceries.
- Scenic Vista Management: Scenic Views: Conifers would continue to impinge views of iconic viewpoints and locations.
- Cultural Resources: Informal trails and rock-climbing activities impact culturally sensitive areas. The LeConte Memorial Lodge National Historic Landmark would remain in "fair" condition.

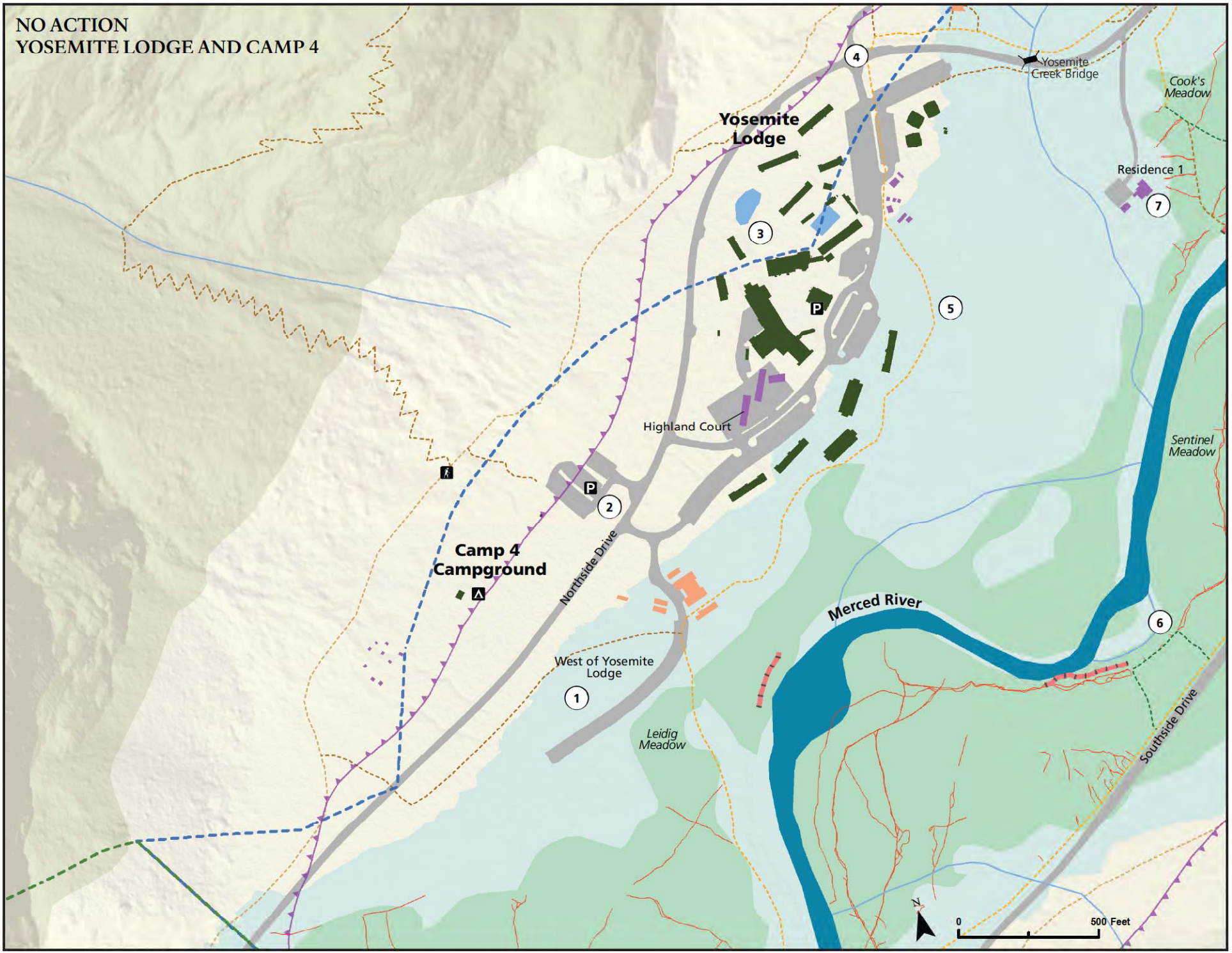
Legend				
Parking Area	Calculated Rock-fall Hazard Line	100-year Floodplain	Housing	Stream
Campground	Inferred Rock-fall Hazard Line	Meadow & Riparian Vegetation	Management Activities & Services	Merced River (Rafting Prohibited)
Ranger Station	Informal Trail	Sierra Sweet Bay Vegetation	Visitor Based Activities & Services	Merced River (Rafting Permitted)
Picnic Area	Valley Loop Trail	Surfaced Area	Recreational Segment	
Trailhead	Bike Path	Designated Wilderness	Wild Segment	
100 ft. Contour	Boardwalk	Archeological District	Scenic Segment	
Revetment	Trail			



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# ALTERNATIVE 1: NO ACTION



## EAST YOSEMITE VALLEY: YOSEMITE LODGE AND CAMP 4

1. Yosemite Lodge Annex
  - West of Yosemite Lodge: The west of Yosemite Lodge area would continue to provide over flow parking for tour buses and transit buses, day use and overnight use. The area was formerly employee housing prior to the 1997 flood.
  - Bike Path: The bike path through Leidig Meadow would remain in close proximity to the river and be inundated during parts of the year.
  - River Access: There would continue to be no designated river access point for visitors.
  - Former Yosemite Lodge Cabins: Fill and compacted soils would remain in the former cabins area, which were removed following the damage of the 1997 flood.
2. Camp 4 Area
  - Camp 4 Shuttle Stop: Camp 4 shuttle stop would remain an informal shuttle stop.
  - Camp 4 Campground: Camp 4 would have 35 campsites.
  - Camp 4 Parking: The unimproved parking lot at Camp 4 would contain 89 parking spaces.
3. Yosemite Lodge Area
  - Yosemite Lodge: There would be 245 lodging units. Yosemite Lodge would continue to be used for overnight lodging, parking, and food service. There would be no change to the level of service and facilities; services would include post office, pool, bicycle rental and snack stand. Buildings would remain within the 100-year floodplain.
  - Temporary Concession Employee Housing at Yosemite Lodge: Concessioner employees would continue to be housed at the Thousands Cabins and in temporary accommodations at Highland Court.
  - Day-use Parking Demand: Demand for day-use parking would continue to exceed supply during summer peak-use periods.
4. Yosemite Lodge Intersection at Northside Drive
  - Yosemite Lodge Intersection: Traffic congestion resulting from visitors using the on-grade pedestrian crossing at Northside Drive to get to Yosemite Falls would continue.
5. Former Pine and Oak Area
  - Former Pine and Oak cabins at Yosemite Lodge: The former Pine and Oak cabins area, removed following damage sustained from the 1997 flood, would continue to passively restore. Nonnative fill soils, soil compaction and an abandoned road network.
6. Sentinel Meadow
  - Sentinel Meadow Trampling: Sentinel meadow would continue to receive visitor use impacts.
7. Residence 1
  - Residence 1: This historic structure, also known as the Superintendent's House, would continue to be subject to recurring flooding and subsequent water damage. The poor condition of the historic interior finishes of the Superintendent's House and structural issues related to settling of the foundation would remain. Visitor use in this area would continue to cause radiating informal trails in Cook's Meadow.

Scenic Vista Management: Conifers would continue to impinge views of iconic viewpoints and locations.

Cultural Resources: Non-technical climbing on a large bedrock mortar (pounding rock) near Lower Yosemite Falls would continue to cause impacts to the archeological resource.

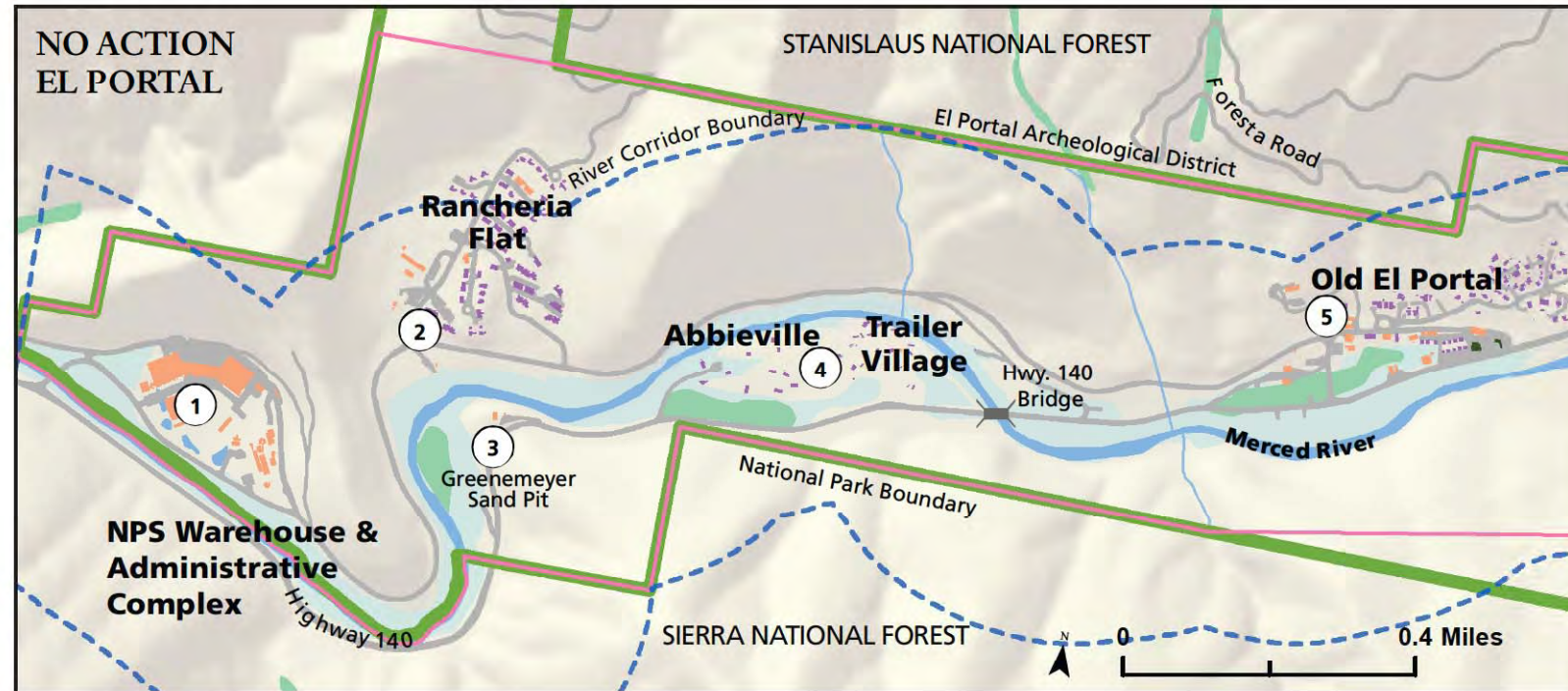
Legend				
Parking Area	Calculated Rock-fall Hazard Line	100-year Floodplain	Housing	Stream
Campground	Inferred Rock-fall Hazard Line	Meadow & Riparian Vegetation	Management Activities & Services	Merced River (Rafting Prohibited)
Ranger Station	Informal Trail	Sierra Sweet Bay Vegetation	Visitor Based Activities & Services	Merced River (Rafting Permitted)
Picnic Area	Valley Loop Trail	Surfaced Area	Recreational Segment	
Trailhead	Bike Path	Designated Wilderness	Wild Segment	
100 ft. Contour	Boardwalk	Archeological District	Scenic Segment	
Revetment	Trail			



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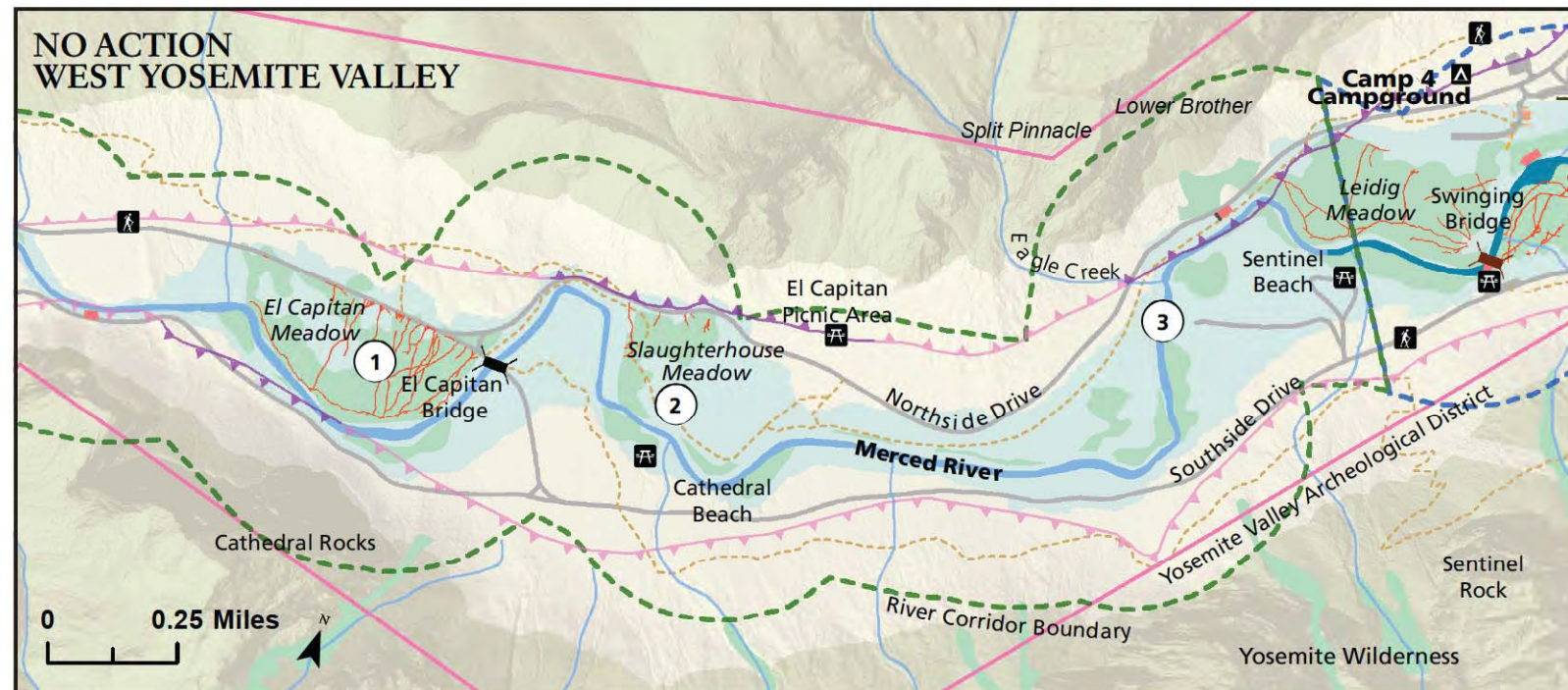
# ALTERNATIVE 1: NO ACTION



## EL PORTAL

1. Roadside Parking at the NPS Administrative Complex: Off-street parking between the Merced River and Foresta Road would continue to lack design features to prevent water contamination from automotive fluids, surface water runoff, or sediment transport.
2. Employee Housing at Rancheria Flat: Vacant lots would continue to exist in the Rancheria Flat area of El Portal.
3. Greenemeyer Sand Pit: This former mine operation area would continue to contain fill material that precludes natural flooding and regeneration of riparian plants.
4. Abbieville and Trailer Village
  - Housing: This area, located outside the 100-year floodplain, would continue to occupy a large development footprint and provide for housing land use for temporary NPS employees and park partner employees. Also, 36 private residences currently exist here.
  - Riparian Zone: Development, including paved roads, parking and compacted soils, would continue to exist in the riparian zone.
5. Old El Portal
  - Valley Oak Restoration: The valley oak population at El Portal exists in a generally protected state, but oak seedling recruitment is limited by competition from invasive species, parking under the drip lines of trees and associated soil compaction, herbivory, and existing development. Valley oaks are also sensitive to overwatering, pruning, grade changes, and asphalt covering the root system.
  - Odger's Fuel Storage Facility: Presence of this facility in the floodplain is not in compliance with NPS Floodplains Guidelines that require fuel storage facilities to be located outside of the 500-year floodplain.
  - Residential Area: Nine vacant lots exist in Old El Portal.

Cultural Resources: Informal trails, gravel roads, abandoned infrastructure, and visitor use would continue to impact culturally sensitive areas.



## WEST YOSEMITE VALLEY

1. El Capitan Meadow and Devil's Elbow
  - Valley Meadows: Conifers would continue to encroach into Yosemite Valley meadows.
  - Upstream of El Capitan Moraine: The river reach upstream of the El Capitan moraine to the Sentinel picnic area would continue to lack channel complexity and large wood accumulation.
  - El Capitan Meadow: Soil compaction and trampled vegetation would continue to exist due to informal trails and easy access to the meadow from roadside parking. The NPS would continue to remove invasive non-native plants following the Invasive Plant Management Plan and continue with prescribed fire following the Fire Management Plan, including mechanical removal of conifer saplings to reduce fuel load.
  - El Capitan Bridge, River access: No formal designated river access would be established along a high visitor use stretch of river with sensitive riverbanks.
  - El Capitan Shuttle Stop: The shuttle stop in this area would remain an informal shuttle stop.
2. Devil's Elbow and Slaughterhouse Meadow Area
  - Devil's Elbow: Visitor use between El Capitan Bridge and Devil's Elbow would continue to exceed the design of existing infrastructure. Visitor parking and river access would continue to create safety and resource concerns.
  - Valley Loop Trail impacts through meadows: The Valley Loop Trail would continue to pass through sensitive and sometimes inundated meadow habitat in Slaughterhouse Meadow and Bridalveil Meadow.
  - Cathedral Beach Picnic Area: Visitor use would continue to exceed the design of the existing infrastructure in this picnic area. There would be no formal river access and the parking would not be delineated. Picnic benches would continue to be easily moved through out the area.
3. Sentinel Beach and Swinging Bridge
  - Eagle Creek meadow and drainage: The Eagle Creek/Rocky Point sewage plant infrastructure would remain underground in Eagle Creek meadow. The natural braided morphology of Eagle Creek would continue to be channelized near Northside Drive.
  - Yellow Pine Administrative: Yellow Pine Campground would continue to be available for administrative use (four group sites for up to 120 people.)
  - Sentinel Beach Picnic Area: The picnic area would continue to be affected by high visitor use that exceeds the design of the existing infrastructure.
  - Leidig Meadow: Informal trampling in Leidig meadow would continue to cause extensive levels of habitat fragmentation, particularly in the area surrounding the north side of Swinging Bridge.
  - Valley Swinging Bridge river access: Current fencing along the bike path would continue to lead people to access the river upstream, river right of Swinging Bridge, causing streambank erosion.

Scenic Vista Management: Trees would continue to impinge views of iconic viewpoints and locations.

Cultural Resources: Informal trails, rock climbing, camping, vandalism, human waste and fire rings, would continue to impact culturally sensitive areas.





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# ALTERNATIVE 1: NO ACTION



## MERCED LAKE HIGH SIERRA CAMP

1. Merced Lake Shore Meadow: Informal trails would continue to exist in Merced Lake Shore Meadow, adjacent to the Merced Lake High Sierra Camp.
2. Merced Lake High Sierra Camp and Merced Lake Backpackers Camping Area
  - Merced Lake Backpackers Camping Area: Infrastructure at the camping area would include a water system with flush toilets and bear boxes for food storage.
  - Merced Lake High Sierra Camp: The High Sierra Camp would continue to have 22 lodging units (60 beds) and a water system with flush toilets.
3. Merced Lake Ranger Station Meadow: The meadow would continue to have high levels of bare ground associated with administrative pack stock grazing.
4. Special-Status Plants: Trails through sensitive habitats would continue to impact fragile plant species in several places in the river corridor.

## OTHER SEGMENT 1 CAMPING AREAS

- Little Yosemite Valley Camping Area: Infrastructure at the camping area includes a composting toilet and bear boxes for food storage. This would remain a designated camping area for the Little Yosemite Valley Wilderness Zone.
- Moraine Dome Camping Area: This area would remain as a designated camping area for the Little Yosemite Valley Wilderness Zone.



## WAWONA

1. Wawona Campground and South Fork Picnic Area
  - Wawona Campground would contain 97 campsites (96 individual sites and 1 group site) and would continue to be served by septic tanks and leach fields.
  - The South Fork Wawona picnic area would continue to be undelineated and have no designated river access.
2. Wawona Store Area
  - Roadside parking on Wawona Road would continue to create vehicle/pedestrian conflicts and associated traffic congestion.
  - The Wawona Store parking facility would not accommodate parking demand.
  - The restrooms, existing numbers of picnic tables, and parking spaces would continue to serve visitors in their present condition and configuration. There would be no formal river access point from the picnic area to the river.
3. Wawona Stables: The concessioner would continue to provide day rides originating from the Wawona Stables.
4. Wawona Hotel Complex
  - The hotel would continue to have 104 lodging units, providing overnight guests with a swimming pool and tennis courts.
  - A nine-hole golf course, associated with the hotel with retail and food service, would remain in service. The golf course would continue to serve as a spray field for the water reclaimed by the Wawona wastewater treatment plant.
5. Recreational Vehicle Facilities: The RV dump site in Wawona would continue to be located in close proximity to the river.
6. NPS Maintenance Area
  - Maintenance Yard: The maintenance facility would continue to exist in its current location, condition and configuration.
  - Wawona Stock Camp: The stock camp has two sites and would continue to be located in a sensitive resource area.

Cultural Resources: Ground disturbing activities, potential loss to shallow deposits of historic artifacts and features, abandoned infrastructure, informal trails and visitor use affect culturally sensitive areas.



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## Detailed Description of Alternative 1 (No Action)

The following section describes the existing issues affecting river values in the Merced River corridor that would continue under Alternative 1 for the purposes of providing a baseline for comparison with the action alternatives (Alternatives 2-6). The intent is to identify where additional management is needed to address these issues, as described in Chapter 5. This section also describes the existing condition user capacity, land use, and facilities management in the Merced River corridor. All of the descriptions are organized by river segment.

### *Segment 1- Wilderness above Nevada Fall (Wild Segment)*

#### **Current Conditions: Issues Affecting River Values**

##### *Biological Values*

- Administrative pack stock grazing – Merced Lake Ranger Station Meadow would continue to reflect high levels of bare ground and trampling associated with high levels of administrative pack stock grazing.
- Meadow trails – There would be few or no mitigations for informal trails, trails in wet and/or sensitive vegetation, and trails that fragment meadow habitat, including meadow trails in the Triple Peak Fork, wetlands near Echo Valley and Merced Lake shore, and the mineral springs between Merced Lake and Washburn Lake.

##### *Scenic Values*

The Merced Lake High Sierra Camp would remain, affecting scenic views in the Merced Lake area.

##### *Recreational Values*

The wilderness experience would continue to be affected by high levels of visitor use along trails, at the Merced Lake High Sierra Camp, and at designated camping areas.

#### **Current Condition: User Capacity, Land Use and Facilities Management**

This alternative would accommodate the same kinds and amounts of use that exist today in this segment. The kinds of use would continue to focus on wilderness-oriented experiences characterized by self-reliance and opportunities for solitude.

##### *Visitor Activities and Services*

Primary activities in this segment would continue to include hiking and overnight backpacking.

- Merced Lake Backpackers Camping Area and the associated infrastructure, such as flush toilets, water system, and bear boxes, would remain.
- Merced Lake High Sierra Camp would continue to have a 60-bed capacity, offer the same level of services, and all associated infrastructure would remain.
- Designated camping areas would continue to include Little Yosemite Valley, Moraine Dome, and the Merced Lake Backpackers Camping Area.
- Private boating would be allowed in this segment. Generally, use in this segment would consist of short floats using pack raft or other craft that can easily be carried into this remote area.

**Visitor Overnight Capacity**

The Merced Lake High Sierra Camp would remain at its current capacity of 22 units (60 people per night). For dispersed camping, including those staying in the designated areas mentioned above, the wilderness zone capacities would remain unchanged as follows in Table 8-6:

**TABLE 8-6: WILDERNESS ZONE CAPACITIES – ALTERNATIVE 1 (NO ACTION)**

Wilderness Zones	Alt 1 No Action Zonewide Capacity	Alt 1 No Action Zone Capacity in River Corridor
Little Yosemite Valley Zone	150 people	150 people
Merced Lake Zone	50	50
Washburn Lake Zone	150	100
Mount Lyell Zone	50	10
Clark Range Zone	50	10

**Visitor Day Use Capacity**

Day use generally occurs along the trail between the top of Nevada Fall and Little Yosemite Valley. This use is primarily associated with hikers going to Half Dome, outside of the river corridor. This specific activity is managed through a permit system. As this is a wilderness area, the only access to this segment is by way of hiking trails. Day-use parking for the trailheads that access this segment is included in the calculations for Yosemite Valley (see Segment 2 below).

**Administrative Activities**

Administrative uses in Segment 1 consist primarily of regular ranger patrols and backcountry utility work as well as occasional trail/restoration crews. These activities are seasonal and minimal in comparison to visitor use and would not affect the overall user capacity.

**Employee Housing Capacity**

The Merced Lake ranger station and the Little Yosemite Valley trail crew and ranger camp would remain as temporary housing for employees working in this area. Rangers are stationed in Segment 1 for 4-8 days at a time. At any one point in time, between 6-10 NPS employees are stationed at Little Yosemite Valley ranger camp and 0-4 Merced Lake ranger station. On occasion trail crews of 5-15 people will pass through these areas may stay for 1-4 weeks at a time. There is no permanent housing in this segment.

**Employee and Administrative Parking Capacity**

Employee and administrative parking for this segment is located in Yosemite Valley and therefore is accounted for in the Segment 2 employee and administrative parking capacities.

**Transit Options**

Similar to parking, the only access to this wild segment is via hiking trails and the trailheads that provide access to this segment are located in Yosemite Valley (Segment 2). Thus, visitors who wish to recreate in this segment would use the transportation options to the Valley to access these trailheads. (Specific transportation options for reaching Segment 1 trailheads are listed below under Segment 2).

## Segment 2- Yosemite Valley (Recreational and Scenic Segments)

### Current Condition: Issues Affecting River Values

#### *Free-Flowing Condition*

- **Riverbank riprap** – The approximately 15,589 feet of riprap along the bed and banks of the Merced River within the park would remain.
- **Bridges** – All bridges and elevated roadways would remain in place without mitigations to address bridge-related impacts on free-flowing condition; this includes footings within the bed and banks of the Merced River, which serve as an impediment to hydrologic flows.
- **Abutments and abandoned infrastructure** – The abutments and infrastructure associated with the former bridge at Happy Isles and the gauge base would remain in their current location and condition. The infrastructure associated with the Pohono Bridge gauging station would remain inside the bed and banks of the river.

#### *Water Quality*

- **Pack Stock trail** – The pack stock trail, north of the river, between Clark’s Bridge and the Concessioner Stables, would remain within the ordinary high-water mark; the area would continue to be subject to seasonal flooding, accelerated erosion, and sediment deposition in the river.
- **Upper Pines (RV) Dump Station** – The Upper Pines RV dump station would remain in close proximity to the river.
- **Yosemite Valley Day-use Parking Area (Camp 6)** – This unimproved parking area would remain without appropriate mitigations for water quality protection. It would continue to be located within the 5-10-yr floodplain, on former meadow, in the potential channel migration zone. Fill would remain in sensitive areas of this parking area.

#### *Biological Values*

As described above under “Overview”, some ecological restoration could occur under Alternative 1 (No Action); however most of the management concerns identified in Chapter 5 regarding meadow fragmentation in several Yosemite Valley meadows and localized impacts on riparian habitat along the river would not be addressed in this alternative. Specifically:

- All existing development adjacent to the bed and banks of the river would remain, including camping, lodging facilities, and parking.
- **Ditching** – Human-constructed ditches would remain in meadows throughout Yosemite Valley.
- **General meadow hydrology** – Conifers would continue to encroach into Yosemite Valley meadows. While the NPS would continue the mechanical removal of conifers to reduce fuel loads under the park’s *Fire Management Plan*, no additional action would be taken to mitigate conifer encroachment. Formal and informal trails, abandoned roadbeds, and informal roadside parking would remain in meadows and wetlands in Ahwahnee Meadow, El Capitan Meadow, Cook’s Meadow, Leidig Meadow, and Sentinel Meadow. Roads and bike paths would continue to bisect Ahwahnee Meadow, Stoneman Meadow, Leidig Meadow, and Sentinel Meadow. Curry Village orchard parking area would remain in what was formerly part of Stoneman Meadow.
- **Former Pine and Oak Yosemite Lodge units** – There is no development in the site of the former Pine and Oak cabins at Yosemite Lodge. However, fill and impacts from soil compaction from

removal of the former Yosemite Lodge units and cabins after the 1997 flood would remain. A network of roads remains that once facilitated access to these lodging units would remain.

- **Abandoned Infrastructure**– Abandoned infrastructure would remain in Eagle Creek Meadow, Royal Arches Meadow, Cook’s Meadow, the western (closed) portion of former Lower Pines Campground and the former lodge cabin/volunteer center at Yosemite Lodge.
- **Valley Loop Trail** – The Valley Loop Trail would continue to pass through sensitive and sometimes inundated meadow habitat in Slaughterhouse Meadow and Bridalveil Meadow.
- **Ahwahnee Meadow** – The Ahwahnee Meadow topography would continue to be modified by ditching; fill material found in the former golf course; a former roadbed in the southwest corner of the meadow; and large conifers that have become established along the former roadbed. Additionally, the tennis court would remain in a black oak community.
- **Bridalveil Meadow** – A head-cut from former ditch would remain adjacent to Bridalveil Meadow.
- **Former Upper and Lower River Campgrounds** - Graded landscape, filled drainages, compacted soils, existing (amphitheater), abandoned infrastructure, and invasive plant infestations would remain.
- **El Capitan Meadow**- Soil compaction and trampled vegetation resulting from informal trails and easy access to the meadow from roadside parking would continue. The NPS would continue to remove invasive non-native plants following the *Invasive Plant Management Plan*.
- **Foot traffic** – Heavy foot traffic associated with campgrounds, lodging, rafting operations, and picnic areas would continue to denude riparian vegetation. High levels of visitor use would remain near the river at Valley Campgrounds, El Capitan Bridge, Swinging Bridge, and Sentinel Beach Picnic Areas.
- **Housekeeping Camp** – Several Housekeeping Camp units would remain located in the 2-10 year floodplain.
- **Yosemite Lodge** – Several buildings would remain in the 100-year floodplain.
- **Pohono Bridge to Diversion Dam** – There would continue to be no designated river access points in this reach; as a result, soil erosion and loss of vegetation would continue as well as unsafe parking practices resulting from improper roadside parking.

### *Geologic/Hydrologic Values*

- **River Reach Upstream of El Capitan Moraine** – The NPS would take no action to enhance the riparian habitat and improve channel complexity in the river reach upstream of El Capitan moraine to the picnic area at Sentinel Beach.
- **Eagle Creek Drainage** – No action would be taken to remove the berm or repair the channelization near Northside Drive.
- **River channel** – The NPS would take no action to mitigate river widening and low channel complexity between Clark’s Bridge and Sentinel Bridge.

### *Cultural Values*

- **Traditionally used plant populations** – Traditionally used plant populations would continue to be managed by actions prescribed in the park’s invasive plant management program. Conifers and abandoned infrastructure would remain in black oak habitat.
- **Archeological sites** – Informal and formal trails, various types of visitor use, parking, and graffiti would continue to impact archeological sites in Yosemite Valley.

- **Residence 1 (Superintendent's House)** – This historic structure would remain subject to recurring flooding and subsequent water damage. The historic interior finishes, especially the distinctive plaster work, would remain in poor condition. Structural issues related to settling of the foundation have resulted in displacement of walls and floors would not be addressed. In addition, informal trailing that impact Cook's Meadow would not be addressed.
- **Historic resources** – Alternative 1 would maintain all the collective sites representing the prominent historic patterns of development in Yosemite Valley in their current locations and in their current status. Those resources that are in conflict with other ORVs (e.g., Sugar Pine Bridge) and in poor or fair condition (e.g., Residence 1 and LeConte Memorial Lodge) would remain as such.

### *Scenic Values*

The following visual intrusions into the natural scenery in Yosemite Valley would remain:

- Human-made structures in Yosemite Valley (including roads and traffic through meadows and the presence of certain visitor and administrative facilities in the river corridor),
- Vegetation growth that has intruded on scenic viewpoints historically available to park visitors, and
- Riverbank erosion, informal trails, and riparian vegetation that affect direct and foreground views of the river, river-dependent resources, and the peaks and walls rising above the river.

### *Recreational Values*

The following recreational values would continue:

- **Recreational Activity Participation**- All current recreational activities would continue in the No Action Alternative, including site seeing, scenic driving, day hiking, wildlife viewing, picnicking, floating, creative arts, camping, bicycling, nature study, rock climbing and engaging in ranger lead programs.
- **Recreational Setting Attributes**- The Merced River would continue to serve as a focal point for recreation in Yosemite Valley. Existing conditions of natural and cultural conditions will also negatively impact the recreational values by diminishing the quality of settings for visitors to enjoy.
- **Recreational Experience Quality**- Visitors in both park surveys and other studies report feeling crowded by other visitors in Yosemite Valley during peak periods, especially in parking areas that provide access to the river and other major visitor destinations. However, visitors still report a relatively high level of visitor satisfaction.

## **Current Condition: User Capacity, Land Use and Facilities Management**

Alternative 1 (No Action) would accommodate the same kinds and amounts of use that exist today.

### *Visitor Activities and Services*

Under the No Action Alternative, recreational activities would remain as they are today. Yosemite Valley would provide for a diversity of river-related and other recreational opportunities.

Activities:

- *Interpretation* – There would continue to be limited interpretive nature walks that educate the public on natural river processes and stewardship of river-related resources.

## ALTERNATIVES

- *Way finding* – Inadequate way finding and unclear pedestrian circulation would remain at Happy Isles.
- *Boating*- Commercial and private boating is currently allowed on a 2.4 mile reach of the Merced River between Stoneman Bridge and Sentinel Picnic Area. Peak use levels of the open boating reach in Yosemite Valley is most commonly between 150-250 boats per day, but can be as high as 300 boats per day. About two-thirds of this use is from commercial rafts.

### Services:

- *Curry Village Services*: The configuration and level of services and facilities in Curry Village would remain unchanged. The Concessioner Stables would continue to be used by the concessioner to house the stock animals used for and day rides and to operate the High Sierra Camp. The herd has decreased in size since this facility was constructed, but the facility footprint remains the same. A kennel service would also continue to be operated out of the stables.
- *Housekeeping Camp*: Visitor use facilities at Housekeeping Camp would continue to include shower houses and restrooms, laundry and a grocery store.
- The configuration and level of services and facilities in *Yosemite Village* would remain unchanged, including facilities such as the Concessioner General Office, Concessioner Garage, and the Bank Building. Inadequate visitor way-finding at Yosemite Village Day-use Parking Area (Camp 6) would persist.
- *Bridalveil Fall*: The existing design of the pedestrian circulation system at this popular attraction site does not accommodate the level of visitor use it receives. A network of social trails exists. Neither the pedestrian walkways nor the restrooms meet current accessibility standards.
- *El Capitan Meadow*: The shuttle stop at El Capitan is not a formal, appropriately designed stop.

### *Visitor Overnight Capacity*

Overnight capacities would remain the same. Reservation systems for both lodging and camping would continue.

Campgrounds would maintain a total of 466 sites accommodating up to 2,892 people per night.

- *Backpackers Campground* – 25 campsites including 2 administrative sites would remain in close proximity to the river.
- *Former Upper River Campground* – The former campground area would continue to passively ecologically restore to natural conditions. Material such as asphalt and fill material would remain.
- *Former Lower River Campground*: The former campground area would continue to passively ecologically restore to natural conditions. Material such as asphalt and fill material would remain.
- *Lower Pines* – 76 campsites would be retained (16 sites are for administrative use; 18 sites are RV-only).
- *North Pines* – 86 campsites would be retained (5 sites are for administrative use; 23 sites are RV-only).
- *Upper Pines* – 240 campsites would be retained (2 are for administrative use; 44 sites are RV only sites)
- *Camp 4* – The current configuration and number of campsites would remain at Camp 4.

Lodging would remain at a total capacity of 1,034 units, accommodating up to 3,672 people per night.

- *The Ahwahnee*: Services and facilities that include bar and food service, dining room, gift shop, sweet shop, pool, and tennis courts would be retained.
- There are 400 lodging units at *Curry Village* that can be included Alternative 1 (No Action) per the 2009 Settlement Agreement; 103 additional temporary guest lodging units currently in the Boys Town area are not considered part of this alternative.
- The *Curry Orchard Parking* area would continue to have approximately 424 parking spaces that are not formalized with best management practices.
- All 266 units at *Housekeeping Camp* lodging units would be retained, and would remain within the 100-year floodplain.
- *Yosemite Lodge* services and facilities would be retained in current configuration and at current level of service, and would continue to be used for overnight lodging, parking and food service.

### ***Visitor Day Use Capacity***

In this alternative, no changes would be made to available parking capacity in Yosemite Valley (2,337 spaces accommodating up to 7,260 people at one time).

Parking and traffic circulation at The Ahwahnee would continue to be inadequate to meet overnight and day-use demand.

The Wilderness Parking Area was not designed as a formal parking area and would continue to be undelineated and undersized for demand. Soils in this location, which once served as a landfill for Curry Village, would not be remediated.

**Yosemite Village Day-use Parking Area (Camp 6/Village Store):** There is currently a four-way intersection at the exit of the parking area near Northside and Sentinel Drives. People cross at this intersection to get to and from visitor services from the parking area. Informal shoulder parking overflow from the day-use parking area is encroaching on sensitive habitat in this location. This parking area is an approximately 6 acre dirt lot, currently being used to park approximately 517 vehicles on peak days using directed parking. There are 237 Yosemite Village parking spaces.

**Yosemite Lodge:** Demand for day-use parking would continue to exceed supply during summer peak-use periods. There would continue to be no parking at Highland Court, due to the placement of temporary housing in the parking lot after the 1997 flood. The west portion of the Yosemite Lodge parking area would continue to be used for overflow parking for tour buses and transit buses, day use and overnight use.

**Camp 4:** The Camp 4 Parking Lot would continue to be inadequately sized for current levels of overnight and trailhead parking. There would continue to be a total of 89 parking spaces in the main Camp 4 Parking Lot, 29 overnight vehicles and 33 day use vehicles in the overflow parking across Northside Drive.

### ***Administrative Activities***

Administrative uses are well-established in this segment. Both NPS administrative offices and concessioner offices are located in the Valley along with NPS and concession employee housing.

### ***Employee Housing Capacity***

All employee housing would remain in this segment under this alternative. This would include 1,151 beds for concessioner employees and 71 units (164 beds) for NPS employees. There would continue to be temporary housing at Huff House. Temporary housing would continue to occupy the Lost Arrow parking

lot. The Tecoya Dorms, Ahwahnee Row Housing, and associated parking would remain within the 100-year floodplain, with no development setback from Indian Creek. There would continue to be employee housing in the Yosemite Lodge area at Highland Court and the Thousands Cabins. Yellow Pine Administrative Campground would continue to only be available for administrative use (4 group sites for up to 120 people.)

***Employee and Administrative Parking Capacity***

Parking for administrative functions would be located within the land assignments for these uses, and would not compete with visitor parking.

***Transit Options***

Regional bus service into Yosemite Valley is shown in Table 8-7. A maximum of 270 people at one time could arrive to the Valley on regional transit.

Commercial tour buses are allowed to park in 15 parking spaces allocated for that use near the Yosemite Lodge. With all seats filled on these buses, a maximum of about 720 people could arrive to Yosemite Valley on commercial tour buses. All regional transit runs are done with 48 passenger buses.

**TABLE 8-7: TRANSIT OPTIONS- ALTERNATIVE 1 (NO ACTION)**

9. Regional Transit Options	
HWY 140 Merced/Mariposa to Yosemite Valley	8 runs / day (4 from Merced; 4 from Mariposa) (year round)
HWY 41 Fresno/Oakhurst to Yosemite Valley	No Service
HWY 120 West Groveland/Sonora to Yosemite Valley	1 weekday run- Sonora to Valley 2 weekend runs- Groveland to Valley (summer only)
HWY 120 East Inyo/Mono County (Mammoth Lakes) to Yosemite Valley	1 run per day (summer only)
10. Yosemite Valley Shuttle Options	
East Yosemite Valley	7 minute peak interval between buses Year round except Visitor Center direct
Visitor Center Express Yosemite Valley Day-use Parking Area to Visitor Center	15 min. interval between buses (summer only)
El Capitan Crossover	30 min. interval between buses (summer only)
West Yosemite Valley	No service



### ***Segment 3 – Merced Gorge (Scenic Segment)***

#### **Current Conditions: Issues Affecting River Values**

##### ***Scenic Values***

Views from the river and roads in Segment 3 continue to have high aesthetic value. Pullouts and roadside interpretive displays would be maintained.

#### **Current Conditions: User Capacity, Land Use and Facilities Management**

##### ***Visitor Activities and Services***

The kinds of use that are currently provided in this segment would continue. The primary activity would remain scenic driving along Highway 140 for travelers to other park destinations. However, several pull-outs provide parking and access to the river and other parts of the corridor along this segment.

- River related recreational activities would continue to include swimming, fishing, and climbing. These activities occur in summer when the river is low and the air and water temperatures are warm.
- Kayaking/boating would not be allowed in this segment under this alternative due to the safety concerns associated with accessing the river for search and rescue operations during high use periods. This section of river is steep and rocky, and boatable only by the most advanced paddlers.

##### ***Visitor Overnight Capacity***

There are no overnight accommodations in this segment.

##### ***Visitor Day-use Parking Capacity***

The day-use parking capacity in this segment would remain at 180 spaces.

##### ***Administrative Activities***

Administrative use in this segment would continue to be focused on the Arch Rock Entrance Station and the thru-traffic accessing Yosemite Valley and other park destinations.

##### ***Employee Housing Capacity***

The residential unit at the Arch Rock Area would continue to house up to 9 NPS employees.

##### ***Employee and Administrative Parking Capacity***

Minimal designated parking would be available for administrative use at the Arch Rock Entrance station. This parking is signed for employees only; employees do not compete with visitors for parking and access.

##### ***Transit Options***

Public transit options along this segment would be expanded as described in the Yosemite Valley segment (see Segment 2 above).

## ***Segment 4- El Portal (Scenic Segment)***

### **Current Conditions: Issues Affecting River Values**

#### ***Free-Flowing Condition***

- **Abandoned infrastructure**– Abandoned infrastructure and imported fill at Cascades Picnic Area, Abbeville, and Trailer Village would remain.
- **River channel** – The Merced River in El Portal would continue to be confined by riprap and Highway 140. Standards for revetment repair would not be developed in partnership with CalTrans.
- **Greenemeyer sand pit** – Greenemeyer sandpit would continue to contain fill material that precludes natural flooding and regeneration of riparian plant communities.

#### ***Water Quality***

- **NPS Maintenance and Administrative Complex**– The off-street and roadside parking areas would be continue to be located between the Merced River and Foresta Road. These areas were not designed or built to prevent water quality contamination from automotive fluids, surface water runoff or sediment transport.

#### ***Cultural Values***

- **Archeological sites** - Abandoned infrastructure located on site number CA-MRP-0181/H would continue to impact an area that is highly valued by traditionally associated American Indians. In addition, informal trails, non-essential gravel roads, and visitor use that contribute to archeological site disturbances at CA-MRP-0250/H and CA-MRP-0251/H in Old El Portal would remain.

### **Current Conditions: User Capacity, Land Use and Facilities Management**

#### ***Visitor Activities and Services***

Most recreational activities that take place in this segment are oriented toward the local community, while the vast majority of park visitors pass through en-route to Yosemite Valley and other park destinations. However, a small number of park visitors would continue to visit the Merced River in the El Portal segment as a destination, and not continue into Yosemite. Primary river recreation activities including swimming, fishing and boating would continue.

#### ***Visitor Overnight Capacity***

There are no NPS overnight accommodations for the public in El Portal. An expansive lodging complex is located on private land near the park boundary, outside of NPS jurisdiction.

#### ***Visitor Day-use Parking Capacity***

The current amount of visitor day-use parking (214 spaces) would be retained, consisting primarily of parking at the Store and Gas Station and along the roadsides.

### ***Administrative Activities***

The El Portal Administrative Site within this segment was established to accommodate administrative use in support of Yosemite National Park. These well-established administrative uses would remain under Alternative 1.

### ***Employee Housing Capacity***

Employee housing is currently made up of 126 units that house 192 employees in this segment.

### ***Employee and Administrative Parking Capacity***

Parking for administrative functions would be located within the land assignments for these uses and would not compete with visitor parking. NPS would maintain the 610 parking spaces for administrative uses and the 106 residential spaces.

### ***Transit Options***

As in the Yosemite Valley and Merced Gorge segments along Highway 140, public transit along this travel corridor would be maintained. For a complete summary of the transit option along this corridor, see the Segment 2 summary of Transit Options above.

## ***Segment 5- South Fork Merced River above Wawona (Wild Segment)***

### **Current Conditions: Issues Affecting River Values**

#### ***Cultural Values***

Informal trails and visitor use would continue to impact rock ring features and related archeological resources in this segment.

### **User Capacity, Land Use and Facilities Management**

Use in Segment 5 would remain very low and river values would remain protected under Alternative 1.

#### ***Visitor Activities and Services***

Recreational activities in this segment remain limited to occasional overnight backpacking and day hiking. The kinds of recreational activities would remain the same in Alternative 1.

Private boating would be allowed in this segment. Generally, use in this segment would consist of short floats using pack raft or other craft that can easily be carried into this remote area. This use would not be regulated under Alternative 1.

#### ***Visitor Overnight Capacity***

Very little overnight use occurs in Segment 5. No changes to wilderness zone capacities are proposed in Alternative 1.

### *Visitor Day-use Parking Capacity*

As this is in Wilderness, the only immediate access to this segment is via hiking trails. Day-use parking for the trailheads that lead to this segment is included in the Wawona area (see Segment 7 below) or by way of USFS trails that via Quartz Mountain and Chiquito Pass. Otherwise, very little day use occurs along this segment.

### *Administrative Activities*

Administrative uses are inconsequential in this segment and no changes are proposed.

### *Employee Housing Capacity*

There is no employee housing in this segment.

### *Employee and Administrative Parking Capacity*

There is no employee parking in this segment.

### *Transit Options*

Similar to parking, the only access to this wild segment is via hiking trails and the trailheads that provide access to this area are located in Wawona (Segment 7) or by way of U.S. Forest Service trails. Visitors who wish to recreate in this segment would use the transportation options to Wawona to access these trailheads. (Specific transportation options for reaching Segment 5 trailheads are listed below under Segment 7).

## *Segment 6 and 7- Wawona and Wawona Impoundment (Recreational Segments)*

### **Current Conditions: Issues Affecting River Values**

#### *Free-Flowing Condition*

- **Wawona impoundment** – The current water collection and distribution system would be retained. The water conservation plan relating to the minimum flow analysis for the South Fork would continue to be implemented.
- **Abandoned infrastructure** – Abandoned metal pipes in side channels on the South Fork Merced River would remain, dewatering the terrace.

#### *Water Quality*

- **Water withdrawals** – Surface water withdrawals from the South Fork of the Merced River in Wawona would continue and when drought reduces river flows to less than 6 cubic feet per second. The NPS would continue to limit withdrawals to 10% or less of the river's actual flow, implementing water conservation measures as needed to provide adequate water service to the community.
- **Waste water collection system for the Wawona Campground** – Wawona Campground would be served by septic tanks and leach fields. When the capacity is exceeded, there would continue to be a potential for effluent to migrate into ground water and the river.
- **Wawona recreational vehicle (RV) dump station** – The Wawona RV dump station would remain very close to the banks of the river.

- **Wawona Store Picnic Area**– The Wawona Store Picnic Area near Pioneer History Center would continue to receive visitor use levels during peak periods that exceed the design of the existing infrastructure. There would be no formal river access point here on this steep riverbank.
- **South Fork Wawona Picnic Area** - The South Fork Wawona Picnic Area is not delineated and has no formal river access point. Visitors would continue to access the river by creating informal trails.

### *Cultural Values*

- **Archeological Sites** - Informal trails and visitor use would continue to cause ground disturbing impacts to surface and sub-surface archeological resources.

## **Current Conditions: User Capacity, Land Use and Facilities Management**

Overall, Alternative 1 would provide for the same kinds and amounts of use that presently exist in the Wawona area. Segment 6 includes the Wawona impoundment and no use is allowed in this area due to water quality and safety concerns. Therefore, the summary of user capacity provided below pertains only to Segment 7.

### *Visitor Activities and Services*

A range of visitor recreation activities would continue to be available. River related activities would include swimming, fishing and boating.

- Swimming opportunities would continue to be popular at the Swinging Bridge area.
- Fishing regulations would continue.
- Private boating would continue to be allowed, excluding the Wawona impoundment.

Other non-river related recreational activities in this segment include picnicking, camping, lodging, education and interpretation at the History Museum, special events at the Wawona Hotel, and golfing. Each of these activities would continue under this alternative.

- Picnicking would continue at the Wawona Store area and the South Fork picnic area. No improvements to these facilities would occur, other than routine maintenance. No designated river access would be provided.

### *Visitor Overnight Capacity*

The overnight capacity of the Wawona Hotel would remain the same at 104 rooms accommodating a maximum of 247 people per night.

The Wawona Campground capacity would remain the same at 96 individual sites and 1 group site. The 2 stock-use campsites would also remain, bringing the total capacity of camping to a maximum of 618 people per night.

### *Visitor Day-use Parking Capacity*

Day-use parking capacity would remain at 290 spaces, as in the other action alternatives.

### *Administrative Activities*

NPS Administrative uses are well-established in this segment would continue. Both NPS administrative offices and visitor services offices remain located in their current locations.

### *Employee Housing Capacity*

There are 79 employee housing units in this river segment. No changes are proposed to employee housing in this segment.

There would continue to be a total of 118 concessioner employees in Wawona under Alternative 1. The majority of these employees would live in the Wawona community or elsewhere outside the river corridor.

### *Employee and Administrative Parking Capacity*

Parking for administrative functions would be located within the land assignments for these uses and would not compete with visitor parking.

### *Transit Options*

Transit options would remain unchanged in Alternative 1. The Wawona area shuttle would continue, serving the key destinations within this segment along with the Mariposa Grove of Giant Sequoias. The daily concession operated shuttle between Wawona and Yosemite Valley would also continue.

## *Segment 8- South Fork Merced below Wawona (Wild Segment)*

### **Current Conditions: Issues Affecting River Values**

There are no issues or actions related to river values in this segment.

### **Current Conditions: User Capacity, Land Use and Facilities Management**

#### *Visitor Activities and Services*

Most recreational use in this segment consists of day visitors swimming or hiking. Additionally, some rafters may put in below the Wawona campground, attempting the Class 5 multi-day adventure down the South Fork through the Sierra National Forest to the junction with the Main Stem Merced. However, this section of river is very short within the National Park, and very few people attempt this trip given the high skill level required. These activities would continue under this alternative.

#### *Visitor Overnight Capacity*

No overnight use is proposed for this segment.

#### *Visitor Day-use Parking Capacity*

The only immediate access to this segment is via hiking trails. Day-use parking is included in the Wawona area (see Segment 7 below). Otherwise, very little day use occurs along this segment.

#### *Administrative Activities*

Little or no administrative use occurs along this segment and no changes are proposed.

### *Employee Housing Capacity*

There is no employee housing in this segment.

***Employee and Administrative Parking Capacity***

There is no employee or administrative parking in this segment.

***Transit Options***

Transit services for access to this segment are described above under Segment 7.

***Necessity of Major Public-use Facilities and Services***

Under this alternative all of the facilities and services evaluated in Chapter 7 would remain. A determination as to their necessity in accordance with the WSRA mandate is not required.

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- |   |                                  |
|---|----------------------------------|
| 1 Curry Village Residential Area        | 7 Curry Pavilion (food services) |
| 2 Huff House Temporary Employee Housing | 8 Stoneman Meadow                |
| 3 Historic cabins (guest lodging)       | 9 Curry Orchard Parking Area     |
| 4 Curry Village Ice Rink                | 10 Campground Reservation Center |
| 5 Bicycle rental and raft rental stands | 11 Tents (guest lodging)         |
| 6 Stoneman Cottage                      | 12 Boys Town guest lodging       |

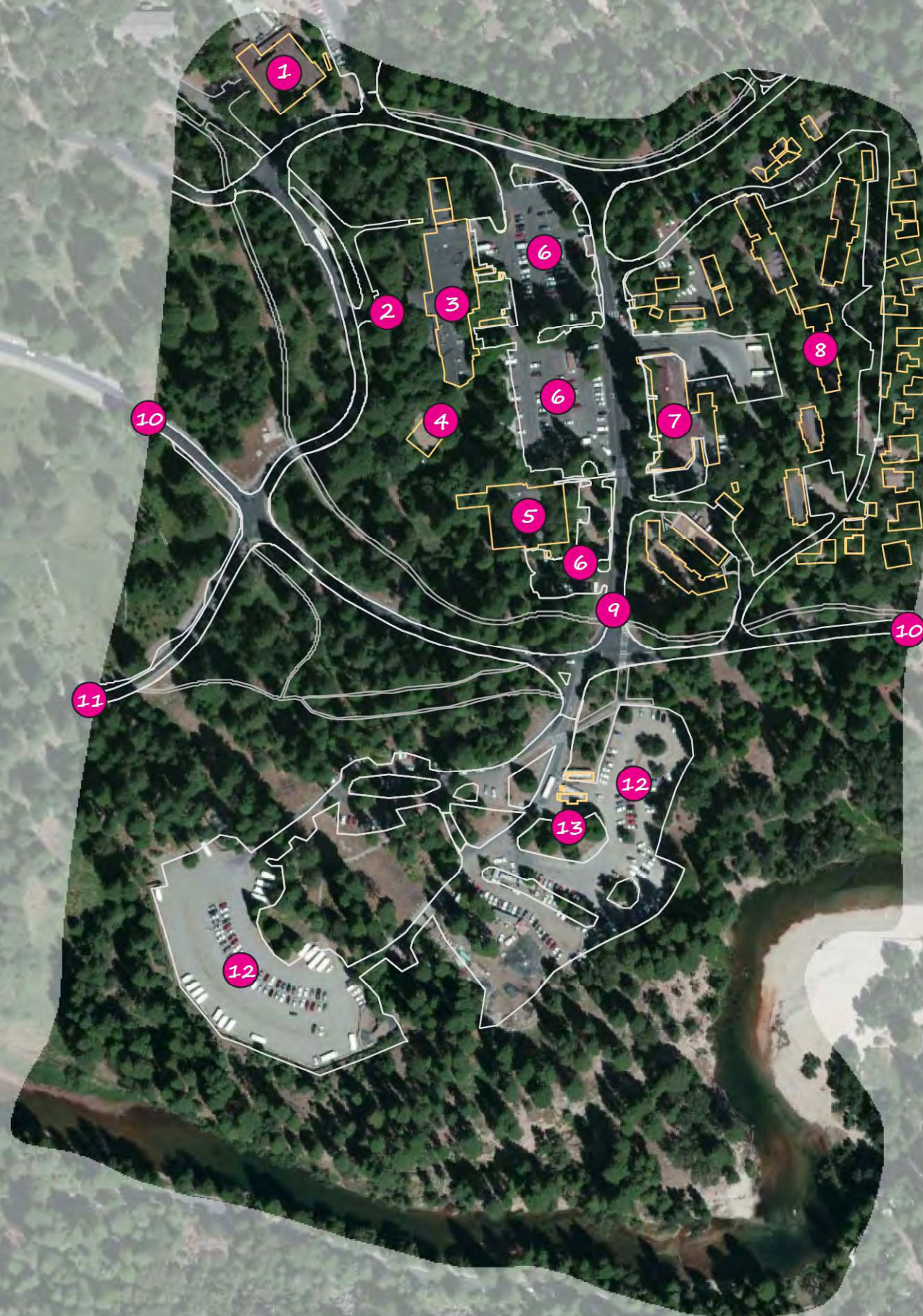
**Alternative 1: No Action**  
**Curry Village**  
Yosemite National Park  
United States Department of the Interior • National Park Service



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- 1 Food service
- 2 Village Mall
- 3 Village Store
- 4 Art Activity Center (former bank building)
- 5 Concessioner General Office
- 6 Parking area
- 7 Concessioner Garage
- 8 Employee housing area
- 9 Village Drive
- 10 Northside Drive
- 11 Sentinel Drive
- 12 Yosemite Village Day-use parking area (Camp 6)
- 13 Temporary restrooms and visitor contact station



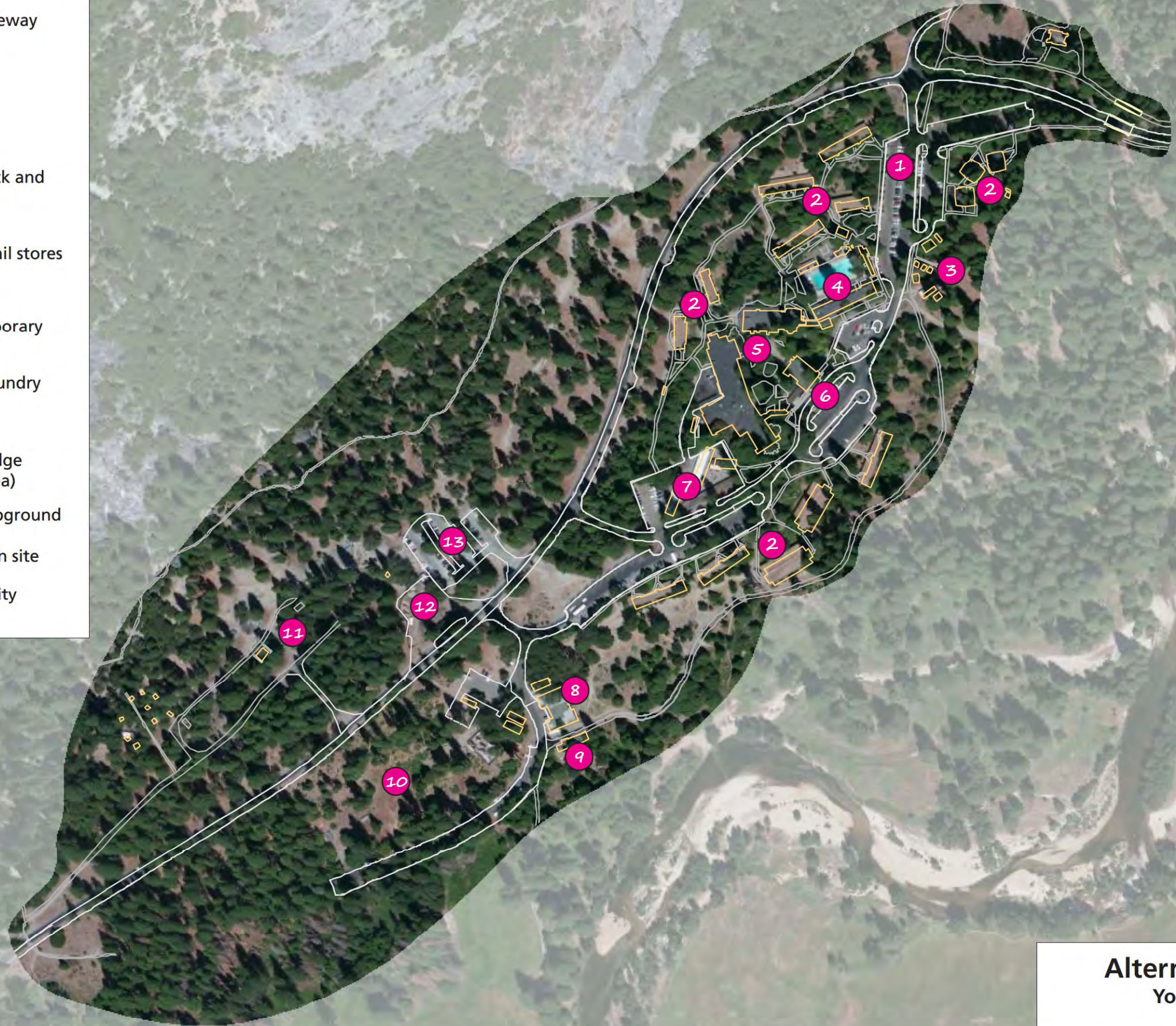
**Alternative 1: No Action**  
**Yosemite Village Day-use Parking Area**  
 Yosemite National Park  
 United States Department of the Interior • National Park Service



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- 1 Yosemite Lodge driveway and parking areas
- 2 Guest lodging
- 3 Thousands Cabins employee housing
- 4 Swimming pool, snack and bicycle rental stands, and post office
- 5 Food service and retail stores
- 6 Lodge registration
- 7 Highland Court temporary employee housing
- 8 Linen storage and laundry
- 9 NPS volunteer office
- 10 Former Yosemite Lodge Annex (disturbed area)
- 11 Camp 4 walk-in campground
- 12 Former service station site
- 13 Camp 4 parking facility



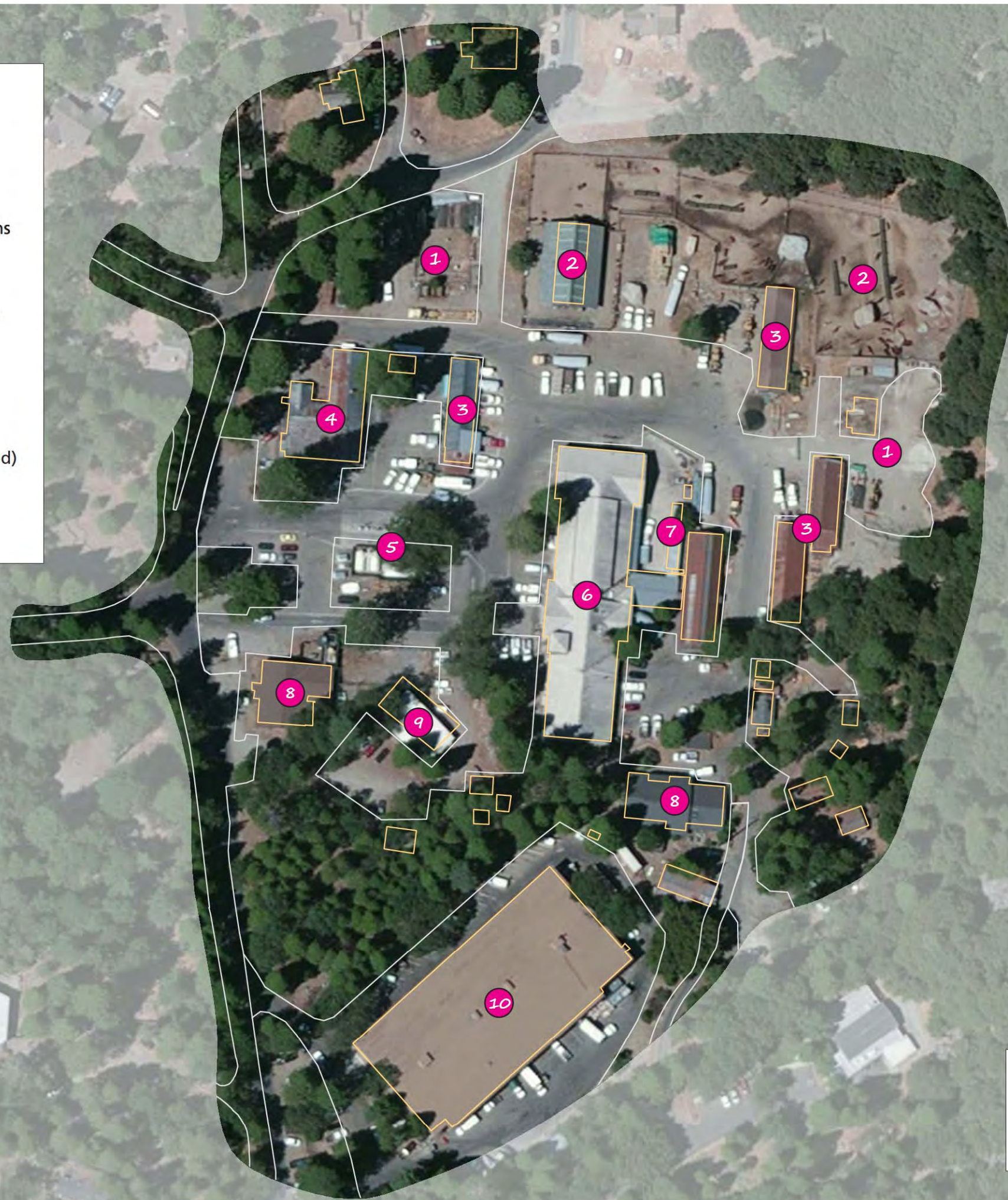
**Alternative 1: No Action**  
**Yosemite Lodge and Camp 4**  
 Yosemite National Park  
 United States Department of the Interior • National Park Service



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- 1 Open storage areas
- 2 NPS stables and corral
- 3 Covered storage structures
- 4 Search and Rescue operations
- 5 Fueling station
- 6 Government Utility Building
- 7 Service bay access
- 8 Utility buildings
- 9 Former construction management office (removed)
- 10 Concessioner Maintenance and Warehouse Building



**Alternative 1: No Action**  
**Yosemite Valley Maintenance Area**  
Yosemite National Park  
United States Department of the Interior • National Park Service



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## ACTIONS COMMON TO ALTERNATIVES 2-6

The *Merced River Plan/DEIS* would address many management concerns or considerations in the same way, regardless of the alternative selected. This section groups these common actions to avoid redundancy under each alternative. These actions do not constitute an independent alternative, but rather, are an integral part of Alternatives 2-6. These common actions are the heart of the *Merced River Plan*: they address how river values would be protected, regardless of how the visitor experience might vary across Alternatives 2-6 and how related services and facilities might vary.

In addition to the actions listed in this section, each alternative would incorporate the boundaries, classifications, and Section 7 determination process outlined in Chapters 3 and 4. The mitigation measures described in Table 2-2 and the Mitigation Measures described in Appendix C would also be common to Alternatives 2-6.

### Actions to Protect and Enhance River Values

The protection and enhancement of river values that would be common to Alternatives 2-6 is described in greater detail in Chapter 5, “River Values and Their Management.” That chapter (1) states the management standards for each value, (2) analyzes the current condition of each value and the management concerns or considerations related to achieving and maintaining the management standards, and (3) identifies the actions that would be required to protect and enhance each value. The actions to protect and enhance the river’s geologic, hydrologic, and biological values are described in detail in the Ecological Restoration Plan included in Appendix E.

Many of the actions included in the Ecological Restoration Plan would protect or enhance multiple river values; for example, removal of road shoulder parking would improve natural water flows into meadows and discourage informal foot trails through meadows, protecting and/or enhancing hydrologic, biological, cultural, and scenic values.

Table 8-8 and the maps that follow highlight major actions for protecting and enhancing river values that are common to all the action alternatives.

**TABLE 8-8: SUMMARY OF MAJOR ACTIONS FOR PROTECTING AND ENHANCING RIVER VALUES—COMMON TO ALTERNATIVES 2-6**

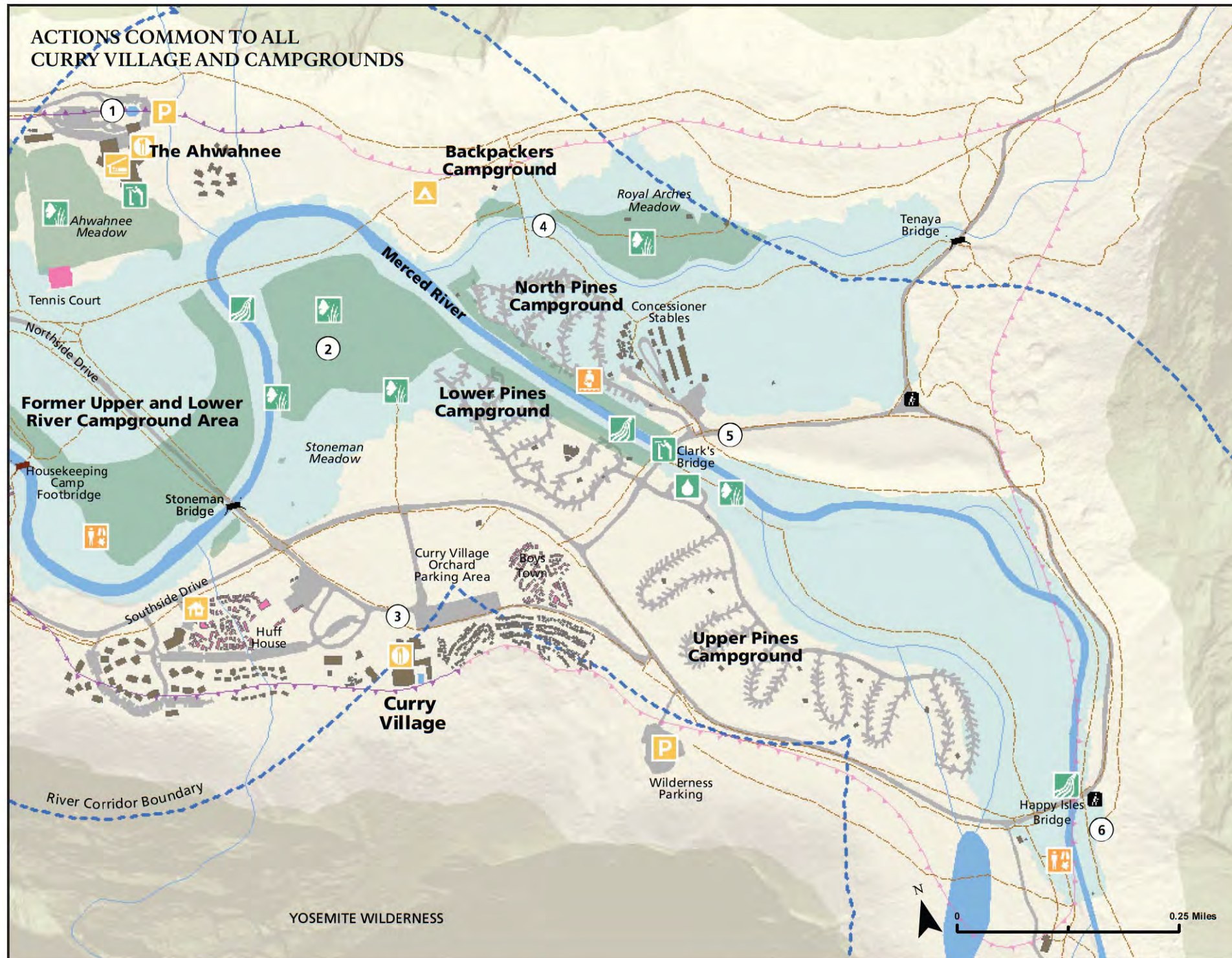
<b>Ecological Restoration Actions (Free Flow, Water Quality, Geologic/Hydrologic, and Biological Values)</b>	
<b>Corridorwide</b>	
<b>Ecological Restoration Acreage</b>	164 acres total (refer to Appendix E for specific locations)
<b>Riprap to be Removed</b>	5,700 linear feet (refer to Appendix E for specific locations)
<b>Segment 2: Yosemite Valley</b>	
<b>Free Flow / Geologic/Hydrologic Values</b>	<ul style="list-style-type: none"> <li>▪ Place large wood into river banks and river channel and construct log jams between Clark’s and Sentinel bridges to enhance riparian habitat and channel complexity.</li> <li>▪ Remove riverbank riprap.</li> <li>▪ Remove the Happy Isles bridge footings and outdated infrastructure at the Pohono gauging station.</li> </ul>

**TABLE 8-8: SUMMARY OF MAJOR ACTIONS FOR PROTECTING AND ENHANCING RIVER VALUES—COMMON TO ALTERNATIVES 2-6**

<b>Ecological Restoration Actions (Free Flow, Water Quality, Geologic/Hydrologic, and Biological Values)</b>	
<b>Segment 2: Yosemite Valley (continued)</b>	
<b>Riparian Buffer / Floodplain</b>	<ul style="list-style-type: none"> <li>▪ At a minimum, remove existing campsites from within 100 feet of the bed and banks of the river.</li> <li>▪ Establish a riparian buffer to prohibit any new development within 150 feet of the bed and banks of the river</li> <li>▪ Move Yosemite Village Day-use Parking Area parking north at least 150 feet away from the river.</li> <li>▪ Implement a 50-foot riparian setback from Indian Creek.</li> <li>▪ Direct river access to resilient sandy beaches and sandbars; fence off sensitive riparian areas and restore native riparian vegetation.</li> </ul>
<b>Meadow Restoration</b>	<ul style="list-style-type: none"> <li>▪ Remove abandoned infrastructure, including tiles, pipes, and abandoned roads, and ecologically restore sites.</li> <li>▪ Improve meadow hydrology by removing artificial fill, filling ditches, constructing culverts, and removing remnants of abandoned underground utilities to enhance water flows into meadows (actions in particular meadows would sometimes vary among alternatives).</li> <li>▪ Remove 6 miles of informal trails to reduce meadow fragmentation; restore disturbed areas to natural conditions; eliminate some roadside parking and fence some areas to reduce the potential for informal trailing through sensitive meadow habitat.</li> <li>▪ Eliminate some roadside parking and fence some areas to reduce the potential for informal trailing through sensitive meadow habitat.</li> <li>▪ Improve the condition of plant communities at specific locations in Yosemite Valley (67 potential acres targeted) by restoring the mosaic of meadow, riparian deciduous, black oak, and open mixed conifer forest vegetation. Management actions could include revegetation, prescribed fire, mechanical removal of conifers, and infrastructure redesign.</li> </ul>
<b>Segment 4: El Portal</b>	
<b>Riparian Buffer / Floodplain</b>	<ul style="list-style-type: none"> <li>▪ Ecologically restore Greenemeyer sand pit.</li> <li>▪ Enhance valley oaks in Old El Portal by creating an oak recruitment area of at least 1 acre in the vicinity of the current bulk fuel storage area.</li> </ul>
<b>Segment 7: Wawona</b>	
<b>Riparian Buffer / Floodplain</b>	<ul style="list-style-type: none"> <li>▪ Ecologically restore portions of the Wawona campground. Relocate or remove all campsites currently within 100 feet of the bed and banks of the river.</li> </ul>
<b>Scenic Values</b>	
<b>Segment 2: Yosemite Valley</b>	
<b>Iconic Scenic Views</b>	<ul style="list-style-type: none"> <li>▪ Reduce visual intrusions as part of the ecological restoration program.</li> <li>▪ Ensure that new development is protective of scenic values.</li> <li>▪ Implement management treatments, including removal of vegetation, to protect views from 47 vista points within the river corridor.</li> </ul>
<b>Cultural Values</b>	
<b>Segment 2: Yosemite Valley</b>	
<b>Ethnographic and Archeological Resources</b>	<ul style="list-style-type: none"> <li>▪ Remove informal trails, non-essential roads, and infrastructure that impacts archeological sites.</li> <li>▪ Delineate bike paths, roads, bridle paths, parking, staging, and trails away from sensitive cultural and ethnographic resource areas.</li> <li>▪ Remove graffiti, and install fencing around rock art and other sensitive features to discourage inappropriate visitor use</li> <li>▪ Develop site management plans for archeological sites with complex uses and impacts such as Yosemite Village.</li> </ul>
<b>Recreational Values</b>	
<b>Segment 2: Yosemite Valley</b>	
<b>River-related Recreation</b>	<ul style="list-style-type: none"> <li>▪ Improve circulation and access while reducing crowding at key attraction sites</li> <li>▪ Manage boating to improve dispersed recreation along the river in Yosemite Valley.</li> </ul>



# COMMON TO ALL ACTION ALTERNATIVES



Management Actions	Lodging	River Access	Buildings	Calculated Rock-fall Hazard Line
Camping	Meadow and Riparian Restoration	Scenic Restoration	Remove Building	Inferred Rock-fall Hazard Line
Circulation	New Shuttle Stop	Services and Facilities	Retained or Varies by Alternative	Recreational Segment
Cultural Resources	Operations	Visitor Experience	Road bridge	Wild Segment
Free-flow	Parking	Water Quality	Footbridge	Scenic Segment
Housing	Picnicking	Restoration Area	Stream	Surfaced Areas
			Trails	100-year Floodplain
				Designated Wilderness

## EAST YOSEMITE VALLEY: CURRY VILLAGE AND CAMPGROUNDS

- The Ahwahnee**
    - Meadow Restoration: Restore 5.7 acres by removing conifers to reconnect isolated meadow portions to improve hydrologic connectivity. Remove tennis courts from black oak woodland and ecologically restore area.
    - Scenic Views: Selectively thin trees that encroach on views toward Yosemite Falls and maintain views from inside the historic building.
    - Lodging: Retain the existing 123 units.
    - Parking: Redesign existing parking lot; providing for proper drainage. Construct new 50-space parking lot east of the area. Follow Ahwahnee Historic Structure Report and cultural landscape report recommendations for parking area configuration and gatehouse restoration.
    - Services and Facilities: Retain bar and food service, dining room, gift shop, and sweet shop. Remove pool.
  - Stoneman Meadow and River Reach Between Bridges**
    - Meadow Ecological Restoration: Use restoration fencing to protect the meadow's north end. Remove encroaching conifers and invasive plants.
    - Interpretation of River Processes: Create an interpretive nature walk through Lower Rivers area that emphasizes river-related natural processes and stewardship.
    - Large Wood Management: Leave large wood in river that does not compromise visitor safety or infrastructure. Incorporate large wood into riverbanks to provide structure for highly eroded riverbanks.
    - Hydrologic Processes: Place eight naturally-looking constructed log jams to address river widening in the channel between Clark's and Sentinel Bridges. Restore riverbank erosion through brushlayering and revegetation.
    - Riparian Restoration: Ecologically restore 20 acres of the former Lower Pines Campground, which was closed after the 1997 flood.
  - Curry Village**
    - Curry Village Residential Area: Remove temporary housing at Huff House and Boys Town. Replace with new housing units at Huff House to accommodate 164 employee beds.
    - Services and Facilities: Retain Curry grocery store, pizza deck and bar, pavilion and cafeteria, Happy Isles Nature Center, and Curry Village swimming pool. Remove the Happy Isles snack stand, bike and raft stand, and Curry Village ice rink. Eliminate commercial horseback day rides at Concessioner Stables in Yosemite Valley.
    - Wilderness Parking Area: Formalize parking using best management practices to protect water quality. Remediate soils in the area, which was once a landfill site for Curry Village.
  - North Pines and Backpackers Campgrounds**
    - Backpackers Campground Western Expansion: Construct 16 new camping sites west of Backpackers Campground.
    - Royal Arches Meadow Restoration: Remove conifers, decompact soils, and revegetate area with native species. Remove infrastructure, such as tiles, pipes, and abandoned road.
    - River Access: Direct visitors at Lower and North Pines campgrounds to four resilient sandy beaches through signage and maps.
  - Clark's Bridge Area**
    - Clark's Bridge: Place large wood to lessen scouring from the bridge, along with a constructed log jam.
    - Upper Pines RV Dump Station: Relocate RV dump station and utilities away from the river to mitigate potential threat to water quality.
    - Riverbank Restoration: Direct visitors to resilient river access point. Stabilize eroded riverbanks.
  - Happy Isles Area**
    - Happy Isles Wayfinding: Improve wayfinding from the shuttle stop to Happy Isles and the Mist Trail.
    - Happy Isles Road Bridge: Place large wood to lessen scouring from the bridge along with brush layering and a constructed log jam. Remove former footbridge abutments.
    - Pack Stock Trail: Remove 3,800 feet of pack stock trail near the riverbank. Remove asphalt and decompact hardened surfaces. Re-vegetate with native plants.
- Cultural Resource Protection**
- Delineate trails; remove informal trails; and remove graffiti to protect culturally sensitive resources. Also, direct visitor use for additional protection.



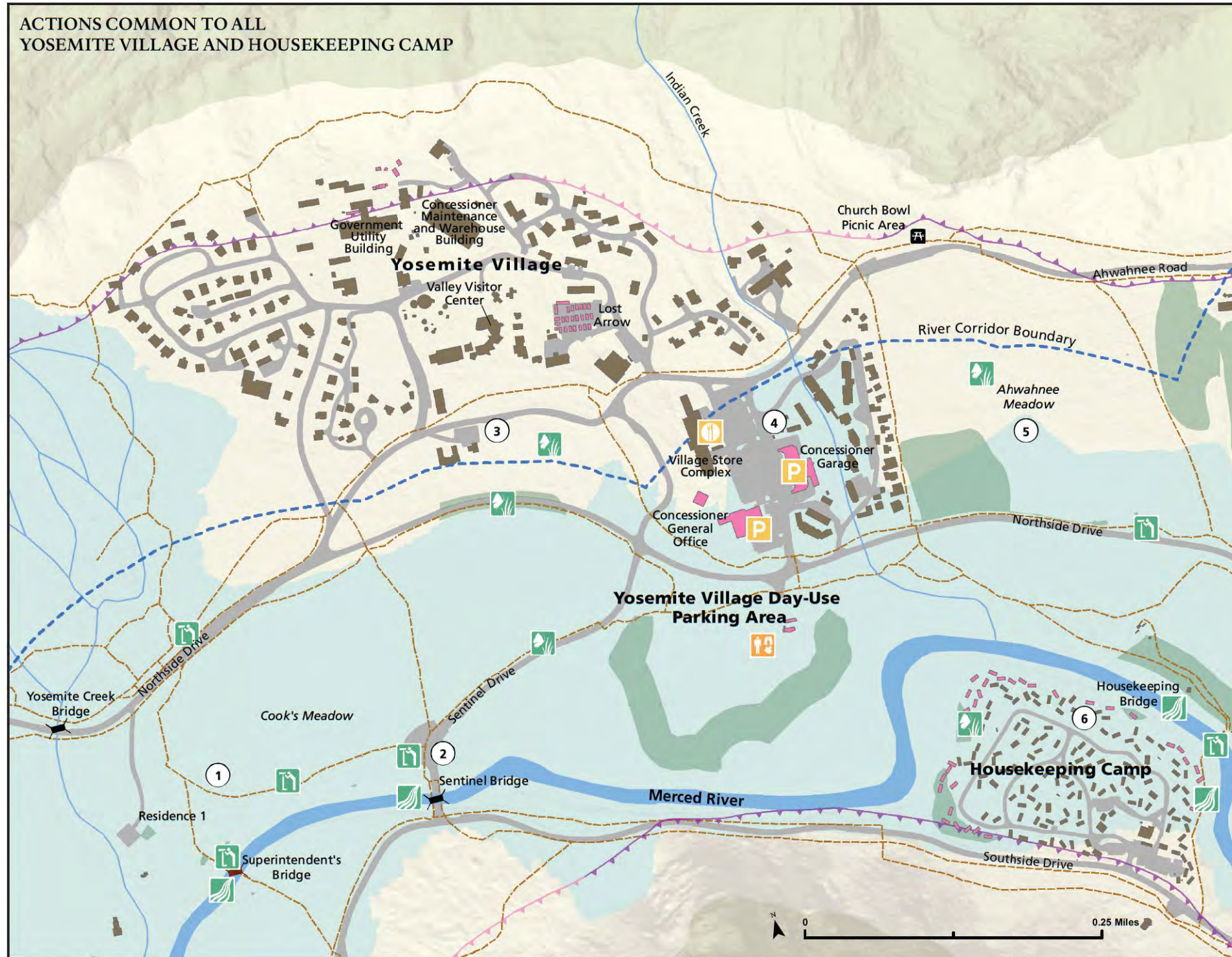
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# COMMON TO ALL ACTION ALTERNATIVES



## ACTIONS COMMON TO ALL YOSEMITE VILLAGE AND HOUSEKEEPING CAMP



Management Actions	Lodging	River Access	Buildings	Calculated Rock-fall Hazard Line
Camping	Meadow and Riparian Restoration	Scenic Restoration	Remove Building	Inferred Rock-fall Hazard Line
Circulation	New Shuttle Stop	Services and Facilities	Retained or Varies by Alternative	Recreational Segment
Cultural Resources	Operations	Visitor Experience	Road bridge	Wild Segment
Free-flow	Parking	Water Quality	Footbridge	Scenic Segment
Housing	Picnicking	Restoration Area	Stream	Surfaced Areas
			Trails	100-year Floodplain
				Designated Wilderness

## EAST YOSEMITE VALLEY: YOSEMITE VILLAGE AND HOUSEKEEPING CAMP

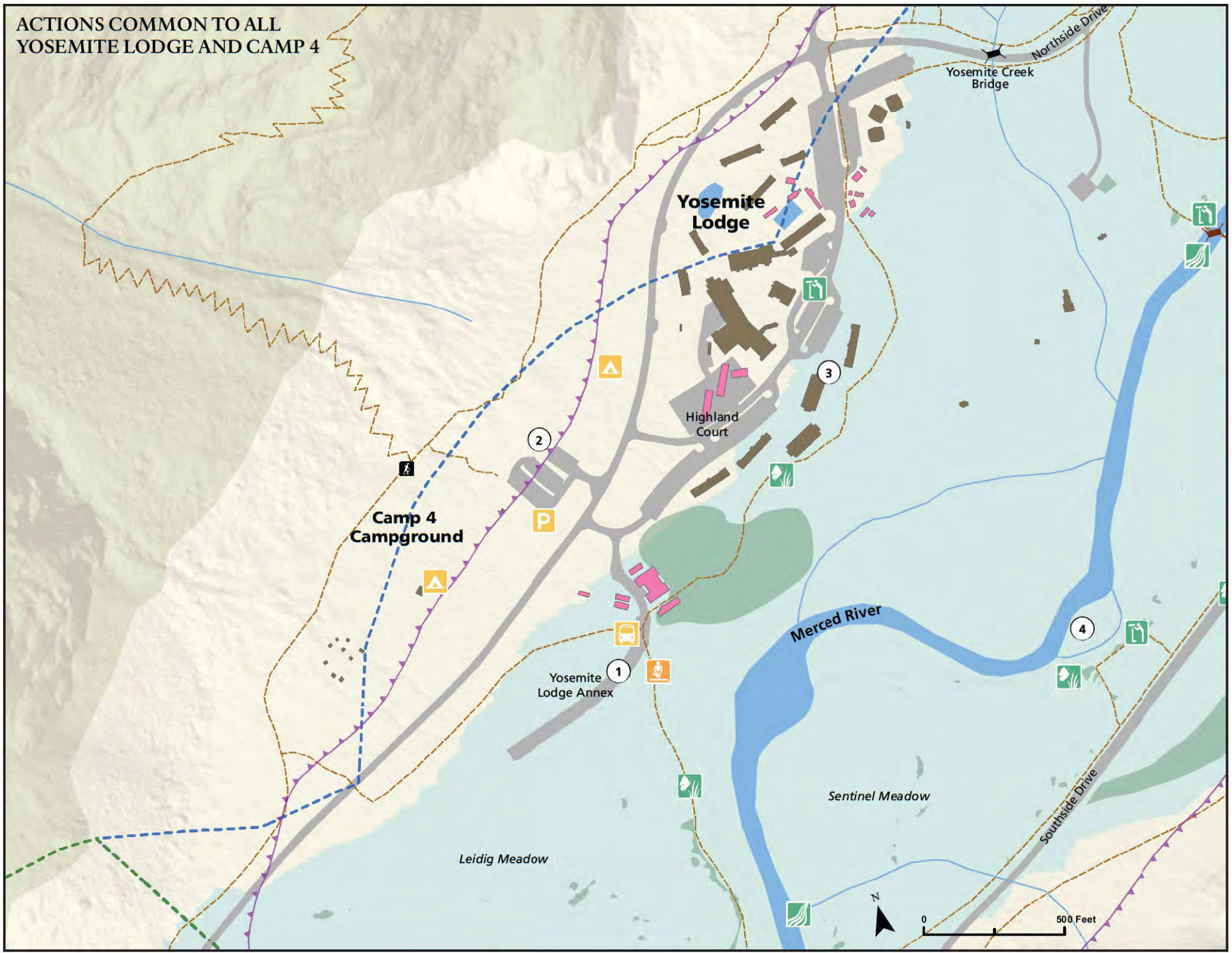
- Superintendent's Bridge Area**
    - Cook's Meadow South Boardwalk: Selectively thin conifers encroaching on open vistas across the meadows and views of Yosemite Falls, Sentinel Rock, North Dome, and Glacier Point.
    - Superintendent's Bridge Free-Flowing Condition: Install constructed log jams on the Merced River, and utilize bioengineered stabilization on rip-rap to improve hydrologic function.
    - Superintendent's Bridge Scenic Views: Thin conifers to maintain views of Sentinel Rock and North Dome.
    - Hutchings View: Selectively thin conifers to maintain distant views of Half Dome, Yosemite Falls, Sentinel Rock, North Dome, Glacier Point, Royal Arches, and Washington Column.
  - Sentinel Bridge Area**
    - Free-Flowing Condition: Place large wood to lessen scouring from the bridge. Place a constructed log jam to increase channel complexity.
    - Scenic Views: Selectively thin encroaching conifers and burn undergrowth to open distant views of Half Dome.
    - Informal Shoulder Parking: Remove roadside parking along Sentinel Drive that encroaches on sensitive habitat. Ecologically restore area to natural conditions.
  - West Yosemite Village**
    - Informal Shoulder Parking: Remove roadside parking along Cook's Meadow. Restore meadow conditions.
    - Roadbed Restoration near Cook's Meadow: Remove fill of former roadbed north of Northside Drive between the Rangers' Club and the three-way stop. Re-vegetate with native meadow species.
  - East Yosemite Village**
    - Village Visitor Contact Center: Re-purpose the Village Sport Shop for public use with pathways leading from the Yosemite Village Day-use Parking Area to the building. Remove the Arts and Activities Center (aka Bank Building).
    - Yosemite Village Services and Facilities: Retain Village Store and Grill. Re-purpose the Village Sport (Mountain) Shop as a visitor contact center.
    - Concessioner General Office: Remove building from river corridor. Re-locate essential concessioner functions to the Concessioner Warehouse and Maintenance Building.
    - Concessioner Garage Relocation: Remove Concessioner Garage building, and re-locate the function to the Government Utility Building area, outside the river corridor. Re-develop garage footprint as visitor parking. Expand visitor vehicle services in El Portal and Wawona service stations.
    - Indian Creek Area: Create a setback for Indian Creek by pulling parking and residential yard use back 50 feet from the creek. Fence area and restore native riparian vegetation.
  - Ahwahnee Meadow Area**
    - Valley Meadow Ditch Restoration: Fill 2,155 feet of human-constructed ditches in Valley.
    - Ahwahnee Meadow Scenic Views: Selectively thin encroaching conifers from oak woodland and meadow to maintain distant view of Yosemite Falls, North Dome, Royal Arches, Half Dome, Glacier Point, and Castle Cliffs.
  - Housekeeping Camp Area**
    - Ecological Restoration and River Access: Restore riverbank by brush-layering, decompacting soils, and planting riparian species. Direct visitors to two resilient beach locations at the western edge of camp. Fence off current eastern river access point on a steep eroded bank.
    - Scenic Views: Selectively thin conifers to maintain views of Glacier Point and Yosemite Falls.
    - Revetment Removal: Remove 3,400 feet of revetment built into the riverbank that impacts hydrologic flow. Re-vegetate with riparian species. Replace an additional 2,300 feet of revetment with bioengineered riverbank stabilization.
- Cultural Resource Protection**
- Remove informal trails that contribute to archeological site disturbance. Develop historic structure report and address recommendations for treatment to bring LeConte Memorial Lodge, which is a National Historic Landmark, to "good condition."



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# COMMON TO ALL ACTION ALTERNATIVES



Management Actions	Lodging	River Access	Buildings	Calculated Rock-fall Hazard Line
Camping	Meadow and Riparian Restoration	Scenic Restoration	Remove Building	Inferred Rock-fall Hazard Line
Circulation	New Shuttle Stop	Services and Facilities	Retained or Varies by Alternative	Recreational Segment
Cultural Resources	Operations	Visitor Experience	Road bridge	Wild Segment
Free-flow	Parking	Water Quality	Footbridge	Scenic Segment
Housing	Picnicking	Restoration Area	Stream	Surfaced Areas
			Trails	100-year Floodplain
				Designated Wilderness

## EAST YOSEMITE VALLEY: YOSEMITE LODGE AND CAMP 4

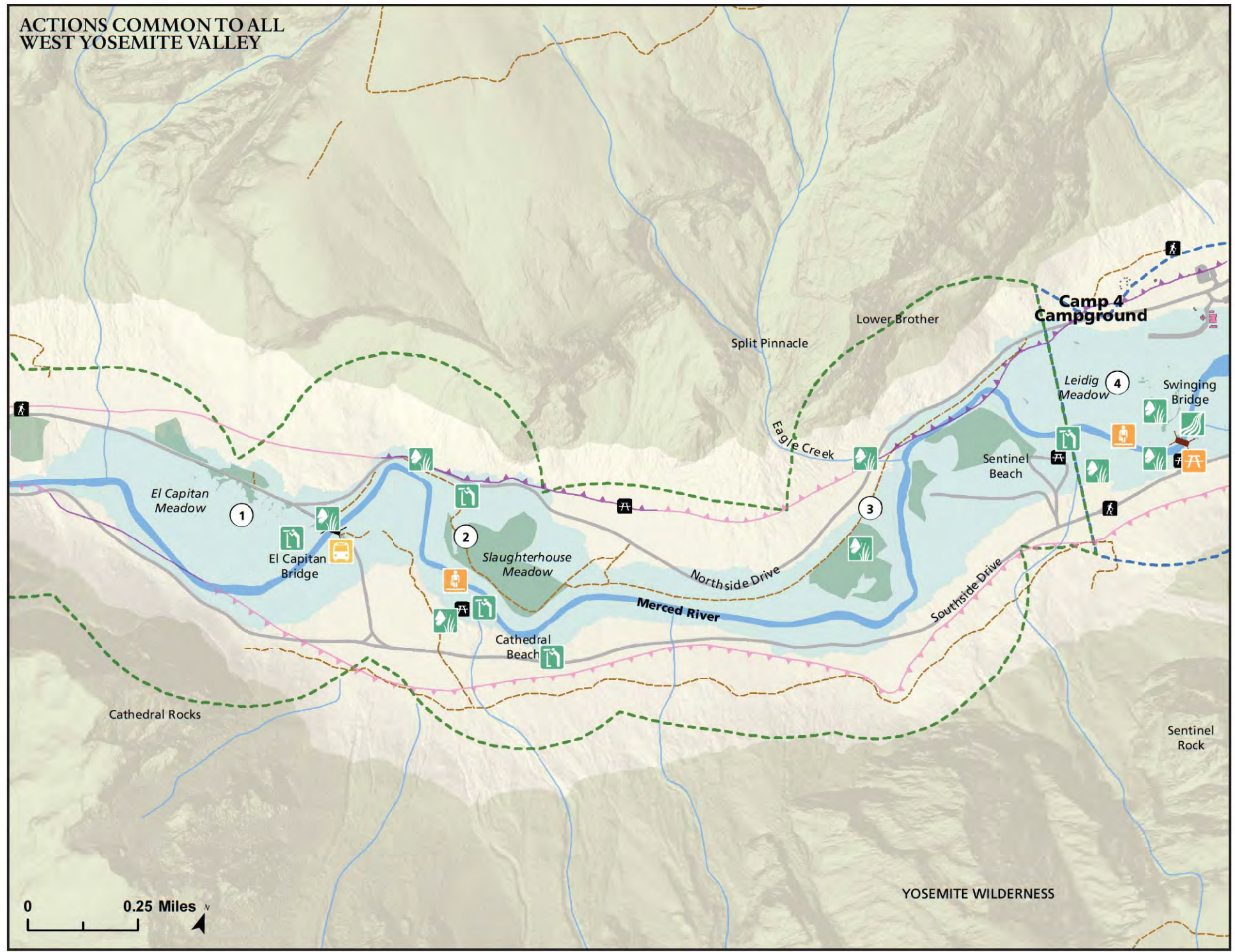
- Yosemite Lodge Annex**
    - Leidig Meadow Bike Path: Replace a section of paved trail within the bed and banks of the river with an elevated boardwalk.
    - Yosemite Lodge Beach Access: Direct river access to the Swinging Bridge sandbar and fence sensitive riparian area.
    - Former Yosemite Lodge Cabin Area Restoration: Restore 4.5 acres on western portion of Yosemite Lodge complex at site of lodging units removed after the 1997 flood. Remove fill, decompact soils, and plant native riparian species.
  - Camp 4 Area**
    - Parking: Construct a 41-space parking lot for the Camp 4 Campground.
    - Camp 4 Campground: Retain 35 campsites. Expand Camp 4 eastward with 35 additional walk-in sites.
    - Camp 4 Shuttle Stop: Construct a formal shuttle stop near Camp 4.
  - Yosemite Lodge Area**
    - Yosemite Lodge Portico Scenic Views: Selectively thin conifers to maintain views of Sentinel Rock and Yosemite Falls.
    - Yosemite Lodge Concessioner Housing: Remove old and temporary housing at Highland Court and at the Thousands Cabins.
  - Sentinel Meadow**
    - Meadow Boardwalk: Add a 150-foot section of boardwalk to the west of the existing boardwalk to accommodate visitor use and reduce meadow trampling.
    - Meadow Scenic Views: Selectively thin conifers to maintain view of Half Dome, Yosemite Falls, Sentinel Rock, North Dome, Royal Arches, Cathedral Rocks, and Washington Column for boardwalk visitors.
- Cultural Resource Protection**
- Divert visitor use away from large bedrock mortar next to trail.



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# COMMON TO ALL ACTION ALTERNATIVES



Management Actions	Lodging	River Access	Buildings	Calculated Rock-fall Hazard Line
Camping	Meadow and Riparian Restoration	Scenic Restoration	Remove Building	Inferred Rock-fall Hazard Line
Circulation	New Shuttle Stop	Services and Facilities	Retained or Varies by Alternative	Recreational Segment
Cultural Resources	Operations	Visitor Experience	Road bridge	Wild Segment
Free-flow	Parking	Water Quality	Footbridge	Scenic Segment
Housing	Picnicking	Restoration Area	Stream	Surfaced Areas
			Trails	100-year Floodplain
				Designated Wilderness

## WEST YOSEMITE VALLEY

- El Capitan and West Valley Meadows**
  - Plant Community Changes: Improve condition of plant communities at specific locations in Yosemite Valley (67 potential acres targeted) by restoring the mosaic of meadow, riparian deciduous vegetation, black oak, and open mixed conifer forest. Management actions could include re-vegetation, prescribed fire, mechanical removal of conifers, and infrastructure re-design.
  - El Capitan Meadow Restoration: Re-route climber use trails on north side of road from meadow habitat to an appropriate upland route (a few meters to the east). Remove informal trails through meadow and oak woodland. Protect re-vegetated areas with fencing or other natural barriers and sign the area to reduce trampling of sensitive meadow vegetation. As opportunities arise through maintenance or restoration projects, improve hydrologic flow and meadow connectivity by extending the permeable road base across the entire segment of Northside Drive through El Capitan Meadow and add additional box culverts with bottom elevations equal to the meadow-surface elevation. Remove conifer saplings encroaching on meadow habitat.
  - El Capitan Bridge River Access: Re-direct visitors accessing the Merced River near El Capitan Bridge from sensitive riverbanks to resilient sandbar points. Fence and re-vegetate the eroded area.
  - El Capitan Shuttle Stop: Construct a formal shuttle bus stop in a location appropriate for the design for the restoration of the meadow and formalized river access.
  - Upstream of El Capitan Moraine: Localized ecological restoration would enhance channel complexity in the river reach upstream of the El Capitan moraine to the Sentinel picnic area. Restoration would include willow planting, brush layering, uninhibited accumulation, and strategic placement of large wood.
- Devil's Elbow and Cathedral Beach**
  - Devil's Elbow Restoration: Relocate parking from Devil's Elbow to the east of current parking lot. Delineate a trail for river access to the large sandbar to the east. Remove the informal trail. Restore meadow conditions.
  - Cathedral Beach Picnic Area River Access: Designate a formal river access point, and direct use to more resilient areas. Remove infrastructure in the 10-year floodplain. Restore area by fencing sensitive areas, decompacting soils and planting native vegetation. Selectively thin conifers to maintain views of El Capitan
- Eagle Creek Area**
  - Eagle Creek Meadow Restoration: Remove Eagle Creek/Rocky Point sewage plant abandoned infrastructure to restore 3.5 acres of meadow habitat. Remove berm and parking lot abutting the creek, add culverts to allow dispersed water delivery, and re-vegetate with native plants.
- Sentinel Beach and Swinging Bridge Area**
  - Sentinel Beach Picnic Area: Redesign the picnic area in its current location to better accommodate visitor-use levels at this picnic area. Formalize parking. Designate formal river access point. Re-establish riparian vegetation. Fence off sensitive areas, and re-direct use to more resilient areas. Selectively thin deciduous trees to open distant views upriver.
  - Leidig Meadow Restoration: Remove informal trails that incise and fragment meadow. Restore native meadow vegetation.
  - Swinging Bridge Ecological Restoration: Install protective fencing along denuded area. Re-vegetate with native plants. Connect new fencing to bridge to direct river access to a large sandbar downstream. Place a constructed log jam and large wood to lessen scouring from the bridge to improve hydrologic processes.
  - Swinging Bridge Picnic Area: Delineate picnic area by fencing and re-vegetate the river terrace 50 feet from the river. Use fences to re-direct visitor use across the bridge to river access to the Swinging Bridge sandbar. Remove revetment. Rebuild riverbank through bioengineering techniques. Re-establish riparian vegetation.

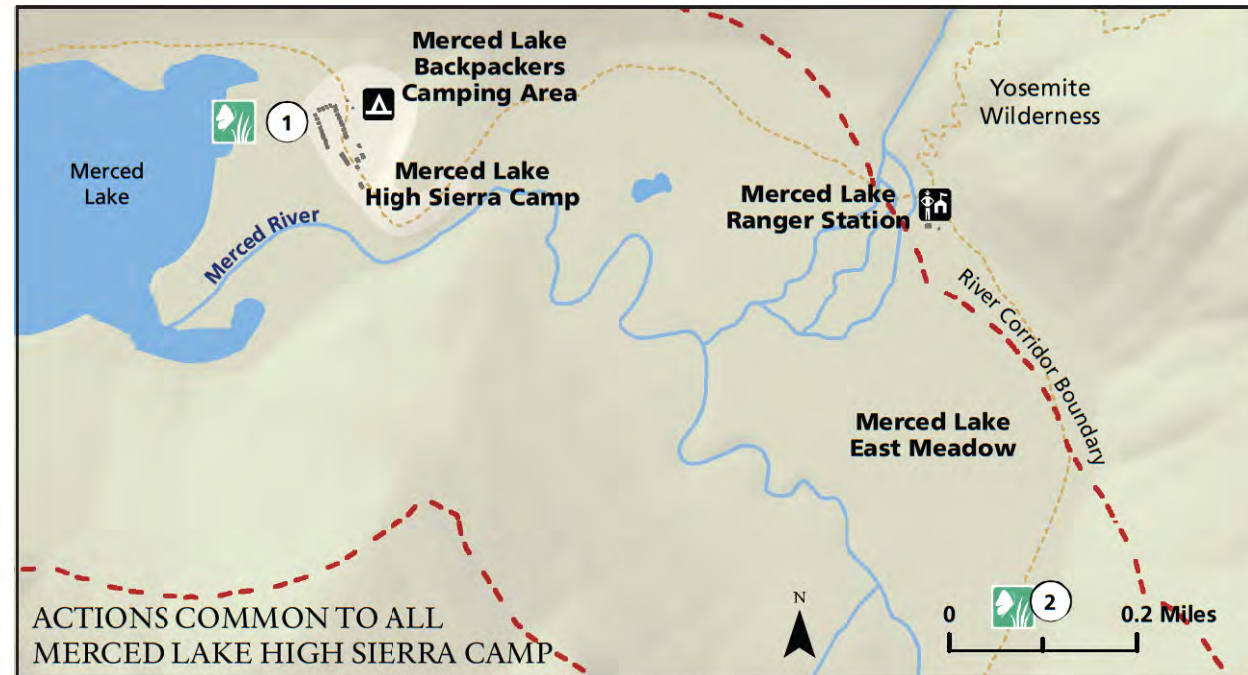
### Cultural Resource Protection

- Rehabilitate informal trails that impact archeological sites. Prohibit climbing on rock art boulders. Divert visitor use away from prehistoric rock art shelter. Increase interpretation and education effort about cultural resources for climbers and other visitors.



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# COMMON TO ALL ACTION ALTERNATIVES



## MERCED LAKE HIGH SIERRA CAMP

- 1. Merced Lake Shore Meadow**  
 Restoration: Ecologically restore the meadow adjacent to the Merced Lake High Sierra Camp. Remove informal trails, decompact soils, fill ruts with native soils, and re-vegetate denuded areas.
- 2. Special-Status Plants**  
 Restoration: Re-route trails out of wetlands to avoid special-status plant habitat.



## EL PORTAL

- 1. NPS Administrative Complex**  
**Parking:** Formalize and pave dirt parking area located across Foresta Road from NPS Warehouse building, using best management practices, within existing footprint. Remove informal roadside parking, between Foresta Road and the Merced River, and ecologically restore the area.
- 2. Rancheria Flat**  
**Employee Housing:** Construct infill housing units to replace removed temporary housing in Yosemite Valley (the number of infill units varies across the alternatives).
- 3. Greenemeyer Sand Pit**  
 Restoration: Ecologically restore the former mine operation area to natural conditions. Remove nonnative fill material and re-contour.
- 4. Abbieville and Trailer Village**  
 Restoration: Remove asphalt and imported fill. Re-contour and plant native riparian species and oaks within 150 feet of the river.
- 5. Old El Portal**  
**Employee Housing:** Construct infill-housing units, for 12 beds, in Old El Portal to replace Yosemite Valley temporary housing.
- Valley Oaks Restoration:** Protect valley oaks in El Portal through best management practices related to invasive species removal, overwatering, tree pruning, and prohibiting grading and parking in the drip line of valley oaks.
- Fuel Storage Facility in the Floodplain:** Remove bulk fuel storage facility, all associated development, and non-native fill from the floodplain. Decompact soils, and plant appropriate native plant species, including valley oak. Relocate the fuel storage area outside the Merced River corridor or find an alternate source for emergency fuel supplies.

## Cultural Resource Protection

- Address abandoned infrastructure, and remove informal trails, and non-essential roads to protect archeological resources. The plan to address abandoned infrastructure will be developed in consultation with traditionally associated American Indian tribes and groups. Any solution developed will include a recommended approach for deterring visitor use.

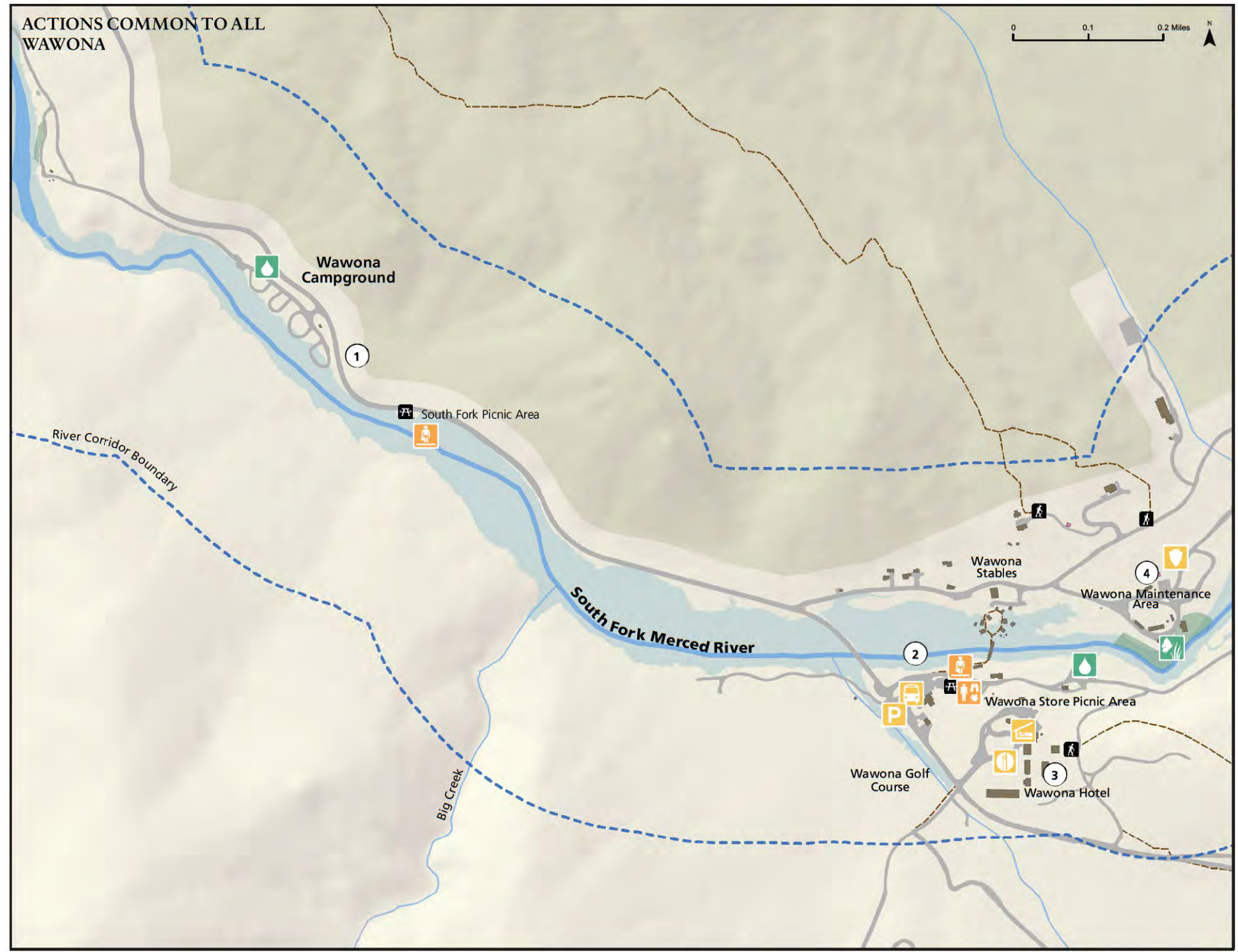
## Legend

Campgrounds	Calculated Rock-fall Hazard Line	Surfaced Areas	Buildings	Recreational Segment
Picnic Area	Inferred Rock-fall Hazard Line	Camping	Retain Building	Wild Segment
Parking Area	Lakes	Lodging	Remove Building	Scenic Segment
Trailheads	Stream	Visitor Services	Restoration Areas	
Road bridge	Contour	Housing	100-year Floodplain	
Footbridge	Trails	Operations	Designated Wilderness	
		Parking		

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# COMMON TO ALL ACTION ALTERNATIVES



## WAWONA

- Wawona Campground and South Fork Picnic Area**
    - Wawona Campground Septic System:** Remove septic system, and connect to the sewer system. Build a lift station above the campground to connect to the existing water treatment plant.
    - South Fork Picnic Area:** Delineate picnic area. Add formal river access and path to the South Fork Merced River that encourages visitors to walk in resilient areas.
  - Wawona Store Area**
    - Picnic Area and River Access:** Add picnic benches. Place fencing to direct visitors to three hardened river access points. Add a path to river that encourages visitors to walk in resilient areas.
    - Parking:** Retain day-use parking. Formalize eight tour bus parking spaces at Wawona Store. Remove roadside parking between store and Chilnualna Falls Road.
    - Shuttle Stop:** Retain all shuttles. Re-design bus stop for both tour buses and shuttles to accommodate existing visitor-use levels.
    - Public Restroom:** Replace existing public restroom facilities with larger restrooms to accommodate existing visitor-use levels.
    - Wawona Recreational Vehicle Dump Station:** Relocate the RV dump station to the Wawona Campground, away from the river. Design and construct the RV dump station on a new sewer line near the campground entrance, at least 150 feet away from the ordinary high-water mark.
  - Wawona Hotel Area**
    - Lodging:** Retain the existing 104 lodging units at the Wawona Hotel.
    - Services/Facilities:** Retain hotel restaurant and swimming pool.
  - Wawona Maintenance Area**
    - Operations:** Construct a building and grounds facility, a combined structural and wildland fire station, and a roads facility. Rehabilitate CCC structures for potential re-use.
    - Ecological Restoration:** Remove staged materials, abandoned utilities, vehicles, and parking lot within 150 feet of the river. Restore native ecosystem.
- Cultural Resource Protection**
- Relocate two stock use campground sites from sensitive resource area. Remove informal trails. Remove shoulder and off-road parking from sensitive resource area. Follow the Wawona Hotel Historic Structures Report to bring contributing elements to "good" condition.

Management Actions	Lodging	River Access	<b>Buildings</b>	Calculated Rock-fall Hazard Line
Camping	Meadow and Riparian Restoration	Scenic Restoration	Remove Building	Inferred Rock-fall Hazard Line
Circulation	New Shuttle Stop	Services and Facilities	Retained or Varies by Alternative	Recreational Segment
Cultural Resources	Operations	Visitor Experience	Road bridge	Wild Segment
Free-flow	Parking	Water Quality	Footbridge	Scenic Segment
Housing	Picnicking	Restoration Area	Stream	Surfaced Areas
			Trails	100-year Floodplain
				Designated Wilderness

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### ***Free-flowing Condition***

Management considerations associated with this river value include the riverbank riprap, infrastructure within the bed and banks of the river, and bridges. These considerations would be addressed under all the action alternatives by removing riprap (although the amount of riprap removed would vary by alternative) and by removing abandoned infrastructure from the river channel. Once these structures were removed, the natural topography would be restored and the sites would be revegetated with native riparian vegetation. The alternatives would vary primarily in whether any of the historic bridges would also be removed from the bed and banks of the river to improve free flow. To prevent future impacts, the NPS would require all projects involving construction within the bed or banks of the river to undergo a Section 7 analysis as described in Chapter 4.

The actions common to Alternatives 2-6 are listed below, by segment.

### **All Segments**

- Develop a set of best management practices for revetment construction and repair throughout the river corridor. Practices would include use of vertical retaining walls where possible to limit impacts on the river channel.

### **Segment 2: Yosemite Valley**

- Remove riprap from a minimum of 5,700 linear feet of river bank to restore natural river processes. Replace riprap with native riparian vegetation, and revegetate the river banks with riparian species (3,400 linear feet). Use bioengineering techniques where riverbank stabilization is necessary for infrastructure protection (2,300 linear feet).
- Remove remnants of former sewer treatment facilities, sewer and water lines, and man-holes.
- Remove the abutments and infrastructure associated with the former Happy Isles footbridge; remove the river gauge base.
- Move the gauging station north of the river outside of the bed and banks of the river.
- Place large wood to lessen the scouring from the bridge abutments on all remaining bridges. Use brush layering and place constructed log jams.

### **Segment 4: El Portal**

- Remove abandoned infrastructure and imported fill at the Cascades Picnic Area, Abbieville, and Trailer Village.
- Ecologically restore to natural conditions at Greenemeyer Sandpit by removing fill material and re-contouring while maintaining river and utility access.
- Develop standards for revetment construction and repair throughout the river corridor. Vertical walls should be used wherever possible. Provide Caltrans with recommendations when repair/replacement is necessary.

### **Segments 6/7: Wawona and Wawona Impoundment**

A water conservation plan is in effect at Wawona to help ensure that water withdrawals remain within levels determined by a minimum flow analysis to be protective of the river's free flowing condition and water



quality (see Chapter 5). Additionally the following actions would be taken under Alternatives 2-6 to protect the river's free-flowing condition.

- Retain the current water collection and distribution system at the Wawona Impoundment.
- Remove abandoned infrastructure from the South Fork side channel.

### *Water Quality*

Management considerations pertaining to water quality include the impacts of surface water runoff from parking lots; potential hazards related to dump stations, septic tanks, and leach fields; and accelerated erosion and potential sediment loading in the Merced River. These considerations would be addressed under all the action alternatives by relocating facilities away from the river. (Actions to address accelerated riverbank erosion and potential sediment loading are addressed under "Geologic/Hydrologic Values," below.) The common actions that would be taken under Alternatives 2-6 are listed below, by segment.

#### **Segment 2: Yosemite Valley**

- Relocate the Upper Pines Dump Station away from the river to a site between Curry Village and the entrance to the Pines Campgrounds.
- Move the Yosemite Village Day-use Parking Area (Camp 6 portion) away from the river and implement best management practices to mitigate stormwater runoff (see Appendix C: Mitigation Measures).

#### **Segment 4: El Portal**

- Pave the parking area at the NPS Maintenance and Administrative Complex using best management practices (see Appendix C, Mitigation Measures) to formalize employee parking within the existing footprint. Remove the informal parking sites between Foresta Road and the river and restore the site to natural conditions.

#### **Segments 6/7: Wawona and Wawona Impoundment**

- Retain the current water collection and distribution system.
- Remove the current septic system for the Wawona campground. Develop a wastewater collection system and a pump station above the campground to connect the facility to the existing wastewater treatment plant.
- Relocate the Wawona RV dump site away from the river. Design and construct the RV dump station on a new sewer line near the campground entrance, at least 150 feet away from the ordinary high water mark.
- Delineate the boundaries of the two formal picnic areas in Wawona. Add formal river access points and paths to river that encourages visitors to walk in the resilient areas. Harden the three steep river access points at the Wawona Store Picnic Area using rockwork or staircase construction to prevent riverbank erosion. If needed, place fencing to direct visitors to these hardened access points.

### *Geologic/Hydrologic Values*

The fundamental alluvial processes in Yosemite Valley are affected by accelerated riverbank erosion in localized areas, lack of natural levels of large wood in the river system, altered surface and groundwater flow

patterns, and alterations to the distribution and extent of connected floodplain. Management considerations and concerns about riverbank stability and channel widening (see Chapter 5) would be addressed under all the action alternatives by enhancing channel complexity and mitigating the scouring that has been encouraged by riverbank instability. Effort would be focused on Segment 2 through Yosemite Valley. (Restoration of riparian habitat addressed further under “Biological Values,” below.)

### **Segment 2: Yosemite Valley**

- Incorporate large wood into riverbanks to enhance habitat quality and provide structure for eroded riverbanks. Place large wood in river to enhance channel complexity and mitigate scouring from bridges. Construct eight log jams in the river channel between Clark’s Bridge and Sentinel Bridge to address river widening and low channel complexity. Design log jams to look natural, retaining root wads and avoiding straight-cut edges. (This work is described in detail in Chapter 5 and in the Ecological Restoration Plan in Appendix E.)
- Remove the berm and parking lot abutting Eagle Creek to improve drainage and reduce channelization; add culverts to allow more dispersed water delivery to the Eagle Creek Meadow; revegetate with native upland species.
- Plant willows, install brush layering, and allow uninhibited accumulation and strategic placement of large wood to enhance channel complexity in localized areas of the river reach upstream of the El Capitan moraine to the Sentinel picnic area.

### ***Biological Values***

As described in detail in Chapter 5, management concerns include meadow fragmentation in several Yosemite Valley meadows localized impacts on riparian habitat along the river. These concerns would be addressed under Alternatives 2-6 through an extensive ecological restoration program that is described in detail in Chapter 5 and in the Ecological Restoration Plan in Appendix E. Alternatives 2-6 would differ primarily in the width of a riparian buffer along the river (and consequently in the amount of existing development that would be removed from the riparian zone) and in the extent of meadow restoration (and consequently in the amount of existing development that would be removed from meadows). The major common actions are summarized below, by segment:

### **All Segments**

- Establish a 150-foot riparian buffer for all segments of the Merced Wild and Scenic River. Prohibit new development within this buffer, which would extend 150 feet beyond the ordinary high-water mark on both sides of the river.

### **Segment 1: Wilderness above Nevada Fall**

#### ***Meadow Habitat***

- Remove informal trails that incise meadow habitat, trails in wet and/or sensitive vegetation, and trails that fragment meadow habitat, including trails in the Triple Peak Fork meadow, wetlands near Echo Valley and Merced Lake shore, mineral springs between Merced Lake and Washburn Lake, and other areas as necessary.

## Segment 2: Yosemite Valley

### *Riparian Habitat*

- At a minimum, remove existing campsites from within 100 feet of the bed and banks of the river. (Some alternatives would remove additional development for a wider riparian buffer; see Chapter 5 for a detailed discussion of riparian buffers). This would require the removal of some campsites from the Backpackers Camp, North Pines Campground, and Lower Pine Campground (including removal of the loop between sites 60-62 that is within the bed and banks of the river); a portion of the Yosemite Village day parking; and many of the lodging units at Housekeeping Camp. (The alternatives would differ in the possible replacement of these facilities.)
- Establish a 50-foot buffer for Indian Creek. At Ahwahnee Row and Tecoya Dorms, relocate parking and reduce residential yards so that they are outside the 50-foot buffer; restore native riparian vegetation and protect with restoration fencing.
- Redirect visitor use to more stable and resilient river access points, such as sandbars, and designate formal river access sites. Use fencing and signing to protect sensitive areas and restore native riparian vegetation. Locations would include Upper Pines Campground, Upper and Lower River Campgrounds, and Housekeeping Camp (refer to Appendix E for additional site-specific details).
- Pave and formalize five roadside pull-outs for river access Between Pohono Bridge and the intersection of the Big Oak Flat Road. Install curbing along pull-outs and along El Portal Road to prevent further encroachment towards the river and associated resource damage. Completely remove one pull-out that is not protective of resources. In the areas that require ecological restoration following parking and river access formalization, decompact soil and revegetate with riparian species, including willow. Install drainage improvements and head walls at 11 locations.
- Use brush layering techniques to repair localized riverbank erosion, and revegetate areas with appropriate native plants. Protect revegetated areas with closure signs, fencing, and/or natural barriers, such as rocks and logs. Riverbanks that would be addressed include those adjacent to Backpackers Camp and the Lower Pines and North Pines Campgrounds; Housekeeping Camp; the Yosemite Lodge beach access; the Swinging Bridge, Sentinel Beach, and Cathedral Beach picnic areas Devil's Elbow; the riverside areas between Pohono Bridge and the El Portal Road/Big Oak Flat Road intersection; and along the Valley Loop Trail. (See Appendix E for a detailed description of these ecological restoration actions.)
- In accordance with NPS policy, continue management toward removal of nonnative species, and re-introduction of extirpated or declining species as priorities and opportunities are developed. Prioritize studies of the Western pond turtle and foothill yellow-legged frog.

Conceptual site drawings for river access improvements along El Portal Road have been completed to allow the analysis of impacts of this potential project. See "Conceptual Site Drawings" at the end of the "Common to Alternatives 2-6" discussion for site details and design drawings.

### *Meadow Habitat*

Ecological restoration of meadows in Yosemite Valley would involve the following general kinds of management activities:

- Remove abandoned infrastructure (including tiles, pipes, and abandoned roads) from meadow, riparian, and floodplain habitat. Decompact soils, remove fill, and revegetate with riparian species. Areas that would be addressed include the former Eagle Creek/Rocky Point Sewage Plant site, Royal Arches Meadow, Cook's Meadow, western (closed) portion of former Lower Pines Campground, and the former lodge cabin/volunteer center at Yosemite Lodge.

- Improve meadow hydrology by removing artificial fill, filling ditches, and constructing culverts to enhance water flows into meadows (actions in particular meadows would sometimes vary among alternatives).
- Remove 6 miles of informal trails in Yosemite Valley meadows; restore natural conditions by decompacting soils, filling ruts with native soils, and revegetating denuded vegetation with appropriate native plants. Define and delineate formal trails in meadows with signs, fencing, and/or other natural barriers such as rocks and logs
- Eliminate some roadside parking and fence some areas to reduce the potential for informal trailing through sensitive meadow habitat.
- Improve the condition of plant communities at specific locations in Yosemite Valley (67 potential acres targeted) by restoring the mosaic of meadow, riparian deciduous, black oak, and open mixed conifer forest vegetation. Management actions could include revegetation, prescribed fire, mechanical removal of conifers, and infrastructure redesign.

Specific meadows in Yosemite Valley would receive the following protective management under Alternatives 2-6 (additional actions might be taken to further enhance these meadows under some alternatives):

- **Bridalveil Meadow:** Address stream headcutting by inserting live willow cuttings into the disturbed riverbank and adjacent meadow; reestablish the riparian shrub layer in the meadow to enhance meadow habitat.
- **El Capitan Meadow:** Remove all informal trails; restore areas disturbed by foot traffic and other areas of bare, compacted soils to natural conditions. Reroute climber use trails on the north side of the road away from the El Capitan meadow habitat to an appropriate upland route (a few meters to the east). As opportunities arise through maintenance or restoration projects, improve hydrologic flow and meadow connectivity by extending the permeable road base across the entire segment of Northside Drive through El Capitan Meadow and add additional box culverts with bottom elevations equal to the meadow surface elevation. Remove conifer saplings encroaching on meadow habitat.
- **Eagle Creek Meadow:** Remove abandoned infrastructure from the vicinity of Eagle Creek; restore the meadow to natural conditions.
- **Leidig Meadow:** Replace a section of paved trail with an elevated boardwalk.
- **Cooks Meadow:** Remove roadside parking along Cook's Meadow at Sentinel Drive and Northside Drive; remove informal trails in Cook's Meadow; ecologically restore meadow to natural conditions. Address use patterns to protect meadow habitat and black oak woodland (this action would additionally enhance the cultural value of the black oak woodland).
- **Ahwahnee Meadow:** Remove abandoned irrigation lines and fill, fill in ditches, and re-vegetate with native meadow vegetation. Remove the abandoned tennis courts from the black oak woodland. Reconnect currently disjunct portions of Ahwahnee Meadow by removing conifers (about 5.7 acres of meadow restoration). Remove the abandoned tennis courts from the black oak woodland.
- **Stoneman Meadow:** Redesign the Orchard Parking Lot and apply engineering solutions to promote water flow from the cliff walls to Stoneman Meadow.

## **Segment 4: El Portal**

### ***100-Year Floodplain***

- Ecologically restore the Greenmeyer sand pit.

- Restore the rare floodplain community of valley oaks in Old El Portal through implementation of best management practices. Create a valley oak recruitment area of 2.5 acre in Old El Portal in the vicinity of the current Odger's bulk fuel storage area, including the adjacent parking lots. Decomcompact soils, plant appropriate native understory plant species, and treat invasive plants. Prohibit new building construction within the oak recruitment area.

## **Segments 6/7: Wawona and Wawona Impoundment**

### ***Riparian Habitat***

- Relocate or remove all campsites at the Wawona campground currently within 100 feet of the bed and banks of the river; ecologically restore native riparian habitat.

### ***Cultural Values***

Cultural values are associated with traditionally used plant populations, archeological sites throughout the corridor, and historic resources in Yosemite Valley and at Wawona. Management concerns include the sustainability of traditionally used plant populations, notably black oak in Yosemite Valley. Management considerations include impacts to archeological sites caused by visitor use, and the condition of certain historic buildings and structures that are currently only in fair condition. These concerns and considerations would be addressed similarly under Alternatives 2-6, with little difference among the alternatives. The major common actions are summarized below, by segment:

## **Segment 2: Yosemite Valley**

### ***Traditionally Used Plant Populations***

Natural conditions for traditionally used plant populations would be restored in selected locations:

- Implement specific actions in the ecological restoration plan and the invasive plant management program aimed at addressing impacts to traditionally used plant populations.
- Introduce new black oak seedlings into stands stressed by past human activities.
- Implement more general actions to restore ecological conditions to meadow and riparian areas.

### ***Archeological Sites***

Many of the actions common to Alternatives 2-6 related primarily to visitor use and ecological restoration would also be protective of archeological sites. In addition, all the action alternatives would include ongoing inventory, documentation and monitoring, increased interpretation and outreach to help visitors understand the importance of protecting sensitive resources, and the development of archeological site management plans for areas with complex uses and impacts. The common actions are listed below.

- Protect archeological sites by managing visitor use and development:
  - Manage visitor use levels; design and locate facilities to direct use and avoid sensitive cultural and ethnographic resource areas.
  - Remove informal trails; use natural features to conceal and divert foot traffic around sites.
  - Protect rock art by removing graffiti and installing fencing to discourage inappropriate visitor use.

- Mitigate the potential effects of ecological restoration activities on archeological sites by using noninvasive techniques wherever possible.
- Remove climbing hardware from sensitive cultural features.
- Develop site management plans for archeological sites in areas with complex uses and impacts, such as Yosemite Village. The purpose of the plans would be to avoid resource loss through park actions such as development, repair, and maintenance of facilities and underground utilities.

### ***Historic Structures***

Historic structures that have fallen into fair or poor condition would be managed to return them to good condition through the following actions:

- Implement the recommendations from the Ahwahnee Historic Structures Report (1997) and the Ahwahnee Cultural Landscape Report (2010) when redesigning the Ahwahnee parking lot to bring the Ahwahnee stone gate house and the Ahwahnee parking lot to “good” condition.
- Develop a historic structures report for the LeConte Memorial Lodge National Historic Landmark to determine the rehabilitation needed to bring the building to “good” condition.
- Rehabilitate the Superintendent’s House (Residence 1) per the Secretary of the Interior's Standards for the Treatment of Historic Properties (NPS 1995) and the Historic Structure Report (Lingo 2012) to bring the building to “good” condition. This rehabilitation of the building would occur under all action alternatives, regardless of whether the building was relocated.

## **Segment 4: El Portal**

### ***Archeological Sites***

In recognition of the high cultural significance of sites CA-MRP-0181/H, CA-MRP-0250/H and CA-MRP-0251/H for traditionally associated American Indians, these sites would be protected from any further development. In addition, the following management action would occur:

- Prepare a plan of action for addressing the abandoned infrastructure on site CA-MRP-0181/H in consultation with traditionally associated American Indian tribes and groups. Any solution(s) developed would include a recommended approach for deterring visitor use within the site.

## **Segment 5: South Fork above Wawona**

### ***Archeological Sites***

The rock rings in this segment would be protected as follows:

- Complete documentation of rock ring features
- Remove informal trails and charcoal rings
- Inform Wilderness visitors about the importance of protecting archeological resources, and restrict Wilderness camping in the area of the site.

## **Segments 6/7: Wawona and Wawona Impoundment**

### *Archeological Sites*

Impacts to the Wawona Archeological District associated with park operations, visitor use, and natural forces would be minimized by the following management actions:

- Increase monitoring frequency for affected sites; increase management protection designed to counteract or minimize impacts, crafted to individual site specifications. At the districtwide level, amend the district's National Register of Historic Places nomination to reflect district changes and impacts.
- Remove seven campsites from the Wawona Campground in culturally sensitive areas.
- Remove shoulder and off-road parking at the Wawona Hotel to protect cultural resources.

### *Historic Structures*

- Follow the recommendations from the Wawona Hotel Historic Structures Report (2012) to return the contributing elements at Clark Cottage to good condition.
- Follow the recommendations from the Wawona Hotel Historic Structures Report (2012) to return the contributing elements at the Main Hotel, Manager's Cottage, and Annex Building to good condition.

### *Scenic Values*

As described in detail in Chapter 5, visitor and administrative facilities intrude into the outstandingly remarkable natural scenery at several locations within the river corridor. Notable visual intrusions are caused by the Merced Lake High Sierra Camp (Segment 1) and by certain roads, traffic, and structures in Yosemite Valley (Segment 2). Natural scenery in Yosemite Valley is also diminished by unnatural conditions along river banks and in meadows, where eroded or compacted soils and denuded or trampled vegetation detracts from views. In other locations vegetation is intruding into views from scenic vista points traditionally enjoyed by park visitors, or into direct and foreground views of the river, often with peaks and walls rising in the background.

These considerations would be addressed under all the action alternatives by ecologically restoring natural conditions to riparian and meadow habitat, ensuring that future development is protective of scenic values, and managing vegetation at important vista points to protect viewing opportunities. The alternatives would differ primarily in the amount of existing development that would be removed to protect scenic values. The actions common to Alternatives 2-6 are listed below, by segment.

## **Wild Segments 1 and 5: Wilderness above Nevada Fall and South Fork Merced River Above Wawona**

Visual intrusions in these wild segments would be reduced or avoided through the following actions:

- Conduct a Visual Resource Management (VRM) contrast analysis (described in Chapter 5) to ensure that future development would not exceed a contrast rating of 4.



## Segment 2: Yosemite Valley

Reduce visual intrusions by removing unnecessary facilities from the river corridor (see the Analysis of Public-Use Facilities and Services, below, for the list of facilities that would be removed under all the action alternatives).

Improve natural scenery as part of the ecological restoration program:

- Ecologically restore eroded river banks, informal trails, and riparian vegetation that affect direct and foreground views of the river, river-dependent resources, and the peaks and walls rising above the river.
- Avoid future visual intrusions into the riparian zone by requiring a 150-foot setback from the ordinary high-water mark for any new development.
- Eliminate visual intrusions from meadows associated with informal trails.

Protect air quality by continuing to cooperate with regional authorities to reduce airborne contaminants caused by combustion, including carbon dioxide emissions, smoke caused by fire, and particulate matter generated by construction.

Ensure that new development or redevelopment in Yosemite Valley is protective of scenic values:

- Follow the guidance provided in “A Sense of Place: Design Guidelines for Yosemite Valley” in the location and design of new facilities. These design guidelines are intended to promote harmony between the built and natural environments.
- Conduct a Visual Resource Management (VRM) contrast analysis (described in Chapter 5) to ensure that future development would not exceed a contrast rating of 13 for West Yosemite Valley or a contrast rating of 22 for East Yosemite Valley.
- Selectively thin conifers and other trees and shrubs that encroach on selected scenic vista points (47 vista points, 14 of which have prominent views of the river in the foreground and 33 of which occur within the broader river corridor). See Appendix H, Scenic Vista Actions in the Merced River Corridor, for details regarding scenic vista actions.

## Segment 3: Merced Gorge

Ensure that new development or redevelopment is protective of scenic values:

- Conduct a Visual Resource Management (VRM) contrast analysis (described in Chapter 5) to ensure that future development would not exceed a contrast rating of 13.

## *Recreational Values*

As described in Chapter 5, management considerations for the recreational value in the wild segment above Nevada Fall are high levels of use and crowding at designated camping areas and high encounter rates along the trail between Little Yosemite Valley and Merced Lake.

In Yosemite Valley, the NPS determined there is a management concern on the recreational value resulting from a substantial shortage of parking available during the summer season (see Chapter 5 for more information). In addition, there are management considerations regarding the supply of Wilderness parking, insufficient parking at The Ahwahnee, crowding and congestion at popular attraction sites, and resource impacts resulting from boating activity.

## **Segment 1: Wilderness above Nevada Fall**

Alternatives 2-6 provide options to reduce, repurpose, or remove the Merced Lake High Sierra Camp to address impacts on wilderness experience at that location. Alternatives 2-6 also propose reductions in the Wilderness zone capacities to address crowding and encounter rates on trails (see User Capacities, Land Use, and Facilities Management – Visitor Overnight Capacity – Segment 1, below, for more on zone capacities.)

In addition, the following actions would be common to Alternatives 2-6:

### ***Recreation Activity Participation***

- Provide opportunities for hiking, backpacking, and stock-use.
- Allow private boating on the stretch of river above Nevada Fall.

### ***Recreational Setting Attributes***

- Enhance wilderness quality by providing education on “Leave-No-Trace” and minimum impact practices, maintaining regulations on food storage, area closers, resource monitoring, and regular ranger patrols and trail maintenance. Actions to protect natural and cultural ORVs would also benefit the recreational values by providing high quality settings for visitors to enjoy.

### ***Recreational Experience Quality***

- Provide opportunities for solitude in designated Wilderness by managing overnight capacity through the Wilderness trailhead quota and permit system, maintaining group size limits, monitoring resources to study the effects of visitor use, and implementing area closures where necessary to protect river values.

## **Segment 2: Yosemite Valley**

Alternatives 2-6 consider a variety of management responses to address the management considerations identified in Chapter 5. Primary among these is the user capacity management program, which is used to drive decisions that result in common actions specifically addressing user capacity. (These are presented below under the heading “User Capacity, Land Use, and Facilities Management.”) User capacity, as it relates to specific locations and uses, is also addressed in detail and under each individual alternative.

Many general actions regarding the recreational setting, recreational activities, and quality of the recreational experience in Yosemite Valley would be common to Alternatives 2-6, and these are summarized below:

### ***Recreational Activity Participation***

A range of high-quality, resource-based recreational and interpretive opportunities would be sustained by

- continuing use of the camping and lodging reservation systems
- improving facilities such as restrooms and trails
- improving infrastructure to promote access for people with disabilities
- monitoring and studying the effects of visitor use

Boating would be managed to prevent resource impacts by

- designating put-in and take-out locations
- conducting periodic checks of vessels for aquatic invasive species; and maintaining the prohibition on motorized boats

Swimming would be allowed on all segments of the river, except where disallowed in the Superintendent's Compendium.

### ***Recreational Setting Attributes***

Monitoring of the visitor densities and parking occupancies would ensure use does not exceed acceptable levels for key attraction sites and parking areas that provide for recreational access to the river. Actions to protect natural and cultural ORVs would also benefit the recreational values providing high quality settings for visitors to enjoy.

### ***Recreational Experience Quality***

Under Alternatives 2-6, monitoring of the visitor densities and parking occupancies (see Chapter 5) would ensure use did not exceed acceptable levels for key attraction sites and parking areas that provide for recreational access to the river.

## **User Capacity, Land Use and Facilities Management**

### ***Visitor Activities and Services***

The overall diversity of activities that currently exists within the river corridor would generally be retained under Alternatives 2-6.

### **Segment 1: Wilderness above Nevada Fall**

The primary river-related activities would remain hiking and overnight backpacking. The following management actions would be common to Alternatives 2-6:

Use would be managed in accordance with the findings of the "Determination of Extent Necessary" (Appendix L). Following is a summary of the management that would be common to all the action alternatives:

- Disallow camping or travel by commercial groups more than ¼ mile from a maintained trail or public access road.
- Limit all commercial stock trips to a 1:1.5 person-to-stock ratio. Accordingly, for every multiple of 3 persons (including employees), only two pack animals would be allowed in addition to three riding stock.
- Apply additional seasonal and weekend restrictions in the Mount Lyell, Merced Lake, and Little Yosemite Valley zones as specified in Appendix L.
- Private boating would be allowed using dispersed, undesignated put-ins and take-outs. Generally, this kind of use would consist of short floats using pack raft or other craft that can easily be carried into this remote area. (The alternatives would vary in whether or not use levels would be restricted.)

## Segment 2: Yosemite Valley

The primary river-related activities would remain swimming, floating and water play, fishing, hiking, biking, climbing, camping, creative pursuits (such as writing, painting, photography), and educational and interpretive pursuits (such as attending ranger-led walks and programs). All the action alternatives would include the following actions to protect and enhance river-related recreation and reduce congestion at attraction sites:

- Allow private boating (commercial boating would be allowed only under Alternatives 4 and 6). Expected water craft would include rafts, kayaks, paddle boards, inner tubes, and inflatable mattresses. The locations where boating would be allowed would also vary among the alternatives.
- Create an interpretive nature walk through the Lower River area that emphasizes river-related natural processes, the park's ecological restoration work, and what visitors can do to protect the river.
- Improve opportunities for picnicking at the Cathedral, Sentinel, and Swimming Bridge picnic areas.
- Discontinue stock day rides provided by the concessioner.
- Improve the sense of arrival for park visitors as they are guided toward the primary Yosemite Village day-use parking area.
- Reduce congestion at Bridalveil Fall by redesigning trails, boardwalks, and the viewing platform at the base of the fall; improve accessibility; provide restrooms.

Alternatives 2-6 would eliminate services and facilities that were not determined necessary for public use. All existing and potential facilities were analyzed against two criteria: Is the facility needed for public use or resource protection, and if the facility is necessary, is it feasible to relocate it outside the river corridor? The results of this analysis, conducted for both visitor use and administrative facilities across all segments of the river corridor, is presented in tables located near the end of each alternative description. Results that were common across Alternatives 2-6 are presented in Table 8-11 at the end of this Actions Common to Alternatives 2-6 section. The following is a summary of the findings of that analysis related to visitor facilities in Segment 2:

- Visitor facilities that would be removed under all alternatives:
  - The Ahwahnee swimming pool and tennis court
  - Yosemite Village concessioner general offices, garage, and the art activity center/bank building (relocated outside the river corridor)
  - Yosemite Lodge swimming pool, snack stand, bike stand, and post office
  - Happy Isles snack stand
  - Curry village ice rink, bike stand, raft stand, and stock day rides
- Visitor facilities that would be reduced or converted to another use:
  - Yosemite Village sports shop (converted to noncommercial visitor use)
  - Yosemite Lodge nature shop (converted to noncommercial visitor use)
  - Lower Pines and North Pines Campgrounds (reduced)
  - Housekeeping Camp Lodging Units (reduced)

### **Segment 3: Merced Gorge**

Alternatives 2-6 would provide for similar kinds and amounts of use as exist today. The primary activity in this segment would remain scenic driving along Highway 140, with some picnicking, swimming, and fishing in summer, when the river is low and the air and water temperatures are warm, and rock-climbing during the spring and fall seasons, when the rock is dry and temperatures are cool.

### **Segment 4: El Portal**

Most recreational activities that currently take place in this segment are swimming, fishing, and boating by community residents, while the vast majority of park visitors pass through enroute to Yosemite Valley and other park destinations. However, additional use by visitors who might not continue into the park would be expected in this segment in the future. This use would be supported under Alternatives 2-6 by constructing an additional public restroom to accommodate visitors recreating in the El Portal segment.

### **Segment 5: South Fork Merced above Wawona**

Recreational activities in this segment would remain limited to occasional overnight backpacking, day hiking, and stock-assisted pack trips. The finding of the Determination of Extent Necessary (Appendix L) for commercial use in wilderness would be implemented across the action alternatives.

### **Segments 6/7: Wawona and Wawona Impoundment**

The current range of visitor recreation activities would remain at Wawona. River-related activities would include swimming, fishing, boating, picnicking, camping, and education and interpretation at the History Museum. The Wawona impoundment would remain closed to visitor use due to water quality and safety concerns. Therefore, the summary of user capacity provided below pertains only to Segment 7, where the following actions would be common to Alternatives 2-6:

- Replace the existing public restroom facilities next to the Wawona Store with larger restrooms to accommodate visitor use levels.
- Increase the number of picnic tables to accommodate more picnicking near the Wawona Store.
- Redesign Wawona Store bus stop (for both tour buses and shuttles) with seating and sun cover to accommodate the current volume and types of use.
- Provide access to the Wawona Swinging Bridge on the south side of the river on public land, delineating a trail and formal access that includes restrooms, waste disposal, and parking.

### **Segment 8: South Fork Merced below Wawona**

Most use along this segment would remain swimming or hiking by day visitors. The NPS would continue to allow kayakers attempting the Class 5 multi-day adventure down the South Fork through the Sierra National Forest to put in below the Wawona Campground.

### ***Visitor Overnight Capacity***

Overnight capacity would be managed through ongoing permit and reservation systems. The Wilderness permit system would manage use in the backcountry, while the reservation systems would manage frontcountry camping and lodging accommodations.

### Segment 1: Wilderness above Nevada Fall

Backpack camping would continue at undesignated sites dispersed throughout the wilderness. (The alternatives would vary in whether or not facilities would be provided to support backpack camping.)

The zone capacities for Merced Lake, Washburn Lake, Mount Lyell and Clark Range zones would remain the same across Alternatives 2-6 (Table 8-9).

**TABLE 8-9: WILDERNESS ZONE CAPACITIES SEGMENT 1**

Wilderness Zones	Common to All Zonewide Capacity	Common to All Zone Capacity Specific to the River Corridor
Merced Lake Zone	50	50
Washburn Lake Zone	150	100
Mount Lyell Zone	50	10
Clark Range Zone	50	10
* <b>Note:</b> Little Yosemite Valley (LYV): The number of people in the LYV zone differs by alternative		

### Segment 2: Yosemite Valley

#### *Camping*

New walk-in campgrounds would be provided under Alternatives 2-6 west of the Backpackers Camp (16 sites) and east of Camp 4 (35 sites). These sites would partially offset the number of sites that would be removed under each alternative to restore ecological conditions (the number of which would differ among the alternatives). Common to Alternatives 2-6, two campsites would be removed from the Upper Pines Campground to protect cultural resources, and at the Lower Pines Campground, the loop road between sites 60 and 62 would be removed from the bed and banks of the river. The total amount of camping at all campgrounds would differ among the alternatives.

#### *Lodging*

Lodging at the Ahwahnee and the Wawona Hotel would remain at current levels under all the alternatives (123 units at the Ahwahnee and 104 units at the Wawona Hotel). Lodging at other locations would differ among the alternatives.

### Segment 3: Merced Gorge

No overnight accommodations would exist in this segment under any alternative.

### Segment 4: El Portal

No overnight visitor accommodations would exist in this segment under any alternative. Private overnight lodging located adjacent to the river and bounded by this segment would not be affected by any alternative as this lodging facility is on private land and is not regulated by the NPS.

### Segment 5: South Fork Merced above Wawona

Very little overnight use would occur in this segment. The wilderness zone capacities would remain the same across Alternatives 2-6 (Table 8-10).

**TABLE 8-10: WILDERNESS ZONE CAPACITIES-SEGMENT 5**

Wilderness Zones	Zone Capacity	Zone Capacity in River Corridor
South Fork Zone	150	15
Johnson Creek Zone	50	5
Chilnualna Creek Zone	100	0

**Segments 6/7: Wawona and Wawona Impoundment**

The overnight capacity of the Wawona Hotel would remain the same at 104 rooms accommodating a maximum of 247 people per night. The capacity of the Wawona Campground would vary by alternative.

**Segment 8: South Form Merced below Wawona**

No overnight use would occur in this segment.

*Visitor Day Use Capacity*

The following paragraphs discuss the management of visitor day use and user capacity, which were introduced in Chapter 5 (as part of the discussion of management standards for river values) and Chapter 6 (as part of the discussion of visitor use and user capacity). As noted in Chapter 6, the maximum number of day use visitors at one time in the river corridor would vary among the alternatives. However, the method for calculating the maximum number of day use visitors at one time would be the same under all the alternatives and is summarized below.

In Segment 2 (Yosemite Valley) and Segment 7 (Wawona), visitor day use capacities would be determined through a combination of day-use parking spaces for visitors arriving in private vehicles, and by the capacity of regional transit and commercial tour buses. In Segment 3 (Merced Gorge) and Segment 4 (El Portal), visitor day use capacities would be determined through the number of day-use parking spaces for visitors arriving by private vehicles. In Segments 2, 3, 4, and 7, visitor day use capacities also include people in vehicles circulating on park roads. In-park shuttles would facilitate visitor circulation within the Merced River corridor, but would not affect the number of people who could be in the corridor, or a specific segment of the corridor, at one time.

The only access to wild segments of the river corridor (Segments 1, 5, and 8) is via hiking trails, and the trailheads that provide access to these segments would remain located in Yosemite Valley (Segment 2) or Wawona (Segment 7).

A summary of user capacities by alternative is provided in the overview section of the alternatives descriptions in this chapter. The actions related to visitor day use capacity that would be common to Alternatives 2-6 are described below, by segment.

**Segment 1: Wilderness above Nevada Fall**

The only access to this wild segment is via hiking trails, and the trailheads that provide access to this segment would remain located in Yosemite Valley (Segment 2). Transportation options for accessing the trailheads are included in the discussion of day use capacity for Yosemite Valley, below.



## Segment 2: Yosemite Valley

The day use capacity of Segment 2 would differ under the alternatives, depending on the amount of available day parking, but also some differences in regional transit service. Action related to visitor day-use parking under Alternatives 2-6 would include:

- Retain a total 15 day parking spaces for commercial tour buses near Yosemite Lodge, accommodating up to 720 people at one time in Yosemite Valley.
- Remediate the soils at the Wilderness parking lot, which was once a landfill for Curry Village and formalize parking with 190 spaces.
- Remove roadside parking from areas where parking does resource damage or is in conflict with ORVs. Specifically this includes 40 spaces along Cook's Meadow, 58 spaces along Sentinel Drive, 12 spaces along Village Drive, 20 spaces near Northside drive and the Curry 4-way, and 14 spaces between Big Oak Flat Road/El Portal Road intersection and El Portal Bridge.
- Redesign and formalize the existing parking lot at The Ahwahnee, providing for proper drainage. Construct an additional 50 parking space lot to the east of the existing parking lot. The parking lot at The Ahwahnee would be designed to accommodate the 50 spaces lost after a rock fall in 2009.

Under Alternatives 2-6, an East Yosemite Valley day-use parking permit system could be instituted whenever conditions reached the point where day use demand frequently exceeded available day parking for a particular alternative. Because day parking would be reduced under Alternatives 2-4, a day-use reservation system would need to be implemented immediately under these alternatives. Under Alternative 5 or 6, an East Yosemite Valley day-use parking permit system would be implemented whenever visitation to the East Yosemite Valley exceeded the parking availability and caused formal traffic diversions to be instituted at the El Capitan Crossover for 14 or more days during the summer season for two consecutive years (see Chapter 6). If implemented, the day-use parking permit system would require follow-on planning and environmental compliance, taking into account all of the following factors:

- **Seasonality** – The permit system would be instituted during the peak use summer season and during daylight hours only.
- **Allocation** – The system would ensure fair and equitable allocation of permits to all visitors on a mixed first-come, first-served and advanced reservation basis.
- **Distribution** – Permits would be available by multiple means including internet, telephone and in-person.
- **Permit Compliance** – Permits might be checked at either park entrance stations and/or on-site at day-use parking areas in the Valley.
- **Costs and Fees** – The permit system would need to address the costs of administration and whether fees would be required.
- **Thru Traffic and other Considerations** – The permit system would need to take into account the various types of day users to Yosemite Valley including administrative traffic, pass-thru travelers, special events and groups, etc. Similarly, development of the permit system would also need to account for the economic impacts (both positive and negative) to gateway communities.

Public transit options common to Alternatives 2-6 include:

- New public transit service between Fresno and Yosemite Valley would be established across the alternatives.

- Under Alternatives 2-6, the concession operated in-park shuttle services in Yosemite Valley and from Wawona to Yosemite Valley would remain. Additionally, a formal shuttle bus stop at El Capitan Meadow would be constructed in all alternatives and access to meadows would be formalized to address informal trail impacts.

### **Segment 3: Merced Gorge**

The day-use parking capacity in this alternative would continue to total 180 spaces at various roadside pull-out locations. This parking capacity would be consistent across Alternatives 2-6 and would accommodate up to 869 people at one time. No visitors would be delivered to this segment via public transit. This river segment is considered a “pass through” segment and therefore it would not contain any stops for passengers to enter or depart from transit services traveling through this corridor under Alternatives 2-6.

### **Segment 4: El Portal**

The visitor day-use parking capacity in El Portal would vary among the alternatives. However, because most visitors parking in the day parking spaces at El Portal would be expected to take shuttles into the park, under alternatives that increase visitor day-use parking in El Portal (Alternatives 4, 5, and 6), those visitors are counted as part of the day use calculations for Yosemite Valley and not for El Portal.

### **Segment 5: South Fork Merced above Wawona**

The only access to this wild segment is via hiking trails, and the trailheads that provide access to this segment would remain located in Wawona (Segment 7). Transportation options for accessing the trailheads are included in the discussion of day use capacity for Wawona, below.

### **Segments 6/7: Wawona and Wawona Impoundment**

The day parking capacity would remain 290 spaces across all actions alternatives, accommodating up to 911 people at one time. Roadside parking between the store and Chilnualna Falls Road would be removed across all action alternatives. Tour bus parking spaces would continue to be provided for eight buses accommodating up to 384 people at one time. The number of people arriving via regional transit would vary by alternative (from a low of 26 to a maximum of 311 people at one time).

### **Segment 8: South Fork Merced below Wawona**

The only access to this wild segment is via hiking trails, and the trailheads that provide access to this segment would remain located in Wawona (Segment 7). Transportation options for accessing the trailheads are included in the discussion of day use capacity for Wawona, below.

### ***Administrative Activities***

Administrative functions and facilities would generally be retained in their current locations under Alternatives 2-6, with some changes in housing capacity and office space allocations. All such activity would remain within the overall management and oversight of the NPS.

### Segment 1: Wilderness above Nevada Fall

Administrative uses in this segment would consist primarily of ranger patrols and backcountry utility work. These activities are seasonal in nature and minimal in comparison to visitor use and would not affect the overall user capacity.

### Segment 2: Yosemite Valley

Administrative uses would remain prevalent in this segment. No changes in NPS administrative facilities would be proposed under any alternative. The following changes in concessioner administrative facilities would be included in Alternatives 2-6.

- Remove the Concessioner Garage from the 100-year floodplain and relocate the NPS garage function to the historic Government Utility Building in the NPS Government Utility Area, which is outside the river corridor. Repair and towing services for the public that previously operated from the garage would be available in El Portal.
- Remove the Concessioner General Office Building and relocate the function to the Concessioner Warehouse Building (which would be expanded in Alternative 6).
- Visitor-use management program would ensure access for traditionally associated American Indians for participation in annually scheduled traditional and cultural events.

Conceptual site drawings have been completed for the relocation of the garage and the Concessioner General Office Building, to allow the analysis of impacts of these potential projects. See "Conceptual Site Drawings" at the end of the Actions Common to Alternatives 2-6 discussion for site details and design drawings.

### Segment 3: Merced Gorge

Only administrative use associated with the Arch Rock Entrance Station occurs in this segment. The associated residential use is described below.

### Segment 4: El Portal

Administrative uses would remain prevalent in this segment under Alternatives 2-6. This would include all administrative uses associated with the NPS Maintenance Facility. Existing uses would remain in their existing locations with the following exception:

- Remove the Odger's Bulk Petroleum Storage from its current location to facilitate valley oak habitat restoration; relocate this facility outside the river corridor.
- In consultation with traditionally associated American Indian tribes and groups, determine the best method for removing the aboveground abandoned infrastructure associated with CA-MRP-0181.

### Segments 6/7: Wawona and Wawona Impoundment

The NPS maintenance and administrative building complex within Segment 7 would be redesigned and improved under all the action alternatives, as follows:

- Construct a 4,500 square foot building and grounds maintenance facility, a 6,800 square foot combined structural and wildland fire station, and a 4,000 square foot roads maintenance facility to provide facilities to optimize operational efficiency.
- Rehabilitate the existing California Conservation Corp structures for potential reuse.

- Remove staged materials, abandoned utilities, vehicles, and parking lot from the riparian buffer at the Wawona Maintenance Yard and restore native ecosystem. Provide a 150-foot wide restoration buffer.

### ***Coordination with Traditionally Associated American Indian Tribes and Groups***

The National Park Service would coordinate with traditionally associated American Indian tribes and groups to protect ethnographic resources:

- Implement best management practices to ensure continued coordination between traditionally associated American Indian tribes, groups, and traditional practitioners (through the Park American Indian Liaison) with law enforcement, fire management, interpretation, invasive species management, ecological restoration, and facilities management programs; include operational guidelines for material staging areas, parking, etc., to protect ethnographic resources.
- Assure access for traditionally associated American Indians for participation in annually scheduled traditional cultural events. In addition, assure tribal access for the personal conduct of traditional cultural practices through the Yosemite tribal fee waiver pass program.

### ***Employee Housing and Employee Parking***

#### **Segment 1: Wilderness above Nevada Fall**

The Merced Lake Ranger station and the Little Yosemite Valley trail crew and ranger camp would remain as temporary housing for employees working in this area. Rangers are stationed in this segment for 4-8 days at a time and these seasonal camps would continue to be used under all alternatives. There would be no permanent housing in this segment under any alternative.

#### **Segment 2: Yosemite Valley**

The existing employee housing for 164 NPS required occupants would be retained under Alternatives 2-6.

Under Alternatives 2-6 the temporary concessioner employee housing would be removed; the total housing provided for concessioner employees would differ among the alternatives, based on the visitor experience to be provided and the commercial services needed to support that experience. Under Alternatives 2-6, the following temporary concessioner employee housing would be removed:

- Curry Village: Remove temporary housing at Boys Town and Huff House housing.
- Yosemite Village: Remove Lost Arrow temporary housing
- Ahwahnee Hotel: Remove Ahwahnee tents
- Yosemite Lodge: Remove Thousand Cabins and Highland Court.

Under all alternatives, parking for administrative functions would be provided within the land assignments for these uses (adjacent to administrative buildings), where it would not compete with visitor parking spaces or conflict with visitor circulation patterns.

### **Segment 3: Merced Gorge**

The residential unit at the Arch Rock would continue to house up to 9 NPS employees under Alternatives 2-6. Minimal designated parking would continue to be available for exclusive employee and administrative use in this area and would not compete with visitor parking and access.

### **Segment 4: El Portal**

Additional employee housing would be developed in El Portal for concessioner employees under Alternatives 2-6. The amount and type of housing (high density vs. single-family homes) would differ among the alternatives. The following actions would be common to all the alternatives:

- Add infill units (duplexes) to the El Portal Village Center to accommodate up to 12 employees.
- Remove or relocate 36 existing private residences in the Abbieville/Trailer Village area to accommodate restoration and housing actions. The former footprints that are within the 150-foot riparian buffer would be ecologically restored. All new housing re-development would be outside the 100-year floodplain. Other redevelopment would be outside of the 150-foot riparian buffer.

### **Segment 5: Wilderness above Wawona**

No employee housing would be provided in this segment.

### **Segments 6/7: Wawona and Wawona Impoundment**

The existing NPS and concessioner employee housing in the Wawona community and elsewhere outside the river corridor would be retained.

### **Segment 8: South Fork below Wawona**

No employee housing would be provided in this segment.

## **Analysis of Facilities and Services**

Table 8-11 presents the park's assessment of the particular facilities and services that would be needed to support public use and/or to protect river resources based on the types, levels, and locations of use proposed across all the action alternatives. As an example, wayfinding to the Yosemite Village area from the primary parking area would be improved by removing and relocating both the Concession General Office building and the Yosemite Village Garage (shuttle and fleet maintenance facility) to a location outside the river corridor in Yosemite Valley. Additionally, an overall reduction in commercial services would occur across all alternatives, with services such as bike rentals, the Curry Village ice rink, and commercial horseback day rides eliminated. Additionally, existing development within 100 feet of the river are removed such as campsites in North Pines, Lower Pines, and Backpacker's Campgrounds as well as units within the ordinary high water mark at Housekeeping Camp. Finally, all temporary employee housing at Curry Village and the Yosemite Lodge would be removed.

**TABLE 8-11. NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES – COMMON TO ALTERNATIVES 2-6**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Curry Village and Campgrounds</b>			
Curry Pavilion and Food Service	Retained	<b>Yes:</b> This food service facility is necessary to support day visitors and those overnight visitors who are staying at lodging facilities without kitchenettes.	<b>No.</b> Food services are components of the overnight guest accommodations at this location. They are required to be located very near the overnight sleeping units.
Curry Village Grocery Store	Retained	<b>Yes:</b> This grocery provides visitors (as well as park residents) a limited range of merchandise including packaged and fresh groceries, sundries, and outdoor products that are frequently needed by campers and hikers, and day and overnight visitors.	<b>No.</b> Groceries are a component of overnight accommodations and need to be provided proximate to sleeping units
Curry Village Pizza Deck & Bar	Retained	<b>Yes:</b> Food services are necessary to support day visitors and those overnight visitors who are staying in lodging facilities without kitchenettes. The Curry Village Pizza Deck and Bar serve casual dining lunch and dinner to lodging guests and many other visitors to Yosemite Valley.	<b>No.</b> Food services are components of the overnight guest accommodations at this location. They are required to be located very near the overnight sleeping units.
Curry Village Ice Rink	Service eliminated / facility removed	<b>No:</b> The ice rink at Curry Village, which has offered seasonal commercial ice skate rental and recreation in an outdoor setting within a closed loop ice creation facility, is not a vital visitor experience.	<b>N/A:</b> This service will be eliminated.
Commercial Horseback Day Rides in Yosemite Valley	Service eliminated	<b>No:</b> To date, the stable operations in Yosemite Valley provides seasonal commercial guided equestrian services for recreational use. This facility and service also supports the High Sierra Camp operations.	<b>N/A:</b> This service will be eliminated.
Curry Village Bike Rental	Service eliminated / facility removed	<b>No:</b> The bike rental operation at Curry Village is not a vital visitor service.	<b>N/A:</b> This service will be eliminated.
The Ahwahnee Rooms and Cottages	Retained	<b>Yes:</b> This National Historic Landmark is a significant contributing element of the Valley Historic ORV that cannot feasibly be relocated outside the corridor. Its retention in the river corridor is integral to protecting the historic ORV in this segment.	<b>No.</b> The Ahwahnee hotel is a National Historic Landmark within a historic district. It is not feasible to consider moving the hotel structure or the cottages in their entirety.
The Ahwahnee Bar & Food Service	Retained	<b>Yes:</b> This food service facility is necessary to support day visitors and those overnight visitors who are staying in the hotel.	<b>No.</b> Food services are a key component of the hotel. The existing bar, dining room and kitchen are located within the interior of the main hotel building and are not feasible to remove or relocate
The Ahwahnee Dining Room	Retained	<b>Yes:</b> This food service facility is necessary to support day visitors and those overnight visitors who are staying in the hotel.	<b>No.</b> Food services are a key component of the hotel. The existing bar, dining room and kitchen are located within the interior of the main hotel building and are not feasible to remove or relocate.

**TABLE 8-11. NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES – COMMON TO ALTERNATIVES 2-6**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Curry Village and Campgrounds (cont.)</b>			
The Ahwahnee Gift Shop	Retained	<b>Yes:</b> Located within the interior of the NHL, the gift shop offers a variety of gifts and souvenirs, consistent with the gift shop mission statement and the visitor experience goals of this alternative.	<b>No.</b> The Ahwahnee hotel gift shop is located within the interior of the hotel. It is not practical to consider moving it to an alternative location.
The Ahwahnee Sweet Shop	Retained	<b>Yes:</b> Located within the interior of the NHL, the gift shop offers a variety of gifts and souvenirs, consistent with the gift shop mission statement and the visitor experience goals of this alternative.	<b>No.</b> The Ahwahnee hotel Sweet Shop retail service is located within the interior of the hotel. It is not practical to consider moving it to an alternative location.
The Ahwahnee Swimming Pool	Removed	<b>No:</b> The hotel swimming pool is not integral to the Historic ORV or to the integrity of the hotel's National Historic Landmark Status. (Please confirm)	<b>No.</b> The Ahwahnee hotel swimming pool is a feature of the hotel.
The Ahwahnee Tennis Court	Removed	<b>No:</b> These are currently obsolete and have not been maintained since 2005.	<b>N/A:</b> This facility will be removed
The Ahwahnee Parking Lot	Retained	<b>Yes:</b> This parking lot is immediately outside the Ahwahnee hotel and is utilized by hotel guests.	<b>No.</b> This parking lot serves hotel guests. It would not be feasible to remove the parking lot near the hotel to an alternative outside the river corridor.
Boys Town Employee Housing Area	Re-located (to Huff House area)	<b>Yes:</b> This housing facility is necessary to accommodate employees who provide visitor services that are consistent with the types and amounts of visitor use that have been found to protect and enhance ORVs.	<b>No.</b> There are no other suitable locations to move employee housing to in Yosemite Valley both in terms of size of these facilities and the need for them to be proximate to guest services to accommodate shift work schedules.
Huff House Employee Housing Area	Re-developed (with high-density housing)	<b>Yes:</b> This housing facility is necessary to accommodate employees who provide visitor services that are consistent with the types and amounts of visitor use that have been found to protect and enhance ORVs.	<b>No.</b> There are no other suitable locations to move employee housing to in Yosemite Valley both in terms of size of these facilities and the need for them to be proximate to guest services to accommodate shift work schedules.
Ahwahnee Employee Dormitory	Retained	<b>Yes:</b> This housing facility is necessary to accommodate employees who provide visitor services that are consistent with the types and amounts of visitor use that have been found to be protect and enhance ORVs.	<b>No.</b> There are no other suitable locations to move employee housing to in Yosemite Valley both in terms of size of these facilities and the need for them to be proximate to guest services to accommodate shift work schedules.
Curry Village Employee Residence Area	Retained and reduced. Targeted removal of buildings in rock-fall zone will take place prior to MRP	<b>Yes:</b> This housing facility is necessary to accommodate employees who provide visitor services that are consistent with the types and amounts of visitor use that have been found to protect and enhance ORVs.	<b>No.</b> There are no other suitable locations to move employee housing to in Yosemite Valley both in terms of size of these facilities and the need for them to be proximate to guest services to accommodate shift work schedules.



**TABLE 8-11. NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES – COMMON TO ALTERNATIVES 2-6**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Curry Village and Campgrounds (cont.)</b>			
Happy Isles Nature Center	Retained	<b>Yes:</b> Serves as the primary interpretation & education center for visitors to east Yosemite Valley and the John Muir / Mist Trail. This facility is used by Nature Bridge as a winter classroom. Classroom activities revolve around the river water quality.	<b>Yes.</b> The services provided from this facility could be provided from an alternative outside of the river corridor if a suitable alternative location is identified. However, the river resource is currently an important component of activities taking place at this location.
Happy Isles Snack Stand	Removed	<b>No:</b> This facility, a mobile food service cart that provides limited food and beverages to visitors hiking the Vernal-Nevada Fall corridor, is not a vital visitor service.	<b>No.</b> There are not suitable locations for this service to be relocated to because the purpose is proximity to the Mist Trail, one of these most popular day hikes in Yosemite Valley and numerous visitors are under-prepared in terms of hydration.
Le Conte Memorial Lodge	Retained	<b>Yes:</b> This National Historic Landmark building is used by the Sierra Club for visitor interpretive and education programs. It is a significant contributing element of the Valley Historic ORV that cannot feasibly be relocated outside the corridor. Its retention in its historic location is integral to protecting the historic ORV in this segment.	<b>No:</b> The Le Conte Memorial Lodge is a National Historic Landmark that would not be feasible to relocate outside the river corridor. The services offered at this location could be relocated should an alternative site be identified.
Happy Isles Loop Road	Retained	<b>Yes:</b> This road is consistent with a recreational classification and is needed to support public use of the river corridor. It is a component of the primary transportation & circulation road system that connects all major visitor service nodes. The bridge is also use by NPS for law enforcement and fire protection.	<b>No.</b> It is not feasible to relocate the existing roadway from its present location
Clark's Bridge	Retained	<b>Yes:</b> This vehicle/pedestrian/ bicycle bridge is consistent with a recreational classification and is needed to support public use of the river corridor. It allows for safe crossing of the Merced River and access to campgrounds and other points of interest in the east end of Yosemite Valley. Pedestrian and bicycle bridges protect riparian habitat from destruction caused by random crossings throughout the river corridor. The bridge is also use by NPS for law enforcement and fire protection.	<b>No.</b> It is not feasible to relocate the existing roadway and bridges from their present location given the circulation system for Yosemite Valley.
Happy Isles Road Bridge	Retained	<b>Yes:</b> This vehicle/pedestrian/ bicycle bridge is consistent with a recreational classification and is needed to support public use of the river corridor. It allows for safe crossing of the Merced River and access to the John Muir Trailhead and the Mist Trail, and is part of the Yosemite Valley Loop Trail. The bridge supports the east Yosemite Valley shuttle bus route to Happy Isles and Mirror Lake and used by NPS for law enforcement and fire protection.	<b>No.</b> It is not feasible to relocate the existing roadway and bridges from their present location
West of Backpackers Campground (New)	New Construction	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight accommodations that allow visitors to have a direct outdoor experience.	<b>No.</b> No alternative areas of sufficient size could accommodate this campground in Yosemite Valley.

**TABLE 8-11. NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES – COMMON TO ALTERNATIVES 2-6**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Yosemite Village and Housekeeping Camp</b>			
Housekeeping Camp Bridge	Retained	<b>Yes:</b> Vehicle/pedestrian/ bicycle bridges are needed to support public use of the river corridor. They allow safe crossing of the Merced River and access to campgrounds and other points of interest in the east end of Yosemite Valley. Pedestrian and bicycle bridges also protect riparian habitat from destruction caused by random crossings throughout the river corridor.	<b>No.</b> This bridge could not be relocated outside the river corridor as it is a bridge across the Merced River. The bridge could be removed and foot traffic redirected to Stoneman and/or Sentinel bridges.
Concessioner General Office	Facility Removed and Service Re-located to Concessioner Maintenance and Warehouse Building, which is outside the river corridor	<b>Yes:</b> It is essential that most of the administrative, managerial and logistical support functions located in this facility remain centrally located in Yosemite Valley. As such there are adequate facilities outside of the river corridor that could, with interior modification, absorb these functions.	<b>Yes.</b> The services currently being performed in this facility could be relocated to alternate locations outside the river corridor.
Concessioner Garage	Facility Removed and Service Re-located to Government Utility Building, which is outside the river corridor	<b>Yes:</b> The concession operated garage is a critical component of the park operation. Services offered at the garage include: public automotive repairs; maintenance of park shuttle fleet(s); maintenance of the concession fleet; sales of automotive accessories (including snow chains); and dispatching of tow trucks. The park shuttle fleets are dispatched from a central office located at the garage.	<b>Yes.</b> It could be feasible to relocate some of the services provided at the existing garage to locations outside the river corridor, including shuttle fleet maintenance, public automotive repairs and concessioner fleet maintenance. Relocation of shuttle maintenance and public automotive repairs would be contingent upon identifying a suitable location outside the river corridor, but near primary visitor services to meet the operational needs of the shuttle service as well as visitors who may be without transportation while their vehicles are being repaired.
Concessioner Fire Station	Retained	<b>Yes:</b> Fire support services and apparatus are essential to provide for public health and safety and resource protection.	<b>No.</b> The concessioner fire station could not be relocated to an alternative location as its proximity to visitor services is inherent in its current siting.
Village Store	Retained	<b>Yes:</b> This grocery and retail facility is needed to support day use visitors, park residents and overnight visitors. It offers a limited range of merchandise including packaged and fresh groceries, sundries, and outdoor products frequently needed by campers and hikers.	<b>No.</b> The services offered at the Village Store could be not relocated outside the river corridor if a suitable location
Village Grill	Retained	<b>Yes:</b> This food service facility is necessary to support day visitors and those overnight visitors who are staying at lodging facilities without kitchenettes. The Village Grill serves a menu that is quickly prepared and modestly priced, and is convenient for visitors to Yosemite Village.	<b>Yes.</b> The services offered at the Village Grill could be relocated outside the river corridor if a suitable alternative location in Yosemite Village is identified.

**TABLE 8-11. NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES – COMMON TO ALTERNATIVES 2-6**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Yosemite Village and Housekeeping Camp (cont.)</b>			
Village Sports Shop	Service eliminated and facility re-purposed	<b>No:</b> This service is a retail outlet that includes sales of recreational equipment, outdoor clothing, books and maps that pertain to park resources and activities, is not a vital visitor service.	<b>N/A:</b> This service will be eliminated.
Village Store Parking Lot	Expanded	<b>Yes:</b> A visitor parking area in this location is vital because it is proximate to the main visitor services core in Yosemite Valley, including major destinations like the Yosemite Valley Visitor Center, Wilderness Center, the Museum, Ansel Adams Gallery, and Degnan’s Deli.	<b>No.</b> Parking facilities must be proximate to the Yosemite Village area.
Art Activity Center / Bank Building	Removed	<b>No:</b> This building, originally constructed to house the former branch office of the Wells Fargo Bank, now serves three purposes: (1) Yosemite Conservancy Art Activity Center, a visitor education opportunity, (2) cash operations for the primary concessioner, and (3) site of the Valley First Credit Union automated teller machine that serves local resident banking needs as well as dispensing cash to visitors who use debit and credit cards.	<b>N/A:</b> This facility will be removed and the services will be co-located within existing buildings.
Yosemite Valley Chapel	Retained	<b>Yes:</b> This is a historic structure that has been used as a place of non-denominational worship, and life events such as memorial services and wedding ceremonies in Yosemite Valley for many decades.	<b>No.</b> The Yosemite Valley Chapel is a historic structure located in its original site. Relocation would diminish its historic integrity to the degree that it would no longer meet the criteria for inclusion on the National Register of Historic Places.
Sentinel Crossover	Retained	<b>Yes:</b> This road is consistent with a recreational classification and is needed to support public use of the river corridor. It is a component of the primary transportation & circulation road system that connects all major visitor service nodes.	<b>No.</b> This roadway segment services as a vital linkage between Northside and Southside Drives. Sentinel Bridge was constructed in 1990 to align with this roadway segment.
<b>Segment 2: Yosemite Lodge and Camp 4 Area</b>			
Camp 4 Campground	Retained	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight accommodations that allow visitors to have a direct outdoor experience.	<b>No.</b> Camp 4 is listed on the National Register of Historic Places and must remain in its current location to maintain its historic integrity.
Yosemite Lodge Swimming Pool and Snack Stand	Removed	<b>No:</b> The Yosemite Lodge pool has been operated as a public pool, open to Lodge guests as well as other patrons, including park employees and their dependents. The snack stand serves a very limited menu of quick serve refreshments. The pool and snack stand are not considered a vital visitor or community service.	<b>No.</b> These facilities are for Lodge guests and it would not be practical to relocate outside the river corridor.
Yosemite Lodge Nature Shop	Service eliminated and facility re-purposed as non-commercial use	<b>No:</b> This facility is a retail outlet that offers visitors a selection of nature themed gifts and souvenirs. It is not essential to support public use of the river corridor.	<b>No.</b> The building currently housing the Nature Shop is part of the Yosemite Lodge food service structure and would be infeasible to relocate.

**TABLE 8-11. NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES – COMMON TO ALTERNATIVES 2-6**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Yosemite Lodge and Camp 4 Area (cont.)</b>			
Yosemite Lodge Housekeeping/Maintenance	Relocated within the Lodge Complex	<b>Yes:</b> The Yosemite Lodge housekeeping and maintenance facility serves as the property-specific worksite from which visitor services, including daily room cleaning and maintenance operations for the entire complex, include food service and multi-purpose spaces (such as the Garden Terrace and the Cliff Room) are based. All lodging properties require some "back of the house" location for storage and staging.	<b>Yes.</b> The existing housekeeping and maintenance facilities could be relocated to an alternative location within the Yosemite Lodge complex
Yosemite Lodge Food Court	Retained	<b>Yes:</b> Food services are necessary to support day visitors and those overnight visitors who are staying in lodging facilities without kitchenettes. The Yosemite Lodge Food Court is a high volume guest service available to Yosemite Lodge patrons, as well as day visitors and overnight users.	<b>No.</b> The building currently housing the Food Court is part of the Yosemite Lodge food service structure and would be infeasible to relocate.
Yosemite Lodge Post Office	Removed	<b>No:</b> This post office has operated as a satellite of the main Yosemite Post Office. (Note: prior to the 1997 flood, this post office served the employees who resided near Yosemite Lodge. Much of that housing has been removed from the area). This facility is no longer necessary.	<b>No.</b> This post office is no longer needed to serve visitors or employees in this area.
Yosemite Lodge Bike Stand	Service eliminated / facility removed	<b>No:</b> To date, the bike rental operation at the Yosemite Lodge offers seasonal commercial bicycle and accessibility device rental for unguided visitor recreation. This service is not a vital visitor service.	<b>N/A:</b> This service will be eliminated.
NPS Volunteer Office	Facility removed and service relocated outside the river corridor	<b>Yes:</b> Worksite assigned to NPS staff who manage the NPS volunteer program who play a vital role in various resource protection projects annually.	<b>Yes.</b> The administrative program managed from this facility y could be relocated to a site outside the river corridor.
Swinging Bridge	Retained	<b>Yes:</b> This pedestrian foot bridge is consistent with a recreational classification and is needed to support public use of the river corridor. It allows for safe crossing of the Merced River and access to points of interest in Yosemite Valley. Pedestrian bridges protect riparian habitat from destruction caused by random crossings throughout the river corridor.	<b>No.</b> Swinging Bridge is part of the Valley pedestrian/bicycle corridor that provides access to important visitor destinations.
Superintendent's Footbridge	Retained	<b>Yes:</b> This pedestrian foot bridge is consistent with a recreational classification and is needed to support public use of the river corridor. It allows for safe crossing of the Merced River access to points of interest in Yosemite Valley. Pedestrian bridges protect riparian habitat from destruction caused by random crossings throughout the river corridor.	<b>No.</b> Under the current pedestrian and bicycle circulation system in Yosemite Valley, this bridge connects two segments of the bicycle path and provides a pedestrian link between Northside Drive and the chapel area.
Yosemite Lodge Parking Area (New)	New construction	<b>Yes:</b> Will serve as a visitor parking and queuing area during times of peak visitation to assist with reducing vehicle congestion on roadways. The parking area replaces approximately 35 roadside parking spaces adjacent to Cook's Meadow. It also is the primary tour bus parking for Yosemite Valley.	<b>No.</b> No alternative areas of sufficient size or location (i.e., proximity to Yosemite Falls trailhead, Wahoga, Camp 4 and the Yosemite Lodge) could accommodate this parking area.

**TABLE 8-11. NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES – COMMON TO ALTERNATIVES 2-6**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Yosemite Lodge and Camp 4 Area (cont.)</b>			
East of Camp 4 Campground (New)	New construction	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds provide overnight accommodations that allow visitors to have a direct outdoor experience.	<b>No.</b> No alternative areas of sufficient size or location (i.e., proximity to Camp 4 and the Yosemite Lodge) could accommodate this campground.
<b>Segment 2: West Yosemite Valley</b>			
El Capitan Cross-over	Retained	<b>Yes:</b> This road is consistent with a recreational classification and is needed to support public use of the river corridor. It is a component of the primary transportation & circulation road system that provides a vital west Valley river crossing.	<b>No.</b> It is not feasible to relocate the existing roadway and bridges from their present location
El Capitan Cross-over Bridge	Retained	<b>Yes:</b> This vehicle/pedestrian/ bicycle bridge is consistent with a recreational classification and is needed to support public use of the river corridor. It provides a vital west Valley river crossing. The bridge supports the west Yosemite Valley shuttle bus route to El Capitan Meadow and used by NPS for law enforcement and fire protection.	<b>No.</b> It is not feasible to relocate the existing roadway and bridges from their present location
Pohono Bridge	Retained	<b>Yes:</b> This vehicle/pedestrian/ bicycle bridge is consistent with a recreational classification and is needed to support public use of the river corridor. It allows for safe crossing of the Merced River and access to the John Muir Trailhead and the Mist Trail, and is part of the Yosemite Valley Loop Trail. The bridge supports the east Yosemite Valley shuttle bus route to Happy Isles and Mirror Lake and used by NPS for law enforcement and fire protection.	<b>No.</b> It is not feasible to relocate the existing roadway and bridges from their present location
<b>Segment 2: Utilities Across All of Segment 2</b>			
Utility Infrastructure	Retained	<b>Yes:</b> Consistent with a recreational classification. Water, wastewater, electrical and telecommunication systems provide necessary infrastructure to protect water quality, park resources, and human health & safety.	<b>No.</b> Utility systems serving facilities that will remain within the river corridor could not be relocated. If facilities within the river corridor are relocated, their utility system components could be removed.
<b>Segment 3: The Gorge</b>			
Arch Rock Entrance Station Kiosk	Retained	<b>Yes:</b> This facility serves as one of the five entry points to Yosemite National Park. It is necessary to have Park staff working at this facility to collect entrance fees and provide visitors with information.	<b>No.</b> The entrance station facility must be located along the El Portal Road in an area with sufficient sight distance for motorists traveling to and from Yosemite Valley to make safe stops to transact fee payments with park staff.
Arch Rock Housing (2 duplexes)	Retained	<b>Yes:</b> This housing facility is necessary to accommodate employees who provide visitor services that are consistent with the types and amounts of visitor use that have been found to be protect and enhance ORVs.	<b>Yes.</b> These workforce housing units could be relocated if satisfactory substitute housing is made available.

**TABLE 8-11. NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES – COMMON TO ALTERNATIVES 2-6**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 3: The Gorge (cont.)</b>			
Arch Rock VUA Office	Retained	<b>Yes:</b> This administrative space provides vital safe operational space for employees who work at the Arch Rock Entrance Station.	<b>No.</b> This administrative space must be collocated with the entrance station.
Utility Infrastructure	Retained	<b>Yes:</b> Consistent with a scenic classification. Water, wastewater, electrical and telecommunication systems provide necessary infrastructure to protect water quality, park resources, and human health & safety.	<b>No.</b> Utility systems serving facilities that will remain within the river corridor could not be relocated. If facilities within the river corridor are relocated, their utility system components could be removed.
<b>Segment 4: El Portal</b>			
El Portal Administrative Complex	Retained	<b>Yes:</b> This facility houses wastewater treatment processing, large vehicle maintenance and fleet storage, shops for all maintenance operations; a central distribution point for supply, commissary, and warehouse operations, the park's emergency communications center and fire cache operation; and training, office, and critical administrative operations space for park operations. This facility is essential to support public use of the river corridor, public health and safety, and resource protection.	<b>No.</b> This facility houses key operational functions that could not be relocated unless a suitable alternative site is identified.
Rancheria Employee Housing Area (Existing)	Retained	<b>Yes:</b> This housing facility is necessary to accommodate employees who provide visitor services that are consistent with the types and amounts of visitor use that have been found to be protect and enhance ORVs, and to accommodate employees who provide resource protection services consistent with the mission of the National Park Service and current agency management policies.	<b>No.</b> This workforce housing could not be relocated unless a suitable alternative site is identified.
Old El Portal Employee Housing Area (Existing)	Retained	<b>Yes:</b> This housing facility is necessary to accommodate employees who provide visitor services that are consistent with the types and amounts of visitor use that have been found to be protect and enhance ORVs, and to accommodate employees who provide resource protection services consistent with the mission of the National Park Service and current agency management policies.	<b>No.</b> This workforce housing could not be relocated unless a suitable alternative site is identified.
Old El Portal Employee Housing Area (New)	Constructed	<b>Yes:</b> This housing facility is necessary to accommodate employees who provide visitor services that are consistent with the types and amounts of visitor use that have been found to be protect and enhance ORVs, and to accommodate employees who provide resource protection services consistent with the mission of the National Park Service and current agency management policies.	<b>No.</b> In-fill employee housing should occur within existing employee housing areas
El Portal Market and Gas Station Complex	Retained	<b>Yes:</b> Due to the concentration and number of employees living in El Portal, this is considered a vital community service.	<b>No.</b> These two concession operated services must be located along State Route 140. The service station requires considerable underground fuel distribution equipment that would be infeasible to relocate.

**TABLE 8-11. NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES – COMMON TO ALTERNATIVES 2-6**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 4: El Portal (cont.)</b>			
Murchison House	Retained	<b>Yes:</b> This structure has been closed for many years pending an extensive renovation. However, it was most recently used as a park office facility.	<b>No:</b> This is a significant historic structure in El Portal and would lose its historic integrity if removed from this location.
El Portal Post Office	Retained	<b>Yes:</b> Due to the concentration and number of employees living in El Portal, this is considered a vital community service.	<b>No:</b> No suitable lands in size or proximity exist outside the river corridor. This service is a functional requirement for the number of employees living in this location.
El Portal Elementary School / High School	Retained	<b>Yes:</b> Due to the concentration and number of employees living in El Portal, this is considered a vital community service.	<b>No:</b> No suitable lands in size or proximity exist outside the river corridor. This service is a functional requirement for the number of employees living in this location.
NPS Offices in Old El Portal	Retained	<b>Yes:</b> This facility provides vital administrative space for park operations which support public use and resource protection efforts in the river corridor.	<b>No:</b> No suitable lands exist outside the river corridor, however, co-locating within the NPS maintenance complex would be desirable.
NatureBridge Office / Employee Housing Building	Retained	<b>Yes:</b> NatureBridge hosts multi-day environmental education programs in Yosemite for school children. This facility provides necessary employee housing and administrative space for this park partner organization.	<b>No:</b> This facility houses key operational functions, and workforce housing that could not be relocated unless a suitable alternative site is identified.
Carroll Clark Community Hall	Retained	<b>Yes:</b> Due to the concentration and number of employees living in El Portal, this is considered a vital community service.	<b>No:</b> No suitable lands in size or proximity exist outside the river corridor. This service is a functional requirement for the number of employees living in this location.
Mariposa County Pool at Rancheria Flat	Retained	<b>Yes:</b> Due to the concentration and number of employees living in El Portal, this is considered a vital community service.	<b>No:</b> No suitable lands in size or proximity exist outside the river corridor. This service is a functional requirement for the number of employees living in this location.
El Portal Fire Station	Retained	<b>Yes:</b> Fire support services and apparatus are essential to provide for public health and safety and resource protection.	<b>No:</b> No suitable lands in size or proximity exist outside the river corridor. This service is a functional requirement for the number of employees living in this location.
Motor Inn Cabins	Retained	<b>Yes:</b> Employees provide visitor services that are consistent with the types and amounts of use that are protective of ORV. These employees must live proximate to their work site.	<b>No:</b> This facility houses key operational functions that could not be relocated unless a suitable alternative site is identified.
AT&T Building	Retained	<b>Yes:</b> Serves as central distribution point for telecommunications network in El Portal. This telecommunication facility is necessary to support NPS's management and administration of the river corridor. This facility is also required for the transmission of microwave signals.	<b>No:</b> Due to transmission and receiving requirements of the system.



**TABLE 8-11. NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES – COMMON TO ALTERNATIVES 2-6**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 4: El Portal (cont.)</b>			
Odger’s Fuel Storage Facility	Removed	<b>Yes:</b> Provides bulk fuel storage vital to park operations serving utility infrastructure, back-up generators and heating / cooling systems for numerous visitor services.	<b>Yes:</b> Either a suitable location within park lands will be identified or a determination will be made that the service can be obtained outside the park.
Old Wastewater Treatment Plant	Removed	<b>No:</b> This facility has been obsolete for decades. A plan of action to remove abandoned infrastructure will be developed with American Indian groups.	<b>No.</b> A plan of action to address the abandoned infrastructure will develop in consultation with American Indian groups.
Utility Infrastructure	Retained	<b>Yes:</b> Consistent with a recreational classification. Water, wastewater, electrical and telecommunication systems provide necessary infrastructure to protect water quality, park resources, and human health & safety.	<b>No.</b> Utility systems serving facilities that will remain within the river corridor could not be relocated. If facilities within the river corridor are relocated, their utility system components could be removed.
<b>Segment 5 (Wild), Segments 6 &amp; 7 (Recreational), Segment 8 (Wild)</b>			
Wawona Hotel Lodging Units	Retained	<b>Yes:</b> This National Historic Landmark is a significant contributing element of the Wawona Historic ORV that cannot feasibly be relocated outside the corridor. Its retention in the river corridor is integral to protecting the historic ORV in this segment.	<b>No.</b> The Wawona Hotel and its surrounding buildings, lawn, swimming tank, golf course are listed on the National Register of Historic Place. Their locations are integral to their historic significance that would be diminished by any relocation outside the river corridor.
Wawona Hotel Restaurant	Retained	<b>Yes:</b> The restaurant is located inside the Wawona Hotel which is a National Historic Landmark. Food services are a necessary to support hotel guests. The nearest food services outside Wawona are located in Yosemite Valley, Fishcamp and Oakhurst.	<b>No.</b> The Wawona Hotel and its surrounding buildings, lawn, swimming tank, golf course are listed on the National Register of Historic Place. Their locations are integral to their historic significance that would be diminished by any relocation outside the river corridor.
Hill Studio Interpretation and Retail	Retained	<b>Yes:</b> The Hill Studio is a National Historic Landmark. It cannot feasibly be moved outside the river corridor and its retention in the river corridor is integral to protecting the historic ORV in this segment. It functions as a visitor contact station and sales outlet for the Yosemite Conservancy.	<b>No.</b> Hill Studio is listed on the National Register of Historic Place. Its location is integral to their historic significance that would be diminished by any relocation outside the river corridor.
Wawona Hotel Swimming Pool	Retained	<b>Yes:</b> The Wawona Hotel pool is open to hotel guests during peak periods only when weather conditions are favorable and reduces the number of people swimming in the river.	<b>No.</b> The Wawona Hotel and its surrounding buildings, lawn, swimming tank, golf course are listed on the National Register of Historic Place. Their locations are integral to their historic significance that would be diminished by any relocation outside the river corridor

**TABLE 8-11. NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES – COMMON TO ALTERNATIVES 2-6**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 5 (Wild), Segments 6 &amp; 7 (Recreational), Segment 8 (Wild) (cont.)</b>			
Wawona Maintenance Yard Complex	Retained and re-developed	<b>Yes:</b> This facility provides large vehicle and fleet storage, indoor, outdoor and shop spaces for necessary maintenance operations; fire, law enforcement, entrance station, campground reservation, and the wilderness operation administrative office space. The facility houses critically important park operation functions the absence of which would undermine NPS's ability to support public use of the river corridor, public health and safety, and resource protection.	<b>No.</b> This facility houses key operational functions that could not be relocated unless a suitable alternative site is identified.
Wawona Wastewater Treatment Plant	Retained	<b>Yes:</b> This facility provides wastewater treatment processing and water distribution monitoring. This facility is critically needed to support public use of the river corridor, public health and safety, and resource protection (by preventing discharge of untreated water into the Merced River).	<b>No.</b> This facility houses key operational functions that could not be relocated unless a suitable alternative site is identified.
Wawona Gas Station	Retained	<b>Yes:</b> Serves visitors and local residents. Provides vehicle fuel, limited automotive services such as tire repair, and snow chain sales/installation. The concessioner currently operates a tow truck from this site. This garage provides necessary support services to park employees and private citizens who own property within the river corridor in Wawona.	<b>Yes.</b> This facility could be relocated if a suitable alternative site is identified.
Wawona Store	Retained	<b>Yes:</b> This store is needed to support visitors, park employees, and private in-holders. It offers a limited range of merchandise including packaged and fresh groceries, sundries, and outdoor products frequently needed by campers, hikers and residents.	<b>Yes.</b> This facility could be relocated if a suitable alternative site is identified.
Pioneer History Center (Wawona)	Retained	<b>Yes:</b> This facility contains interpretive displays, historic structures and equipment used in NPS's living history programs. This facility interprets the history of the Wawona area for park visitors and thus supports public understanding of the history and resources in this portion of the river corridor.	<b>No.</b> This facility houses key operational functions that could not be relocated unless a suitable alternative site is identified.
Wawona Store Parking Lot	Retained	<b>Yes:</b> This is a parking facility immediately outside the Wawona Store	<b>Yes.</b> This facility could be relocated if a suitable alternative site is identified.
Utility Infrastructure	Retained	<b>Yes:</b> Water, wastewater, electrical and telecommunication systems provide necessary infrastructure to protect water quality, park resources, and human health & safety.	<b>No.</b> Utility systems serving facilities that will remain within the river corridor could not be relocated. If facilities within the river corridor are relocated, their utility system components could be removed.

## Conceptual Site Drawings

### *Parking along El Portal Road from the Big Oak Flat Road to Pohono Bridge*

The 0.6 mile road segment of El Portal Road from the intersection of the Big Oak Flat Road to Pohono Bridge currently contains a number of non-delineated, dirt roadside pullouts. Five of the larger pullouts are located on the south side of the road immediately adjacent to the Merced River, while one is located on the north side of the road just west of the intersection with Northside Drive and Southside Drive. The use of these dirt pullouts and associated informal trails on the south side of the road is causing erosion and vegetation trampling of the riverbank in some locations. Common to all of the action alternatives, four of the pullouts on the south side of the road would be paved and formalized to provide parking for a limited number of vehicles. These pull-outs would be curbed to prevent further encroachment towards the river and would accommodate up to 20 total vehicles with the remaining roadside and riverbank soils would be decompacted and restored to natural conditions. The largest pullout, located just east of the Big Oak Flat Road/El Portal Road intersection, would be removed and restored to natural conditions to avoid impacts to sensitive resources and to address safety concerns. The existing paved pullout on the north side of the road just west of the intersection with Northside/Southside Drive would also be formalized to accommodate 6 vehicles for a total parking capacity of 26 vehicles along this section of road. Curbing would be installed along the remaining south side road shoulder to prevent vehicles from creating additional informal pullouts, causing further resource damage. Of the 13 existing drainage culverts along this segment of the road, two would be removed and the remainder either retained or reconstructed in a manner that is consistent with their historic character and function.

### *NPS Government Utility Area*

The NPS Government Utility Area, located just north of Yosemite Village, is the primary location for Yosemite Valley utilities, park operations and maintenance. It consists of a large operations building and smaller outbuildings, maintenance yard, administrative fueling station, NPS stables, law enforcement and search and rescue headquarters. Eleven of the buildings and sheds are contributing elements to the Yosemite Valley Historic District. In order to improve circulation at the complex and to provide parking spaces for larger vehicles, six of the non-historic outbuildings would be removed or relocated as NPS operations are further consolidated within existing facilities in El Portal and structures are removed from the rock fall hazard zone. However, Law Enforcement operations and Valley Utilities would remain in their existing locations within the Government Utility Area. The current function of the Concessioner Garage, which is located in the 100-year floodplain, would be relocated to the historic Government Utility Building within the complex. Services would consist of light maintenance and repair for shuttle busses, tour buses, and concessioner vehicles. A new roads and trails maintenance building would be built which would house essential winter park operations equipment such as snow removal and sand spreading vehicles and equipment. The new building would include four (4) vehicle bays with support functions. All anticipated development activities and improvements would occur within the existing disturbed 4.75 acre site. Repair and towing services for the public that previously operated from the Concessioner Garage would be available in El Portal.

### ***Concessioner General Office***

The existing 18,000 square foot Concessioner General Office building located in Yosemite Village, just south of the Village Store parking lot would be removed under all alternatives to allow redesign and expansion of visitor parking, improved traffic and pedestrian circulation and resource restoration. The park has developed two alternatives that would allow the concessioner to redevelop existing facilities, but would establish a limit of approximately 14,000 square feet of replacement facilities. This would reduce office space, and therefore housing needs for approximately 15 concession employees in the valley.

### **Alternatives 2-5**

The office space would be replaced by reconfiguring the interior of the existing Concessioner Maintenance and Warehouse building located east of the NPS Government Utility Area. The existing structure would be updated to include office space on a mezzanine floor. In addition to this, nearby existing concessioner employee housing would be converted to office use. The residential needs of employees displaced from housing facilities would be accommodated in other buildings in Yosemite Valley.

Additional parking spaces for vehicles associated with the existing and relocated maintenance and warehousing operations, administrative vehicles and private vehicles used by employees would be expanded near the facility to accommodate the increased occupancy of the remodeled worksite. Specific locations being considered for parking include formalizing approximately 17 spaces along Village Drive, 6 to the northeast of the warehouse building, approximately 16 along Boulder Lane, approximately 15 spaces along the north side of Tenaya Way and an additional 15 spaces north of the existing auditorium. Development of parking spaces behind the auditorium would require the removal of one existing employee residence.

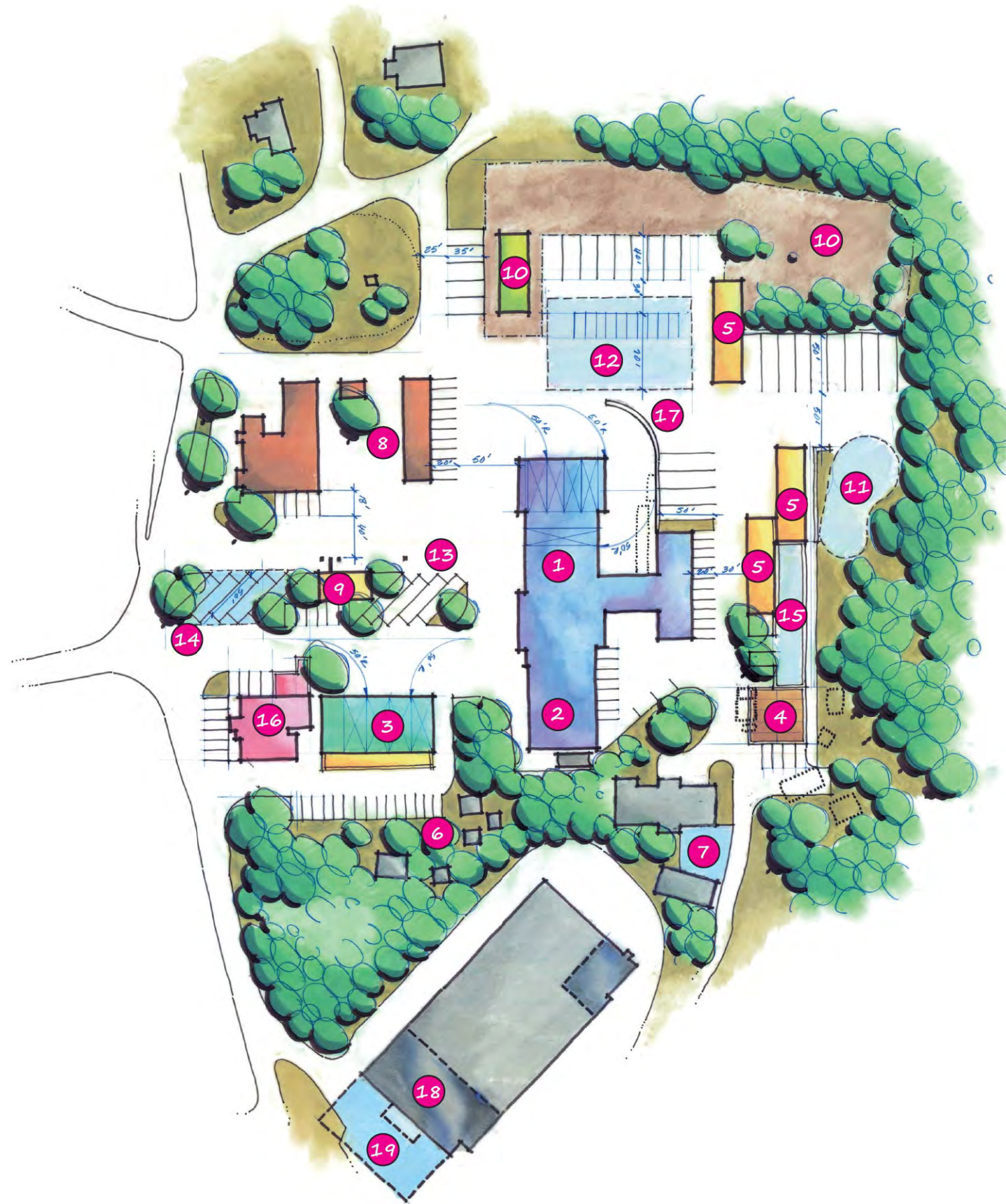
### **Alternative 6**

In Alternative 6, the office space would be replaced by reconfiguring the interior of the existing Concessioner Maintenance and Warehouse building located east of the NPS Government Utility Area. A 4,000 square foot addition to this building would also be constructed. The expansion of the building would require the elimination of 10 to 12 parking spaces that would be replaced nearby along Village Drive.

Additional parking spaces for vehicles associated with the existing and relocated maintenance and warehousing operations, administrative vehicles and private vehicles used by employees would be expanded near the facility to accommodate the increased occupancy of the remodeled worksite. Specific locations being considered for parking include formalizing approximately 17 spaces along Village Drive, 6 spaces to the northeast of the warehouse building, approximately 16 spaces along Boulder Lane, approximately 15 spaces along the north side of Tenaya Way and an additional 15 spaces north of the existing auditorium. Development of parking spaces behind the auditorium would require the removal of one existing employee residence.

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- 1 Relocate shuttle bus maintenance to existing service bays in the Government Utility Building.
- 2 Maintain NPS use and operation of historic Government Utility Building.
- 3 Construct a 4,500 square-foot building with light-duty service bays with administrative office space. Provide covered parking for road-clearing vehicles and equipment.
- 4 Relocate outdoor vehicle temporary storage yard.
- 5 Rehabilitate covered storage buildings for more efficient use.
- 6 Retain historic Camp 1 employee housing unit complex.
- 7 Construct a structural, load-bearing pad for emergency generator; improve access road.
- 8 Retain search and rescue operations.
- 9 Retain concessioner fueling station.
- 10 Retain NPS stables and corrals.
- 11 Maintain outdoor sand storage area for winter use.
- 12 Delineate flex parking and equipment staging area.
- 13 Delineate short-term, high-turnover shuttle bus parking spaces.
- 14 Provide additional shuttle bus parking or designated snow storage area.
- 15 Outdoor storage area to be re-organized and improved.
- 16 Maintain utility building use with park partner.
- 17 Reconstruct retaining wall to provide for bus access to existing bay door.
- 18 Construct a 10,000 square-foot mezzanine in the existing Concessioner Maintenance Building and Warehouse. Relocate Concessioner General Office from Yosemite Village Day-use Parking Area; Alternatives 2, 3, 4 and 5 only.
- 19 Construct a 4,000 square-foot office addition to the Concessioner Maintenance Building and Warehouse for Concessioner General Office use; Alternative 6 only.



NORTH

**Alternatives 2,3,4,5,6**  
**Conceptual Site Drawing for**  
**Yosemite Valley Maintenance Area**  
 Yosemite National Park

United States Department of the Interior • National Park Service

\*These drawings are provided to demonstrate where facilities would be removed, relocated, or constructed according to actions more fully described by project alternatives. The drawings do not represent a final proposal. More detailed design and construction documents would be developed consistent with the general concepts presented here.



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## **ALTERNATIVE 2: SELF-RELIANT VISITOR EXPERIENCES AND EXTENSIVE FLOODPLAIN RESTORATION**

### **Overview**

The guiding principles of Alternative 2 would include maximizing the restoration of the 100-year floodplain by removing infrastructure not essential to resource-related recreation, and creating a more self-reliant visitor experience, where fewer commercial services would be available. Visitor-use levels would be managed to allow for visitor experiences free of crowding or congestion.

Management actions in Alternative 2 would:

- Restore 347 acres of meadow and riparian habitat.
- Slightly reduce the available campsites in all river segments (-8%) and in Yosemite Valley (-3%).
- Significantly reduce the available lodging in all river segments (-43%) and in Yosemite Valley (-46%).
- Reduce day-use parking spaces in Yosemite Valley (-23%).
- Reduce commercial services.
- Make significant changes to traffic-circulation patterns in Yosemite Valley to accommodate ecological restoration goals and reduce traffic congestion.
- Accommodate approximately 13,900 visitors per day in East Yosemite Valley.
- Continue to manage overnight use through wilderness permit system and a reservation system for lodging and camping.
- Manage day-use capacity for East Yosemite Valley through parking permit system required during peak summer season.

### ***Actions to Protect and Enhance River Values***

Alternative 2 would protect and enhance river values through major ecological restoration to enhance the connectivity of the river to its floodplain. It would prioritize enhancement of ecological river values, including large portions of the 100-year floodplain, dynamic areas of the 10-year floodplain in East Yosemite Valley, and corridorwide riparian and meadow habitat, over the retention of existing infrastructure and circulation patterns. In addition to actions common to the other action alternatives, it would ecologically restore the areas currently occupied by the Merced Lake High Sierra Camp, campsites and lodging units in Yosemite Valley, the Wawona Golf Course, and the Concessioner Stables, and it would create a large valley oak habitat protection area. The free-flowing condition of the river would be enhanced by removing three bridges within the bed and banks of the river that constrict flow during high-water events. Hydrologic connectivity of meadows to the riparian floodplain would be enhanced through the removal of certain road segments that bisect meadows.

Cultural and scenic values would be protected and enhanced as described under “Actions Common to Alternatives 2-6” (beginning on page 8-53). Recreational values would be protected and enhanced through the removal of the Merced Lake High Sierra Camp, and by improving visitor circulation and reducing crowding in Yosemite Valley. Table 8-12 provides a summary of the actions that would occur under Alternative 2 to protect and enhance river values.

**TABLE 8-12: ADDITIONAL ACTIONS TO PROTECT AND ENHANCE RIVER VALUES, ALTERNATIVE 2**

<b>Ecological Restoration Actions (Free Flow, Water Quality, Geologic/Hydrologic, and Biological Values)</b>	
<b>Corridorwide</b>	
<b>Ecological Restoration Acreage</b>	164 acres (common to all) plus an additional 183 acres (refer to Appendix E for specific locations)
<b>Riprap to be Removed</b>	5,700 linear feet (common to all) plus an additional 964 feet (refer to Appendix E for specific locations)
<b>Segment 1: Wilderness above Nevada Fall</b>	
<b>Riparian Buffer / Floodplain</b>	<ul style="list-style-type: none"> <li>Ecologically restore the Merced Lake High Sierra Camp.</li> </ul>
<b>Segment 2: Yosemite Valley</b>	
<b>Free Flow / Geologic/Hydrologic Values</b>	<ul style="list-style-type: none"> <li>Remove Ahwahnee, Sugar Pine, and Stoneman Bridges to enhance the free-flowing condition of the river.</li> </ul>
<b>Riparian Buffer / Floodplain</b>	<ul style="list-style-type: none"> <li>Ecologically restore 35.6 acres of floodplain at former Upper and Lower River Campgrounds.</li> <li>Move Yosemite Village Day-use Parking Area parking north outside the 10-year floodplain.</li> <li>Ecologically restore 25 acres of 100-year floodplain at the North Pines Campground, Backpackers Campground, Yellow Pine Administrative Campground, and portions of Lower Pines campground.</li> <li>Ecologically restore large areas of Yosemite Lodge and Housekeeping Camp,</li> <li>Ecologically restore Concessioner Stables, Ahwahnee Row, and Tecoya housing area.</li> </ul>
<b>Meadow Restoration</b>	<ul style="list-style-type: none"> <li>Remove 900 feet of Northside Drive through Ahwahnee Meadow to enhance connectivity of the meadow and floodplain.</li> <li>Remove 1,335 feet of Southside Drive through Stoneman Meadow to enhance connectivity of the meadow and floodplain.</li> </ul>
<b>Segment 7 : Wawona</b>	
<b>Meadow Restoration</b>	<ul style="list-style-type: none"> <li>Ecologically restore the 42-acre Wawona Golf Course to meadow habitat.</li> </ul>
<b>Recreational Values</b>	
<b>Segment 1: Wilderness above Nevada Fall</b>	
<b>Wilderness Recreation</b>	<ul style="list-style-type: none"> <li>Enhance wilderness character by removing the Merced Lake High Sierra Camp and converting this area to designated Wilderness.</li> <li>Reduce zone capacities and convert overnight use to dispersed camping</li> </ul>

***User Capacity, Land Use, and Facilities Management***

Alternative 2 would focus on providing a more self-reliant visitor experience, with a marked reduction in commercial services and facilities. As a result of this focus on self-reliance, as well as the goal of extensive floodplain restoration, the overall visitor use levels would be lower than current use levels to allow for increased resource restoration and for reduced crowding and congestion in the most popular areas of the river corridor. Table 8-13 provides a summary of user capacities by use type and location.

**TABLE 8-13: USER CAPACITIES BY USE TYPE AND LOCATION- ALTERNATIVE 2**

User Capacities by Use Type and Location		Alt 1 (No Action)		Alt 2	
		Units	People	Units	People
	Unit Type				
<b>Wilderness Above Nevada Fall</b>					
Visitor Overnight Use	Zone Capacities & Beds	380	380	195	195
Visitor Day Use	Day Hikers	350	350	350	350
Employee Housing	Employee Beds	15	15	5	5
Administrative Day Use	People on Day Patrols	5	5	5	5

**TABLE 8-13: USER CAPACITIES BY USE TYPE AND LOCATION- ALTERNATIVE 2**

User Capacities by Use Type and Location		Alt 1 (No Action)		Alt 2	
	Unit Type	Units	People	Units	People
<b>Yosemite Valley</b>					
Visitor Overnight Use	Rooms & Sites	1,500	6,564	1,006	4,758
Visitor Day Use	Parking Spaces & Buses		8,272	-	6,819
Employee Housing	Employee Beds	1,315	1,315	658	658
Administrative Day Use	Parking Spaces	166	332	166	332
<b>Merced Gorge</b>					
Visitor Overnight Use	Rooms & Sites	-	-	-	-
Visitor Day Use	Parking Spaces	180	869	180	869
Employee Housing	Employee Beds	9	9	9	9
Administrative Day Use	Parking Spaces	2	4	2	4
<b>El Portal</b>					
Visitor Overnight Use	Rooms & Campsites	-	-	-	-
Visitor Day Use	Parking Spaces	214	740	214	740
Employee Housing	Employee Beds	192	192	618	618
Administrative Day Use	Parking Spaces	610	1,220	610	1,220
<b>South Fork Above Wawona</b>					
Visitor Overnight Use	Zone Capacities	20	20	20	20
Visitor Day Use	Day Hikers	6	6	6	6
Employee Housing	Beds	-	-	-	-
Administrative Day Use	Day Patrols	1	1	1	1
<b>Wawona</b>					
Visitor Overnight Use	Rooms & Sites	203	865	171	673
Visitor Day Use	Parking Spaces & Buses	-	1,295	-	1,321
Employee Housing	Beds	121	121	121	121
Administrative Day Use	Parking Spaces	30	60	30	60
<b>South Fork Below Wawona</b>					
Visitor Overnight Use	Zone Capacities	3	3	3	3
Visitor Day Use	Day Hikers	3	3	3	3
Employee Housing	Employee Beds	-	-	-	-
Administrative Day Use	Day Patrols	1	1	1	1

## Visitor Overnight Capacity

### Camping

The campsite inventory in the Merced Wild and Scenic River corridor, including Yosemite Valley, would be reduced by approximately 8% as a result of natural and cultural resource protection measures. All campsites within the 100-year floodplain would be removed. Campsite losses would be offset by the addition of new walk-in camping at a redeveloped Yosemite Lodge, east of Camp 4 Campground, and west of Backpackers Campground. Under Alternative 2, the total number of campsites in Yosemite Valley would be 450 sites, and the total number of campsites available in the corridor would be 521 sites. Table 8-14 provides a summary of the proposed changes to camping and the reasons for those proposed changes.

**TABLE 8-14: CAMPING FACILITIES- ALTERNATIVE 2**

Existing Locations	Alt 1 (No Action)	Alt 2	Details
Backpackers	25 sites	0 sites	25 walk-in sites removed from the 100-year floodplain, some of which will be relocated west of Backpackers
Camp 4	35 sites	35 sites	No change to this National Historic Register Site
Lower Pines	76 sites	44 sites	32 sites removed from the 100-year floodplain
North Pines	86 sites	0 sites	86 sites removed from the 100-year floodplain
Upper Pines	240 sites	216 sites	22 sites removed from the 100-year floodplain and 2 sites for cultural resource concerns
Yellow Pine Administrative	4 sites	0 sites	4 group administrative sites removed from the 100-year floodplain
Wawona Campground	99 sites	67 sites	32 sites removed from the 100-year floodplain or in culturally sensitive areas
<b>Total Existing Locations</b>	<b>565 sites</b>	<b>362 sites</b>	
New Locations	Alt 1 (No Action)	Alt 2	Details
West of Backpackers	0 sites	16 sites	16 walk-in sites relocated from Backpackers Camp to less sensitive area outside 100-year floodplain
East of Camp 4	0 sites	35 sites	35 walk-in sites constructed in area east of Camp 4
Yosemite Lodge walk-in	0 sites	104 sites	100 walk-in sites and 4 group sites constructed
Abbieville / Trailer Court	0 sites	4 sites	4 group administrative sites constructed in El Portal to replace Yellow Pine administrative sites
<b>Total New Camping</b>	<b>0 sites</b>	<b>159 sites</b>	
<b>Total Camping in Corridor</b>	<b>565 sites</b>	<b>521 sites</b>	

**Lodging**

In-park lodging availability would be reduced by approximately 43% as compared to existing conditions. Management actions related to lodging would focus on removing lodging from the 100-year floodplain at Yosemite Lodge and Housekeeping Camp, and in Wilderness. New hard-sided lodging would be constructed in Curry Village to offset the loss of year-round accommodations at Yosemite Lodge. As a result of these actions, the in-corridor lodging inventory would be reduced from 1,160 units to 660 units. Table 8-15 provides a summary of the proposed changes to lodging and the reasons for those proposed changes.

**TABLE 8-15: LODGING FACILITIES- ALTERNATIVE 2**

Wilderness	Alt 1 (No Action)	Alt 2	Details
Merced Lake High Sierra Camp (MLHSC)	60 beds (22 units)	0 beds	Remove all infrastructure and expand dispersed camping into re-purposed MLHSC area
Yosemite Valley	Alt 1	Alt 2	Details
Ahwahnee Hotel	123 rooms	123 rooms	No change at this National Historic Landmark
Housekeeping Camp	266 tent cabins	0 tent cabins	Remove all units from 100-year floodplain
Curry Village	400 units	433 units (290 tents and 143 hard-sided units)	<ul style="list-style-type: none"> <li>▪ Retain 290 tents</li> <li>▪ Retain 47 hard-sided cabin-with-bath units</li> <li>▪ Retain 18 units at Stoneman House</li> <li>▪ Construct 78 hard-sided units in Boys Town</li> </ul>
Yosemite Lodge	245 rooms	0 rooms	Remove entire lodging complex, including those units in the 100-year floodplain
Wawona	Alt 1	Alt 2	Details
Wawona Hotel	104 rooms	104 rooms	No change at this National Historic Landmark
<b>Total Lodging in Corridor</b>	<b>1,160 units</b>	<b>660 units</b>	
* <b>El Portal:</b> Private accommodations exist but are not on NPS land; therefore, they are not listed here			

## Visitor Day Use Capacity and Access Improvements

Day-use parking capacity in Yosemite Valley would be reduced by 23% compared to current levels. Day-use capacity would be actively managed and potentially restricted during peak use season (May through September). A day use permit system would be implemented in this alternative for East Yosemite Valley during the peak summer season. Table 8-16 provides a summary of the total number of day-use parking spaces for each segment of the corridor where parking occurs.

**TABLE 8-16: NUMBER OF DAY-USE PARKING SPACES BY SEGMENT, ALTERNATIVE 2**

Location	Alt 1 (No Action)	Alt 2
Segment 2: Yosemite Valley	2,337 spaces	1,800 spaces
Segment 3: The Gorge	180 spaces	180 spaces
Segment 4: El Portal	214 spaces	214 spaces
Segment 7: Wawona	290 spaces	290 spaces
<b>Total Parking</b>	<b>3,021 spaces</b>	<b>2,484 spaces</b>

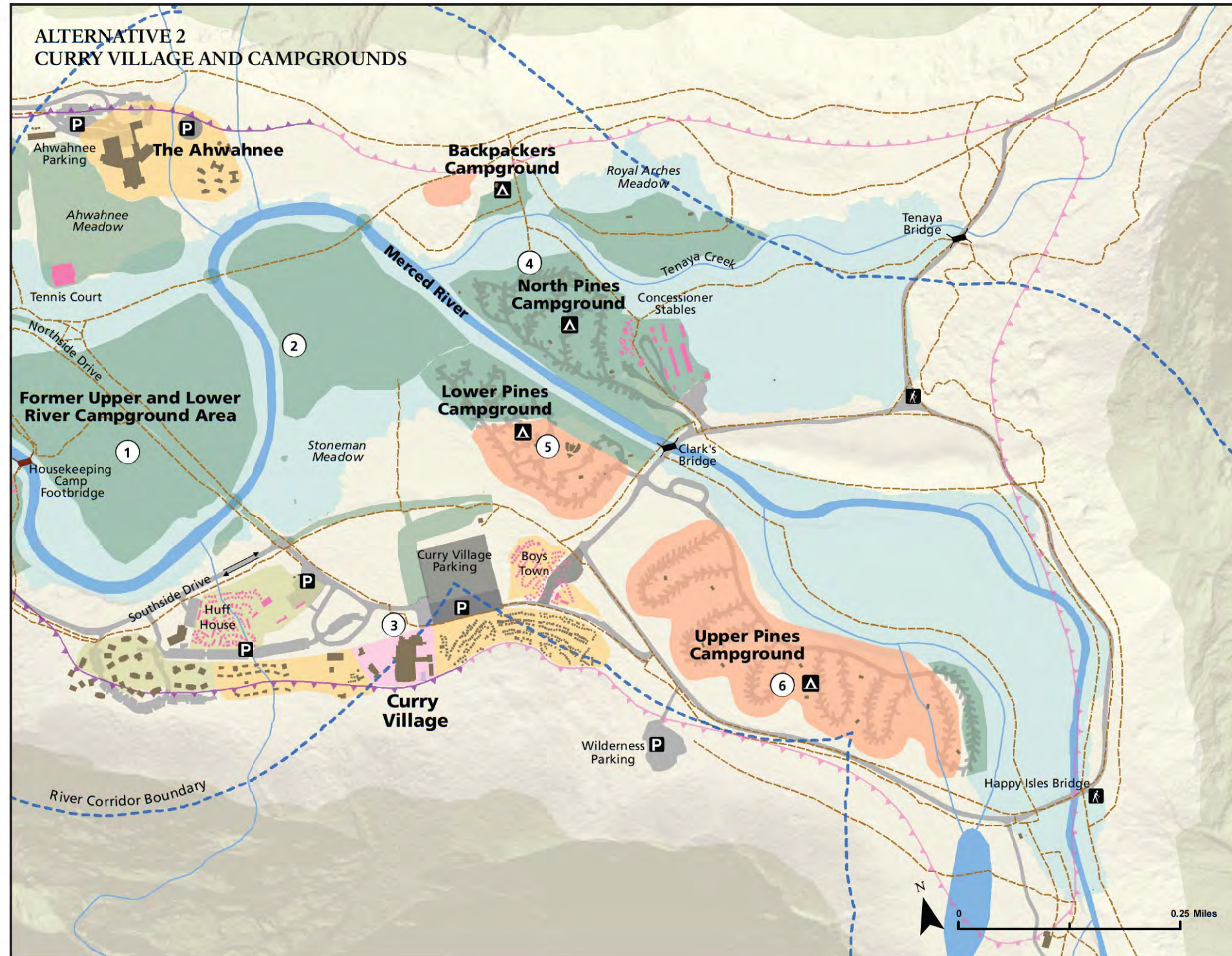
The most significant changes to parking and traffic circulation would take place in the vicinity of the Yosemite Village Day-use Parking Area and Yosemite Lodge. Day-use visitors would park at a redesigned parking area at Yosemite Village Day-use Parking Area, with a total of 550 parking spaces. At Yosemite Lodge, proposed changes include a new day-use parking area north of the core visitor service area, and additional overnight parking west of Yosemite Lodge to serve new camping areas. Total parking for East Yosemite Valley (including day, overnight, and administrative uses) would be approximately 4,000 spaces.

Transit services would remain unchanged on the Highway 140, Highway 120 West and Highway 120 East corridors; one round-trip run per day would be added to the Highway 41 corridor. All within-park shuttle services would remain the same, and the East Valley shuttle would decrease shuttle intervals to 5 minutes.

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# ALTERNATIVE 2: SELF-RELIANT VISITOR EXPERIENCES AND EXTENSIVE FLOODPLAIN RESTORATION



## EAST YOSEMITE VALLEY: CURRY VILLAGE AND CAMPGROUNDS

- Former Upper and Lower River Campground Area**
  - Ecological Restoration: Restore 35.6 acres of floodplain habitat within the 10-year floodplain. Restore natural floodplain topography by removing remaining asphalt and re-establishing seasonal channels, and revegetate with native plants. Remove Lower River amphitheater. Temporarily fence restoration areas to allow for recovery.
- River Reach between Bridges**
  - Ahwahnee and Sugar Pine Bridges: Remove the Ahwahnee and Sugar Pine Bridges (and associated berm) to enhance the free-flowing condition of the river. Restore area to natural conditions. Re-route the multiple-use trail north of the river.
  - Stoneman Bridge: Remove Stoneman Bridge to enhance free-flowing condition of the river. Restore area to natural conditions. Reconfigure part of Southside Drive as a two-way road, remove the road segment through Stoneman Meadow, and redesign intersection at Sentinel and Southside Drive.
- Curry Village Area**
  - Ecological Restoration: Remove Southside Drive through Stoneman Meadow to enhance the hydrologic connectivity of the meadow. Re-align road through the Boys Town area to facilitate restoration of Stoneman meadow. Extend meadow boardwalk (up to 275 feet) to Curry Village.
  - Lodging: Total would be 433 guest units, including: 290 tents in Curry Village retained; 78 hard-sided units constructed in Boys Town; 18 units at Stoneman House retained; and 47 cabin-with-bath units in Curry Village retained.
  - Curry Orchard Parking Area: Re-design the Curry Orchard parking area to formalize 420 parking spaces. Re-design will incorporate best management practices to increase hydrologic flows into Stoneman Meadow and protect water quality. Remove apple trees to mitigate human-bear interactions, and plant native vegetation.
- North Pines Campground Area**
  - North Pines Campground: Remove all 86 campsites in the 100-year floodplain and restore to native floodplain/riparian habitat.
  - Backpackers Campground: Remove all 25 walk-in sites in the campground, of which 21 are within the 100-year floodplain. Partially replace with a new campground with 16 walk-in sites west of Backpackers Campground.
  - Concessioner Stables: Ecologically restore the stables area, located within the 100-year floodplain. Remove associated housing (25 beds).
- Lower Pines Campground Area**
  - Campground Sites: Retain 44 campsites and remove 32 campsites within the 100-year floodplain.
- Upper Pines Campground Area**
  - Campground Sites: Retain 216 campsites. Remove 22 sites to restore the 100-year floodplain and an additional two sites to protect cultural resources.

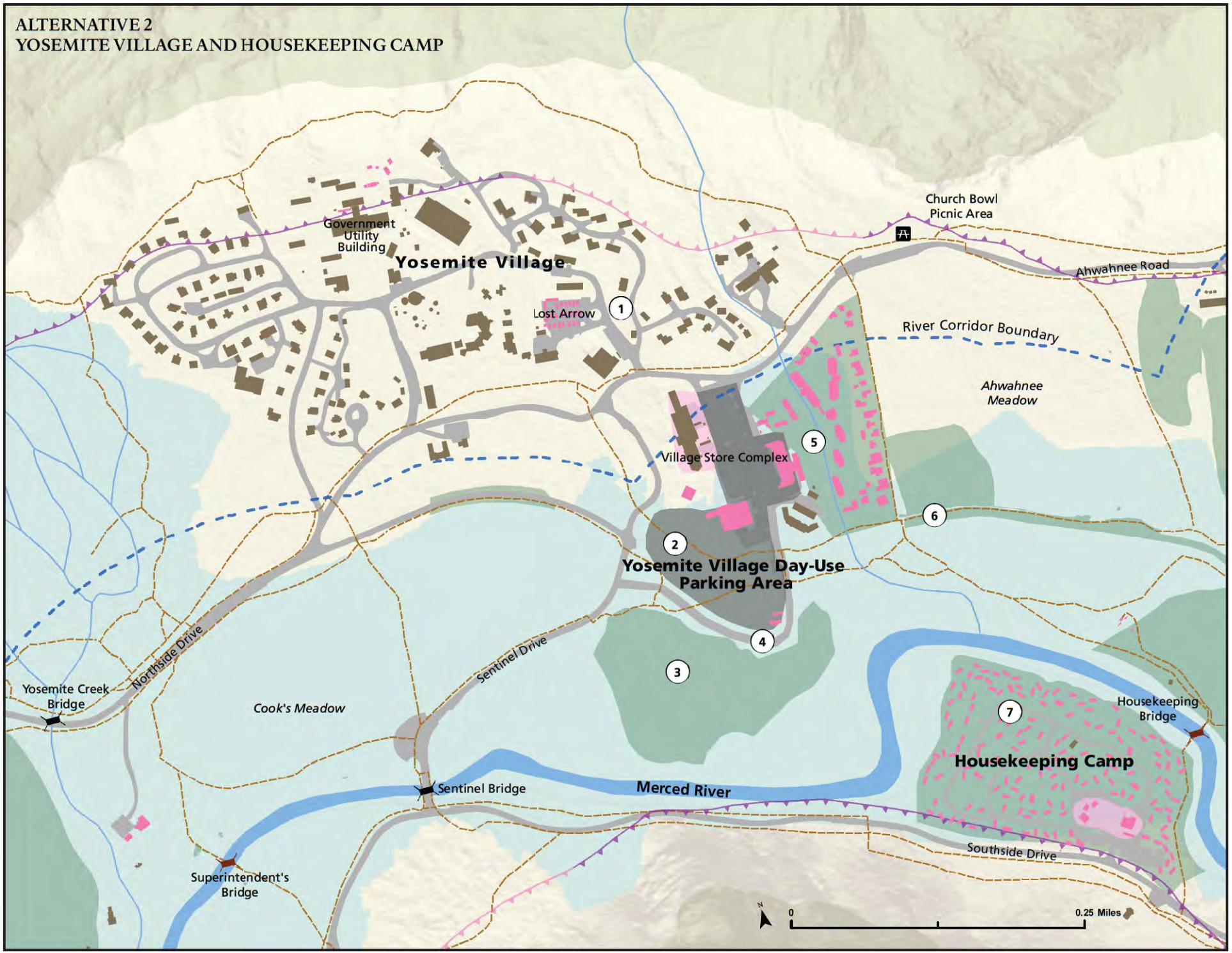
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# ALTERNATIVE 2: SELF-RELIANT VISITOR EXPERIENCES AND EXTENSIVE FLOODPLAIN RESTORATION



- EAST YOSEMITE VALLEY: YOSEMITE VILLAGE AND HOUSEKEEPING CAMP
1. Lost Arrow: Remove temporary employee housing. Re-establish an administrative parking lot to accommodate 50 spaces.
  2. Yosemite Village Day-use Parking Area: Move the parking area day-use parking northward outside of the dynamic 10-year floodplain. Formalize the Yosemite Village Day-use Parking Area using best management practices to protect water quality to accommodate 550 parking places.
  3. Floodplain and Riparian Ecological restoration at Yosemite Village Day-use Parking Area: Remove fill material and restore meadow and floodplain habitat within the dynamic 10-year floodplain.
  4. Pedestrian/Vehicle Conflicts: Re-route Northside Drive to the south of the Yosemite Village Day-use Parking Area. Consolidate parking to the north of the road and provide walkways leading to Yosemite Village separating vehicle and pedestrian traffic and eliminating conflicts and associated traffic congestion. Re-designed traffic circulation patterns would not require roundabouts or pedestrian road crossings.
  5. Indian Creek Restoration: Remove housing and development in the 100-year floodplain between Village Store and Ahwahnee Meadow. Recontour topography, restore stream hydrology, decompact soils, and plant native meadow vegetation.
  6. Ahwahnee Meadow Restoration: Remove 900 feet of road through Ahwahnee Meadow and relocate the bike path to the south, restoring hydrologic connectivity between the meadow and river. Re-route the formal foot trail in Ahwahnee Meadow so it does not pass through wetlands. Restore meadow topography and native vegetation in original trail corridor.
  7. Housekeeping Camp Lodging: Restore the 100-year floodplain to natural conditions. Remove all 266 lodging units and amenities including shower houses, laundry, office, and grocery store. Convert area to day-use river access point and picnic area. Retain one restroom for day users. Restore 16.8 acres of floodplain and riparian ecosystem.

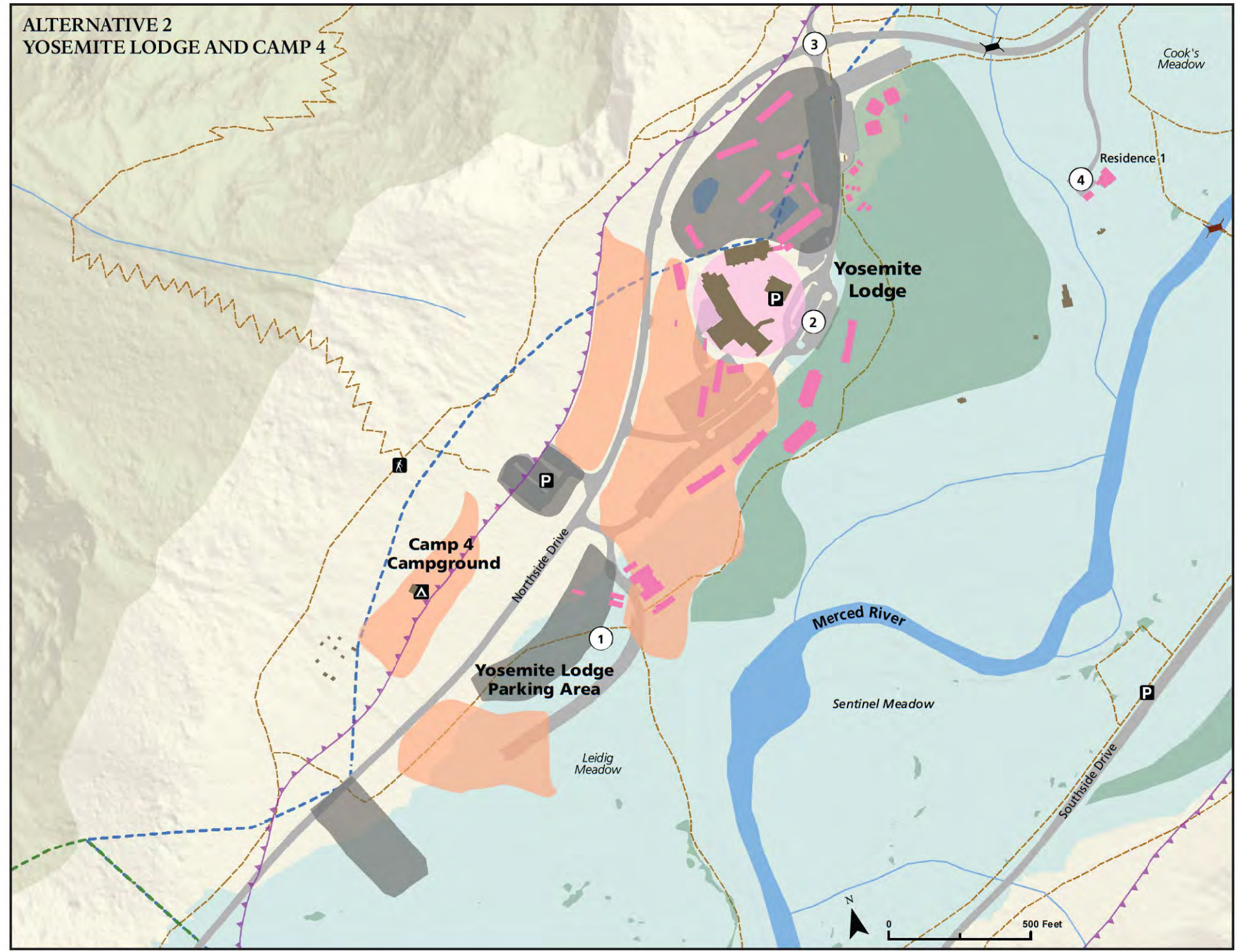
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# ALTERNATIVE 2: SELF-RELIANT VISITOR EXPERIENCES AND EXTENSIVE FLOODPLAIN RESTORATION



## EAST YOSEMITE VALLEY: YOSEMITE LODGE AND CAMP 4

1. West of Yosemite Lodge
  - **Parking:** Construct 150 new parking spaces southwest of Yosemite Lodge. This includes 15 spaces for tour bus parking. Parking re-development will incorporate best management practices to protect water quality.
2. Yosemite Lodge Area
  - **Yosemite Lodge Re-development:** Remove the 245 existing lodging units at Yosemite Lodge. Re-purpose the area for day-use parking, a day lodge, food service, and camping and restore major portion of the 100-year floodplain.
  - **Ecological restoration:** Restore riparian and floodplain ecosystem at the site of the former Yosemite Lodge units and cabins (those that were damaged by the 1997 flood and subsequently removed). Delineate one service road to the well house and parking. Remove non-native fill, decompact soils and plant riparian plant species (10.9 acres).
  - **Camping:** Construct 100 new walk-in campsites and four group sites in former Yosemite Lodge site.
  - **Day-Use Parking:** Add 250 day-use parking spaces in the Yosemite Lodge area. Parking re-development will incorporate best management practices to protect water quality.
  - **Services and Facilities:** Convert to day-use and retain core visitor services. Retain the food court. Re-purpose the Mountain Room dining service and bar areas as a day lodge. Re-purpose the convenience shop and nature shop. Remove the NPS Volunteer Office, post office, swimming pool, bike rentals, and snack stand.
  - **Concessioner Housing:** Remove housing at Highland Court and at the Thousands Cabins (as listed under actions common to all alternatives). No new housing would be constructed in its place.
3. Yosemite Falls Intersection
  - **Traffic Congestion:** Move the pedestrian crossing between Yosemite Lodge and Yosemite Falls to an on-grade (street level) pedestrian crossing west of the intersection of Northside Drive and Yosemite Lodge Drive to alleviate traffic congestion created by pedestrian/vehicle conflicts.
4. Residence 1
  - **Residence 1:** Relocate this historic structure, also known as the Superintendent's House, to the NPS housing area and rehabilitate the building per the Secretary of Interior's Standards for the Treatment of Historic Properties and the Historic Structures Report. Ecologically restore associated informal trails in Cook's Meadow and address continuing use patterns to enhance black oak woodland and meadow habitat.

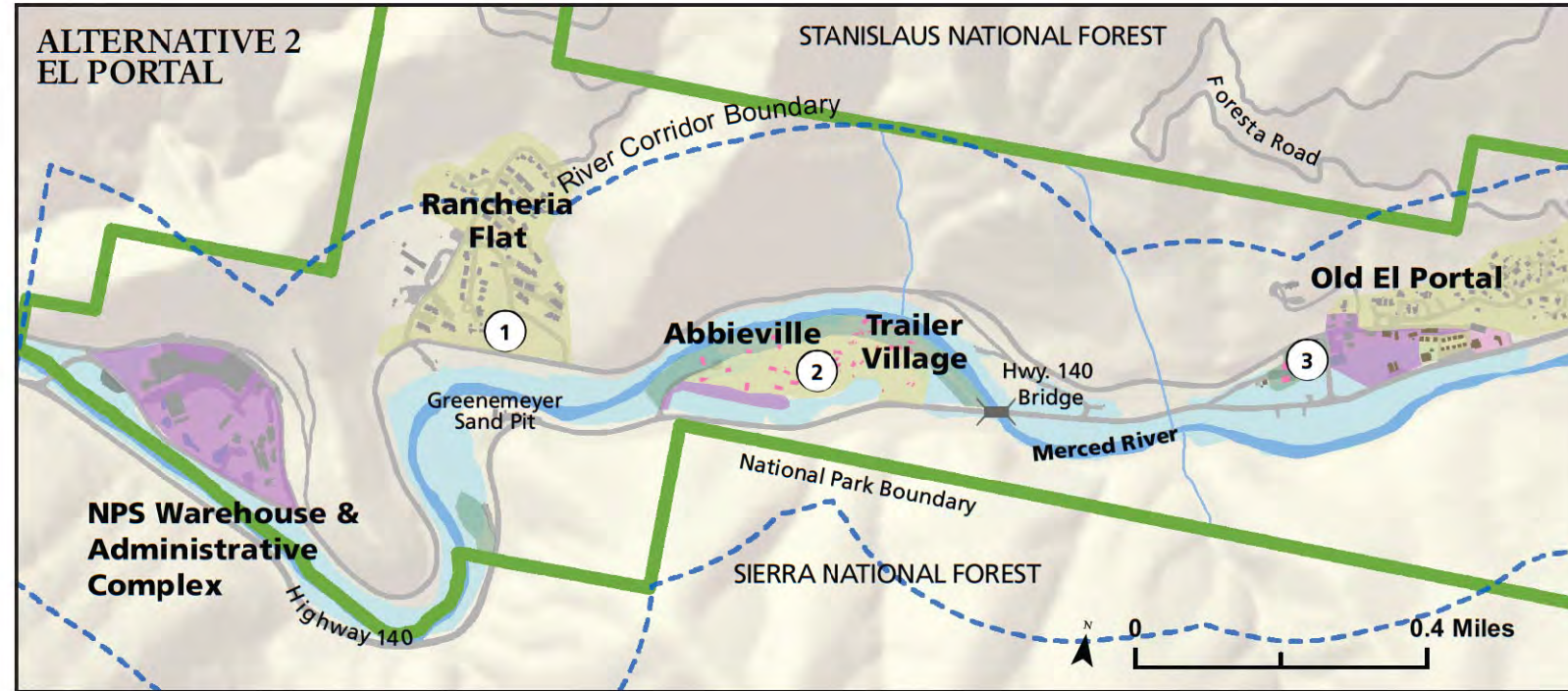
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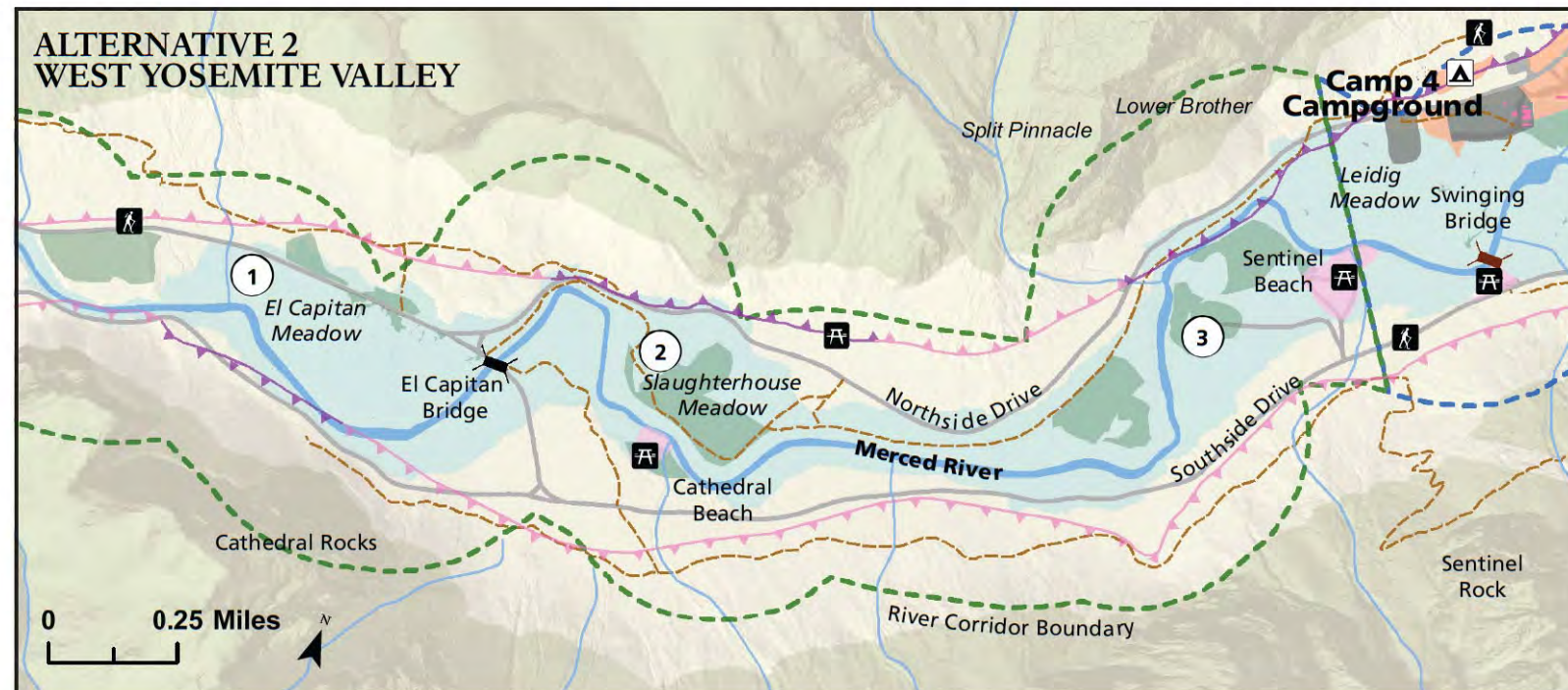


# ALTERNATIVE 2: SELF-RELIANT VISITOR EXPERIENCES AND EXTENSIVE FLOODPLAIN RESTORATION



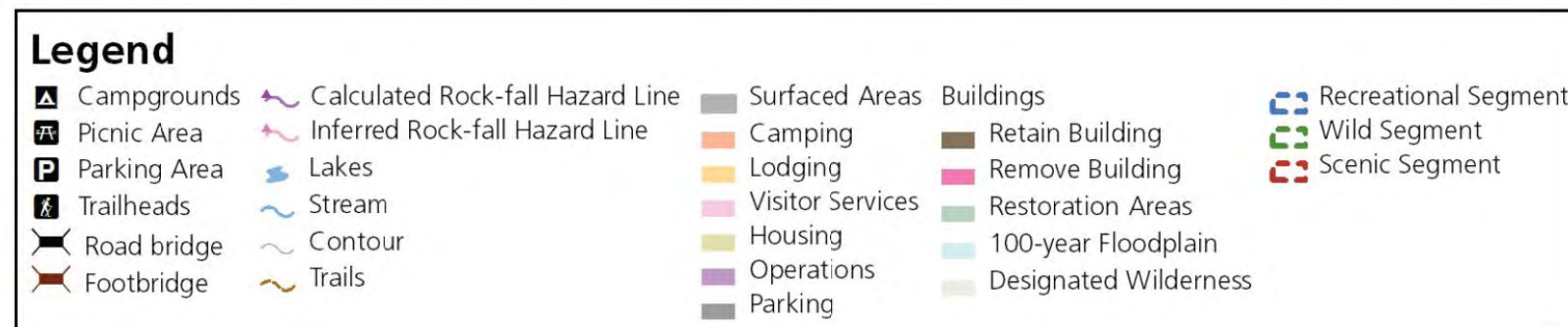
## EL PORTAL

- Rancheria Flat**
  - Employee Housing: To replace temporary housing units to be removed Yosemite Valley, construct nine new units, away from sensitive resources.
- Abbieville and Trailer Village**
  - Abbieville and Trailer Village Housing: Remove or relocate 36 existing private residences in Abbieville and Trailer Village. This area would become both concessioner housing and administrative camping. To facilitate removal of temporary employee housing in Yosemite Valley, develop high-density housing units here for 405 employees.
  - Administrative Camping: Develop an administrative campsite at the Abbieville/Trailer Village area (camping relocated from Yellow Pine administrative site in Yosemite Valley).
- El Portal Village Center**
  - Valley Oak Restoration: Restore the rare floodplain community of valley oaks in Old El Portal through implementation of best management practices. Create a valley oak recruitment area of 2.25 acre in Old El Portal in the vicinity of the current Odger's bulk fuel storage area, including the adjacent parking lots. Decompact soils, plant appropriate native understory plant species, and treat invasive plants. Prohibit new building construction within the oak recruitment area.
  - Odger's Fuel Storage Facility: Remove bulk fuel storage facility, all associated development, and non-native fill from the floodplain. Decompact soils, and plant appropriate native plant species, including valley oak. Relocate the fuel storage area outside the Merced River corridor or find an alternate source for emergency fuel supplies.



## WEST YOSEMITE VALLEY

- El Capitan Meadow Area**
  - El Capitan Meadow Ecological Restoration: Remove all informal trails and areas of bare compacted soils and restore to native plant communities. Disperse and reduce roadside parking along the meadow through alternative pavement striping (approximately 30 spaces removed); retain some roadside parking for SAR and other administrative traffic. Use restoration fencing and signing where necessary to further protect the meadow from trampling. No boardwalks are constructed in Alternative 2.
- Valley Loop Trail**
  - Trail Re-Route: Re-route trail through Slaughterhouse Meadow out of wetland habitat to an upland area. Move a 780-foot section of the trail through Bridalveil Meadow to the base of the Southside Drive road shoulder.
- Yellow Pine Campground**
  - Ecological Restoration: Remove administrative camping at Yellow Pine and restore the 100-year floodplain to natural conditions. Relocate administrative camping to Abbieville and the Trailer Village area in El Portal.

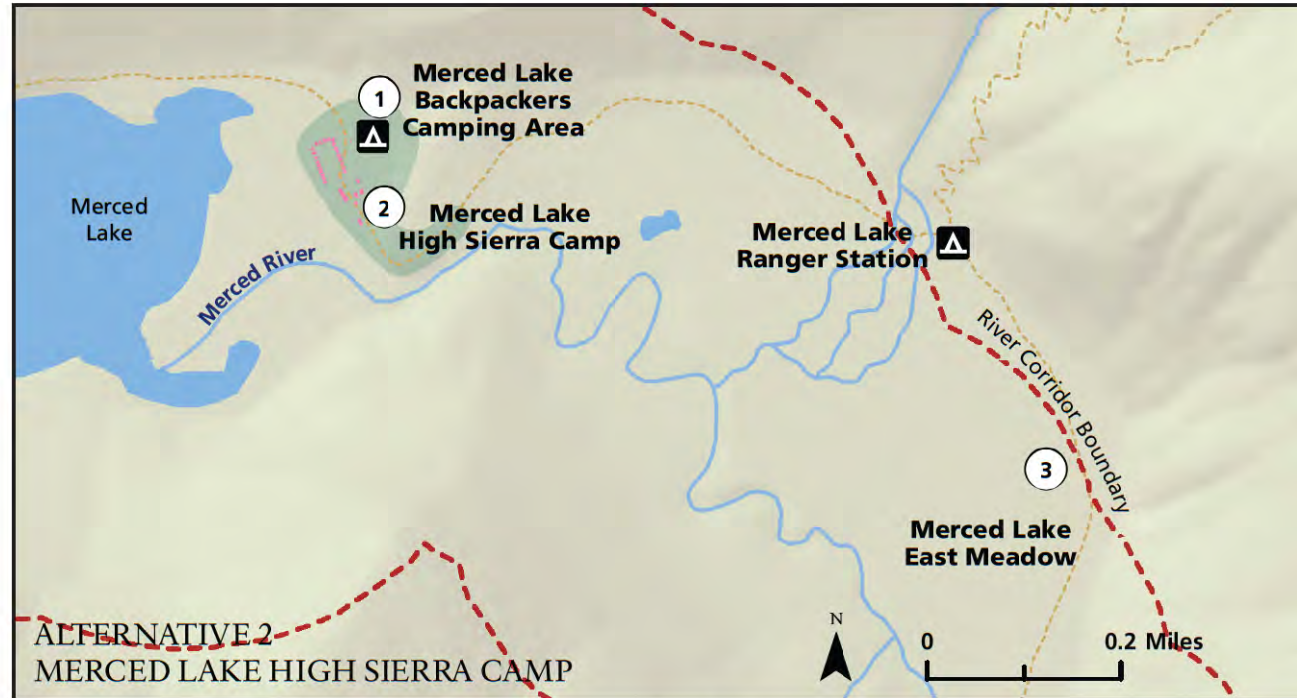




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# ALTERNATIVE 2: SELF-RELIANT VISITOR EXPERIENCES AND EXTENSIVE FLOODPLAIN RESTORATION



## MERCED LAKE HIGH SIERRA CAMP

1. Merced Lake Backpackers Camping Area: Discontinue designated camping in this area but allow dispersed camping here and in the Merced Lake High Sierra Camp. Remove waste-water system and flush toilets.
2. Merced Lake High Sierra Camp: Close and remove this lodging facility. Expand dispersed camping at the Merced Lake Backpackers Camping Area into the High Sierra Camp footprint. Remove all permanent infrastructure, including the buildings, water and septic system. Ecologically restore the area and convert the area to designated Wilderness.
3. Merced Lake East Meadow: Remove the meadow from grazing permanently. Require all administrative pack stock passing through the Merced Lake area to carry pellet feed.

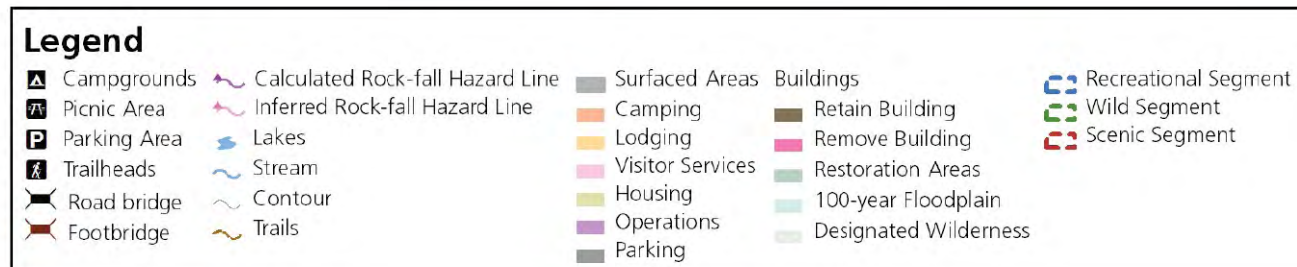
## OTHER SEGMENT 1 CAMPING AREAS

- Little Yosemite Valley: Discontinue designated camping in this area, but allow dispersed camping. Remove all infrastructure associated with the designated camping area.
- Moraine Dome: Discontinue designated camping in this area, but allow dispersed camping.



## WAWONA

1. Wawona Campground: Retain 64 campsites and one group site. Remove 32 sites that are located within the 100-year floodplain or culturally sensitive areas.
2. Wawona Meadow Restoration: Remove nine-hole golf course and restore to meadow conditions. Retain spray field associated with waste water treatment facility.
3. Wawona Stables: Eliminate stable operation and commercial day rides. Relocate two stock-use campground sites from a sensitive resource area to the existing stables area.



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## Detailed Description of Alternative 2 by Segment

### *Segment 1: Wilderness above Nevada Fall (Wild Segment)*

#### **Actions to Protect and Enhance River Values**

In addition to the “Actions Common to Alternatives 2-6” (beginning on page 8-53), Alternative 2 would include the following action to protect and enhance river values:

#### *Biological Values*

- Prohibit administrative pack stock grazing at Merced Lake East Meadow. Require administrative stock to pack in pellet feed.

#### *Recreational Values*

- Wilderness character would be enhanced through the removal of the Merced Lake High Sierra Camp and converting this area to designated Wilderness.
- Reduce visitor use (thus crowding) at Little Yosemite Valley and Merced Lake by converting all designated camping areas to dispersed camping. With the conversion to dispersed camping visitors would have the opportunity to camp out of sight and sound from other campers. Additionally, trailhead quotas would be reduced for trailheads that lead to Little Yosemite Valley.

#### **User Capacity, Land Use and Facilities Management**

Alternative 2 would significantly reduce the amount of infrastructure and the amount of use in Segment 1 to promote dispersed camping and increase opportunities for solitude. In addition to the “Actions Common to Alternatives 2-6” (beginning on page 8-77), Alternative 2 would include the following actions to manage user capacity, land use, and facilities:

#### *Visitor Activities and Services*

Overnight use in this segment would consist of visitors staying overnight dispersed throughout the Wilderness.

Private boating would be allowed in this segment under this alternative. Generally, this kind of use would consist of short floats using pack raft or other craft that can easily be carried into this remote area. Put-ins and take-outs would be allowed in dispersed areas. The level of use would be unrestricted as use levels for this activity would be expected to remain low due to the remote nature of this segment.

No overnight commercial groups would be allowed in Wilderness zones in Segment 1.

#### *Visitor Overnight Capacity*

Overnight capacities would be reduced through the trailhead quota system, as shown in Table 8-17, and services would be managed as follows:

- Remove the Merced Lake High Sierra Camp.
- Transition the designated backpackers camping areas Merced Lake, Little Yosemite Valley, and Moraine Dome to dispersed camping zones; remove infrastructure.

**TABLE 8-17: WILDERNESS ZONE CAPACITIES – ALTERNATIVE 2**

Wilderness Zones	Alt 2 Zonewide Capacity	Alt 2 Zone Capacity Specific to the River Corridor
Little Yosemite Valley Zone	25 people (-125 people*)	25 people (-125 people*)
Merced Lake Zone	50	50
Washburn Lake Zone	150	100
Mount Lyell Zone	50	10
Clark Range Zone	50	10

### *Visitor Day Use Capacity*

Day use access to this segment is addressed under “Actions Common to Alternatives 2-6,” beginning on page 8-53.

### *Administrative Activities*

- Reduce administrative activities as a result of the reduced zone capacities, removal of designated camping area, and removal of infrastructure. Backcountry utilities would no longer be needed in this segment following the removal of infrastructure at Little Yosemite Valley and Merced Lake High Sierra Camp.

### *Segment 2: Yosemite Valley (Recreational and Scenic Segments)*

#### **Actions to Protect and Enhance River Values**

In addition to the “Actions Common to Alternatives 2-6” (beginning on page 8-53), Alternative 2 would include the following actions to protect and enhance river values:

#### *Free Flow*

- Remove Stoneman Bridge and restore the river banks to natural conditions.
- Remove Sugar Pine and Ahwahnee Bridges and associated berm/elevated trail connecting them; restore riverbanks to natural conditions; reroute multiuse trail north along the river.

#### *Water Quality*

- Remove the Curry Village stable and the pack trail from the stable to Happy Isles; restore to natural conditions.

#### *Biological Values*

Alternative 2 would restore major portions of the floodplain:

- Remove all existing campsites and infrastructure within the 100-year floodplain and restore natural floodplain and riparian habitat (25 acres).
  - **Backpackers Camp:** Remove all 25 sites, 21 of which are in the 100-year floodplain (and within 150 feet of the ordinary high-water mark). (Replace 16 sites to the west of the current campground.)

- **North Pines Campground:** Remove all 86 campsites and restore the 100-year floodplain to natural conditions.
- **Lower Pines Campground:** Remove 32 campsites from the 100-year floodplain; restore the floodplain to natural conditions.
- **Upper Pines Campground:** Remove 22 campsites from the 100-year floodplain; restore the floodplain to natural conditions. (Remove an additional 2 sites to protect cultural resources; retain 216 sites.)
- **Former Lower and Upper River Campgrounds:** Remove all abandoned facilities, including the Lower River amphitheater structure, and restore 35.6 acres of natural floodplain topography and riparian/ wetland habitat within the 10-year floodplain; temporarily fence restoration areas to allow for recovery.
- **Yosemite Lodge:** Remove most buildings at Yosemite Lodge, including the four that are within the 100-year floodplain; restore the 100-year floodplain to natural conditions.
- **Former Pine and Oak Units:** Restore 10.9 acres of riparian ecosystem at the site of the former Yosemite Lodge units and cabins (those that were removed after the 1997 flood) and wellness center while maintaining access to the well house.
- **Ahwahnee Row and Tecoya Dorms:** Remove concessioner housing and development between the Village Store and Ahwahnee Meadow; recontour topography (using 1919 maps as a guide), decompact soils, and plant native meadow vegetation. Restore stream hydrologic function.
- **Yosemite Village:** Move the Yosemite Village Day-use Parking Area northward, out of the 10-year floodplain of the Merced River and outside of a designated 50-foot setback from Indian Creek; remove fill material and restore the floodplain to natural conditions.
- **Housekeeping Camp:** Remove all 266 lodging units and associated facilities at Housekeeping Camp (restrooms, shower houses, laundry, grocery store, and office), out of the 100-year floodplain; restore the floodplain to natural conditions by decompacting soils and planting riparian species. Direct visitor use and river access to the two resilient beach locations on the western edge of Housekeeping Camp and across the footbridge; fence off the current eastern river access point located on a steep eroded bank, and actively restore the riverbank with brush layering.

Alternative 2 would enhance meadow connectivity by removing segments of roads and trails that currently bisect meadows, interrupting sheetflow and causing habitat fragmentation.

- **Bridalveil Meadow:** Reroute the 780-foot segment of the Valley Loop Trail that currently crosses Bridalveil Meadow closer to the base of the fill slope of the Valley Loop Road.
- **Slaughterhouse Meadow:** Reroute the portion of the Valley Loop Trail to an upland area out of wetlands at Slaughterhouse Meadow.
- **El Capital Meadow:** Disperse and reduce roadside parking along El Capitan Meadow (approximately 30 spaces removed) to reduce the amount of social trailing into the meadow. Fence if necessary to further protect the meadow from trampling.
- **Ahwahnee Meadow:** Remove 900 feet of Northside Drive and relocate the bike path to the south, restoring Ahwahnee Meadow and riparian floodplain connectivity; restore meadow contours and native vegetation. Reroute trails through Ahwahnee Meadow so they do not pass through wetlands, consolidating use with the Housekeeping footbridge trail where possible; remove associated fill and restore trails within wetlands.
- **Stoneman Meadow:** Remove the segment of Southside Drive that bisects Stoneman Meadow (1,335 feet); realign Southside Drive through Boys Town. Extend the boardwalk through wet areas to Curry Village (up to 275').



### *Scenic Values*

- Eliminate visual intrusion of Southside Drive through Stoneman Meadow
- Eliminate visual intrusion of Northside Drive through Ahwahnee Meadow.

### *Cultural Values*

- Remove four structures from the collective sites representing the prominent historic patterns of development in Yosemite Valley: Sugar Pine Bridge, Ahwahnee Bridge, Stoneman Bridge, and Residence 1 (Superintendent's House).
- Relocate Residence 1 to the NPS housing area and at a minimum stabilize the building per the Secretary of the Interior's Standards for the Treatment of Historic Properties (NPS 1995).

### *Recreational Values*

- Restrict boating to 25 people per day using private vessels only and to specific stretches of river in Yosemite Valley. This reduction in boats would enhance dispersed recreation along the river corridor.
- Reduce available day-use parking and implement an East Yosemite Valley day-use parking permit system to reduce crowding at key attraction sites, along roadways, and in parking lots and other facilities).

## **User Capacity, Land Use and Facilities Management**

### *Visitor Activities and Services*

Alternative 2 would protect river-related recreational ORVs through infrastructure improvements where necessary, while reducing recreational activities that are not related to recreational ORVs. It would include the following changes to visitor activities and services in addition to those common to Alternatives 2-6 (see page 8-77):

- Allow only private boating in this river segment. Private boats would be limited to the section of river between the Pines campgrounds and Sentinel Beach. Put-ins and take-outs would be limited to designated locations within the Pines campgrounds and day-use public sites. This use would be monitored by a river patrol and would be limited to 25 permits per day.
- Remove Housekeeping Camp shower houses, restrooms, laundry, and grocery store. (Retain at least one restroom when reconfiguring the area for day use.)
- Remove the Concessioner Stable and restore the area to natural conditions.
- Remove Curry Village raft rental.

### *Visitor Overnight Capacity: Camping*

Camping would be reduced slightly to 450 sites accommodating 2,916 people per night. Many campsites removed from sensitive riparian areas would be replaced by a new 100-site campground in the area currently occupied by Yosemite Lodge. The following actions would occur at specific locations:

- **Backpackers Camp:** Remove all 25 sites, 21 of which are in the 100-year floodplain. Construct 16 new walk-in campsites west of Backpackers Camp.
- **North Pines Campground:** Remove all 86 campsites; restore the floodplain to natural conditions.

- **Upper Pines Campground:** Retain 216 campsites. Remove 22 campsites from the 100-year floodplain; restore natural floodplain conditions.
- **Lower Pines Campground:** Retain 44 campsites. Remove 32 sites that are within the 100-year floodplain.
- **Camp 4:** Retain 35 walk-in campsites and 35 parking spaces. Construct 35 additional campsites east of Camp 4; establish a new parking area (41 spaces) for the Camp 4 campground expansion in the disturbed footprint of the former service station near Camp 4.
- **New Construction:** Construct a new campground with 100 walk-in campsites and 4 group sites in the area formerly occupied by Yosemite Lodge.

### *Visitor Overnight Capacity: Lodging*

Under Alternative 2 lodging would be significantly reduced to facilitate ecological restoration, day use, and camping. Lodging would total 556 units accommodating 1,842 people per night. Common to Alternatives 2-6, The Ahwahnee would continue to provide 123 lodging rooms. The following additional lodging would be retained, removed, or constructed under Alternative 2:

Conceptual site drawings for lodging improvements at Boys Town under Alternative 2 have been completed to allow the analysis of impacts of this potential project. See "Conceptual Site Drawings" at the end of the Alternative 2 discussion for site details and design drawings.

- **Curry Village:** Retain 355 lodging units: 290 tents, 18 units at Stoneman House, and 47 hard-sided cabins with bath. Remove all existing cabins and associated structures at Boys Town. Construct 78 new lodging units suitable for year-round accommodations at Boys Town (25 duplex buildings and seven 4-plex buildings, all with private baths); construct a new guest check-in building and pedestrian pathway; provide 78 new parking spaces along the existing roadway. Provide 420 designated overnight parking spaces at Curry Orchard.
- **Housekeeping Camp:** Remove all 266 lodging units and associated facilities from the 100-year floodplain. (Convert the site to a day use river access point and picnic area, retaining one restroom for day use.)
- **Yosemite Lodge:** Remove all 245 lodging units; retain the core portion of the lodge containing the cafeteria. (Convert area for visitor day use and camping).

### *Visitor Day-use Parking Capacity and Transit*

Alternative 2 would significantly reduce the maximum daily visitation to Yosemite Valley. The day parking, regional transit, and tour bus capacities would accommodate up to 6,819 day users at one time in segment 2:

- Reduce available day-use parking spaces (- 537 spaces) for a total of 1,800 parking spaces accommodating a maximum of 4,698 people at one time.
- Accommodate an estimated 1,160 people at one time in circulation on Valley roads.
- Accommodate a maximum of 241 people at one time arriving to the Valley on regional transit.
- Retain tour bus parking at 15 spaces accommodating up to 720 people at one time.

Visitor circulation would be improved to reduce traffic congestion and to provide a better arrival experience for visitors. Major actions would include the following:



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- Redesign day parking at Yosemite Village to provide 550 designated spaces.
- Construct a new parking lot and a comfort station, providing 150 parking spaces for day visitors and 15 spaces for tour buses, west of Yosemite Lodge.
- Redesign the intersection at Sentinel Bridge, and switch Southside Drive to a two-way road.

Conceptual site drawings for the Yosemite Village Day-use Parking Area and the new parking lot west of Yosemite Lodge under alternative 2 have been completed to allow the analysis of impacts of these potential projects. See "Conceptual Site Drawings" at the end of the Alternative 2 discussion for site details and design drawings.

Due to the reductions day use parking supply in this alternative, as compared to current peak demand, an East Yosemite Valley day-use parking permit system would be instituted.

Regional transit service would be reconfigured to expand the number of routes, but to reduce runs on some routes, consistent with anticipated demand, as shown in Table 8-18. Shuttle service would also be improved as shown in the table.

**TABLE 8-18: TRANSIT OPTIONS- ALTERNATIVE 2**

Regional Transit Options	
HWY 140 Merced/Mariposa to Yosemite Valley	8 runs per day (4 from Merced; 4 from Mariposa) (year round)
HWY 41 Fresno/Oakhurst to Yosemite Valley	1 run per day
HWY 120 West Groveland/Sonora to Yosemite Valley	1 weekday run- Sonora to Valley 2 weekend runs- Groveland to Valley (summer only)
HWY 120 East Inyo/Mono County (Mammoth Lakes) to Yosemite Valley	1 run per day (summer only)
Yosemite Valley Shuttle Options	
East Yosemite Valley	5 minute peak interval between buses Year round except Visitor Center direct
Visitor Center Express Yosemite Valley Day-use Parking Area to Visitor Center	15 min. interval between buses (summer only)
El Capitan Crossover	30 min. interval between buses (summer only)
West Yosemite Valley	No service

***Administrative Activities***

Administrative activities would be reduced commensurate with the reduction in services:

- Remove the Yosemite Lodge maintenance and housekeeping facilities.

### ***Employee Housing and Employee Parking***

Concessioner employee housing would be reduced commensurate with the reduction in services. Compared to existing conditions, 657 fewer concessioner employees would be housed in Yosemite Valley. The remaining housing for 494 concessioner employees would be provided as follows:

- Provide housing for 387 employees at Curry Village.
  - Retain permanent housing in the Curry Village residential area (223 employees)
  - Remove housing at Curry Village stable (49 employees)
  - Construct 16 buildings housing 164 employees.
- Provide housing for 65 employees at Yosemite Village:
  - Retain permanent housing at Indian Creek, Lost Arrow Dorm, and Upper Tecoya Management Housing (64 employees)
  - Remove Ahwahnee Row, Y Apartments, garage housing, and Hospital Row (43 employees)
  - Remove Tecoya Dorms (232 employees)
- Remove administrative campsites at Yellow Pine Administrative Campground (4 group sites for up to 120 people); relocate administrative camping to Abbeville and Trailer Court.

An additional 426 concessioner employees working in Yosemite Valley would be housed in El Portal.

### ***Segment 3: Merced Gorge (Scenic Segment)***

#### **Actions to Protect and Enhance River Values**

All actions to protect and enhance river values in Segment 3 for Alternative 2 are included in the “Actions Common to Alternatives 2-6” (page 8-53).

#### **User Capacity, Land Use and Facilities Management**

This alternative would provide for similar kinds and amounts of use that exist today. The majority of actions for Alternative 2 in Segment 3 are discussed in the “Actions Common to Alternatives 2-6” (page 8-77). Alternative actions that are not included in the Actions Common section are listed below.

In addition to the “Actions Common to Alternatives 2-6” (beginning on page 8-77), Alternative 2 would include the following actions to manage user capacity, land use, and facilities:

#### ***Visitor Activities and Services***

Only private boats would be allowed in this segment in Alternative 2. It is expected that kayaks would be the craft used in this segment. Boaters would be allowed on the river below Pohono Bridge (in Segment 2) through El Portal (Segment 4). Boaters would be allowed to put in and take out at any of the roadside pull outs. This use would be managed by a permit system and restricted to 5 boats per day.

#### ***Transit Options***

Public transit options along this segment would be expanded as described in the Valley segment (see Segment 2 - Transit Options above).

### ***Segment 4: El Portal (Scenic Segment)***

#### **Actions to Protect and Enhance River Values**

All actions to protect and enhance river values in Segment 4 under Alternative 2 are addressed in “Actions Common to Alternatives 2-6” (see page 8-53).

#### **User Capacity, Land Use and Facilities Management**

Alternative 2 would provide for similar kinds and amounts of use that exist today. User capacity in this segment for this alternative is mostly affected by the increase in employee housing in El Portal. While all new units would be built outside of the 100-year floodplain, they would fall within the river corridor. This increase in capacity in El Portal is a function of the decrease in employee housing capacity in Yosemite Valley (Segment 2).

#### ***Visitor Activities and Services***

Most visitor activities and services in Segment 4 are considered in “Actions Common to Alternatives 2-6” (page 8-77). Additional actions are listed below:

- Allow only private boats in Segment 4. Expected use would be mostly rafts and kayaks. Boaters would be permitted below Yosemite View Lodge to beyond the Foresta Bridge (at which point boaters would exit the park). Boaters would be able to use put-ins and take-outs below the hotel, at the store/gas station and the Red Bud launch site. This use would be regulated through a permitting system that allows for 5 boats per day.

#### ***Visitor Overnight Capacity***

No visitor overnight accommodations on NPS lands are proposed in this alternative.

#### ***Visitor Day-use Parking Capacity***

Day-use and parking capacities would remain the same as current conditions, at a total of 214 spaces accommodating up to 740 people at one time.

#### ***Administrative Activities***

All administrative activities in Segment 4 are considered in “Actions Common to Alternatives 2-6” (see page 8-83).

#### ***Employee Housing Capacity***

In Alternative 2, high density employee housing would be added to the Abbieville and Trailer Village site (405 beds) and infill units at El Portal Village Center (12 beds) and Rancheria Flat (9 beds). All new units would be outside of the 100-year flood plain. These units would be added to accommodate for the housing removed from Yosemite Valley (Segment 2) and would include the 426 concessioner employee beds relocated to El Portal from the Valley.

Administrative use at the Yellow Pine Administrative Campground site would be moved to Abbieville and Trailer Court.

### ***Employee and Administrative Capacity***

Most employee and administrative parking actions are discussed in “Actions Common to Alternatives 2-6” (page 8-83). Additionally, 9 spaces would be added with the Rancheria housing expansion, 12 spaces would be added with the El Portal housing expansion and 405 spaces would be added for residents of the new Abbeville site.

### ***Transit Options***

Regional transit options would maintain existing service along the Highway 140 corridor.

## ***Segment 5: South Fork Merced River above Wawona (Wild Segment)***

### **Actions to Protect and Enhance River Values**

There are no actions in Alternative 2 that are specific to this segment.

### **User Capacity, Land Use and Facilities Management**

Alternative 2 would provide for similar kinds and amounts of use that exist today in Segment 5. The majority of actions for Alternative 2 in Segment 5 are discussed in the “Actions Common to Alternatives 2-6” (beginning on page 8-77). Alternative actions that are not included in the Actions Common section are listed below.

### ***Visitor Activities and Services***

Private boating would be allowed in this segment. Generally, use in this segment would consist of short floats using pack raft or other craft that can easily be carried into this remote area. Use levels would be unrestricted as little use is expected in this area due to its remote location.

### ***Transit Options***

Specific transportation options for reaching the trailheads that provide access to Segment 5 are listed below under Segment 7.

## ***Segments 6/7: Wawona and Wawona Impoundment (Recreational Segments)***

### **Actions to Protect and Enhance River Values**

In addition to the “Actions Common to Alternatives 2-6” (see page 8-53), protection and enhancement of cultural values and water quality would be accomplished through the actions described below.

### ***Cultural Resources/Water Quality***

- Stock Campground: Relocate stock campground (2 sites) from a culturally sensitive area to the Wawona Stables area.
- Wawona Campground: Remove 32 sites that are either within the 100-year floodplain or in culturally sensitive areas.

## **User Capacity, Land Use and Facilities Management**

Alternative 2 would provide for reduced kinds and amounts of use in this segment compared to those that exist today. These reductions would be made to accommodate high levels of ecological restoration activity. The majority of actions for Alternative 2 in Segment 7 are discussed in the “Actions Common to Alternatives 2-6” (see page 8-77). Alternative actions that are not included in the Actions Common section are listed below.

### ***Visitor Activities and Services***

Most visitor activities and services in Segment 7 are considered in “Actions Common to Alternatives 2-6” (see page 8-77). Additional actions are listed below:

- **Boating:** Only private boating would be allowed. Expected use would be mostly kayaks and other small whitewater boats. Boaters would be permitted below Swinging Bridge to beyond the park boundary, with the exception of the Wawona impoundment. Boaters would be able to use put-ins and take-outs at Swinging Bridge, the store area, South Fork Picnic Area and below the campground. This use would be regulated through river patrol and monitoring as the use level is expected to be low, and therefore would not be limited.
- **Golfing:** In this alternative the Wawona golf course and shop would be removed to accommodate ecological restoration, though the spray field would remain.
- **Tennis:** The Wawona Hotel Tennis Court would also be removed under this alternative.
- **Wawona Commercial Stables:** Stables and day rides would be eliminated under Alternative 2. The Wawona stock use campground (2 sites) would be relocated to this area.

### ***Visitor Overnight Capacity***

The total overnight capacity for Segment 7 would be 171 units accommodating 426 people.

The Wawona Campground would reduce campsites to 65 sites (414 people). This includes a group camping site (to accommodate up to 30 persons). The two campsites at the Wawona stock camp would be relocated to the Wawona stables (accommodating 6 people per night each).

### ***Visitor Day Use Capacity***

Total visitor day use capacity for this area would be increased from 1,295 to 1,321 people at one time. This increase is due to new regional transit options that contribute up to 26 visitors at one time to this segment.

### ***Transit Options***

Regional transportation options between Wawona and Yosemite Valley and Wawona and Mariposa Grove would continue existing service. One run between Fresno and Yosemite Valley along Highway 41 would be added.

## ***Segment 8: South Fork Merced River below Wawona (Wild Segment)***

### **Actions to Protect and Enhance River Values**

There are no actions in Alternative 2 that are specific to this segment.

## **User Capacity, Land Use and Facilities Management**

Alternative 2 would provide for similar kinds and amounts of use that exist today in Segment 8 and significant changes are not proposed. The majority of actions for Alternative 2 in Segment 8 are discussed in the “Actions Common to Alternatives 2-6” (see page 8-77). Alternative actions that are not included in the Actions Common section are listed below.

### ***Visitor Activities and Services***

Private boating would be allowed in this segment. Generally, use in this segment would consist of short floats using pack raft or other craft that can easily be carried into this remote area. Permits would not be required as the expected use level is very low.

### ***Transit Options***

Transit services for access to this segment are described above under Segment 7.

## **Analysis of Facilities and Services**

Table 8-19 presents the park’s assessment of the particular facilities and services that would be needed to support public use and/or to protect river resources based on the types, levels, and locations of use proposed for Alternative 2. As an example, the goals of this alternative include a more self-reliant visitor experiences and extensive floodplain restoration. This alternative prescribes major restoration within the 100-year floodplain and the lowest visitor use levels of all of the alternatives, therefore making it possible to by remove North Pines Campground and Housekeeping Camp, and shift the Yosemite Village Day-use Parking Area north out of the 100-year floodplain. In addition, the Yosemite Lodge overnight accommodations would be replaced with a campground and the Merced Lake High Sierra Camp would be eliminated.

**TABLE 8-19: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 2**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 1: Wild</b>			
Merced Lake High Sierra Camp	Closed and removed	<b>No:</b> Removal of this facility is consistent with land-use restoration goals because, under this alternative, use levels are substantially lower; therefore, the level of overnight accommodations and camping is substantially lower, and this facility can be removed. The number of camp beds allowed under this alternative are needed to support public use in a manner that is consistent with the types and amounts of visitor use that have been found to protect and enhance river values.	<b>No:</b> The High Sierra Camp is outside designated Wilderness; however it is surrounded by designated wilderness. Designated wilderness precludes the construction of new facilities such as this. Alternatives in Chapter 8 consider various means of addressing impacts to ORVs.
Merced Lake Backpackers Camping Area	Converted to dispersed camping	<b>No:</b> Removal of this designated camping is consistent with land-use restoration goals because, under this alternative, use levels are substantially lower; therefore, the level of overnight accommodations and camping is substantially lower, and this facility can be removed.	<b>N/A:</b> This facility will be eliminated.
Little Yosemite Valley Camping Area	Converted to dispersed camping	<b>No:</b> Removal of this designated camping is consistent with land-use restoration goals because, under this alternative, use levels are substantially lower; therefore, the level of overnight accommodations and camping is substantially lower, and this facility can be removed.	<b>N/A:</b> This facility will be eliminated.
Moraine Dome Camping Area	Converted to dispersed camping	<b>No:</b> Removal of this designated camping is consistent with land-use restoration goals because, under this alternative, use levels are substantially lower; therefore, the level of overnight accommodations and camping is substantially lower, and this facility can be removed.	<b>N/A:</b> This facility will be eliminated.
<b>Segment 2: Curry Village and Campgrounds</b>			
Upper Pines Campground	Reduced	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.
Lower Pines Campground	Reduced	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.
North Pines Campground	Removed	<b>No:</b> Removal of this facility is consistent with land-use restoration goals because, under this alternative, use levels are substantially lower; therefore, the level of overnight accommodations and camping is substantially lower, and this facility can be removed.	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.



**TABLE 8-19: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 2**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Curry Village and Campgrounds (cont.)</b>			
Backpackers Campground	Removed (partially re-located)	<b>No:</b> Removal of this facility is consistent with land-use restoration goals because, under this alternative, use levels are substantially lower; therefore, the level of overnight accommodations and camping is substantially lower, and this facility can be removed.	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.
Valley Campground Reservation Center	Relocated (due to Southside Drive re-routing)	<b>Yes:</b> The Valley Campground Reservation Center is an essential National Park Service point-of-contact for campers, and those who seek campsites, in Yosemite Valley. The Campground Reservation Center staff sells campsites reservations for all campsites in the park available for reservations. The Reservation Center is operated on a year-round basis.	<b>Yes.</b> The Campground Reservation could be moved from its existing location. However, it is important to the successful delivery of services provided from the reservation center that any alternative location is near the Valley campgrounds.
Housekeeping Camp Lodging Units	Removed	<b>No:</b> Under this alternative the level of visitor accommodations is reduced and therefore elimination of these rustic overnight guest accommodations are not needed to support public use in a manner that is consistent with the types and amounts of visitor use that have been found to protect and enhance ORVs	<b>No.</b> No alternative areas of sufficient size to accommodate this lodging facility (adjacent to the river, which is an integral part of the overnight experience )are available for development in Yosemite Valley
Housekeeping Camp Laundry	Removed	<b>No:</b> The public laundromat at Housekeeping Camp is not needed with the elimination of the Housekeeping Camp.	<b>No.</b> This service is provided for Housekeeping Camp guests and is directly linked to the camp; relocating the service and providing a general laundry facility for park visitors is not necessary.
Housekeeping Camp Shower Houses and Restrooms	Retained 1 restroom. Removed shower houses, laundry, and grocery.	<b>Yes:</b> Public restrooms are needed in many areas throughout the river corridor to comply with public health regulations and meet the basic personal needs of visitors and employees. The public showers at Housekeeping Camp are provided for guest use as well as other patrons, including campers and hikers.	<b>No.</b> The Housekeeping Camp restrooms and shower houses are components of the overnight guest accommodations at this location. They are required to be located within or very near the overnight sleeping units.
Housekeeping Camp Grocery	Removed	<b>No:</b> This need for the grocery store is tied to the level of lodging units at Housekeeping Camp. With a reduction of lodging, the grocery store is not needed.	<b>Yes.</b> The merchandise offered at this location is offered elsewhere in Yosemite Valley.
Curry Village Lodging and Shower Houses	Expanded	<b>Yes:</b> Curry Village offers rustic and economy overnight guest accommodations consistent with the types and amounts of visitor use that have been found to be protect and enhance ORVs. This facility is needed to support public use by visitors who do not camp.	<b>No.</b> This lodging facility is part of a National Register Historic District. It is not feasible to relocate the complex, including shower and toilet facilities needed by guests in without-bath accommodations, to locations outside the river corridor.
Curry Village Overnight Parking	Reduced	<b>Yes:</b> Parking at Curry Village is needed to support the day and overnight visitors who use Curry Village.	<b>No.</b> Parking areas of in these locations are needed to support overnight guests at this location.

**TABLE 8-19: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 2**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Curry Village and Campgrounds (cont.)</b>			
Curry Orchard Parking Area	Re-developed	<b>Yes:</b> Parking at Curry Village Orchard is needed to support day and overnight visitors who use Curry Village.	<b>No.</b> Parking areas of in these locations are needed to support overnight guests at this location.
Curry Village Raft Rental	Removed	<b>No:</b> This is not a vital visitor service under this alternative.	<b>No.</b> By its very nature, the raft rental facility should be located within the river corridor.
in Yosemite Valley	Removed and ecologically restored	<b>No:</b> Under this alternative removal of this facility is consistent with the land use restoration goals and is not needed to support the High Sierra Camp operations.	<b>N/A:</b> This service will be eliminated.
Concessioner Stables Employee Housing Area	Removed and restored ecologically	<b>No:</b> Under this alternative removal of this facility is consistent with the land use restoration goals and is not needed to support employee housing needs due to a reduced level of visitor services.	<b>No.</b> There are no other suitable locations to move employee housing to in Yosemite Valley both in terms of size of these facilities and the need for them to be proximate to guest services to accommodate shift work schedules.
Northside Drive (Stoneman Bridge to Camp 6)	Roadway section removed	<b>No:</b> Under this alternative this segment of Northside Drive through Ahwahnee Meadow is removed and therefore this bridge is not needed to support public use of the river corridor. Pedestrian, bicycle, NPS law enforcement and fire protection traffic would access the east Yosemite Valley by way of Southside Drive, which would be converted to two-way traffic. This change in traffic circulation for Yosemite Valley would be feasible due to substantial reduction in visitor use levels.	<b>N/A</b> This section of roadway is removed and traffic is re-routed to Yosemite Valley destinations using nearby roadway sections.
Southside Drive (through Stoneman Meadow)	Roadway section removed	<b>No:</b> Under this alternative this segment of Southside Drive through Stoneman Meadow is and traffic is routed through Curry Village giving pedestrians, bicycles, NPS law enforcement and fire protection access the east Yosemite Valley. This change in traffic circulation for Yosemite Valley would be feasible due to substantial reduction in visitor use levels.	<b>N/A</b> This section of roadway is removed and traffic is re-routed to Yosemite Valley destinations using nearby roadway sections.
Sugar Pine Bridge	Removed	<b>No.</b> Under this alternative this pedestrian, bicycle, and emergency vehicle bridge is not needed to support public use of the river corridor. Pedestrian, bicycle, NPS law enforcement and fire protection traffic would be re-routed north of river so that visitors can access points of interest in Yosemite Valley. Removal of this bridge will restore free-flowing conditions and riparian habitat.	<b>No.</b> It is not feasible to relocate the existing roadway and bridges from their present location given the circulation system for Yosemite Valley.
Ahwahnee Bridge	Removed	<b>No.</b> Under this alternative this pedestrian, bicycle, and emergency vehicle bridge is not needed to support public use of the river corridor. Pedestrian, bicycle, NPS law enforcement and fire protection traffic would be re-routed north of river so that visitors can access points of interest in Yosemite Valley. Removal of this bridge will restore free-flowing conditions and riparian habitat.	<b>No.</b> It is not feasible to relocate the existing roadway and bridges from their present location given the circulation system for Yosemite Valley.

TABLE 8-19: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 2

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Curry Village and Campgrounds (cont.)</b>			
Stoneman Bridge	Removed	<b>No.</b> Under this alternative this pedestrian, bicycle, and emergency vehicle bridge is not needed to support public use of the river corridor. Pedestrian, bicycle, NPS law enforcement and fire protection traffic would be re-routed north of river so that visitors can access points of interest in Yosemite Valley. Removal of this bridge will restore free-flowing conditions and riparian habitat.	<b>No.</b> It is not feasible to relocate the existing roadway and bridges from their present location given the circulation system for Yosemite Valley.
<b>Segment 2: Yosemite Village and Housekeeping Camp</b>			
Ahwahnee Row Employee Housing	Removed	<b>No:</b> Under this alternative removal of this facility is consistent with land use restoration goals and these housing facilities are not needed given the substantial reduction of commercial services and lodging.	<b>No.</b> There are no other suitable locations to move employee housing to in Yosemite Valley both in terms of size of these facilities and the need for them to be proximate to guest services to accommodate shift work schedules.
Lower Tecoya Employee Housing Area	Removed	<b>No:</b> Under this alternative removal of this facility is consistent with land-use restoration goals and these housing facilities are not needed given the substantial reduction of commercial services and lodging.	<b>No.</b> There are no other suitable locations to move employee housing to in Yosemite Valley both in terms of size of these facilities and the need for them to be proximate to guest services to accommodate shift work schedules.
Lost Arrow Employee Housing Area	Removed and re-developed (as administrative parking)	<b>No:</b> Under this alternative removal of this facility is consistent with land-use restoration goals and these housing facilities are not needed given the substantial reduction of commercial services and lodging.	<b>No.</b> There are no other suitable locations to move employee housing to in Yosemite Valley both in terms of size of these facilities and the need for them to be proximate to guest services to accommodate shift work schedules.
Re-route Northside Drive south of Yosemite Village Day-use Parking Area and outside of the 10-year floodplain	Rerouted roadway	<b>Yes:</b> This roadway serves as the exit road for all Yosemite Valley traffic. The congestion created in this vicinity is a result of pedestrian-vehicle conflicts that would be completely mitigated if no pedestrians were required to cross the road from the parking lot to access numerous visitor services including the primary visitor center, museum, and the Valley shuttle.	<b>No.</b> While some changes to the exact location of the road system could be feasibly rerouted for approximately ¼ mile, it could not be removed in its entirety unless a suitable replacement that would accommodate high volume visitor traffic in Yosemite Valley is identified.
Yosemite Village Day-use Parking Area	Re-developed and expanded	<b>Yes:</b> This facility will serve as the primary day-use parking lot for Yosemite Valley because it is proximate to numerous visitor services including the primary visitor center, museum, and the Valley shuttle. A day-use visitor parking area of this size is needed to support the level of public use that has been found to protect and enhance river values.	<b>No.</b> While some changes to the exact location of the parking lot and road system leading to the parking lot could be feasibly relocated, the parking lot could not be removed in its entirety unless a suitable replacement that would accommodate high volume visitor parking in Yosemite Valley is identified.

**TABLE 8-19: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 2**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Yosemite Village and Housekeeping Camp (cont.)</b>			
Residence 1 (Superintendent’s House)	Relocated	<b>Yes.</b> This historic structure is a component of the Historic Resources ORV and would be rehabilitated and used to support the visitor experience.	<b>Yes.</b> Under this alternative, the facility would no longer be a component of the Historic Resources ORV and could be relocated outside the river corridor to the lower NPS housing area.
<b>Segment 2: Yosemite Lodge and Camp 4 Area</b>			
Yosemite Lodge Overnight Units	Removed	<b>No:</b> Under this alternative removal of this facility is consistent with land-use restoration and visitor-service goals.	<b>No.</b> While some buildings within the Yosemite Lodge complex could be relocated to sites further north of the Merced River, however, it is not feasible to consider a wholesale relocation of the complex to an alternative location.
Yosemite Lodge Overnight Parking	Re-purposed as a day-lodge area	<b>Yes:</b> Parking is needed to support day visitors to the Yosemite Lodge. Parking is also needed for park partner organizations and NPS staff who use the Lodge’s meeting and interpretive spaces (i.e., the Cliff Room, Gardner Terrace, and the outdoor amphitheater).	<b>No.</b> As long as visitor services are provided at Yosemite Lodge, it will be necessary to provide parking near the Lodge complex.
Yosemite Lodge Garden Terrace and Cliff Room	Re-purposed for NPS use to provide visitor services	<b>No:</b> Under this alternative repurposing this facility space for day-lodge area services would likely still be used for interpretive programs and for training courses, meetings, and special events. These facilities are vital to National Park Service and park partner operations.	<b>No.</b> The Garden Terrace and Cliff Rooms are within the existing buildings at the Yosemite Lodge complex. The activities taking place at these locations could be considered for relocation to alternative facilities; however, it is not feasible to consider removing the buildings in their entirety.
Yosemite Lodge Gift and Grocery	Re-purposed for NPS use to provide visitor services	<b>No:</b> Under this alternative this space would be repurposed for NPS visitor related services and would likely require a consolidation of this type of merchandise (packaged and fresh groceries, sundries, and outdoor products) frequently needed by campers and hikers into the portion of the facility that would have commercial services.	<b>No.</b> The building currently housing the Yosemite Lodge Gift and Grocery Store is part of the Yosemite Lodge food service and retail structure and would be infeasible to relocate. However, the merchandise offered for sale from this facility could be relocated to other retail outlets in Yosemite Valley if sites outside the river corridor are identified.
Yosemite Lodge Mountain Room Bar & Food Service	Re-purposed for NPS use to provide visitor services	<b>No:</b> Under this alternative this space would be repurposed for NPS visitor related services and food service would be provided in the portion of the facility that would have commercial services.	<b>No.</b> The building currently housing the Mountain Room Bar is part of the Yosemite Lodge food service structure and would be infeasible to relocate.

**TABLE 8-19: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 2**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Yosemite Lodge and Camp 4 Area (cont.)</b>			
Yosemite Lodge Mountain Room Restaurant	Re-purposed as a day-lodge area	<b>Yes:</b> Food services are necessary to support day-lodge visitors and those staying nearby in the expanded campground.	<b>No.</b> The building currently housing the Mountain Room restaurant is part of the Yosemite Lodge food service structure and would be infeasible to relocate. However, the merchandise offered for sale from this facility could be relocated to other retail outlets in Yosemite Valley if sites outside the river corridor are identified.
Yosemite Lodge Highland Court Employee Housing (Existing)	Removed	<b>No:</b> Under this alternative removal of this facility is consistent with land-use restoration goals and these housing facilities are not needed given the substantial reduction of commercial services and lodging.	<b>No.</b> There are no other suitable locations to move employee housing to in Yosemite Valley both in terms of size of these facilities and the need for them to be proximate to guest services to accommodate shift work schedules.
Yosemite Lodge Employee Housing (Thousands Cabins) (Existing)	Removed	<b>No:</b> Under this alternative removal of this facility is consistent with land-use restoration goals, and these housing facilities are not needed given the substantial reduction of commercial services and lodging.	<b>No.</b> There are no other suitable locations to move employee housing to in Yosemite Valley both in terms of size of these facilities and the need for them to be proximate to guest services to accommodate shift work schedules.
West of Lodge Campground (New)	Constructed	<b>Yes:</b> Campgrounds provide overnight accommodations that allow visitors to have a direct outdoor experience.	<b>No.</b> No alternative areas of sufficient size or location adjacent to the Camp 4 Campground (which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.
Yosemite Lodge Parking Area (New)	Constructed	<b>Yes:</b> This facility will serve as a critical day-use parking lot for Yosemite Valley because substantial numbers of roadside parking spaces adjacent to meadows will be removed in the vicinity of the Yosemite Village Day-use Parking Area. This new parking area will serve as trailhead parking for the upper and lower Yosemite Falls trail, and overflow evening parking for Camp 4 Campground. It will also be used for the Wahhoga Cultural Center.	<b>No.</b> No alternative areas of sufficient size or location proximate to upper and lower Yosemite Falls trailhead, Wahhoga, Camp 4 and the Yosemite Lodge could accommodate this parking area.
<b>Segment 2: West Yosemite Valley</b>			
Yellow Pine Administrative	Removed	<b>No:</b> Under this alternative removal of this facility is consistent with land-use restoration goals, and these administrative facilities are not needed given the substantial reduction of visitor use.	<b>No.</b> No alternative areas of sufficient size or location could accommodate this campground.

**TABLE 8-19: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 2**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 4: El Portal</b>			
Rancheria Employee Housing Area (New)	Constructed	<b>Yes:</b> This housing facility is necessary to accommodate employees who provide visitor services that are consistent with the types and amounts of visitor use that have been found to be protect and enhance ORVs, and to accommodate employees who provide resource protection services consistent with the mission of the National Park Service and current agency management policies.	<b>No.</b> In-fill employee housing should occur within existing employee housing areas
Abbieville / Trailer Village Employee Housing (New)	Constructed	<b>Yes:</b> Housing facilities to accommodate a portion of the workforce necessary to provide visitor services.	<b>No.</b> There are no other suitable locations proximate with direct access to Highway 140 before entering Yosemite National Park boundary.
Abbieville / Trailer Village Administrative Group Campground (New)	Constructed	<b>Yes:</b> Campgrounds provide overnight accommodations that allow visitors to have a direct outdoor experience	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in El Portal.
<b>Segment 5 (Wild), Segments 6 &amp; 7 (Recreational), Segment 8 (Wild)</b>			
Wawona Campground	Reduced	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience.	<b>No.</b> This campground could not be relocated as no suitable alternative site exists in the Wawona proper adjacent to the river, which is an integral part of the camping experience.
Wawona Hotel Tennis Court	Removed	<b>No:</b> Opportunities for this type of visitor recreation is not considered a vital visitor service given the land use and visitor experience goals under this alternative.	<b>N/A:</b> This service will be eliminated.
Wawona Hotel Golf Course & Shop	Removed	<b>No:</b> Opportunities for this type of visitor recreation is not considered a vital visitor service given the land use and visitor experience goals under this alternative.	<b>N/A:</b> This service will be eliminated.
Wawona Stables	Retained	<b>Yes:</b> The Wawona Stables would be utilized as operational space to serve administrative backcountry operations. This facility is necessary to support horseback riding, which is a type of use that has been found to be consistent with the protection and enhancement of river values.	<b>No.</b> The stable operates from a historic structure that could not be feasibly relocated.
Wawona Commercial Horseback Day Rides	Eliminated	<b>No:</b> Opportunities for this type of visitor recreation is not considered a vital visitor service given the land use and visitor experience goals under this alternative.	<b>N/A:</b> This service will be eliminated.

## **Conceptual Site Drawings**

### ***Boys Town***

In Alternative 2, all of these structures would be removed and replaced with 78 new lodging units suitable for year-round accommodation. This would consist of 25 duplex buildings and seven 4-plex buildings, all with private baths, and a new guest check-in building. A new 2,840-foot long pedestrian pathway and 78 new parking spaces would also be constructed along the existing roadway. The Curry Orchard Day-use Parking Area would be formalized using best management practices to have a total of 420 parking spaces. New ground disturbance within the existing 8.4 acre footprint would include approximately 33,000 square feet for new buildings, 56,800 square feet of utility service trenching, 14,200 square feet for pedestrian pathways, and 23,400 square feet of new parking for a total of 2.9 acres. Construction staging would cover approximately 1.4 acres and would likely take place within the existing Orchard Parking Area.

### ***Yosemite Village Day-use Parking Area***

In Alternative 2, the existing 6-acre Yosemite Village Day-use Parking Area and all associated roadway improvements would be moved outside of the 10-year floodplain of the river to facilitate riparian restoration goals and to prevent further resource damage. Restoration actions would remove non-native fill material, re-contour the topography, and plant native vegetation. The redesigned parking area would be formalized to provide a total of 550 parking spaces. Northside drive would be realigned to the south edge of the parking area where it would connect with Sentinel Drive and continue west to Yosemite Falls and park exits. Consolidating the parking to the north of Northside Drive, with new and improved walkways to Yosemite Village, would eliminate vehicle and pedestrian conflicts. A new bus passenger unloading area would be established east of the Village market and five new spaces provided for bus parking. The Concessioner General Office, Concessioner Garage, Arts and Activities Center (former bank building) would be removed, while the Village Sport Shop would be repurposed as a visitor contact station.

The area of disturbance for improvements at Camp 6 in Alternative 2 would cover approximately 22 acres and include 14 acres of clearing and grubbing, 1.2 acres for existing building removal, 1,000 square feet for the new restroom, 5.4 acres of pavement removal, 1.7 acres of new roadway, 2.4 acres for new parking, 14,900 square feet of utility service trenching, and 38,000 square feet for new pedestrian pathways. Construction staging would cover an area of approximately 2 acres.

### ***Yosemite Lodge Parking Area***

In Alternative 2, the area west of Yosemite Lodge, currently used as parking for tour buses, transit buses and for overnight guests would be re-developed to provide 150 day-use parking spaces, parking for 15 buses, and a new 3,000 square foot comfort station. The area east of this parking lot and immediately west of the main lodge building and courtyard would be repurposed to a walk-in campground. The existing wellness center, linen storage and laundry buildings would be removed. Ground disturbance within a 11.9 acre footprint west of the Lodge would include 9 acres of clearing and grubbing, 55,850 square feet of existing building and pavement removal, 8,300 square feet of utility service trenching, 2.9 acres for parking, and 2,500 square feet for pedestrian pathways. Construction staging for the redesigned parking area and the campground would take place over a 2 acre area within the existing footprint. Existing vegetation would be retained to separate and screen parking bays while bioswales would serve to filter and treat storm water run-off.



### *Yosemite Lodge Housing*

In Alternative 2, the temporary modular housing at Highland Court and the Thousand Cabins would be removed. All lodging, parking and guest facilities associated with the Yosemite Lodge complex would also be removed and the site converted to a campground and day-use area within the existing developed footprint.





Huff House Employee Housing  
 Replace temporary housing with permanent facilities,  
 164 beds and 164 parking spaces

- 1 Construct 4 two-story buildings for 32 occupants, 8 occupants per building.
- 2 Construct 11 two-story buildings for 132 occupants, 12 occupants per building.
- 3 Provide common recreational area, approximately 3,600 square feet.
- 4 Build plaza areas and walkways with site furnishings, accent paving, and enhanced landscaping.
- 5 Construct a shuttle bus stop.
- 6 Remove ice rink and bicycle rentals. Construct an employee parking facility with 164 spaces.
- 7 Retain historic residence for housing purposes.

Boys Town Guest Lodging  
 Replace tent cabins 78 permanent guest cabins  
 and 78 parking spaces

- 8 Construct 25 duplex buildings replicating historic cabins, or 50 units subtotal.
- 9 Construct 7 four-plex buildings, or 28 units subtotal.
- 10 Relocate the Campground Reservation Center. Provide 8 parking spaces.
- 11 Construct a roadway to connect Curry Village and East Valley Campgrounds, with 78 guest parking spaces.

Curry Orchard Parking Area

- 12 Improve parking area with 420 spaces and landscape buffers with trees and bioswales that will treat storm water run-off.

Meadow Restoration Area

- 13 Remove Stoneman Road and adjacent recreation trail, extend boardwalk from existing terminus (at Stoneman Road) to Curry Village Pavilion area. Improve hydrology, remove invasive species, promote weed control and plant native species. Provide pedestrian walkways.

Existing Curry Village Visitor Services

- 14 Retain existing historic cabins and Stoneman Cottage (65 lodging units).
- 15 Retain existing Curry Pavilion.
- 16 Retain 290 tents.

\*These drawings are provided to demonstrate where facilities would be removed, relocated, or constructed according to actions more fully described by project alternatives. The drawings do not represent a final proposal. More detailed design and construction documents would be developed consistent with the general concepts presented here.

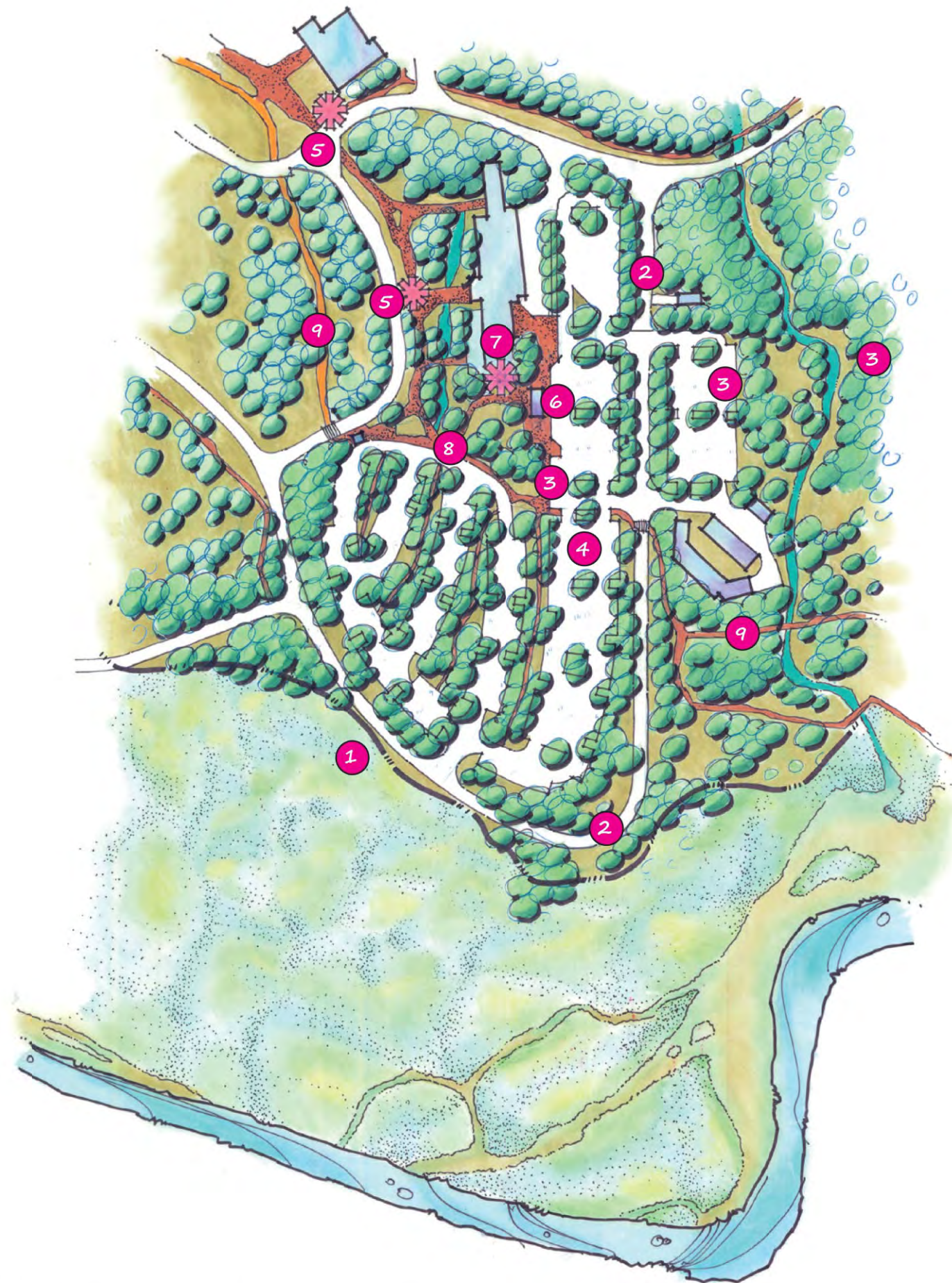


**Alternative 2**  
**Conceptual Site Drawing for**  
**Curry Village**  
 Yosemite National Park  
 United States Department of the Interior • National Park Service



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- 1 Use the 10-year floodplain to establish limits of development. Restore wetlands and meadow.
- 2 Reroute Northside Drive to conform to the floodplain extent and south edge of day-use parking area. Northside Drive is eliminated east of this location.
- 3 Eliminate Concessioner General Office and Garage between the Village Store and Ahwahnee Meadow, providing more space for visitor parking. Employee dormitories and housing would be removed in Alternative 2 (as drawn), but retained in Alternative 3.
- 4 Provide 550 day-use parking spaces in between Northside Drive and Yosemite Village. Integrate landscaped areas to retain large numbers of trees, and include bioswales that will treat storm water run-off. Improve access through a system of pedestrian pathways leading to the Yosemite Village mall.
- 5 Retain existing shuttle stops on Visitor Center Loop Drive.
- 6 Establish bus passenger unloading area east of the Yosemite Village mall.
- 7 Replace Village Sport Shop with visitor contact station.
- 8 Eliminate Art Activity Center and improve pedestrian access.
- 9 Improve pedestrian connections and bike paths east and west of the day-use parking area.



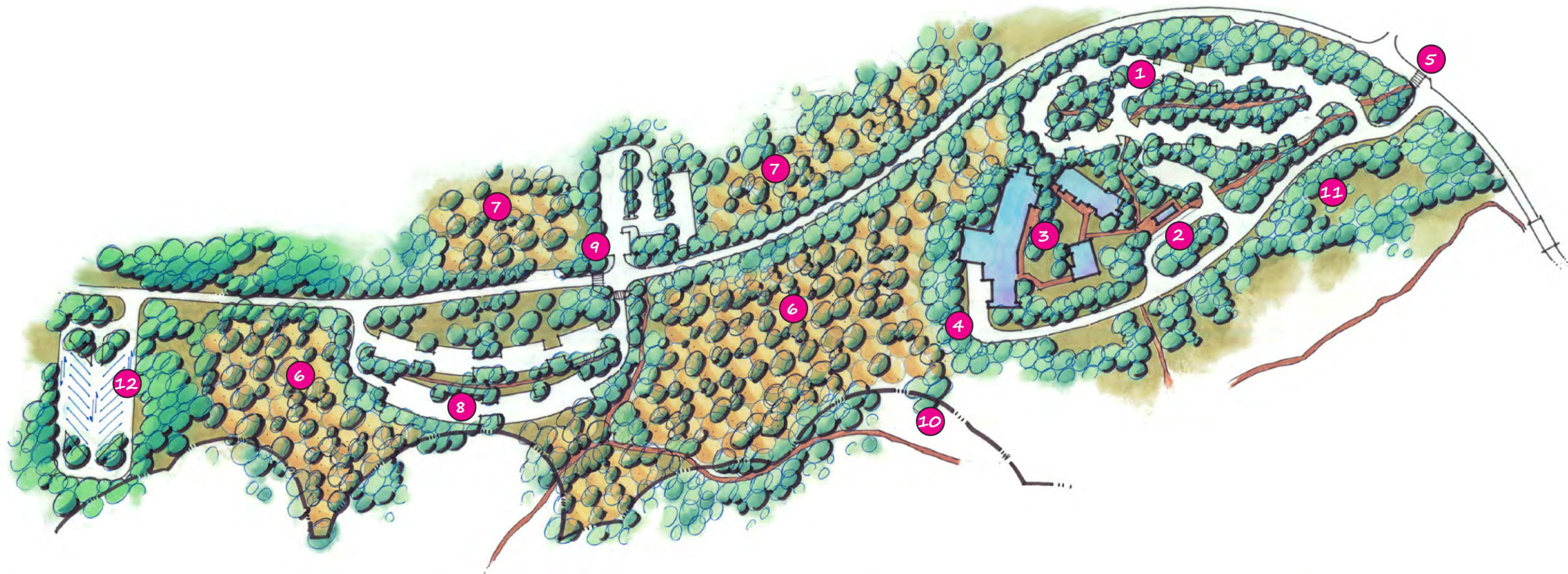
**Alternatives 2 and 3**  
**Conceptual Site Drawing for**  
**Yosemite Village Day-use Parking Area**  
 Yosemite National Park  
 United States Department of the Interior • National Park Service

\*These drawings are provided to demonstrate where facilities would be removed, relocated, or constructed according to actions more fully described by project alternatives. The drawings do not represent a final proposal. More detailed design and construction documents would be developed consistent with the general concepts presented here.



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**1** Construct 250 day-use parking spaces. Remove all existing lodging units. Locate new parking within disturbed area. Maintain existing vegetation as buffers to separate and screen parking bays, provide pedestrian pathways and bioswales that will retain storm water run-off.

**2** Construct shuttle stop with shelter.

**3** Retain core visitor service buildings and courtyard. Limit visitor services to food service, interpretive displays and restroom facilities.

**4** Modify food service delivery area.

**5** Move pedestrian crossing to Yosemite Falls west of the existing intersection.

**6** Create 104 walk-in campsites. Provide 100 standard campsites and 4 group walk-in sites. Occupancy is limited to 6 campers per site. Standard walk-in campsite is 3,850 square feet (70-foot diameter), including 1,200 square feet of clearance with a 15-foot perimeter buffer. Of the 104 sites, 4 are group walk-in sites.

**7** Retain 35 existing walk-in campsites at Camp 4. Construct 35 additional walk-in sites opposite existing parking facility.

**8** Construct a total of 191 parking spaces; 41 spaces for Camp 4 and 150 spaces for the walk-in camp sites. Maintain existing vegetation as buffers to separate and screen parking bays, provide pedestrian pathways and bioswales that will retain storm water run-off.

**9** Construct a shuttle bus stop at Camp 4.

**10** Protect and enhance a 150-foot riparian buffer.

**11** Remove employee housing and restore vegetation and hydrological processes.

**12** Construct 15 tour bus parking spaces.



\*These drawings are provided to demonstrate where facilities would be removed, relocated, or constructed according to actions more fully described by project alternatives. The drawings do not represent a final proposal. More detailed design and construction documents would be developed consistent with the general concepts presented here.

**Alternative 2**  
**Conceptual Site Drawing for**  
**Yosemite Lodge and Camp 4**  
 Yosemite National Park  
 United States Department of the Interior • National Park Service



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## **ALTERNATIVE 3: DISPERSED VISITOR EXPERIENCE AND EXTENSIVE RIVERBANK RESTORATION**

### **Overview**

The guiding principles of Alternative 3 would include restoration of large portions of the floodplain and the riparian area within 150 feet of the river. This alternative would accommodate much lower maximum visitor use levels than today, and offer fewer commercial services and facilities. Visitor use levels would be managed to allow for dispersed visitor experiences free of crowding or congestion.

Management actions in Alternative 3 would:

- Restore 302 acres of meadow and riparian habitat.
- Slightly reduce the campsite inventory in all river segments (-3%) and slightly increase campsite inventory in Yosemite Valley (+2%).
- Significantly reduce the lodging inventory in all river segments (-38%) and in Yosemite Valley (-40%).
- Reduce day-use parking for Yosemite Valley (-32%).
- Reduce commercial services.
- Make significant changes to the traffic circulation pattern in Yosemite Valley to accommodate ecological restoration goals and reduce traffic congestion.
- Accommodate approximately 13,200 visitors per day in East Yosemite Valley.
- Continue to manage overnight use through wilderness quotas, reservation systems for lodging and camping.
- Manage day-use capacity for East Yosemite Valley through permits and a reservation system required during peak summer season.

### ***Actions to Protect and Enhance River Values***

Alternative 3 would protect and enhance river values through extensive ecological restoration that would include some portions of the 100-year floodplain and riparian and meadow habitat corridorwide. Similar to Alternatives 2 and 4, it would prioritize enhancement of ecological river values over the retention of existing circulation patterns and infrastructure. Ecological restoration actions would target priority meadow and riparian habitat for enhancement, including the area currently occupied by the Wawona Golf Course and the dynamic 10-year floodplain area formerly occupied by the Upper and Lower River Campgrounds. The free-flowing condition of the river would be enhanced by removing three bridges within the bed and banks that constrict flow during high-water events. Hydrologic connectivity of meadows to the riparian floodplain would be enhanced through the removal of certain road segments that bisect meadows.

Cultural and scenic values would be protected and enhanced as described under “Actions Common to Alternatives 2-6” (beginning on page 8-53). Recreational values would additionally be protected and enhanced under Alternative 3 by reducing facilities and crowding in the wilderness above Nevada Fall, and by improving access to key attraction sites and managing boating to improve dispersed recreation along the river in Yosemite Valley. Table 8-20 provides a summary of the proposed ecological restoration actions and the reasons for those proposed actions.

**TABLE 8-20: ADDITIONAL ACTIONS TO PROTECT AND ENHANCE RIVER VALUES, ALTERNATIVE 3**

Ecological Restoration Actions (Free Flow, Water Quality, Geologic/Hydrologic, and Biological Values)	
<b>Corridorwide</b>	
<b>Ecological Restoration Acreage</b>	164 acres (common to all) plus an additional 138 acres (refer to Appendix E for specific locations)
<b>Riprap to be Removed</b>	5,700 linear feet (common to all) plus an additional 435 feet (refer to Appendix E for specific locations)
<b>Segment 1: Wilderness above Nevada Fall</b>	
	<ul style="list-style-type: none"> <li>Remove Merced Lake High Sierra Camp and restore natural floodplain conditions.</li> </ul>
<b>Segment 2: Yosemite Valley</b>	
<b>Free Flow / Geologic/Hydrologic Values</b>	<ul style="list-style-type: none"> <li>Remove Ahwahnee, Sugar Pine, and Stoneman bridges to enhance the free-flowing condition of the river.</li> </ul>
<b>Riparian Buffer / Floodplain</b>	<ul style="list-style-type: none"> <li>Ecologically restore 36.5 acres of habitat in former Upper and Lower River campgrounds.</li> <li>Move Yosemite Village Day-use Parking Area north outside the 10-year floodplain.</li> <li>Ecologically restore riparian habitat within 150 feet of the river at Backpackers Camp and portions of North Pines, Lower Pines, and Wawona Campgrounds.</li> <li>Remove all of Housekeeping Camp and portions of Yosemite Lodge from the 100-year floodplain and restore natural floodplain conditions.</li> </ul>
<b>Meadow Restoration</b>	<ul style="list-style-type: none"> <li>Remove 900 feet of Northside Drive through Ahwahnee Meadow to enhance connectivity of the meadow and floodplain</li> <li>Remove 1,335 feet of Southside Drive through Stoneman Meadow to enhance connectivity of the meadow and floodplain</li> </ul>
<b>Segment 7 : Wawona</b>	
<b>Meadow Restoration</b>	<ul style="list-style-type: none"> <li>Ecologically restore 42-acre Wawona Golf Course to meadow habitat</li> </ul>
<b>Recreational Values</b>	
<b>Segment 1: Wilderness above Nevada Fall</b>	
<b>Wilderness Recreation</b>	<ul style="list-style-type: none"> <li>Covert Merced Lake High Sierra Camp to temporary stock camp with reduced overnight capacity and convert area to designated Wilderness.</li> <li>Reduce zone capacities and convert overnight use to dispersed camping.</li> </ul>

***User Capacity, Land Use and Facilities Management***

Alternative 3 would focus on providing a dispersed visitor experience, with marked reduction in commercial services and facilities. The overall visitor use levels would be lower than current levels to allow for increased resource restoration and reduced crowding and congestion in the most popular areas of the river corridor. Table 8-21 provides a summary of user capacities by use type and location.

**TABLE 8-21: USER CAPACITIES BY USE TYPE AND LOCATION- ALTERNATIVE 3**

User Capacities by Use Type and Location		Alt 1 (No Action)		Alt 3	
	Unit Type	Units	People	Units	People
<b>Wilderness Above Nevada Fall</b>					
Visitor Overnight Use	Zone Capacities & Beds	380	380	260	260
Visitor Day Use	Day Hikers	350	350	350	350

**TABLE 8-21: USER CAPACITIES BY USE TYPE AND LOCATION- ALTERNATIVE 3**

User Capacities by Use Type and Location		Alt 1 (No Action)		Alt 3	
	Unit Type	Units	People	Units	People
Employee Housing	Employee Beds	15	15	10	10
Administrative Day Use	Day Patrols	5	5	5	5
<b>Yosemite Valley</b>					
Visitor Overnight Use	Rooms & Campsites	1,500	6,564	1,098	5,027
Visitor Day Use	Parking Spaces & Buses	-	8,272	-	6,289
Employee Housing	Employee Beds	1,315	1,315	1,086	1,086
Administrative Day Use	Parking Spaces	166	332	166	332
<b>Merced Gorge</b>					
Visitor Overnight Use	Rooms & Campsites	-	-	-	-
Visitor Day Use	Parking Spaces	180	869	180	869
Employee Housing	Employee Beds	9	9	9	9
Administrative Day Use	Parking Spaces	2	4	2	4
<b>El Portal</b>					
Visitor Overnight Use	Rooms & Campsites	-	-	-	-
Visitor Day Use	Parking Spaces	214	740	214	740
Employee Housing	Employee Beds	192	192	223	223
Administrative Day Use	Parking Spaces	610	1,220	610	1,220
<b>South Fork Above Wawona</b>					
Visitor Overnight Use	Permits	20	20	20	20
Visitor Day Use	Day Hikers	6	6	6	6
Employee Housing	Employee Beds	-	-	-	-
Administrative Day Use	Day Patrols	1	1	1	1
<b>Wawona</b>					
Visitor Overnight Use	Rooms & Campsites	203	865	176	703
Visitor Day Use	Parking Spaces & Buses	-	1,295	-	1,321
Employee Housing	Employee Beds	121	121	121	121
Administrative Day Use	Parking Spaces	30	60	30	60
<b>South Fork Below Wawona</b>					
Visitor Overnight Use	Permits	3	3	3	3
Visitor Day Use	Day Hikers	3	3	3	3
Employee Housing	Employee Beds	-	-	-	-
Administrative Day Use	Day Patrols	1	1	1	1

## Visitor Overnight Capacity

### Camping

The campsite inventory in the Merced Wild and Scenic River corridor, including Yosemite Valley, would be reduced by approximately 3% as a result of natural and cultural resource protection actions. All campsites within the 150 feet of the river would be removed. Campsite losses would be offset with the addition of new camping adjacent to Upper Pines Campground and east of Camp 4, as well as new sites west of Backpackers Camp and west of Yosemite Lodge. Under Alternative 3, the total number of campsites in Yosemite Valley would increase to 477, and the total number of campsites available in the corridor would be 549. Table 8-22 provides a summary of the proposed changes to camping and the reasons for those proposed changes.

**TABLE 8-22: CAMPING FACILITIES- ALTERNATIVE 3**

Existing Locations	Alt 1 (No Action)	Alt 3	Details
Backpackers	25 sites	0 sites	25 walk-in sites removed, of which 21 are within 150 feet of the river; 16 of these sites would be relocated west of Backpackers
Camp 4	35 sites	35 sites	No change to this National Historic Register Site
Lower Pines	76 sites	61 sites	15 sites within 150 feet of the river removed
North Pines	86 sites	52 sites	34 sites within 150 feet of the river removed
Upper Pines	240 sites	238 sites	2 sites removed for cultural resource concerns
Yellow Pine Administrative	4 sites	4 sites	No changes to these group administrative sites
Wawona Campground	99 sites	72 sites	27 sites within 150 feet of the river or in culturally sensitive areas removed
<b>Total Existing Locations</b>	<b>565 sites</b>	<b>462 sites</b>	
New Locations	Alt 1	Alt 3	Details
West of Backpackers	0 sites	16 sites	16 walk-in sites relocated from Backpackers Camp to less sensitive area outside 100-year floodplain
East of Camp 4	0 sites	35 sites	35 walk-in sites constructed in area east of Camp 4
Upper Pines	0 sites	36 sites	36-site RV loop constructed
<b>Total New Camping</b>	<b>0 sites</b>	<b>87 sites</b>	
<b>Total Camping in Corridor</b>	<b>565 sites</b>	<b>549 sites</b>	

### *Lodging*

In-park lodging availability would be reduced by approximately 37% as compared to Alternative 1. Management actions related to lodging would focus on removing lodging units from the 100-year floodplain at Yosemite Lodge and Housekeeping Camp, and in Wilderness. All permanent infrastructure at the Merced Lake High Sierra Camp would be removed. A temporary pack camp with a maximum capacity of 15 people would be sanctioned at the location of the former High Sierra Camp, accommodating limited overnight lodging in this location while still allowing the area to be converted to designated Wilderness. No new hard-sided lodging would be constructed in Alternative 3 in any part of the river corridor. As a result of these actions, the in-park lodging inventory would be reduced from 1,160 units to 725 units. Table 8-23 provides a summary of the proposed changes to lodging and the reasons for those proposed changes.

**TABLE 8-23: LODGING FACILITIES- ALTERNATIVE 3**

Wilderness	Alt 1 (No Action)	Alt 3	Details
Merced Lake High Sierra Camp	22 units (60 beds)	0 units (15 people)	All permanent infrastructure removed. Wilderness lodging facility converted to 15-person <u>temporary</u> pack camp.
Yosemite Valley	Alt 1	Alt 3	Details
Ahwahnee Hotel	123 rooms	123 rooms	No change at this National Historic Landmark
Housekeeping Camp	266 tent cabins	0 tent cabins	Remove all 266 units from 100-year floodplain
Curry Village	400 units	355 units (290 tents and 65 hard-sided units)	<ul style="list-style-type: none"> <li>▪ Retain 290 tents</li> <li>▪ Retain 18 units at Stoneman House</li> <li>▪ Retain 47 cabin-with-bath units</li> <li>▪ At Boys Town, Southside Drive is re-routed and the area restored.</li> </ul>
Yosemite Lodge	245 rooms	143 rooms	Remove 102 rooms (four buildings) from 100-year floodplain
Wawona	Alt 1	Alt 3	Details
Wawona Hotel	104 rooms	104 rooms	No change at this National Historic Landmark
<b>Total Lodging in Corridor</b>	<b>1,160 units</b>	<b>725 units</b>	
<b>* El Portal:</b> Private accommodations exist but are not on NPS land; therefore, they are not listed here.			

### Visitor Day Use Capacity and Access Improvements

Day-use parking capacity in Yosemite Valley would be reduced by 32% compared to current levels. For day use, restrictions would be set due to proposed reductions in day-use parking in Yosemite Valley. Day-use capacity would be actively managed and potentially restricted during peak use season (May through September). A day use permit system would be implemented in this alternative during the peak summer season. Table 8-24 provides a summary of the total number of parking spaces for each relevant segment of the corridor.

**TABLE 8-24: NUMBER OF DAY-USE PARKING SPACES IN SEGMENTS – ALTERNATIVE 3**

Location	Alt 1 (No Action)	Alt 3
Segment 2: Yosemite Valley	2,337 spaces	1,597spaces
Segment 3: The Gorge	180 spaces	180 spaces
Segment 4: El Portal	214 spaces	214 spaces
Segment 7: Wawona	290 spaces	290 spaces
<b>Total Day-use Parking</b>	<b>3,021 spaces</b>	<b>2,281 spaces</b>

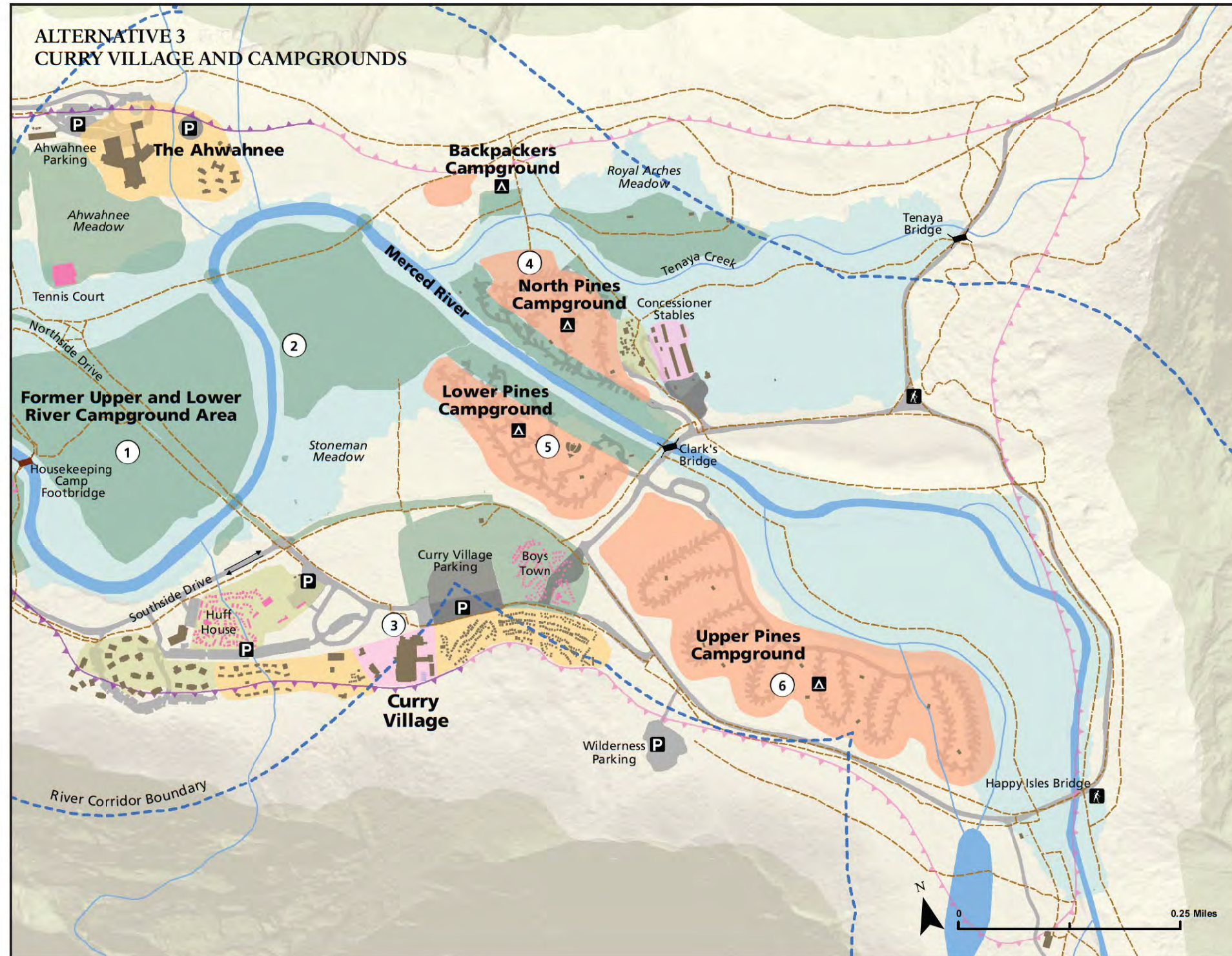
The most significant changes to parking and circulation would take place in the vicinity of Yosemite Village Day-use Parking Area and Yosemite Lodge. Day use visitors would park at a redesigned parking area at Yosemite Village Day-use Parking Area, with a total of 550 parking spaces, and additional day-use parking is added to the west of Yosemite Lodge. Total parking for East Yosemite Valley (including day, overnight and administrative uses) would be approximately 4,300 spaces.

Transit services would remain unchanged on the Highway 140, and Highway 120 East corridors; service would be reduced to one round-trip per day on the Highway 120 West corridor, and one round-trip run per day would be added to the Highway 41 corridor. All within-park shuttle services would remain the same, and the East Valley shuttle would decrease shuttle intervals to 5 minutes.

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# ALTERNATIVE 3: DISPERSED VISITOR EXPERIENCES AND EXTENSIVE RIVERBANK RESTORATION



## EAST YOSEMITE VALLEY: CURRY VILLAGE AND CAMPGROUNDS

- Former Upper and Lower River Campground Area**
  - Ecological Restoration: Restore 35.6 acres of floodplain habitat within the 10-year floodplain. Restore natural floodplain topography by removing remaining asphalt and re-establishing seasonal channels, and revegetate with native plants. Remove Lower River amphitheater. Temporarily fence restoration areas to allow for recovery.
- River Reach between Bridges**
  - Ahwahnee and Sugar Pine Bridges: Remove the Ahwahnee and Sugar Pine bridges, and associated berm to enhance the free-flowing condition of the river. Restore area to natural conditions. Re-route the multiple-use trail north of the river.
  - Stoneman Bridge: Remove Stoneman Bridge to enhance free-flowing conditions of the river. Restore area to natural conditions. Reconfigure Southside Drive as a two-way road, remove the road segment through Stoneman Meadow, and re-design the intersection at Sentinel and Southside Drive.
- Curry Village Area**
  - Ecological Restoration: Remove Southside Drive through Stoneman Meadow to enhance the hydrologic connectivity of the meadow. Re-align road through the Boys Town area instead of the meadow, and restore remaining area to natural conditions. Extend meadow boardwalk (up to 275 feet) to Curry Village.
  - Curry Orchard Parking Area: Provide 300 parking spaces. Ecologically restore part of the existing parking area to accommodate Stoneman Meadow restoration. Re-design parking area using best management practices to increase drainage to Stoneman Meadow and protect water quality. Remove apple trees to mitigate human-bear interactions and plant native vegetation.
  - Lodging: Total would be 355 guest units, including: 290 tents in Curry Village retained; 18 units at Stoneman House retained; and 47 cabin-with-bath units in Curry Village retained. At Boys Town, Southside Drive would be re-routed to facilitate the restoration of Stoneman Meadow and the remaining area at Boys Town ecologically restored.
- North Pines Campground Area**
  - Ecological Restoration at Campgrounds: Remove campsites within 150 feet of the river at North Pines, Backpackers, and Lower Pines campgrounds. Restore to 12 acres of riparian habitat. Designate a formal river access point at North Pines campground.
  - North Pines Campground: Retain 52 campsites. Remove 34 sites that are within 150 feet of river.
  - Backpackers Campground: Remove all 25 walk-in sites in the campground, of which 21 are within the 150-foot riparian buffer. Partially replace sites removed with a new campground with 16 walk-in sites west of Backpackers Campground.
  - Concessioner Stables in Yosemite Valley: Reduce the footprint of the stables to provide staging for temporary pack camp operation at Merced Lake High Sierra Camp and overflow parking for campgrounds. Retain associated housing (25 beds).
- Lower Pines Campground Area**
  - Campground Sites: Retain 61 campsites and remove 15 sites from within 150 feet of river.
- Upper Pines Campground Area**
  - Campground Sites: Retain 238 campsites. Remove two sites for sensitive resource concerns.
  - New RV Loop: Construct a new campground loop with 36 RV sites.

Legend						



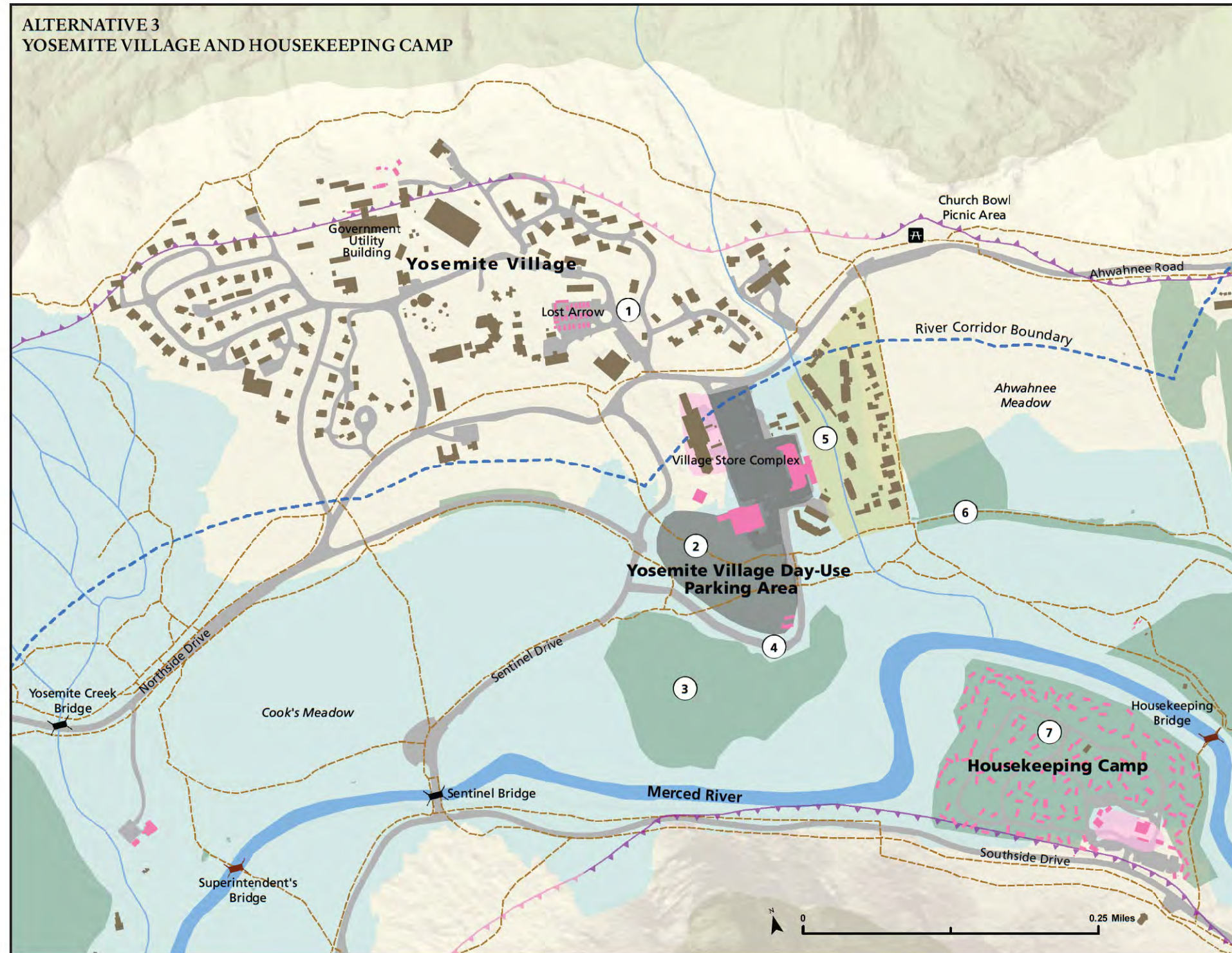
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# ALTERNATIVE 3: DISPERSED VISITOR EXPERIENCES AND EXTENSIVE RIVERBANK RESTORATION



## ALTERNATIVE 3 YOSEMITE VILLAGE AND HOUSEKEEPING CAMP



### EAST YOSEMITE VALLEY: YOSEMITE VILLAGE AND HOUSEKEEPING CAMP

1. Lost Arrow: Remove temporary employee housing. Re-establish an administrative parking lot to accommodate 50 spaces.
2. Yosemite Village Day-use Parking Area: Move the parking area outside of the dynamic 10-year floodplain. Formalize this parking area to using best management practices to accommodate 550 parking places and protect water quality.
3. Ecological Restoration at Yosemite Village Day-use Parking Area: Remove nonnative fill material and restore meadow and floodplain habitat within the dynamic 10-year floodplain.
4. Pedestrian/Vehicle Conflicts: Re-route Northside Drive to the south of the Yosemite Village Day-use Parking Area. Consolidate parking to the north of the road and provide walkways leading to Yosemite Village separating vehicle and pedestrian traffic and eliminating conflicts. This re-designed traffic circulation patterns would not require roundabouts or a pedestrian undercrossing.
5. Concessioner Employee Housing: Create a 50-foot setback from Indian Creek. Ecologically restore the riparian habitat and protect using restoration fencing. Retain Ahwahnee Row and Tecoya employee housing.
6. Ahwahnee Meadow Restoration: Remove 900 feet of road through Ahwahnee Meadow and relocate the bike path to the south, restoring hydrologic connectivity between the meadow and river. Re-route the formal foot trail in Ahwahnee Meadow so it does not pass through wetlands. Restore meadow topography and native vegetation in original trail corridor.
7. Housekeeping Camp Lodging: Remove all lodging units and amenities including shower houses, laundry, office, and grocery store. Convert Housekeeping Camp to a day-use river access point and picnic area. Retain one restroom for day users. Restore 16.8 acres of floodplain and riparian ecosystem.

### Legend

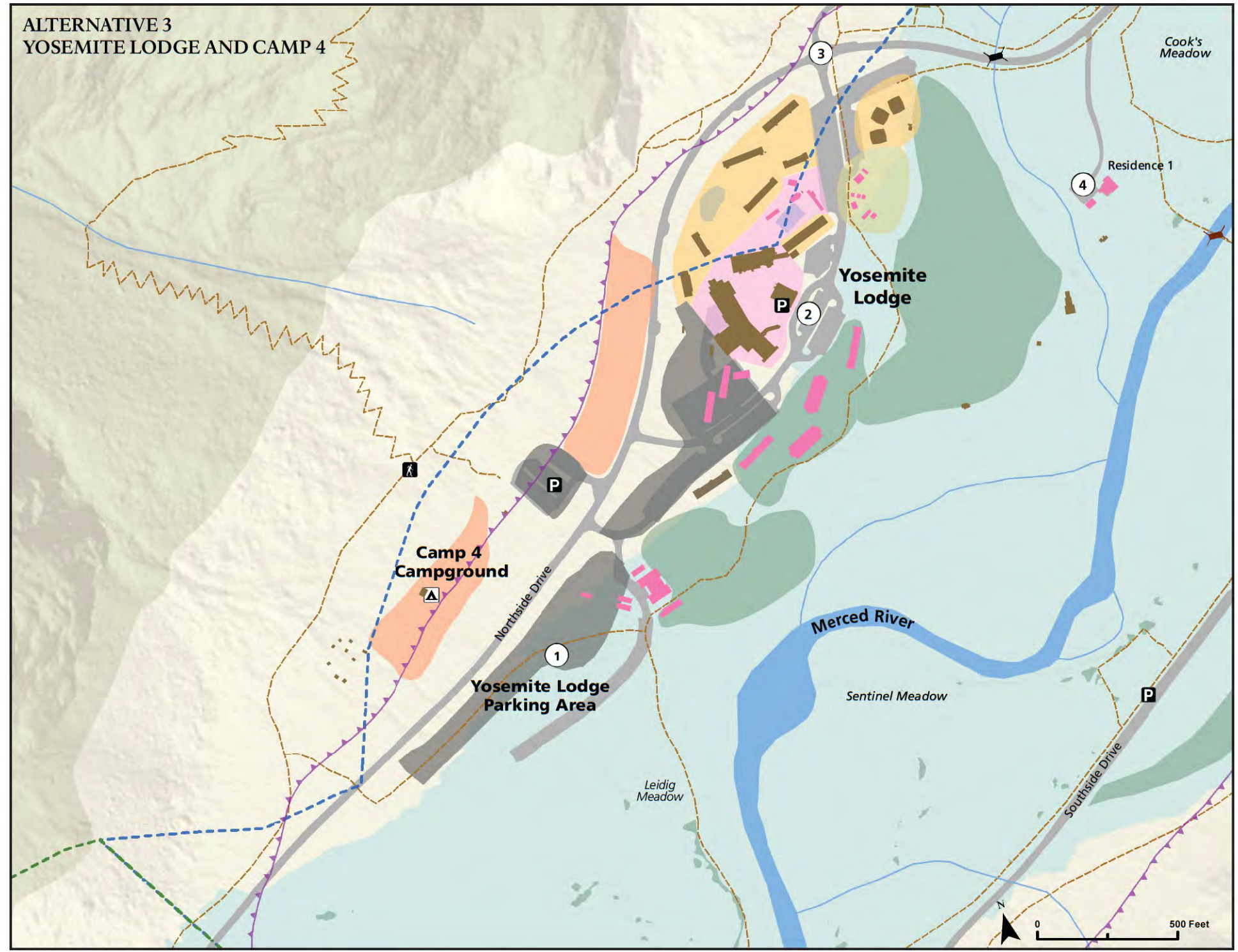
Campgrounds	Road bridge	Contour	Surfaced Areas	Visitor Services	Buildings	Designated Wilderness
Picnic Area	Footbridge	Trails	Restoration Areas	Housing	Retain Building	Recreational Segment
Parking Area	Lakes	Calculated Rock-fall Hazard Line	Camping	Operations	Remove Building	Wild Segment
Trailheads	Stream	Inferred Rock-fall Hazard Line	Lodging	Parking	100-year Floodplain	Scenic Segment



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# ALTERNATIVE 3: DISPERSED VISITOR EXPERIENCES AND EXTENSIVE RIVERBANK RESTORATION



EAST YOSEMITE VALLEY: YOSEMITE LODGE AND CAMP 4

1. West of Yosemite Lodge
  - Parking: Construct additional 150 day-use parking spaces southwest of Yosemite Lodge. This includes 15 spaces for tour bus parking. Parking redevelopment will incorporate best management practices to protect water quality.
2. Yosemite Lodge Area
  - Ecological restoration: Remove four Yosemite Lodge lodging buildings (in addition to other structures listed in actions common to all alternatives) from the 100-year floodplain and restore to natural conditions (3.3 acres). Also, restore riparian and floodplain ecosystem at the site of the former Yosemite Lodge units and cabins (those that were damaged by the 1997 flood and subsequently removed). Delineate one service road to the well house and parking. Remove non-native fill, decompact soils and plant riparian plant species (10.9 acres).
  - Lodging: Retain 143 units at Yosemite Lodge with associated parking.
  - Services and Facilities: Retain the Yosemite Lodge Food Court and Mountain Room Dining Room and Bar. Remove the post office, swimming pool, bike rentals, snack stand, and NPS Volunteer Office. Relocate the concessioner housekeeping and maintenance buildings.
  - Tour buses: Remove temporary housing complex at Highland Court and establish a tour bus drop-off area with three bus loading spaces.
  - Concessioner Housing: Construct two new concessioner housing areas for 104 employees and construct 78 employee parking spaces. (Common to all alternatives is to remove housing at Highland Court and at the Thousands Cabins.)
3. Yosemite Falls Intersection
  - Traffic Congestion: Move the pedestrian crossing between Yosemite Lodge and Yosemite Falls to an on-grade (street level) pedestrian crossing west of the intersection of Northside Drive and Yosemite Lodge Drive to help alleviate pedestrian/vehicle conflicts and associated traffic congestion.
4. Residence 1
  - Residence 1: Relocate this historic structure, also called the Superintendent's House, to the NPS housing area and rehabilitate the building per the Secretary of Interior's Standards for the Treatment of Historic Properties and the Historic Structures Report. Ecologically restore associated informal trails in Cook's Meadow and address continuing use patterns to enhance black oak woodland and meadow habitat.

**Legend**

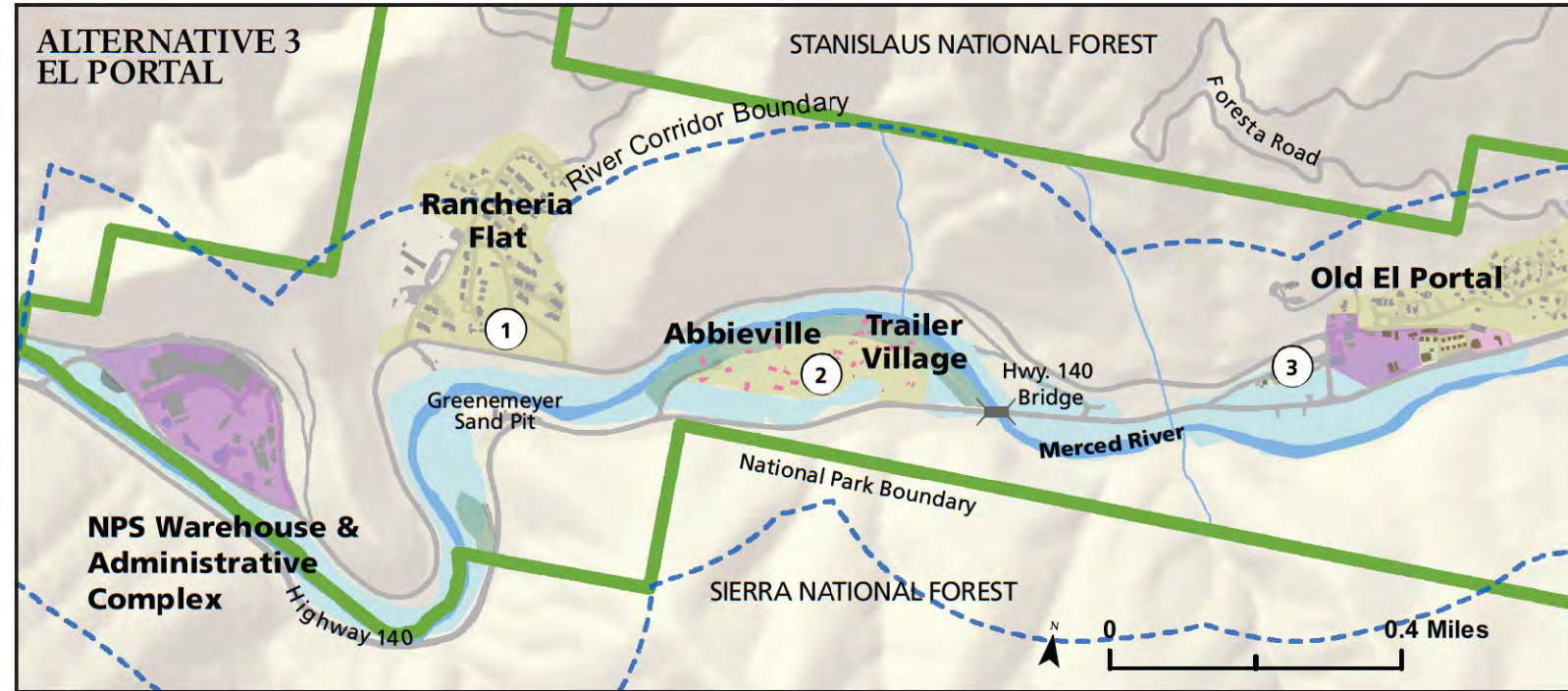
Campgrounds	Road bridge	Contour	Surfaced Areas	Visitor Services	Buildings	Designated Wilderness
Picnic Area	Footbridge	Trails	Restoration Areas	Housing	Retain Building	Recreational Segment
Parking Area	Lakes	Calculated Rock-fall Hazard Line	Camping	Operations	Remove Building	Wild Segment
Trailheads	Stream	Inferred Rock-fall Hazard Line	Lodging	Parking	100-year Floodplain	Scenic Segment



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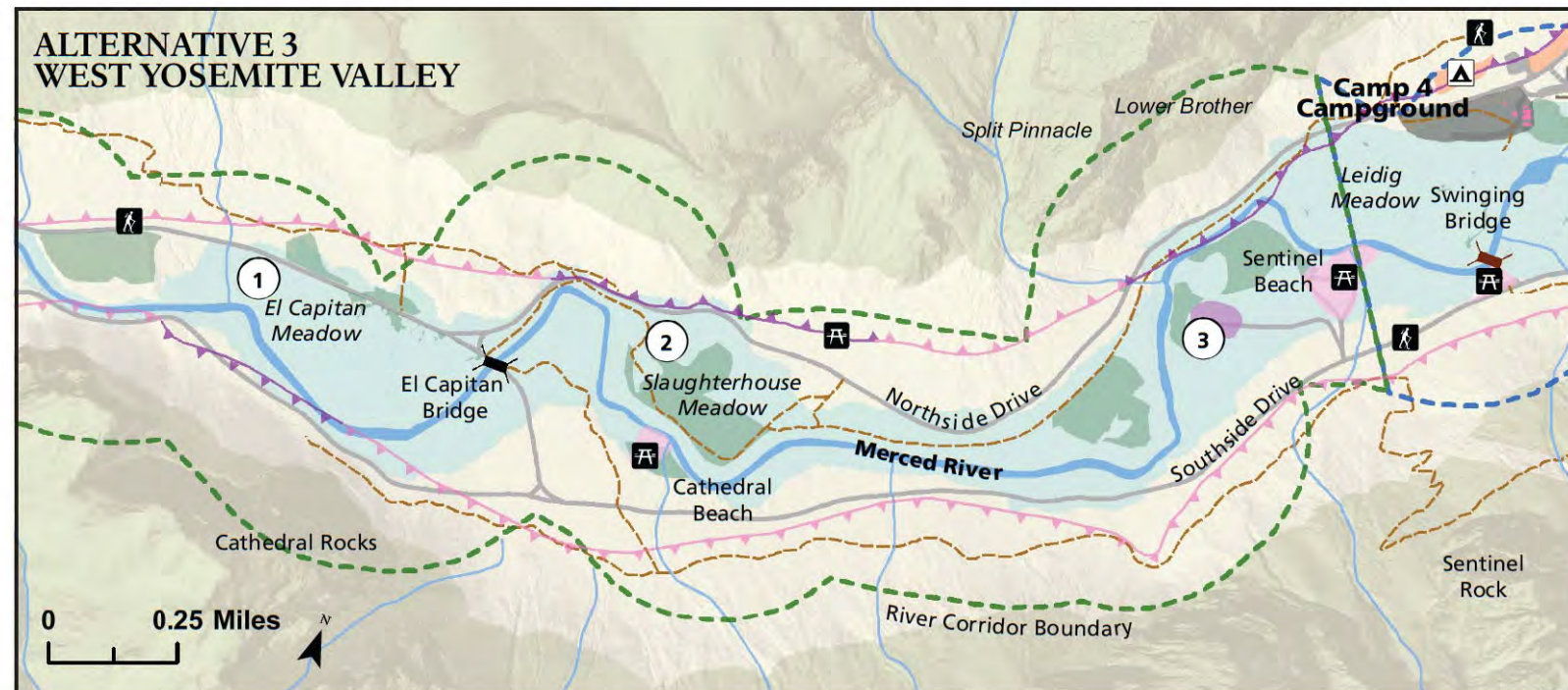


# ALTERNATIVE 3: DISPERSED VISITOR EXPERIENCES AND EXTENSIVE RIVERBANK RESTORATION



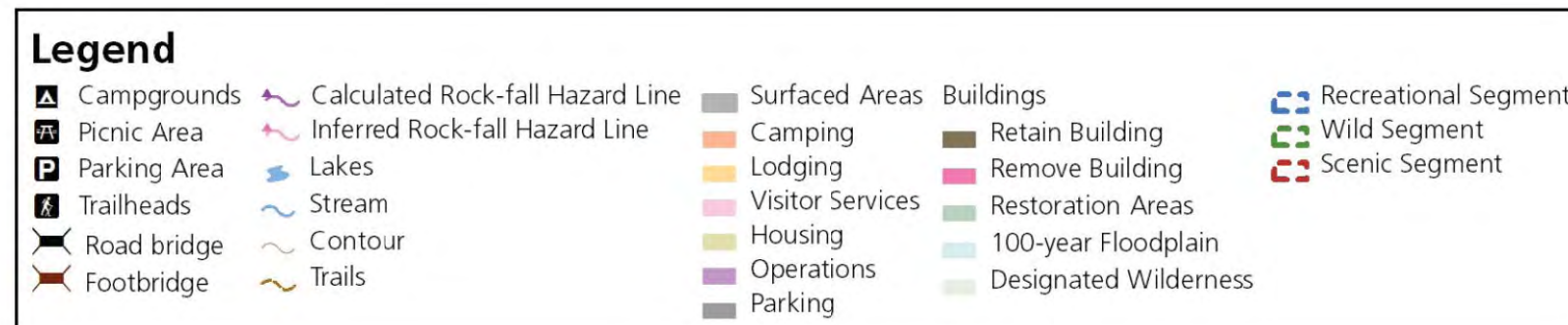
## EL PORTAL

- Rancheria Flat**
  - Employee Housing: To replace temporary housing units that will be removed from Yosemite Valley, construct one dormitory for 12 employees plus units for seven additional employees, for a total of 19 employee beds, away from sensitive resources.
- Abbieville and Trailer Village Area**
  - Abbieville and Trailer Village Housing: Remove or relocate 36 existing private residences. Continue to provide for housing land use for 40 employees and volunteers at this location. As homes within the 150-foot riparian buffer become vacant, ecologically restore these areas.
- El Portal Village Center**
  - Valley Oak Restoration: Restore the rare floodplain community of valley oaks in Old El Portal through implementation of best management practices. Create a valley oak recruitment area of 2.25 acre in Old El Portal in the vicinity of the current Odger's bulk fuel storage area, including the adjacent parking lots. Decompact soils, plant appropriate native understory plant species, and treat invasive plants. Prohibit new building construction within the oak recruitment area.
  - Odger's Fuel Storage Facility: Remove bulk fuel storage facility, all associated development, and non-native fill from the floodplain. Decompact soils, and plant appropriate native plant species, including valley oak. Relocate the fuel storage area outside the Merced River corridor or find an alternate source for emergency fuel supplies.



## WEST YOSEMITE VALLEY

- El Capitan Meadow Area**
  - El Capitan Meadow Ecological Restoration: Remove all informal trails from the meadow that incise, promote habitat fragmentation, or are located in sensitive and frequently inundated areas, and restore to natural conditions. Use restoration fencing and signing to designate appropriate meadow access points. No boardwalks are constructed in this alternative.
- Valley Loop Trail**
  - Trail Re-Route: Reroute trail through Slaughterhouse Meadow out of wetland habitat to an upland area. Move a 780-foot section of the trail through Bridalveil Meadow to the base of the Valley Loop Road shoulder.
- Yellow Pine Campground**
  - Administrative-Use Campground: Retain Yellow Pine Campground's four group sites (serving up to 120 people) for administrative use.

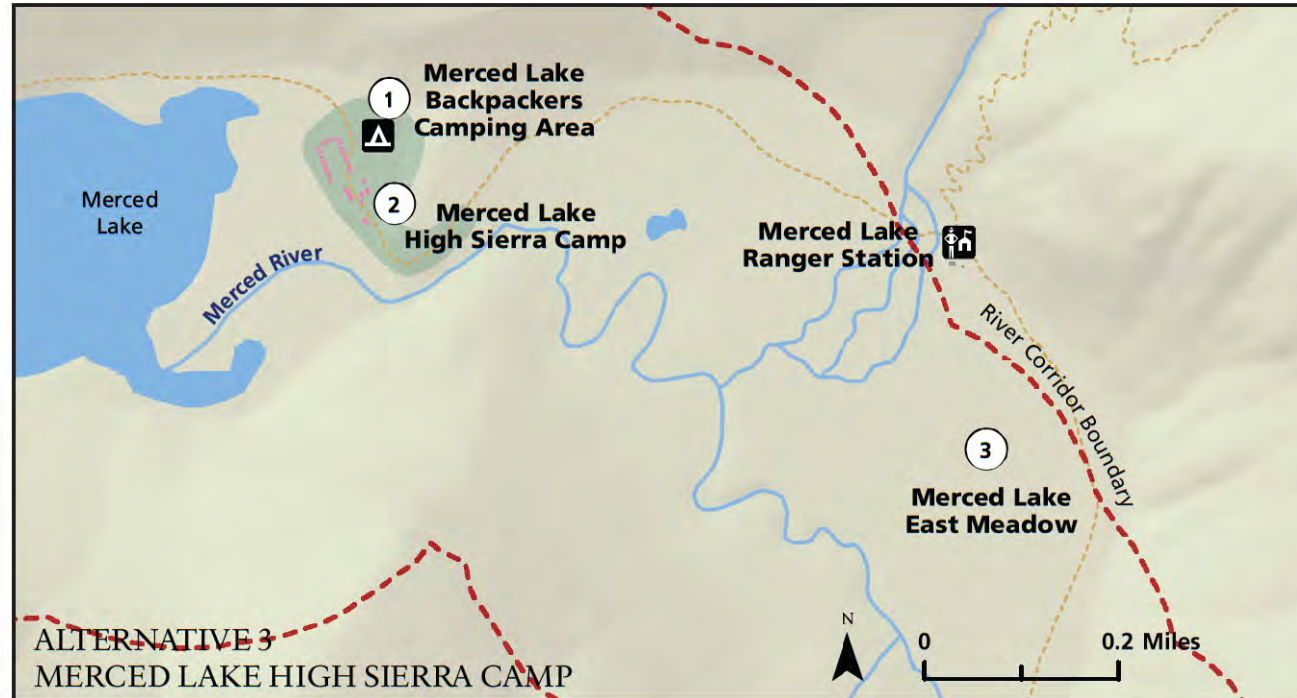




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# ALTERNATIVE 3: DISPERSED VISITOR EXPERIENCES AND EXTENSIVE RIVERBANK RESTORATION



## MERCED LAKE HIGH SIERRA CAMP

1. Merced Lake Backpackers Camping Area: Discontinue designated camping in this camping area but allow dispersed camping in the area of the former Merced Lake Backpackers Camping Area and the Merced Lake High Sierra Camp. Remove waste water system. Replace flush toilets with composting toilets.
2. Merced Lake High Sierra Camp: Convert Merced Lake High Sierra Camp to a temporary pack camp with a maximum group size of 15 people. Remove permanent infrastructure, including buildings, water system and septic system. Ecologically restore the area and convert area to designated Wilderness.
3. Merced Lake East Meadow: Develop preliminary grazing capacities for the meadow. When the meadow recovers, allow administrative grazing at established capacities. Monitor annually for five years, adapting use levels as needed to protect meadow.

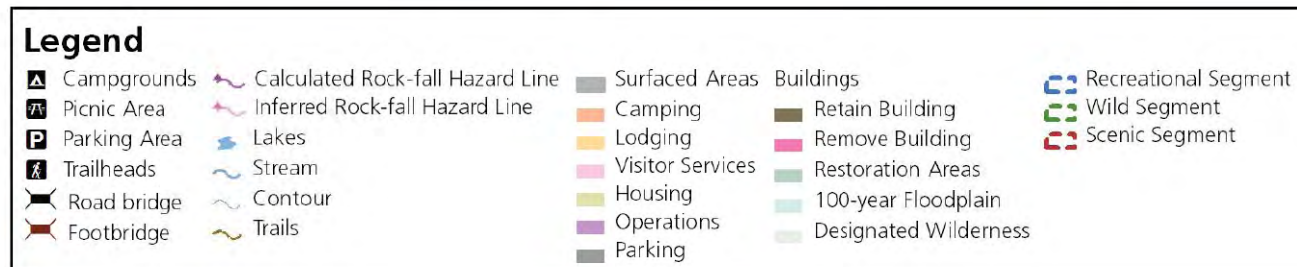
## OTHER SEGMENT 1 CAMPING AREAS

- Little Yosemite Valley: Discontinue designated camping but allow dispersed camping in this area. Remove all infrastructure, except for the composting toilets.
- Moraine Dome: Discontinue designated camping but allow dispersed camping in this area.



## WAWONA

1. Wawona Campground: Retain 64 campsites and one group site. Remove 32 sites that are located within the 100-year floodplain or culturally sensitive areas.
2. Wawona Meadow Restoration: Remove golf course and restore to meadow conditions. Retain spray field associated with waste water treatment facility.
3. Wawona Stables: Eliminate stable operation and commercial day rides. Relocate two stock-use campground sites from a sensitive resource area to the existing stables area.



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## **Detailed Description of Alternative 3 by Segment**

### ***Segment 1: Wilderness above Nevada Fall (Wild Segment)***

#### **Actions to Protect and Enhance River Values**

In addition to the “Actions Common to Alternatives 2-6” (beginning on page 8-53), Alternative 3 would include the following action to protect and enhance river values:

##### ***Biological Values***

- Establish preliminary grazing capacities for Merced Lake East Meadow; monitor, and adapted as necessary.

##### ***Recreational Values***

Enhance Wilderness character by replacing the Merced Lake High Sierra Camp with a temporary stock camp and converting this area to designated Wilderness.

- Reduce crowding by converting all designated camping areas to dispersed camping.
- Reduce trailhead quotas for trailheads that lead to Little Yosemite Valley.

#### **User Capacity, Land Use and Facilities Management**

Alternative 3 would reduce the amount of infrastructure in the river corridor in Segment 1, reduce the capacity of the Little Yosemite Valley Wilderness zone, re-purpose the Merced Lake High Sierra Camp as a temporary outfitter camp, and maintain the existing Wilderness zone quotas for all other zones in the river corridor. In addition to the “Actions Common to Alternatives 2-6” (page 8-77), Alternative 3 would include the following actions to manage user capacity, land use, and facilities:

##### ***Visitor Activities and Services***

Primary activities in Segment 1 would continue to include hiking and overnight backpacking. Backpackers would continue to have the choice of staying overnight at designated camping areas or dispersing throughout the Wilderness.

Private boating would be allowed in Segment 1 under Alternative 3. Generally, this kind of use would consist of short floats using pack raft or other craft that can easily be carried into this remote area. Put-ins and take-outs would be dispersed and the use level would be unrestricted due to the expected low use levels associated with this remote area of the river.

One overnight commercial group would be allowed per wilderness zone in Segment 1.

##### ***Visitor Overnight Capacity***

The Wilderness trailhead quota system would be maintained, with the changes proposed in Table 8-25. Services would be managed as follows under Alternative 3:

- Convert the Merced Lake High Sierra Camp to a temporary pack camp with a maximum of 15 people allowed; remove permanent infrastructure, including the water treatment system, and convert area to designated Wilderness.

ALTERNATIVES

- Convert the Merced Lake backpackers camping area to dispersed camping; replace the flush toilet with a composting toilet.
- Convert the Little Yosemite Valley designated backpacker camping area to dispersed camping; retain the composting toilet. Reduce the capacity of the Little Yosemite Valley Wilderness zone.
- Eliminate the designated backpacker camping area at Moraine Dome.

**TABLE 8-25: WILDERNESS ZONE CAPACITIES- ALTERNATIVE 3**

Wilderness Zones	Alt 3 Zonewide Capacity	Alt 3 Zone Capacity Specific to the River Corridor
Little Yosemite Valley Zone	<b>75</b> people (-75 people*)	<b>75</b> people (-75 people*)
Merced Lake Zone	<b>50</b>	<b>50</b>
Washburn Lake Zone	<b>150</b>	<b>100</b>
Mount Lyell Zone	<b>50</b>	<b>10</b>
Clark Range Zone	<b>50</b>	<b>10</b>

\* Number of people reduced from Alternative 1 (No Action) to Alternative 3

*Visitor Day Use Capacity*

Day use access to this segment is addressed under the “Actions Common to Alternatives 2-6.”

*Administrative Activities*

- Continue current administrative activities, which consist primarily of regular ranger patrols and backcountry utility work as well as occasional trail/restoration crews. These activities are seasonal and minimal in comparison to visitor use and would not affect overall user capacity.

*Segment 2: Yosemite Valley (Recreational & Scenic Segments)*

**Actions to Protect and Enhance River Values**

In addition to the “Actions Common to Alternatives 2-6” (beginning on page 8-53), Alternative 3 would include the following action to protect and enhance river values:

*Free Flow*

- Remove Stoneman Bridge and restore the riverbanks to natural conditions.
- Remove Sugar Pine and Ahwahnee Bridges and associated berm/ elevated trail connecting them; restore banks to natural conditions; re-route multi-use trail north along the river.

*Biological Values*

Alternative 3 would remove all campsites within 150 feet of the high-water mark:

- Remove all existing campsites and infrastructure within 150 feet of the ordinary high-water mark and restore natural floodplain and riparian habitat (12 acres).
  - **Backpackers Camp:** Remove all 25 sites, 21 of which are in the 100-year floodplain (and within 150 feet of the ordinary high-water mark). (Replace 16 sites to the west of the current campground.)

- **North Pines Campground:** Remove 34 sites from within 150 feet of the ordinary high-water mark; restore native riparian vegetation.
- **Lower Pines Campground:** Remove 15 sites from within 150 feet of the ordinary high-water mark); restore native riparian vegetation.
- **Upper Pines Campground:** Retain 238 campsites, 22 of which are in the 100-year floodplain.
- **Former Lower and Upper River Campgrounds:** Remove all abandoned facilities, including the Lower River amphitheater structure, and restore 35.6 acres of natural floodplain topography and riparian/wetland habitat within the 10-year floodplain; temporarily fence restoration areas to allow for recovery.
- **Yosemite Lodge:** Remove four buildings at Yosemite Lodge containing 102 lodging units that are currently within the 100-year floodplain; restore the floodplain to natural conditions.
- **Former Pine and Oak Units:** Restore 10.9 acres of riparian ecosystem at the site of the former Yosemite Lodge units and cabins (those that were removed after the 1997 flood) and wellness center while maintaining access to the well house.
- **Yosemite Village:** Move the Yosemite Village Day-use Parking Area northward, out of the 10-year floodplain of the Merced River and outside a designated 50-foot setback from Indian Creek; remove fill material and restore the floodplain to natural conditions.
- **Housekeeping Camp:** Remove all 266 lodging units and associated facilities at Housekeeping Camp (restrooms, shower houses, laundry, grocery store, and office), out of the 100-year floodplain; convert area to a day-use access point. Direct visitor use and river access to the two resilient beach locations on the western edge of Housekeeping Camp and across the footbridge. Fence off the current eastern river access point located on a steep eroded bank, and actively restore the riverbank with brush layering. Where infrastructure is removed, decompact soils and plant riparian species.

Alternative 3 would enhance meadow connectivity by removing segments of roads and trails that currently bisect meadows, interrupting sheetflow and causing habitat fragmentation.

- **Bridalveil Meadow:** Reroute the 780-foot segment of the Valley Loop Trail that currently crosses Bridalveil Meadow closer to the base of the fill slope of the Valley Loop Road.
- **Slaughterhouse Meadow:** Reroute the portion of the Valley Loop Trail to an upland area out of wetlands at Slaughterhouse Meadow.
- **El Capitan Meadow:** Fence the northern perimeter of meadow to protect the restoration area, and designate appropriate access points using boardwalks and viewing platforms.
- **Ahwahnee Meadow:** Remove 900 feet of Northside Drive from Ahwahnee Meadow; relocate the bike path to the south, restoring the meadow and riparian floodplain connectivity; restore meadow contours and native vegetation. Reroute trails through Ahwahnee Meadow so they do not pass through wetlands, consolidating use with the Housekeeping footbridge trail where possible; remove associated fill and restore trails within wetlands.
- **Stoneman Meadow:** Remove the segment of Southside Drive that bisects Stoneman Meadow (1,335 feet); realign Southside Drive through Boys Town. Extend the boardwalk through wet areas to Curry Village (up to 275 feet).

### *Scenic Values*

- Eliminate visual intrusion of Southside Drive through Stoneman Meadow
- Eliminate visual intrusion of Northside Drive through Ahwahnee Meadow.



*Cultural Values*

- Remove four structures from the collective sites representing the prominent historic patterns of development in Yosemite Valley: Sugar Pine Bridge, Ahwahnee Bridge, Stoneman Bridge, and Residence 1 (Superintendent's House).
- Relocate Residence 1 to the NPS housing area and at a minimum stabilize the building per the Secretary of the Interior's Standards for the Treatment of Historic Properties (NPS 1995).

*Recreational Values*

- Restrict boating to 50 people per day using private vessels only and restrict use to specific stretches of river in Yosemite Valley. This reduction in boats would enhance dispersed recreation along the river corridor.
- Reduce the available day-use parking and implement at a East Yosemite Valley Day-use Parking Permit system in East Yosemite Valley to reduce crowding at key attraction sites, along roadways, and in parking lots and other facilities.

**User Capacity, Land Use and Facilities Management***Visitor Activities and Services*

Alternative 3 would protect river-related recreational ORVs through infrastructure improvements where necessary, while reducing recreational activities that are not related to recreational ORVs. It would include the following changes to visitor activities and services in addition to those common to Alternatives 2-6 (see page 8-77):

- Allow only private boating in this river segment. Private boats would be limited to the section of river between the Housekeeping Camp and Cathedral Beach. Put-ins and take-outs would be limited to designated locations within Housekeeping Camp, Sentinel Beach, and Cathedral Beach. This use would be monitored by a river patrol ranger and would be limited to 50 trips per day.
- Remove Housekeeping Camp shower houses, restrooms, laundry, and grocery store. (Retain at least one restroom when reconfiguring the area for day use.)
- Continue to provide staging at the Concessioner Stable for temporary pack camp operation at Merced Lake High Sierra Camp; reduce the stable size and provide overflow parking for campgrounds; retain kennel service.
- Remove Curry Village raft rental.

*Visitor Overnight Capacity: Camping*

Camping would be slightly increased under Alternative 3 to 477 sites accommodating 2,958 people per night:

- **Backpackers Camp:** Remove all 25 sites, 21 of which are in the 100-year floodplain. Construct 16 new walk-in campsites west of Backpackers Camp.
- **North Pines Campground:** Retain 52 campsites. Remove 34 sites from within 150 feet of the ordinary high-water mark; restore native riparian communities.
- **Upper Pines Campground:** Retain 238 campsites. Construct a new recreational vehicle campground loop with 36 RV sites.
- **Lower Pines Campground:** Retain 61 campsites. Remove 15 sites from within 150 feet of the ordinary high-water mark.



- **Camp 4:** Retain 35 walk-in campsites and 35 parking spaces. Construct 35 additional campsites east of Camp 4; establish a new parking area (41 spaces) for the Camp 4 campground expansion in the disturbed footprint of the former service station near Camp 4.

### *Visitor Overnight Capacity: Lodging*

Lodging would be significantly reduced to facilitate ecological restoration, day use, and camping. Lodging would total 621 units accommodating 2,069 people per night. Common to Alternatives 2-6, The Ahwahnee would continue to provide 123 lodging rooms. The following additional lodging would be retained, removed, or constructed under Alternative 3:

- **Curry Village:** Retain 355 lodging units at Curry Village: 290 tents, 18 units at Stoneman House, 47 hard-sided cabins with bath. Remove all existing cabins and associated structures at Boys Town. Provide 300 designated overnight parking spaces at Curry Orchard; restore ecological conditions to part of the existing parking area, removing 50 spaces, to improve natural surface flows to Stoneman Meadow.
- **Housekeeping Camp:** Remove all 266 lodging units and associated facilities from the 100-year floodplain. Convert area to a day use river access point and picnic area. Retain one restroom for day use.
- **Yosemite Lodge:** Retain 143 units lodging units; remove 4 buildings (containing 102 lodging units) from the 100-year floodplain.

Conceptual site drawings road and parking improvements at Boys Town under Alternative 3 have been completed to allow the analysis of impacts of this potential project. See "Conceptual Site Drawings" at the end of the Alternative 3 discussion for site details and design drawings.

### *Visitor Day-use Parking Capacity and Transit*

Alternative 3 would significantly reduce the maximum daily visitation to Yosemite Valley. The day parking, regional transit, and tour bus capacities would accommodate up to 6,289 day users at one time in Segment 2:

- Reduce available day-use parking spaces (- 740 spaces) for a total of 1,597 parking spaces accommodating a maximum of 4,168 people at one time.
- Accommodate an estimated 1,160 people at one time in circulation on Valley roads.
- Accommodate a maximum of 241 people at one time arriving to the Valley on regional transit.
- Retain tour bus parking at 15 spaces accommodating up to 720 people at one time.

Visitor circulation would be improved to reduce traffic congestion and to provide a better arrival experience for visitors. Major actions would include the following:

- Redesign day parking at Yosemite Village to provide 550 designated spaces.
- Construct a parking lot with 150 designated day parking spaces and a new 3,000 square foot comfort station west of Yosemite Lodge; provide 15 bus loading/unloading spaces.
- Redesign the intersection at Sentinel Bridge; switch Southside Drive to a two-way road.

Conceptual site drawings for the Yosemite Village Day-use Parking Area and the new parking lot west of Yosemite Lodge under Alternative 3 have been completed to allow the analysis of impacts of these potential projects. See "Conceptual Site Drawings" at the end of the Alternative 3 discussion for site details and design drawings.

ALTERNATIVES

Due to the reductions day use parking supply in this alternative, as compared to current peak demand, an East Yosemite Valley Day Use Parking Permit System would be instituted.

Regional transit service would be reconfigured to expand the number of routes, but to reduce runs on some routes, consistent with anticipated demand, as follows:

- Highway 140 (Merced to Yosemite Valley): Maintain service at 8 runs per day.
- Highway 41 between Fresno and Yosemite Valley: Implement new public transit service at 1 run/day.
- Highway 120 West (Groveland to Yosemite Valley): Reduce service to 1 run per day (summer only).
- Highway 120 East (Mammoth Lakes to Yosemite Valley): Maintain service at 1 run per day (summer only)

Under all the action alternatives, including Alternative 3, shuttle bus service would be improved by increasing the frequency of the year-round East Yosemite Valley service to 5 minute intervals during peak use. The Visitor Center Express service (summer only) would continue to run at 15 minute intervals. The El Capitan Crossover service (summer only) would continue to run at 30-minute intervals.

**TABLE 8-26: TRANSIT OPTIONS- ALTERNATIVE 3**

Regional Transit Options	
HWY 140 Merced/Mariposa to Yosemite Valley	8 runs per day (4 from Merced; 4 from Mariposa) (year round)
HWY 41 Fresno/Oakhurst to Yosemite Valley	1 run per day
HWY 120 West Groveland/Sonora to Yosemite Valley	1 weekday run- Sonora to Valley 2 weekend runs- Groveland to Valley (summer only)
HWY 120 East Inyo/Mono County (Mammoth Lakes) to Yosemite Valley	1 run per day (summer only)
Yosemite Valley Shuttle Options	
East Yosemite Valley	5 minute peak interval between buses Year round except Visitor Center direct
Visitor Center Express Yosemite Valley Day-use Parking Area to Visitor Center	15 min. interval between buses (summer only)
El Capitan Crossover	30 min. interval between buses (summer only)
West Yosemite Valley	No service

***Administrative Activities***

Administrative activities would be relocated further from the river:

- Relocate the Yosemite Lodge housekeeping and maintenance facilities to a location behind the Yosemite Lodge cafeteria.

### ***Employee Housing and Employee Parking***

Concessioner employee housing would be reduced. Compared to existing conditions, 229 fewer concessioner employees would be housed in Yosemite Valley. The remaining housing for 922 concessioner employees would be provided as follows:

- Provide housing for 436 employees at Curry Village.
  - Retain permanent housing in the Curry Village residential area (223 employees)
  - Retain housing at Curry Village stable (49 beds).
  - Construct 16 buildings housing 164 employees.
- Provide housing for 340 employees at Yosemite Village:
  - Retain permanent housing at Indian Creek, Lost Arrow, and Upper Tecoya (65 employees)
  - Retain Ahwahnee Row, Y Apartments, garage housing, and Hospital Row (43 employees)
  - Retain Tecoya Dorms (232 employees)
- Provide housing for 104 employees at Yosemite Lodge:
  - Construct new housing for 104 employees at Yosemite Lodge (two structures with 26 double-occupancy units each)

Four group administrative campsites (up to 120 people) would be retained at the Yellow Pine Administrative Campground.

### ***Segment 3: Merced Gorge (Scenic Segment)***

#### **Actions to Protect and Enhance River Values**

Actions to protect and enhance River Values in Segment 3 are all detailed in the section titled, “Actions Common to Alternatives 2-6” (see page 8-53).

#### **User Capacity, Land Use and Facilities Management**

This alternative would provide for similar kinds and amounts of use that exist today. The majority of actions for Alternative 3 in Segment 3 are discussed in the “Actions Common to Alternatives 2-6” (see page 8-77). Alternative actions that are not included in the Actions Common section are listed below.

#### ***Visitor Activities & Services***

Only private boats would be allowed in this segment for this alternative. Boaters would be allowed on the river below Pohono Bridge and run the river into El Portal (Segment 4). Boaters would be allowed to put in and take out at any of the roadside pull-outs. This use would be managed by a permit system and restricted to 5 boats per day.

#### ***Transit Options***

Public transit options along this segment would be expanded as described in Segment 2, above.

### ***Segment 4: El Portal (Scenic Segment)***

#### **Actions to Protect and Enhance River Values**

All actions to protect and enhance river values in Segment 4 for Alternative 3 are addressed in “Actions Common to Alternatives 2-6” (see page 8-53).

#### **User Capacity, Land Use and Facilities Management**

Alternative 3 would provide for similar kinds and amounts of use that exist today. User capacity in Segment 4 for Alternative 3 is mostly affected by the increase in employee housing in El Portal. While all new units would be built outside of the 100-year floodplain, they would fall within the river corridor boundary.

#### ***Visitor Activities and Services***

Most visitor activities and services in Segment 4 are considered in “Actions Common to Alternatives 2-6” (see page 8-77). Additional actions are listed below:

- Boating: Private boats would be allowed in Segment 4. Expected use would be mostly rafts and kayaks. Boaters would be permitted below Yosemite View Lodge to beyond the Foresta Bridge (at which point boaters would exit the segment.) Boaters would be able to use put-ins and take outs below the hotel, at the store/gas station and the Red Bud launch site. This use would be regulated through a permitting system that allows for up to 5 boats per day.

#### ***Visitor Overnight Capacity***

No NPS overnight accommodations for the public are proposed in Segment 4 under any alternative. An expansive lodging complex is located on private land near the park boundary, but these lodging units are not under NPS jurisdiction.

#### ***Visitor Day Use Capacity***

Day-use parking capacities would not change for Segment 4 in Alternative 3 (214 spaces).

#### ***Administrative Activities***

All administrative activities in Segment 4 are considered in “Actions Common to Alternatives 2-6” (see page 8-53).

#### ***Employee Housing Capacity***

In Alternative 3, high density employee housing would be added to the El Portal Village Center (12 beds) and Rancheria Flat (19 beds). All new units would be outside of the 100-year floodplain. These units would be added to accommodate for the units removed from Segment 2.

#### ***Employee and Administrative Parking Capacity***

Most employee and administrative parking actions are discussed in “Actions Common to Alternatives 2-6” (see page 8-53). This additional housing would also include 27 employee overnight parking spots that would be established as a result of the additional housing units El Portal Village Center and Rancheria Flat.

### ***Transit Options***

Regional transit options would maintain existing service along the Highway 140 corridor. For a complete summary of transit activity that passes through this segment, see the Segment 2 summary above.

### ***Segment 5: South Fork Merced River Above Wawona (Wild Segment)***

#### **Actions to Protect and Enhance River Values**

There are no actions in Alternative 3 that are specific to this segment.

#### **User Capacity, Land Use and Facilities Management**

Alternative 3 would provide for similar kinds and amounts of use that exist today in Segment 5. The majority of actions for Alternative 3 in Segment 5 are discussed in the “Actions Common to Alternatives 2-6” (see page 8-77). Alternative actions that are not included in the Actions Common section are listed below.

#### ***Visitor Activities and Services***

Private boating would be allowed in this segment. Generally, use in this segment would consist of short floats using pack raft or other craft that can easily be carried into this remote area. Use levels would be unrestricted given the expected low use due to the remote nature of the river segment.

### ***Transit Options***

Specific transportation options for reaching Segment 5 trailheads are listed below under Segment 7.

### ***Segments 6 and 7: Wawona and Wawona Impoundment (Recreational Segments)***

#### **Actions to Protect and Enhance River Values**

In addition to the actions detailed in the section titled “Actions Common to Alternatives 2-6” (see page 8-53), protection and enhancement of cultural values and water quality would be accomplished through the actions described below.

#### ***Cultural Values/Water Quality***

- Wawona stock campground: Relocate stock campground (2 sites) from culturally sensitive area to the Wawona Stables area.
- Wawona Campground: Retains 69 sites. Remove 27 sites that are either within the 100-year floodplain or in culturally sensitive areas.

#### **User Capacity, Land Use and Facilities Management**

Alternative 3 would provide for similar kinds and amounts of use that exist today. Notable changes to these segments in Alternative 3 would be the removal of the Wawona Golf Course and changes to the capacity of the Wawona Campground. The majority of actions for Alternative 2 in Segment 7 are discussed in the “Actions Common to Alternatives 2-6” (see page 8-77). Alternative actions that are not included in the Actions Common section are listed below.

### *Visitor Activities and Services*

- Allow only private boats in Segment 7. Expected use would be mostly kayaks and other small whitewater boats. Boaters would be permitted below Swinging Bridge to beyond the park line, with the exception of the Wawona Impoundment. Boaters would be able to use put-ins and take outs at Swinging Bridge, the store area, South Fork Picnic Area and below the campground. This use would be regulated through river patrol and monitoring as the use level is expected to be low, and therefore would not be limited.
- Remove the Wawona Golf Course and ecologically restore area while retaining as a spray field for reclaimed water. Repurpose the Golf Shop for another use.
- Remove the Wawona Hotel Tennis Court.
- Eliminate commercial day rides originating from the Wawona stables. Remove the stables and repurpose area as a stock use campground.

### *Visitor Overnight Capacity*

The Wawona Campground would be reduced from 97 to 70 sites (444 people), including a group camping site (to accommodate up to 30 persons). The two campsites at the Wawona stock camp would be relocated to the Wawona stables and would accommodate 6 people per night each (12 people per night total). Total overnight capacity for the Wawona Campground would be 456 people.

Total overnight capacity for Segment 7 would be 176 lodging units and campsites that accommodate 703 people.

### *Visitor Day Use Capacity*

Total visitor day use capacity for this area would be increased from 1,295 to 1,321 people at one time. This increase is due to new regional transit options that contribute up to 26 visitors at one time to this segment.

### *Transit Options*

In-park shuttle options between Wawona and Yosemite Valley and Wawona and Mariposa Grove would continue. New regional transit options would be provided along the Highway 41 corridor with one run between Fresno and Yosemite Valley daily. Alternative 3 would have a maximum capacity of 26 visitors at one time arriving via regional transit.

## ***Segment 8: South Fork Merced River Below Wawona (Wild Segment)***

### **Actions to Protect and Enhance River Values**

There are no actions in Alternative 3 that are specific to this segment.

### **User Capacity, Land Use and Facilities Management**

Alternative 3 would provide for similar kinds and amounts of use that exist today in Segment 8 and significant changes are not proposed. The majority of actions for Alternative 3 in Segment 8 are discussed in the “Actions Common to Alternatives 2-6” (see page 8-77). Alternative actions that are not included in the Actions Common section are listed below.



### ***Visitor Activities and Services***

Private boating would be allowed in this segment. Generally, use in this segment would consist of short floats using pack raft or other craft that can easily be carried into this remote area. Permits would not be required as the expected use level is very low.

### ***Transit Options***

Transit services for access to this segment are described above under Segment 7 (see above).

## **Analysis of Facilities and Services**

Table 8-27 presents the park's assessment of the particular facilities and services that would be needed to support public use and/or to protect river resources based on the types, levels, and locations of use proposed for Alternative 3. As an example, the goals of this alternative include a more dispersed visitor experiences and extensive riverbank Restoration. This alternative would direct comprehensive restoration within 150 feet of the Merced River and prescribe visitor use levels lower than current levels, therefore making it possible to convert the Housekeeping Camp to a day-use area and the Merced Lake High Sierra Camp a temporary pack stock camp. Camping and lodging would be less than today, only more dispersed because Yosemite Lodge would remain, as would most of the campgrounds.

**TABLE 8-27: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 3**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 1: Wild</b>			
Merced Lake High Sierra Camp	Re-purposed as temporary pack camp	<b>Yes:</b> This facility offers rustic accommodations to visitors traveling independently or as a part of the organized High Sierra Loop Trip offered by the concessioner in cooperation with the NPS. The number of camp beds allowed under this alternative are needed to support public use in a manner that is consistent with the types and amounts of visitor use that have been found to protect and enhance river values.	<b>No:</b> The High Sierra Camp is outside designated Wilderness; however it is surrounded by designated wilderness. Designated wilderness precludes the construction of new facilities such as this. Alternatives in Chapter 8 consider various means of addressing impacts to ORVs.
Merced Lake Backpackers Camping Area	Converted to dispersed camping	<b>No:</b> Consistent with the land use restoration and visitor experience goals of this alternative, this designated camping is no longer needed.	<b>No:</b> A designated campground reduces resource impacts from dispersed camping. Alternatives in Chapter 8 consider various mitigations for the existing campground.
Little Yosemite Valley Camping Area	Converted to dispersed camping	<b>No:</b> Consistent with the land use restoration and visitor experience goals of this alternative, this designated camping is no longer needed.	<b>No:</b> A designated campground reduces resource impacts from dispersed camping. Alternatives in Chapter 8 consider various mitigations for the existing campground.
Moraine Dome Camping Area	Converted to dispersed camping	<b>No:</b> Consistent with the land use restoration and visitor experience goals of this alternative, this designated camping is no longer needed.	<b>No:</b> A designated campground reduces resource impacts from dispersed camping. Alternatives in Chapter 8 consider various mitigations for the existing campground.
<b>Segment 2: Curry Village and Campgrounds</b>			
Upper Pines Campground	Reduced	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.
Lower Pines Campground	Reduced	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.
North Pines Campground	Reduced	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.
Backpackers Campground	Removed (partially re-located)	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience. In addition, this campground is critical for backpackers who need to start or end their wilderness trip in Yosemite Valley.	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.

**TABLE 8-27: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 3**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Curry Village and Campgrounds (cont.)</b>			
Valley Campground Reservation Center	Re-located (due to Southside Drive re-routing)	<b>Yes:</b> The Valley Campground Reservation Center is an essential National Park Service point-of-contact for campers, and those who seek campsites, in Yosemite Valley. The Campground Reservation Center staff sells campsite reservations for all campsites in the park available for reservations. The Reservation Center is operated on a year-round basis.	<b>Yes.</b> The Campground Reservation could be moved from its existing location. However, it is important to the successful delivery of services provided from the reservation center that any alternative location be near the Valley campgrounds.
Housekeeping Camp Lodging Units	Removed (re-purposed as day-use river access area)	<b>No:</b> Under this alternative, the level of visitor accommodations is reduced and, therefore, consistent with the land-use restoration goals.	<b>No.</b> While some buildings within the Housekeeping Camp complex could be relocated to sites further from the Merced River, it is not feasible to consider a wholesale relocation of the lodging units.
Housekeeping Camp Shower Houses and Restrooms	Retained 1 restroom. Removed shower houses, laundry, and grocery.	<b>Yes:</b> Public restrooms are needed in many areas throughout the river corridor to comply with public health regulations and meet the basic personal needs of visitors and employees. The public showers at Housekeeping Camp are provided for guest use as well as other patrons, including campers and hikers.	<b>No.</b> The Housekeeping Camp restrooms and shower houses are components of the overnight guest accommodations at this location. They are required to be located within or very near the overnight sleeping units.
Housekeeping Camp Laundry	Removed	<b>No:</b> The public laundromat at Housekeeping Camp is not needed with the elimination of the Housekeeping Camp.	<b>No.</b> This service is provided for Housekeeping Camp guests and is directly linked to the camp; relocating the service and providing a general laundry facility for park visitors is not necessary.
Housekeeping Camp Grocery	Removed	<b>No:</b> This need for the grocery store is tied to the level of lodging units at Housekeeping Camp. With a reduction of lodging, the grocery store is not needed.	<b>Yes.</b> The merchandise offered at this location is offered elsewhere in Yosemite Valley.
Curry Village Lodging and Shower Houses	Reduced	<b>Yes:</b> Curry Village offers rustic and economy overnight guest accommodations consistent with the types and amounts of visitor use that have been found to be protect and enhance ORVs. This facility is needed to support public use by visitors who do not camp.	<b>No.</b> This lodging facility is part of a National Register Historic District. It is not feasible to relocate the complex, including shower and toilet facilities needed by guests in without-bath accommodations, to locations outside the river corridor.
Curry Village Overnight Parking	Retained	<b>Yes:</b> Parking at Curry Village is needed to support the day and overnight visitors who use Curry Village.	<b>No.</b> Parking areas of in these locations are needed to support overnight guests at this location.
Curry Orchard Parking Area	Re-developed	<b>Yes:</b> Parking at Curry Village Orchard is needed to support day and overnight visitors who use Curry Village.	<b>No.</b> Parking areas of in these locations are needed to support overnight guests at this location.
Curry Village Raft Rental	Service eliminated / facility removed	<b>No:</b> This is not a vital visitor service under this alternative.	<b>N/A:</b> This service will be eliminated.
Concessioner Stables in Yosemite Valley	Reduced (as staging area for MLHSC pack stock)	<b>Yes:</b> The stable operation at in Yosemite Valley supports the High Sierra Camp operations. The location of the stables is within reach of each of the High Sierra camps by one day's ride, and trailering stock from El Portal or Wawona would be a substantial operational burden due to time and distance required to reach trailheads.	<b>No.</b> There are no other suitable locations for a stable operation, neither in proximity to other visitor services nor proximity to the Valley trail system used to access the Merced Lake High Sierra Camp.

**TABLE 8-27: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 3**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Curry Village and Campgrounds (cont.)</b>			
Concessioner Stables Employee Housing Area	Retained	<b>Yes:</b> This housing facility is necessary to accommodate a employees who provide visitor services that are consistent with the types and amounts of visitor use that have been found to protect and enhance ORVs.	<b>No.</b> There are no other suitable locations to move employee housing to in Yosemite Valley both in terms of size of these facilities and the need for them to be proximate to guest services to accommodate shift work schedules.
Northside Drive (Stoneman Bridge to Yosemite Village Day-use Parking Area)	Roadway section removed	<b>No:</b> Under this alternative this segment of Northside Drive through Ahwahnee Meadow is removed and therefore this bridge is not needed to support public use of the river corridor. Pedestrian, bicycle, NPS law enforcement and fire protection traffic would access the east Yosemite Valley by way of Southside Drive, which would be converted to two-way traffic. This change in traffic circulation for Yosemite Valley would be feasible due to substantial reduction in visitor use levels.	<b>N/A</b> This section of roadway is removed and traffic is re-routed to Yosemite Valley destinations using nearby roadway sections.
Southside Drive (through Stoneman Meadow)	Roadway section removed	<b>No:</b> Under this alternative this segment of Southside Drive through Stoneman Meadow is and traffic is routed through Curry Village giving pedestrians, bicycles, NPS law enforcement and fire protection access the east Yosemite Valley. This change in traffic circulation for Yosemite Valley would be feasible due to substantial reduction in visitor use levels.	<b>N/A</b> This section of roadway is removed and traffic is re-routed to Yosemite Valley destinations using nearby roadway sections.
Sugar Pine Bridge	Removed	<b>No.</b> Under this alternative this pedestrian, bicycle, and emergency vehicle bridge is not needed to support public use of the river corridor. Pedestrian, bicycle, NPS law enforcement and fire protection traffic would be re-routed north of river so that visitors can access points of interest in Yosemite Valley. Removal of this bridge will restore free-flowing conditions and riparian habitat.	<b>No.</b> It is not feasible to relocate the existing roadway and bridges from their present location given the circulation system for Yosemite Valley.
Ahwahnee Bridge	Removed	<b>No.</b> Under this alternative this pedestrian, bicycle, and emergency vehicle bridge is not needed to support public use of the river corridor. Pedestrian, bicycle, NPS law enforcement and fire protection traffic would be re-routed north of river so that visitors can access points of interest in Yosemite Valley. Removal of this bridge will restore free-flowing conditions and riparian habitat.	<b>No.</b> It is not feasible to relocate the existing roadway and bridges from their present location given the circulation system for Yosemite Valley.
Stoneman Bridge	Removed	<b>No.</b> Under this alternative the segment of Northside Drive through Ahwahnee Meadow is removed and therefore this bridge is not needed to support public use of the river corridor. Pedestrian, bicycle, NPS law enforcement and fire protection traffic would access the east Yosemite Valley by way of Southside Drive, which would be converted to two-	<b>No.</b> It is not feasible to relocate the existing roadway and bridges from their present location given the circulation system for Yosemite Valley.

**TABLE 8-27: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 3**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Curry Village and Campgrounds (cont.)</b>			
		way traffic. Park visitors would be able to access points of interest in Yosemite Valley via Clark’s and Happy Isles Bridges. Removal of this bridge will restore free-flowing conditions and riparian habitat.	
Upper Pines RV Loop and Walk-in Campground (New)	Constructed	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.
<b>Segment 2: Yosemite Village and Housekeeping Camp</b>			
Ahwahnee Row Employee Housing	Retained	<b>Yes:</b> This housing facility is necessary to accommodate a employees who provide visitor services that are consistent with the types and amounts of visitor use that have been found to protect and enhance river values.	<b>No.</b> There are no other suitable locations to move employee housing to in Yosemite Valley both in terms of size of these facilities and the need for them to be proximate to guest services to accommodate shift work schedules.
Lower Tecoya Employee Housing Area	Retained	<b>Yes:</b> Housing facilities to accommodate a portion of the workforce necessary to provide visitor services consistent with the land use restoration and visitor experience goals of this alternative.	<b>No.</b> There are no other suitable locations to move employee housing to in Yosemite Valley both in terms of size of these facilities and the need for them to be proximate to guest services to accommodate shift work schedules.
Lost Arrow Employee Housing Area	Removed and re-developed (as administrative parking)	<b>No:</b> Under this alternative removal of this facility is consistent with land-use restoration goals and these housing facilities are not needed given the substantial reduction of commercial services and lodging.	<b>No.</b> There are no other suitable locations to move employee housing to in Yosemite Valley both in terms of size of these facilities and the need for them to be proximate to guest services to accommodate shift work schedules.
Re-route Northside Drive south of Yosemite Village Day-use Parking Area and outside of the 10-year floodplain	Re-routed roadway	<b>Yes:</b> This roadway serves as the exit road for all Yosemite Valley traffic. The congestion created in this vicinity is a result of pedestrian-vehicle conflicts that would be completely mitigated if no pedestrians were required to cross the road from the parking lot to access numerous visitor services including the primary visitor center, museum, and the Valley shuttle.	<b>No.</b> While some changes to the exact location of the road system could be feasibly rerouted for approximately ¼ mile, it could not be removed in its entirety unless a suitable replacement that would accommodate high volume visitor traffic in Yosemite Valley is identified.
Yosemite Village Day-use Parking Area	Re-developed and expanded	<b>Yes:</b> This facility will serve as the primary day-use parking lot for Yosemite Valley because it is proximate to numerous visitor services including the primary visitor center, museum, and the Valley shuttle. A day-use visitor parking area of this size is needed to support the level of public use that has been found to protect and enhance river values.	<b>No.</b> While some changes to the exact location of the parking lot and road system leading to the parking lot could be feasibly relocated, the parking lot could not be removed in its entirety unless a suitable replacement that would accommodate high volume visitor parking in Yosemite Valley is identified.

**TABLE 8-27: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 3**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Yosemite Village and Housekeeping Camp (cont.)</b>			
Residence 1 (Superintendent's House)	Relocated	<b>Yes.</b> This historic structure is a component of the Historic Resources ORV and would be rehabilitated and used to support the visitor experience.	<b>Yes.</b> Under this alternative, the facility would no longer be a component of the Historic Resources ORV and could be relocated outside the river corridor to the lower NPS housing area.
<b>Segment 2: Yosemite Lodge and Camp 4 Area</b>			
<b>Yosemite Lodge Overnight Units</b>	<b>Reduced</b>	<b>Yes:</b> Yosemite Lodge offers mid-scale and economy overnight guest accommodations for visitors who do not or are unable to camp. The number of units allowed under this alternative are needed to support public use in a manner that is consistent with the types and amounts of visitor use that have been found to protect and enhance ORVs.	<b>No.</b> While some buildings within the Yosemite Lodge complex could be relocated to sites further north of the Merced River, however, it is not feasible to consider a wholesale relocation of the complex to an alternative location.
Yosemite Lodge Overnight Parking	Retained	<b>Yes:</b> Parking is needed to support visitors who stay at Yosemite Lodge. Parking is also needed for park partner organizations and NPS staff who use the Lodge's meeting and interpretive spaces (i.e., the Cliff Room, Gardner Terrace, and the outdoor amphitheater).	<b>No.</b> As long as visitor services are provided at Yosemite Lodge, it will be necessary to provide parking near the Lodge complex.
Yosemite Lodge Garden Terrace and Cliff Room	Retained	<b>Yes:</b> These areas are used for interpretive programs and for training courses, meetings, and special events. These facilities are vital to National Park Service and park partner operations.	<b>No.</b> The Garden Terrace and Cliff Rooms are within the existing buildings at the Yosemite Lodge complex. The activities taking place at these locations could be considered for relocation to alternative facilities, however, it is not feasible to consider removing the buildings in their entirety.
Yosemite Lodge Gift and Grocery (Convenience Shop)	Reduced	<b>Yes:</b> The facility provides visitors a limited range of merchandise including packaged and fresh groceries, sundries, and outdoor products frequently needed by campers and hikers.	<b>No.</b> The building currently housing the Yosemite Lodge Gift and Grocery Store is part of the Yosemite Lodge food service and retail structure and would be infeasible to relocate. However, the merchandise offered for sale from this facility could be relocated to other retail outlets in Yosemite Valley if sites outside the river corridor are identified.
Yosemite Lodge Mountain Room Bar & Food Service	Retained	<b>Yes:</b> Food services are necessary to support day visitors and those overnight visitors who are staying in lodging units without kitchenettes.	<b>No.</b> The building currently housing the Mountain Room Bar is part of the Yosemite Lodge food service structure and would be infeasible to relocate.
Yosemite Lodge Mountain Room Restaurant	Retained	<b>Yes:</b> Food services are necessary to support day visitors and those overnight visitors who are staying in lodging units without kitchenettes.	<b>No.</b> The building currently housing the Mountain Room restaurant is part of the Yosemite Lodge food service structure and would be infeasible to relocate. However, the merchandise offered for sale from this facility could be relocated to other retail outlets in Yosemite Valley if sites outside the river corridor are identified.



**TABLE 8-27: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 3**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Yosemite Lodge and Camp 4 Area (cont.)</b>			
Yosemite Lodge Highland Court Employee Housing (Existing and New)	Replaced with permanent housing proximate to current location	<b>Yes:</b> This housing facility is necessary to house employees who provide visitor services at the Yosemite Lodge complex that are consistent with the types and amounts of visitor use that have been found to protect and enhance ORVs. Employee housing proximate to work site are vital given the demand for shift-workers and to reduce inter-Valley commuting.	<b>No.</b> The employees who are accommodated at this facility work at the Yosemite Lodge and need to be collocated for operational efficiencies.
Yosemite Lodge Employee Housing (Thousands Cabins) (Existing)	Removed and relocated (incorporated into permanent housing above)	<b>Yes:</b> This housing facility is necessary to house employees who provide visitor services at the Yosemite Lodge complex that are consistent with the types and amounts of visitor use that have been found to protect and enhance ORVs. Employee housing proximate to work site are vital given the demand for shift-workers and to reduce inter-Valley commuting.	<b>No.</b> The employees who are accommodated at this facility work at the Yosemite Lodge and need to be collocated for operational efficiencies.
Yosemite Lodge Day-use Parking Area (New)	Constructed	<b>Yes:</b> This facility will serve as a critical day-use parking lot for Yosemite Valley because substantial numbers of roadside parking spaces adjacent to meadows will be removed in the vicinity of the Yosemite Village Day-use Parking Area. This new parking area will serve as trailhead parking for the upper and lower Yosemite Falls trail, and overflow evening parking for Camp 4 Campground. It will also be used for the Wahhoga Cultural Center.	<b>No.</b> No alternative areas of sufficient size or location proximate to upper and lower Yosemite Falls trailhead, Wahhoga, Camp 4 and the Yosemite Lodge could accommodate this parking area.
<b>Segment 2: West Yosemite Valley</b>			
Yellow Pine Administrative	Retained	<b>Yes:</b> This administrative camping area is used by volunteers and researchers whose work is critical to meeting our NPS mission.	<b>No.</b> No alternative areas of sufficient size or location could accommodate this campground.
<b>Segment 4: El Portal</b>			
Rancheria Employee Housing Area (New)	Constructed	<b>Yes:</b> This housing facility is necessary to accommodate employees who provide visitor services that are consistent with the types and amounts of visitor use that have been found to be protect and enhance ORVs, and to accommodate employees who provide resource protection services consistent with the mission of the National Park Service and current agency management policies.	<b>No.</b> In-fill employee housing should occur within existing employee housing areas
El Portal Remote Parking at Abbieville / Trailer Village (New)	Constructed	<b>Yes:</b> This parking area will provide a vital queuing and staging area during peak use periods when congestion in the East Yosemite Valley reaches conditions whereby the National park Service would not permit more vehicles to add to the crowding. Day-use visitors would be provided shuttle service to Yosemite Valley from this location.	<b>No.</b> There are no other suitable locations proximate with direct access to Highway 140 before entering Yosemite National Park boundary.

**TABLE 8-27: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 3**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 5 (Wild), Segments 6 &amp; 7 (Recreational), Segment 8 (Wild)</b>			
Wawona Campground	Reduced	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience.	<b>No.</b> This campground could not be relocated as no suitable alternative site exists in the Wawona proper adjacent to the river, which is an integral part of the camping experience.
Wawona Hotel Tennis Court	Removed	<b>No:</b> Opportunities for this type of visitor recreation is not considered a vital visitor service given the land use and visitor experience goals under this alternative.	<b>N/A:</b> This service will be eliminated.
Wawona Hotel Golf Course & Shop	Removed	<b>No:</b> Opportunities for this type of visitor recreation is not considered a vital visitor service given the land use and visitor experience goals under this alternative.	<b>N/A:</b> This service will be eliminated.
Wawona Stables	Retained	<b>Yes:</b> The need for the Wawona Stables infrastructure is driven, in part, by commercial day rides, which are eliminated.	<b>No.</b> The stable operates from a historic structure that could not be feasibly relocated.
Wawona Commercial Horseback Day Rides	Service eliminated	<b>No:</b> Opportunities for this type of visitor recreation is not considered a vital visitor service given the land use and visitor experience goals under this alternative.	<b>N/A:</b> This service will be eliminated.

## **Conceptual Site Drawings**

### ***Boys Town***

In Alternative 3, Southside Drive would be re-routed around Stoneman Meadow, all of the Boys Town cabins and facilities removed, and the area restored to natural conditions. The Curry Orchard Day-use Parking Area would be partially restored to facilitate Stoneman Meadow restoration while retaining approximately 300 parking spaces.

### ***Yosemite Village Day-use Parking Area***

In Alternative 3, the existing 6-acre Yosemite Village Day-use Parking Area and all associated roadway improvements would be moved outside of the 10-year floodplain of the river to facilitate riparian restoration goals and to prevent further resource damage. Restoration actions would remove non-native fill material, re-contour the topography, and plant native vegetation. The redesigned parking area would be formalized to provide a total of 550 parking spaces. Northside Drive would be realigned to the south edge of the parking area where it would connect with Sentinel Drive and continue west to Yosemite Falls and park exits. Consolidating the parking to the north of Northside Drive, with new and improved walkways to Yosemite Village, would eliminate vehicle and pedestrian conflicts. A new bus passenger unloading area would be established east of the Village market and five new spaces provided for bus parking. The Concessioner General Office, Concessioner Garage, Arts and Activities Center (former bank building) would be removed, while the Village Sport Shop would be repurposed as a visitor contact station.

The area of disturbance for improvements at Camp 6 in Alternative 2 would cover approximately 22 acres and include 14 acres of clearing and grubbing, 1.2 acres for existing building removal, 1,000 square feet for the new restroom, 5.4 acres of pavement removal, 1.7 acres of new roadway, 2.4 acres for new parking, 14,900 square feet of utility service trenching, and 38,000 square feet for new pedestrian pathways. Construction staging would cover an area of approximately 2 acres.

### ***Yosemite Lodge Parking Area***

In Alternative 3, the area west of Yosemite Lodge, currently used as parking for tour buses, transit buses and for overnight guests, would be re-developed to provide 150 day-use parking spaces, parking for 15 buses, a new 3,000 square foot comfort station and a re-located shuttle stop. The existing tour bus drop off area would be relocated to the Highland Court area. The wellness center, linen storage and laundry buildings would be removed. Ground disturbance within a 11.2 acre footprint west of the Lodge would include 8.6 acres of clearing and grubbing, 55,850 square feet of existing building and pavement removal, 3,000 square feet for the new comfort station and shuttle stop, 13,300 square feet of utility service trenching, 2.5 acres for parking, and 2,500 square feet for pedestrian pathways. Construction staging would take place over a 2 acre area within the existing footprint. Existing vegetation would be retained to separate and screen parking bays while bioswales would serve to filter and treat storm water run-off.

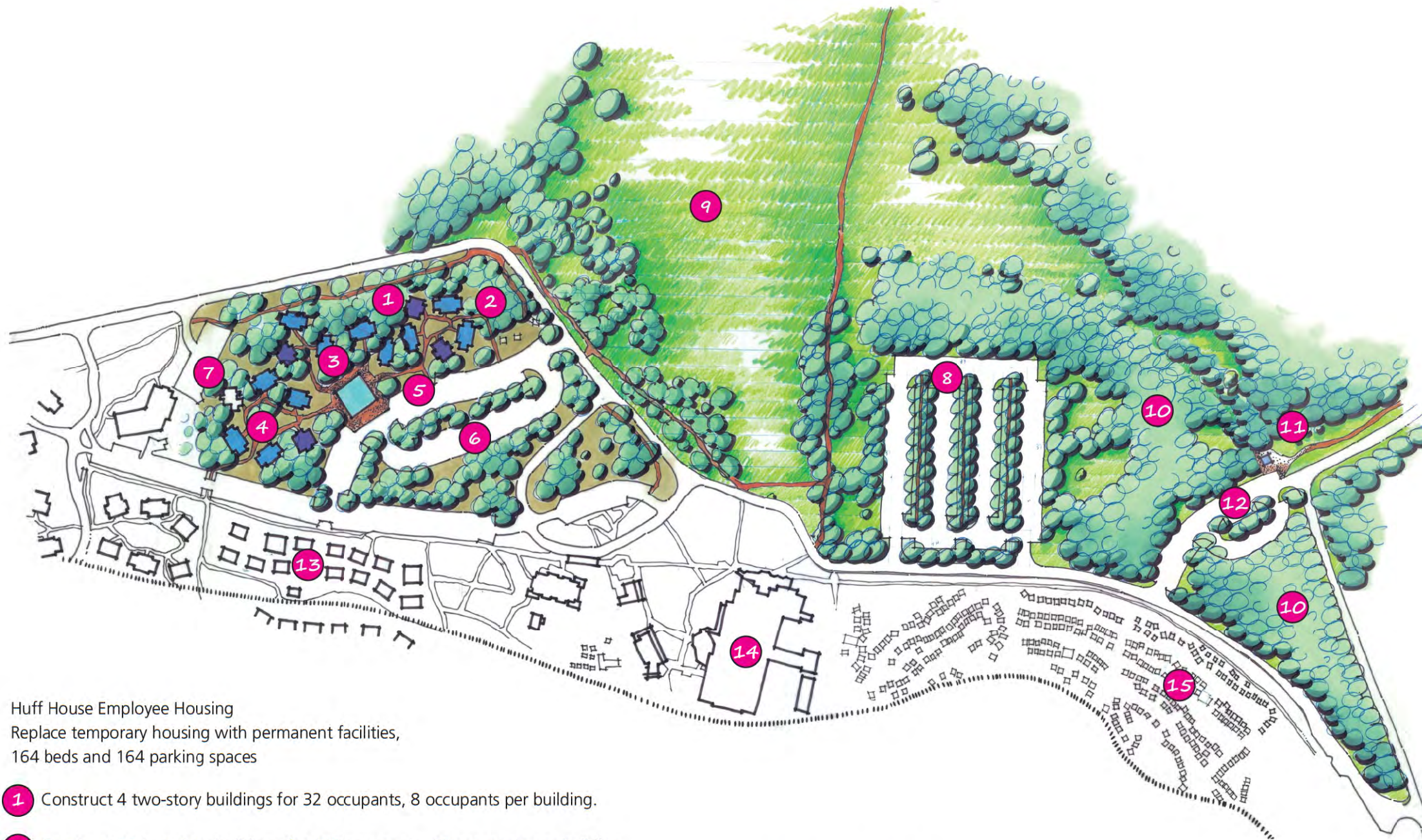
### ***Yosemite Lodge Housing***

In Alternative 3, the temporary modular housing at Highland Court, and the Thousand Cabins would be removed and replaced with two new buildings to house 104 concessioner employees. In addition, a new parking area would provide 78 employee parking spaces, parking for 3 shuttle buses, and 53 day-use parking

## ALTERNATIVES

spaces for the public. Ground disturbance for the two housing sites would cover a total of 7.4 acres and would include 45,500 square feet of preparation for the new buildings, 5,500 square feet of utility service trenching, and 1.8 acres for parking.





Huff House Employee Housing  
 Replace temporary housing with permanent facilities,  
 164 beds and 164 parking spaces

- 1 Construct 4 two-story buildings for 32 occupants, 8 occupants per building.
- 2 Construct 11 two-story buildings for 132 occupants, 12 occupants per building.
- 3 Provide common recreational area, approximately 3,600 square feet.
- 4 Build plaza areas and walkways with site furnishings, accent paving, and enhanced landscaping.
- 5 Construct a shuttle bus stop.
- 6 Remove ice rink and bicycle rentals. Construct an employee parking facility with 164 spaces.
- 7 Retain historic residence for housing purposes.

Curry Orchard Parking Area

- 8 Improve parking area with 300 spaces and landscape buffers with trees and bioswales that will treat storm water run-off. Provide pedestrian walkways.

Stoneman Meadow Restoration

- 9 Remove Stoneman Road and adjacent recreation trail. Extend boardwalk from existing terminus (at Stoneman Road) to Curry Village Pavilion area, improve hydrology, remove invasive species, promote weed control and plant native species.

Boys Town

- 10 Remove existing guest accommodations and ecologically restore lands.
- 11 Relocate Campground Reservation Center and provide 8 parking spaces.
- 12 Construct a roadway to connect Curry Village and East Valley campgrounds. Provide additional roadside parking.

Existing Curry Village Visitor Services

- 13 Retain existing historic cabins and Stoneman Cottage (65 lodging units).
- 14 Retain existing Curry Pavilion.
- 15 Retain 290 tents.

\*These drawings are provided to demonstrate where facilities would be removed, relocated, or constructed according to actions more fully described by project alternatives. The drawings do not represent a final proposal. More detailed design and construction documents would be developed consistent with the general concepts presented here.

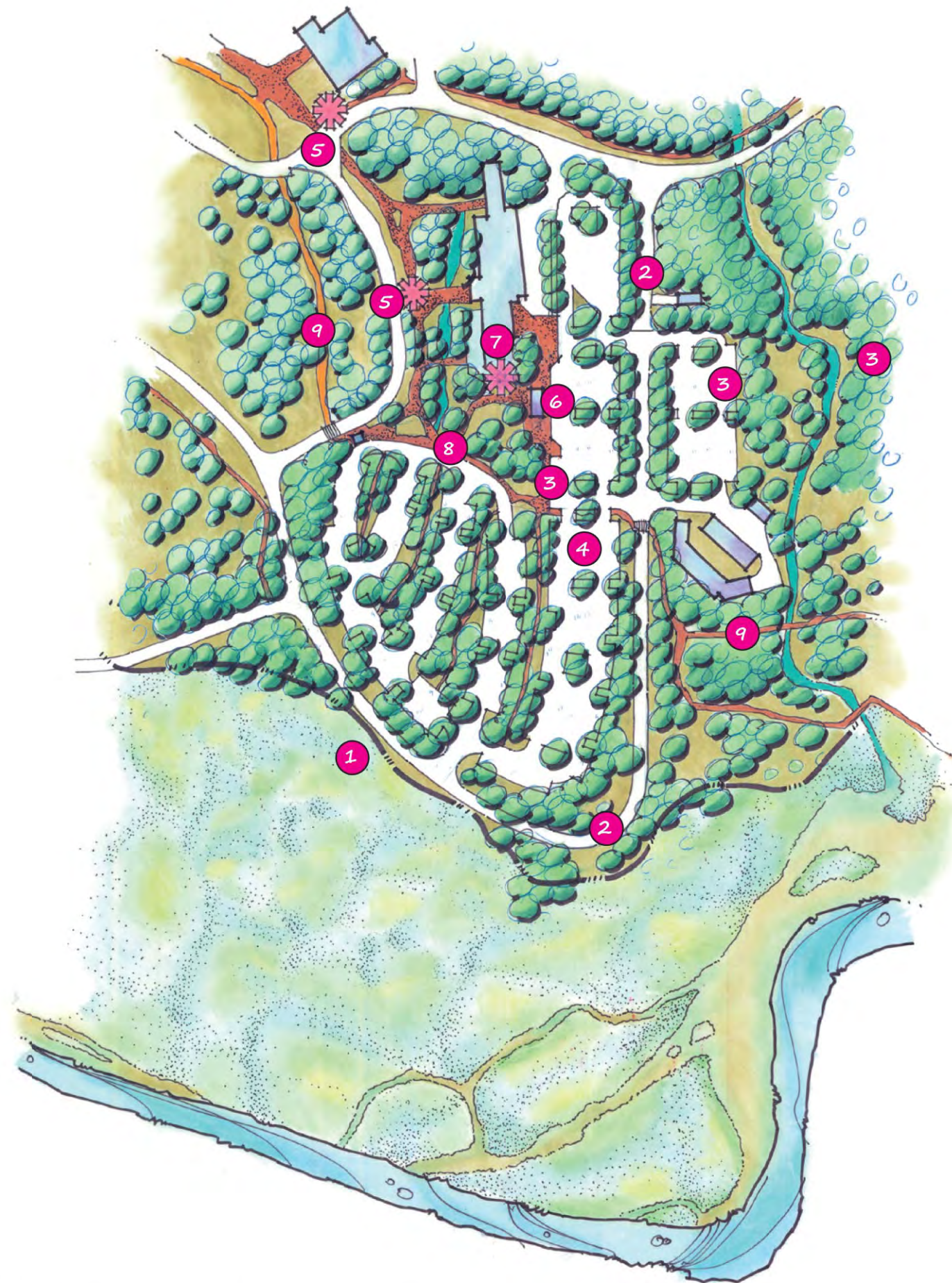


**Alternative 3**  
**Conceptual Site Drawing for**  
**Curry Village**  
 Yosemite National Park  
 United States Department of the Interior • National Park Service



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- 1 Use the 10-year floodplain to establish limits of development. Restore wetlands and meadow.
- 2 Reroute Northside Drive to conform to the floodplain extent and south edge of day-use parking area. Northside Drive is eliminated east of this location.
- 3 Eliminate Concessioner General Office and Garage between the Village Store and Ahwahnee Meadow, providing more space for visitor parking. Employee dormitories and housing would be removed in Alternative 2 (as drawn), but retained in Alternative 3.
- 4 Provide 550 day-use parking spaces in between Northside Drive and Yosemite Village. Integrate landscaped areas to retain large numbers of trees, and include bioswales that will treat storm water run-off. Improve access through a system of pedestrian pathways leading to the Yosemite Village mall.
- 5 Retain existing shuttle stops on Visitor Center Loop Drive.
- 6 Establish bus passenger unloading area east of the Yosemite Village mall.
- 7 Replace Village Sport Shop with visitor contact station.
- 8 Eliminate art activity center and improve pedestrian access.
- 9 Improve pedestrian connections and bike paths east and west of the day-use parking area.



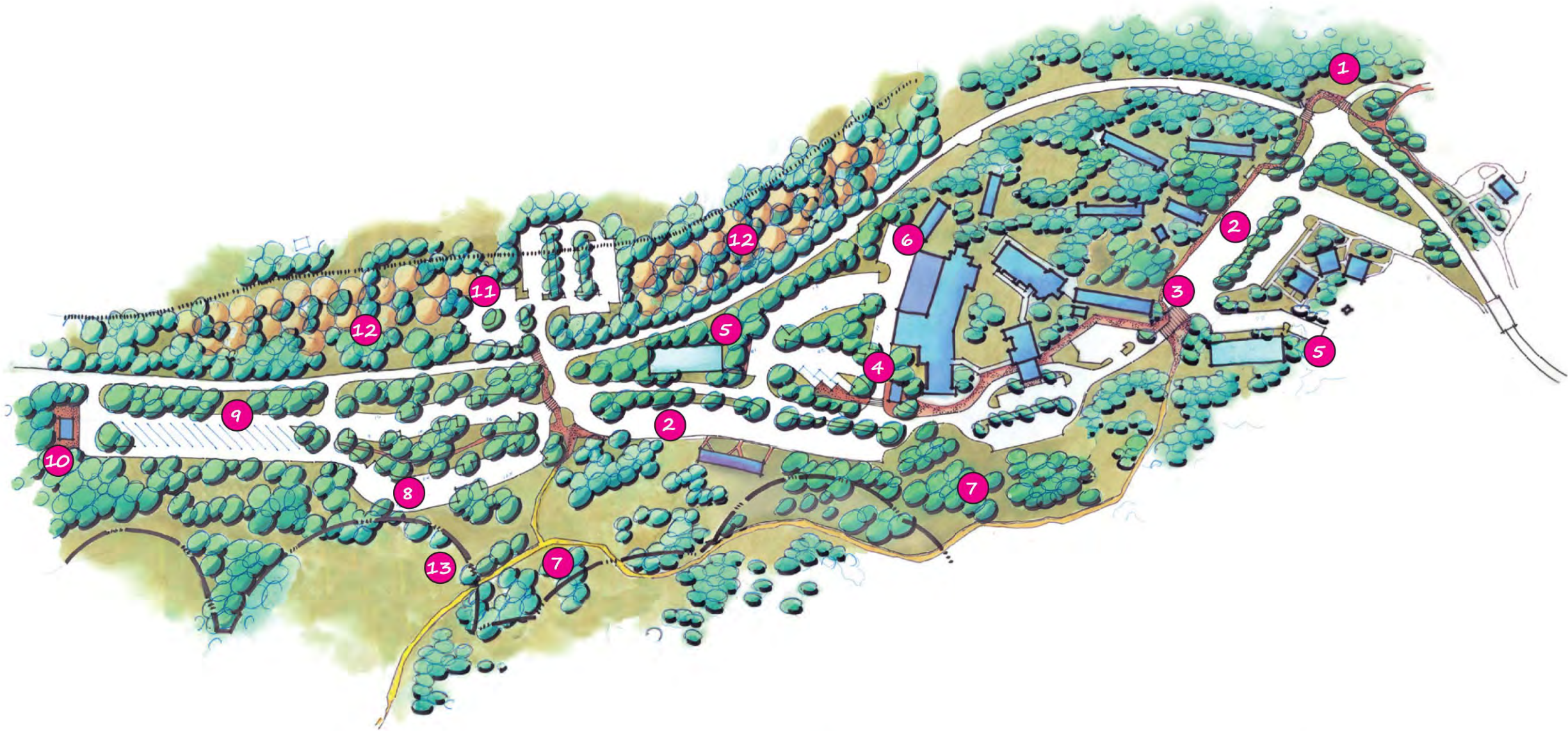
**Alternatives 2 and 3**  
**Conceptual Site Drawing for**  
**Yosemite Village Day-use Parking Area**  
 Yosemite National Park  
 United States Department of the Interior • National Park Service

\*These drawings are provided to demonstrate where facilities would be removed, relocated, or constructed according to actions more fully described by project alternatives. The drawings do not represent a final proposal. More detailed design and construction documents would be developed consistent with the general concepts presented here.



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1 Move pedestrian crossing to Yosemite Falls west of the existing intersection.

2 Maintain parking for overnight guests.

3 Enhance pedestrian circulation system.

4 Construct tour bus loading and unloading area, with shelter.

5 Construct employee housing in 2 two-story buildings with 52 occupants per building and 39 employee parking spaces per building.

6 Relocate linen storage and laundry buildings to an addition to the food service building. Reconfigure truck loading and unloading area.

7 Remove existing NPS volunteer office and 4 guest lodging buildings from the 100-year floodplain, restore vegetation and hydrological processes.

8 Construct 150 day-use parking spaces at Yosemite Lodge Day-use Parking Area. Maintain existing vegetation as buffers to separate and screen parking bays, provide pedestrian pathways and bioswales that will retain storm water run-off.

9 Construct 15 tour bus parking spaces.

10 Construct a shuttle bus stop with shelter and comfort station.

11 Construct 41 additional parking spaces at Camp 4.

12 Retain 35 existing walk-in campsites at Camp 4. Construct 35 additional walk-in sites opposite existing parking facility. Occupancy is limited to 6 campers per site. Standard walk-in campsite is 3,850 square feet (70-foot diameter), including 1,200 square feet of clearance with a 15-foot perimeter buffer.

13 Protect and enhance a 150-foot riparian buffer.



\* These drawings are provided to demonstrate where facilities would be removed, relocated, or constructed according to actions more fully described by project alternatives. The drawings do not represent a final proposal. More detailed design and construction documents would be developed consistent with the general concepts presented here.

**Alternative 3**  
**Conceptual Site Drawing for**  
**Yosemite Lodge and Camp 4**  
 Yosemite National Park  
 United States Department of the Interior • National Park Service



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## **ALTERNATIVE 4: RESOURCE-BASED VISITOR EXPERIENCES AND TARGETED RIVERBANK RESTORATION**

### **Overview**

The guiding principles of Alternative 4 include restoration of portions of the floodplain and the riparian area within 150 feet of the river. This alternative focuses on providing only those commercial services and facilities that facilitate resource-based visitor experiences. It accommodates lower maximum visitor use levels than today, with large increases in overnight camping capacity and moderate decrease in the overnight lodging capacity.

Management actions in Alternative 4 would:

- Restore 223 acres of meadow and riparian habitat.
- Significantly increase the campsite inventory in all river segments (+37%) and in Yosemite Valley (+50%).
- Reduce the lodging inventory in all river segments (-20%) and in Yosemite Valley (-20%).
- Reduce day-use parking for Yosemite Valley (-12%).
- Reduce commercial services.
- Make targeted changes to the traffic circulation pattern in Yosemite Valley to accommodate ecological restoration goals and reduce traffic congestion.
- Accommodate approximately 17,000 visitors per day in East Yosemite Valley.
- Continue to manage overnight use capacity through wilderness permits, and reservation systems for lodging and camping.
- Manage day-use capacity for East Yosemite Valley through permits and a reservation system required during peak summer season.

### ***Actions to Protect and Enhance River Values***

#### **Summary of Actions to Protect and Enhance River Values**

Alternative 4 would protect and enhance river values through targeted ecological restoration focused on enhancing the habitat quality of the riparian zone and the hydrologic function of the river. Alternative 4 would balance the enhancement of these river values with maintaining much of the existing traffic circulation pattern and infrastructure. This alternative would ecologically restore the area currently occupied by the Merced Lake High Sierra Camp, the portion of Housekeeping Camp that is within the ordinary high water mark of the river, and all campsites and associated infrastructure within 150 feet of the river. The free-flowing condition of the river would be enhanced by removing two bridges. Hydrologic connectivity of meadows to the riparian floodplain would be enhanced through the removal the segment of road that bisects Stoneman Meadow.

Cultural and scenic values would be protected and enhanced as described under “Actions Common to Alternatives 2-6” (beginning on page 8-53). Recreational values would be protected and enhanced through the removal of the Merced Lake High Sierra Camp, and by improving visitor circulation and reducing crowding in Yosemite Valley. Table 8-28 provides a summary of the proposed actions that would occur under Alternative 4 to protect and enhance river values.

**TABLE 8-28: ADDITIONAL ACTIONS TO PROTECT AND ENHANCE RIVER VALUES, ALTERNATIVE 4**

<b>Ecological Restoration Actions (Free Flow, Water Quality, Geologic/Hydrologic, and Biological Values)</b>	
<b>Corridorwide</b>	
<b>Ecological Restoration Acreage</b>	164 acres (common to all) plus an additional 59 acres (refer to Appendix E for specific locations)
<b>Riprap to be Removed</b>	5,700 linear feet (common to all) plus an additional 435 feet (refer to Appendix E for specific locations)
<b>Segment 1: Wilderness above Nevada Fall</b>	
<b>Riparian Buffer / Floodplain</b>	Remove the Merced Lake High Sierra Camp and restore the floodplain to natural conditions.
<b>Segment 2: Yosemite Valley</b>	
<b>Free Flow /Geologic/ Hydrologic Values</b>	<ul style="list-style-type: none"> <li>Remove Ahwahnee and Sugar Pine bridges to enhance the free-flowing condition of the river.</li> </ul>
<b>Riparian Buffer / Floodplain</b>	<ul style="list-style-type: none"> <li>Ecologically restore 19.7 acres of habitat in former Upper and Lower River Campgrounds; construct campsites 150 feet away from the river</li> <li>Move Yosemite Village Day-use Parking Area parking north at least 150 feet away from the river.</li> <li>Remove portions of North Pines, Lower Pines, and Wawona Campgrounds that are within 150 feet of the river.</li> <li>Remove portions of Housekeeping camp and restore the floodplain to natural conditions.</li> </ul>
<b>Meadow Restoration</b>	<ul style="list-style-type: none"> <li>Remove 1,335 feet of Southside Drive through Stoneman Meadow to enhance connectivity of the meadow and floodplain</li> </ul>
<b>Recreational Values</b>	
<b>Segment 1: Wilderness above Nevada Fall</b>	
<b>Wilderness Recreation</b>	<ul style="list-style-type: none"> <li>Enhance wilderness character by removing the Merced Lake High Sierra Camp and converting this area to designated Wilderness</li> <li>Reduce zone capacities and size of LYV camping area.</li> <li>Expand footprint of Merced Lake camping area (to reduce person density in this area)</li> </ul>

***User Capacity, Land Use, and Facilities Management***

Alternative 4 would focus on providing resource-based visitor experiences, increasing camping opportunities, and reducing commercial services. The number of visitors to Yosemite Valley would remain unchanged; however, overnight use would increase while day use decreased. Table 8-29 provides a summary of user capacities by use type and location.

**TABLE 8-29: USER CAPACITIES BY USE TYPE AND LOCATION- ALTERNATIVE 4**

User Capacities by Use Type and Location		Alt 1 (No Action)		Alt 4	
	Unit Type	Units	People	Units	People
<b>Wilderness Above Nevada Fall</b>					
Visitor Overnight Use	Zone Capacities & Beds	380	380	270	270
Visitor Day Use	Day Hikers	350	350	350	350
Employee Housing	Employee Beds	15	15	10	10
Administrative Day Use	Day Patrols	5	5	5	5
<b>Yosemite Valley</b>					
Visitor Overnight Use	Rooms & Campsites	1,500	6,564	1,524	7,224
Visitor Day Use	Parking Spaces & Buses	-	8,272	-	7,554
Employee Housing	Employee Beds	1,315	1,315	1,087	1,087
Administrative Day Use	Parking Spaces	166	332	166	332



**TABLE 8-29: USER CAPACITIES BY USE TYPE AND LOCATION- ALTERNATIVE 4**

User Capacities by Use Type and Location		Alt 1 (No Action)		Alt 4	
	Unit Type	Units	People	Units	People
<b>Merced Gorge</b>					
Visitor Overnight Use	Rooms & Campsites	-	-	-	-
Visitor Day Use	Parking Spaces	180	869	180	869
Employee Housing	Employee Beds	9	9	9	9
Administrative Day Use	Parking Spaces	2	4	2	4
<b>El Portal</b>					
Visitor Overnight Use	Rooms & Campsites	-	-	-	-
Visitor Day Use	Parking Spaces	214	740	414	740
Employee Housing	Employee Beds	192	192	300	300
Administrative Day Use	Parking Spaces	610	1,220	610	1,220
<b>South Fork Above Wawona</b>					
Visitor Overnight Use	Zone Capacities	20	20	20	20
Visitor Day Use	Day Hikers	6	6	6	6
Employee Housing	Employee Beds	-	-	-	-
Administrative Day Use	Day Patrols	1	1	1	1
<b>Wawona</b>					
Visitor Overnight Use	Rooms & Campsites	203	865	176	703
Visitor Day Use	Parking Spaces & Buses	-	1,295	-	1,399
Employee Housing	Employee Beds	121	121	121	121
Administrative Day Use	Parking Spaces	30	60	30	60
<b>South Fork Below Wawona</b>					
Visitor Overnight Use	Permits	3	3	3	3
Visitor Day Use	Day Hikers	3	3	3	3
Employee Housing	Employee Beds	-	-	-	-
Administrative Day Use	Day Patrols	1	1	1	1

## Visitor Overnight Capacity

### Camping

The campsite inventory in Yosemite Valley would be increased by approximately 50%; this increase would be partially offset by camping reductions in Wawona, but corridorwide there would still be a 37% net increase in campsites. All campsites within 150 feet of the river would be removed and replaced by new campgrounds adjacent to the Upper Pines Campground, east of Camp 4, west of Backpackers Camp, and west of Yosemite Lodge. Under Alternative 4, the total number of campsites in Yosemite Valley would increase to 701, and the total number of campsites available in the corridor would be 773. Table 8-30 provides a summary of the proposed changes to camping.

**TABLE 8-30: CAMPING FACILITIES- ALTERNATIVE 4**

Existing Locations	Alt 1 (No Action)	Alt 4	Details
Backpackers	25 sites	0 sites	25 walk-in sites removed, of which 21 are within 150 feet of the river; 16 of these walk-in sites would be relocated west of Backpackers
Camp 4	35 sites	35 sites	No change to this National Historic Register Site
Lower Pines	76 sites	61 sites	15 sites within 150 feet of the river removed
North Pines	86 sites	52 sites	34 sites within 150 feet of the river removed
Upper Pines	240 sites	238 sites	2 sites removed for cultural resource concerns
Yellow Pine Administrative	4 sites	4 sites	No changes to these group administrative sites

**TABLE 8-30: CAMPING FACILITIES- ALTERNATIVE 4**

Existing Locations	Alt 1 (No Action)	Alt 4	Details
Wawona Campground	99 sites	72 sites	27 sites removed within 150 feet of river or in culturally sensitive areas
<b>Total Existing Locations</b>	<b>565 sites</b>	<b>462 sites</b>	
New Locations	Sites	Alt 4	Details
West of Backpackers	0 sites	16 sites	16 walk-in sites relocated from Backpackers Camp to less sensitive area outside 100-year floodplain
East of Camp 4	0 sites	35 sites	35 walk-in sites constructed in area east of Camp 4
Upper Pines	0 sites	87 sites	36-site RV loop and a walk-in campground with 49 sites and 2 group sites constructed
Former Upper River	0 sites	32 sites	30 walk-in and 2 group sites constructed 150 feet from river in the former footprint of the Upper River Campground
Former Lower River	0 sites	40 sites	40 walk-in sites constructed 150 feet from the river in the former footprint of the Upper River Campground
Yosemite Lodge	0 sites	20 sites	20 RV sites constructed west of Yosemite Lodge and adjacent to parking area
Boys Town	0 sites	40 sites	40 drive-in sites constructed
Concessioner Stables	0 sites	41 sites	Stables redeveloped as a campground with 41 drive-in sites
<b>Total New Camping</b>	<b>0 sites</b>	<b>311 sites</b>	
<b>Total Camping in Corridor</b>	<b>565 sites</b>	<b>773 sites</b>	

**Lodging**

In-park lodging availability would be reduced by approximately 20% as compared to Alternative 1. Management actions related to lodging would focus on removing lodging units from within the ordinary high-water mark at Housekeeping Camp and in Wilderness. All permanent infrastructure at the Merced Lake High Sierra Camp would be removed, allowing the area to be converted to designated Wilderness. Curry Village lodging would be retained except for the units removed from the Boys Town area, which would be redeveloped as a new campground. No new hard-sided lodging would be constructed in Alternative 4 in any part of the river corridor. As a result of these actions, the in-park lodging inventory would be reduced from 1,160 units to 927 units. Table 8-31 provides a summary of the proposed changes to lodging and the reasons for those proposed changes.

**TABLE 8-31: LODGING FACILITIES- ALTERNATIVE 4**

Wilderness	Alt 1 (No Action)	Alt 4	Details
Merced Lake High Sierra Camp	22 units (60 beds)	0 units	Lodging facility removed and area converted to designated Wilderness.
Yosemite Valley	Alt 1	Alt 4	Details
Ahwahnee Hotel	123 rooms	123 rooms	No change at this National Historic Landmark
Housekeeping Camp	266 tent cabins	100 tent cabins	Remove 166 units out of the observed high-water mark
Curry Village	400 units	355 units (290 tents and 65 hard-sided units)	<ul style="list-style-type: none"> <li>▪ Retain 290 tents</li> <li>▪ Retain 18 units at Stoneman House</li> <li>▪ Retain 47 cabin-with-bath units</li> <li>▪ At Boys Town, Southside Drive would be re-routed and re-developed as a 40-site campground</li> </ul>
Yosemite Lodge	245 rooms	245 rooms	No changes at this lodging facility

**TABLE 8-31: LODGING FACILITIES- ALTERNATIVE 4**

Wawona	Alt 1	Alt 4	Details
<b>Wawona Hotel</b>	104 rooms	104 rooms	No change at this National Historic Landmark
Total Lodging in Corridor	1,160 units	927 units	
* <b>El Portal:</b> Private accommodations exist but are not on NPS land; therefore, they are not listed here.			

### Visitor Day Use Capacity and Access Improvements

Day-use parking capacity in Yosemite Valley would be reduced by 12% compared to current levels. Day-use capacity would be actively managed and potentially restricted during peak use season (May through September). A day use permit system for East Yosemite Valley would be implemented in this alternative during the peak summer season. Table 8-32 provides a summary of the total number of parking spaces for each segment of the corridor where parking would occur.

**TABLE 8-32: NUMBER OF DAY-USE PARKING SPACES IN SEGMENTS– ALTERNATIVE 4**

Location	Alt 1 (No Action)	Alt 4
Segment 2: Yosemite Valley	2,337 spaces	2,045 spaces
Segment 3: The Gorge	180 spaces	180 spaces
Segment 4: El Portal	214 spaces	414 spaces
Segment 7: Wawona	290 spaces	290 spaces
Total Parking	3,021 spaces	2,929 spaces
*The 200 new spaces in El Portal are located in the Abbeville Remote Parking area. While these spaces are located in El Portal, most of the use associated with these spaces will occur in Yosemite Valley.		

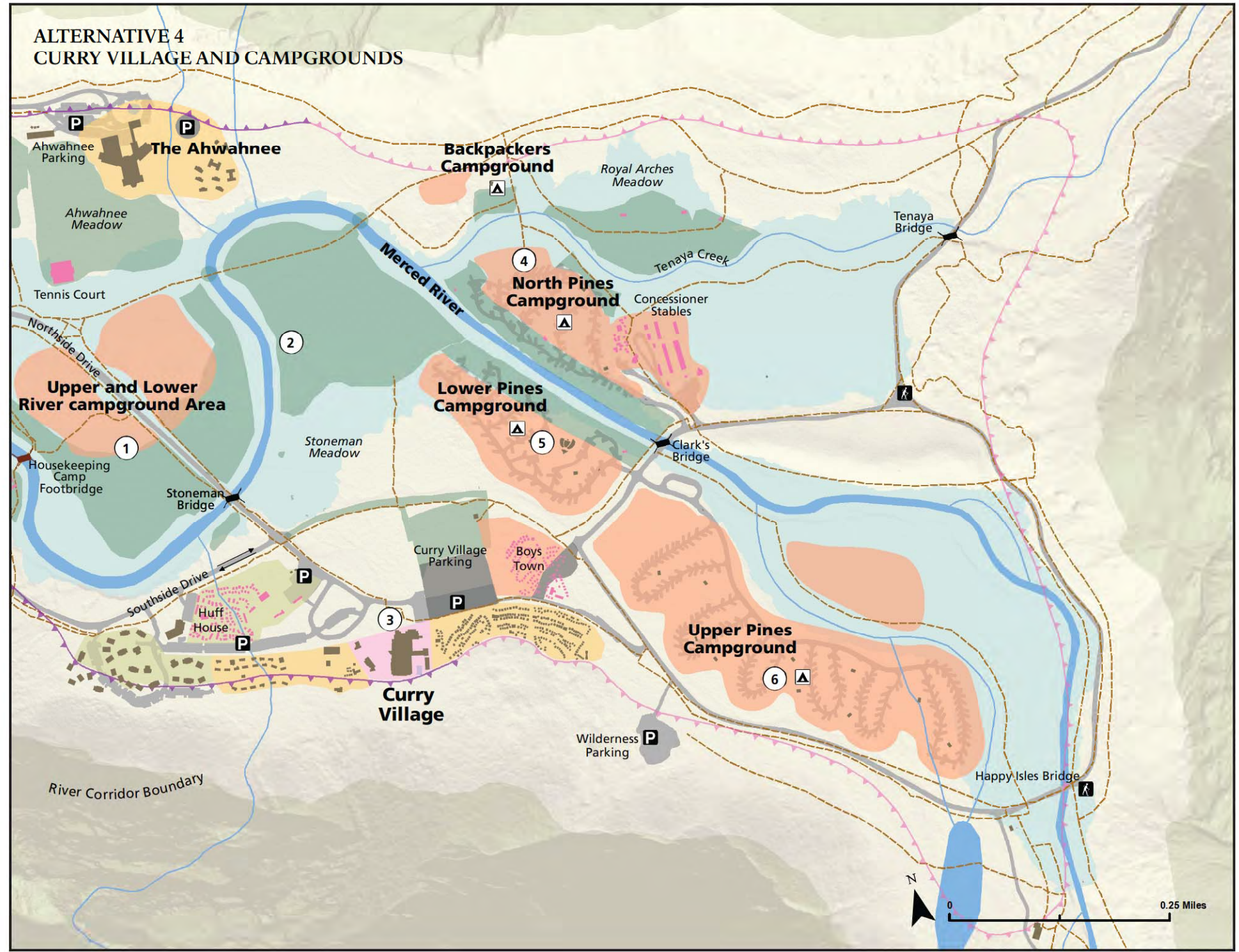
The most significant changes to parking and circulation would take place in the vicinity of Yosemite Village Day-use Parking Area, Yosemite Lodge and El Portal. Day use visitors would park at a redesigned parking area at Yosemite Village Day-use Parking Area, with a total of 850 parking spaces. At Yosemite Lodge, proposed changes include a new day-use parking area west of the lodge, with a total of 150 parking spaces. Overflow parking during times of peak visitation would be provided in El Portal at the Abbeville site (200 parking spaces). The NPS shuttle system would be expanded to serve locations in West Yosemite Valley, including Bridalveil Fall. Total parking for East Yosemite Valley (including day, overnight and administrative uses) would be approximately 4,800 spaces.

Transit services would remain unchanged on the Highway 140 and Highway 120 East corridors. Service on the Highway 120 West corridor would increase to two round-trip runs per day. Four round-trip runs per day would be added to the Highway 41 corridor. All within-park shuttle services would maintain the same base levels of service. Additionally, the East Yosemite Valley would reduce shuttle intervals to 5 minutes, and the West Yosemite Valley shuttle would be expanded to serve Bridalveil Fall during the summer season. The park shuttles from Wawona to Yosemite Valley would also expand to two runs per day.

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# ALTERNATIVE 4: RESOURCED-BASED VISITOR EXPERIENCES AND TARGETED RIVERBANK RESTORATION



## EAST YOSEMITE VALLEY: CURRY VILLAGE AND CAMPGROUNDS

1. Former Upper and Lower River Campground
  - New Lower River Campground: Construct a new campground 150 feet away from the river with 40 walk-in sites. Provide picnic tables and parking for day use and directed river access to the Housekeeping Camp eastern beach. Restore hydrologic processes in the southeast portion of the area.
  - New Upper River Campground: Construct a new campground 150 feet away from the river with 30 walk-in sites and 2 group sites. Restore hydrologic processes in the south east portion of the area.
  - Restoration: Restore 19.7 acres of floodplain. Protect the riverbank from trampling by fencing sensitive areas.
2. River Reach Between Bridges
  - Ahwahnee and Sugar Pine Bridges: Remove the Ahwahnee and Sugar Pine bridges to enhance free-flowing conditions. Restore to natural conditions. Re-route the multiple-use trail to the north bank of the river.
  - Stoneman Bridge: Mitigate effects of bridge to free-flowing condition through engineered solutions: place large wood to lessen scouring, and use brushlayering, a constructed log jam, and culverts along Northside Drive.
3. Curry Village Area
  - Lodging: Total would be 355 guest units, including: 290 tents in Curry Village retained; 18 units at Stoneman House retained; and 47 cabin-with-bath units in Curry Village retained. At Boys Town, Southside Drive would be re-routed and a 40-site campground would be constructed.
  - Ecological Restoration: Remove Southside Drive through Stoneman Meadow to enhance the hydrologic connectivity of the meadow. Re-align road through the Boys Town area instead of the meadow. Extend meadow boardwalk up to 275 feet to Curry Village.
  - Curry Orchard Parking Area: Provide 300 parking spaces. Ecologically restore part of the existing parking area to accommodate Stoneman Meadow restoration goals. Re-design parking lot using best management practices to increase drainage to Stoneman Meadow and protect water quality. Remove apple trees to mitigate human-bear interactions and plant native vegetation.
4. North Pines Campground Area
  - North Pines Campground: Retain 52 campsites. Remove 34 sites from within 150 feet of river. Designate a river access point at North Pines campground.
  - Backpackers Campground: Remove all 25 walk-in sites, of which 21 are within the 150-foot riparian buffer. Partially replace with 16 walk-in sites west of Backpackers Campground.
  - Concessioner Stables in Yosemite Valley: Remove and re-develop the stables area as a new 41-site drive-in campground. Remove associated employee housing (25 beds).
5. Lower Pines Campground Area
  - Campground Sites: Retain 61 campsites and remove 15 sites from within 150 feet of river.
6. Upper Pines Campground Area
  - Campground Sites: Retain 238 campsites. Remove two sites for sensitive resource concerns.
  - New RV Loop: Construct a new campground loop with 36 RV sites.
  - New Walk-in Sites: Construct a new walk-in campground with 49 sites and 2 group camping sites.

Legend						



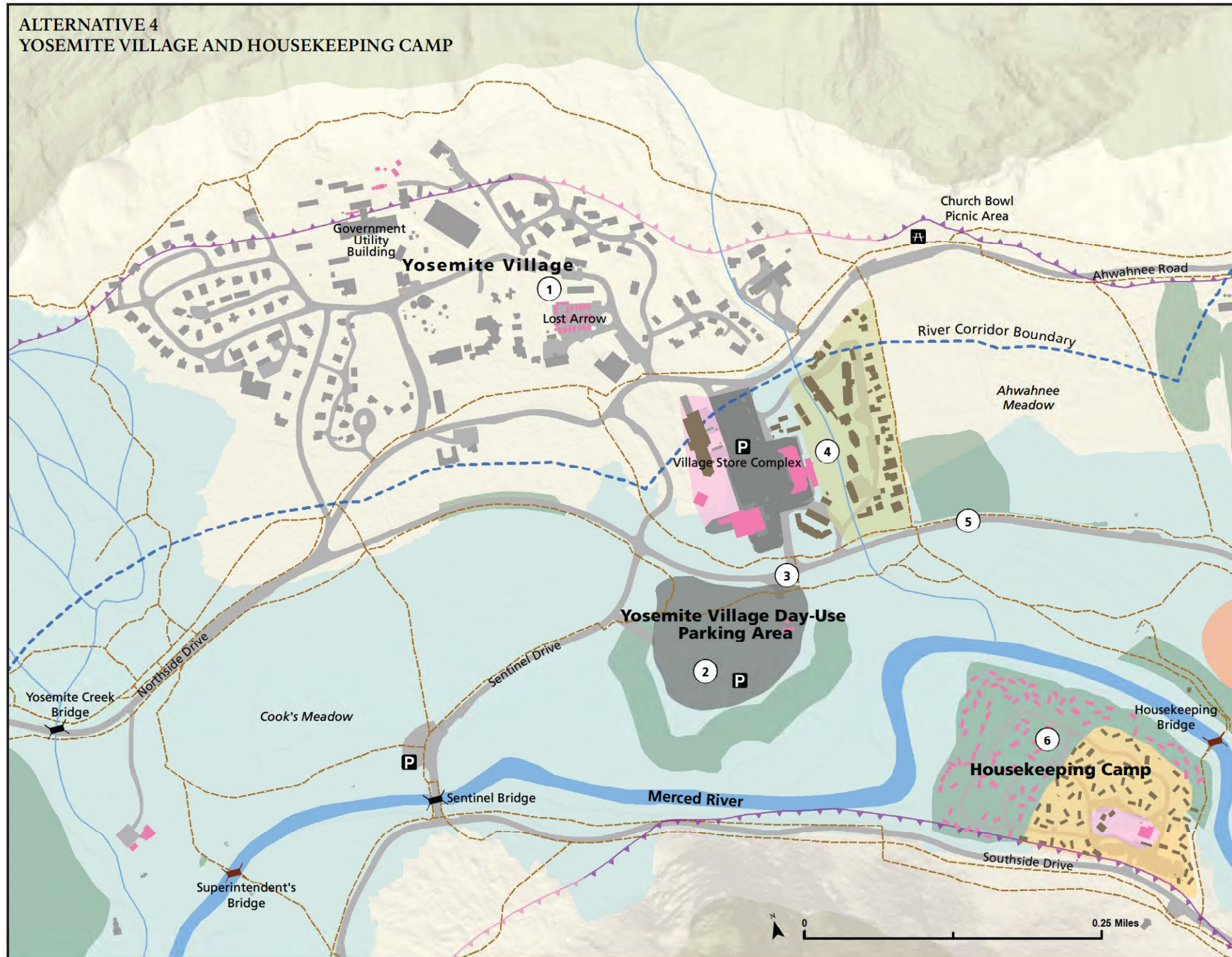
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# ALTERNATIVE 4: RESOURCED-BASED VISITOR EXPERIENCES AND TARGETED RIVERBANK RESTORATION



## ALTERNATIVE 4 YOSEMITE VILLAGE AND HOUSEKEEPING CAMP



### EAST YOSEMITE VALLEY: YOSEMITE VILLAGE AND HOUSEKEEPING CAMP

1. Lost Arrow: Replace temporary employee housing with permanent housing units for 50 beds.
2. Yosemite Village Day-use Parking Area: Move the Yosemite Village Day-use Parking Area northward 150 feet away from the river to facilitate riparian restoration goals. Formalize this parking area, using best management practices to protect water quality, with a total of 750 parking places by re-developing part of the current administrative footprint as parking.
3. Traffic Congestion at Yosemite Village Day-use Parking Area: Re-align the intersection at Northside Drive and Village Drive to meet standards for a proper four-way intersection and improve performance. Add a three-way intersection at Sentinel Drive and the entrance to the day-use parking area to improve traffic flow and alleviate congestion at nearby intersections. Provide on-grade pedestrian crossings with proper sight lines to alleviate vehicle-pedestrian conflicts.
4. Concessioner Employee Housing: Create a 50-foot setback from Indian Creek. Ecologically restore the riparian habitat, and protect using restoration fencing. Retain Ahwahnee Row and Tecoya employee housing.
5. Ahwahnee Meadow Restoration: Retain Northside Drive and bike path, but increase culverts to improve hydrologic connectivity. Replace 350 feet of trail with a boardwalk to protect wetlands.
6. Housekeeping Camp Lodging: Retain 100 lodging units, and remove 166 lodging units (83 duplex lodging units, four restrooms, store and office) out of the ordinary high-water mark. Retain Housekeeping Camp shower houses and laundry; reduce restrooms; and remove grocery store. Restore 12.2 acres of floodplain and riparian ecosystem.

### Legend

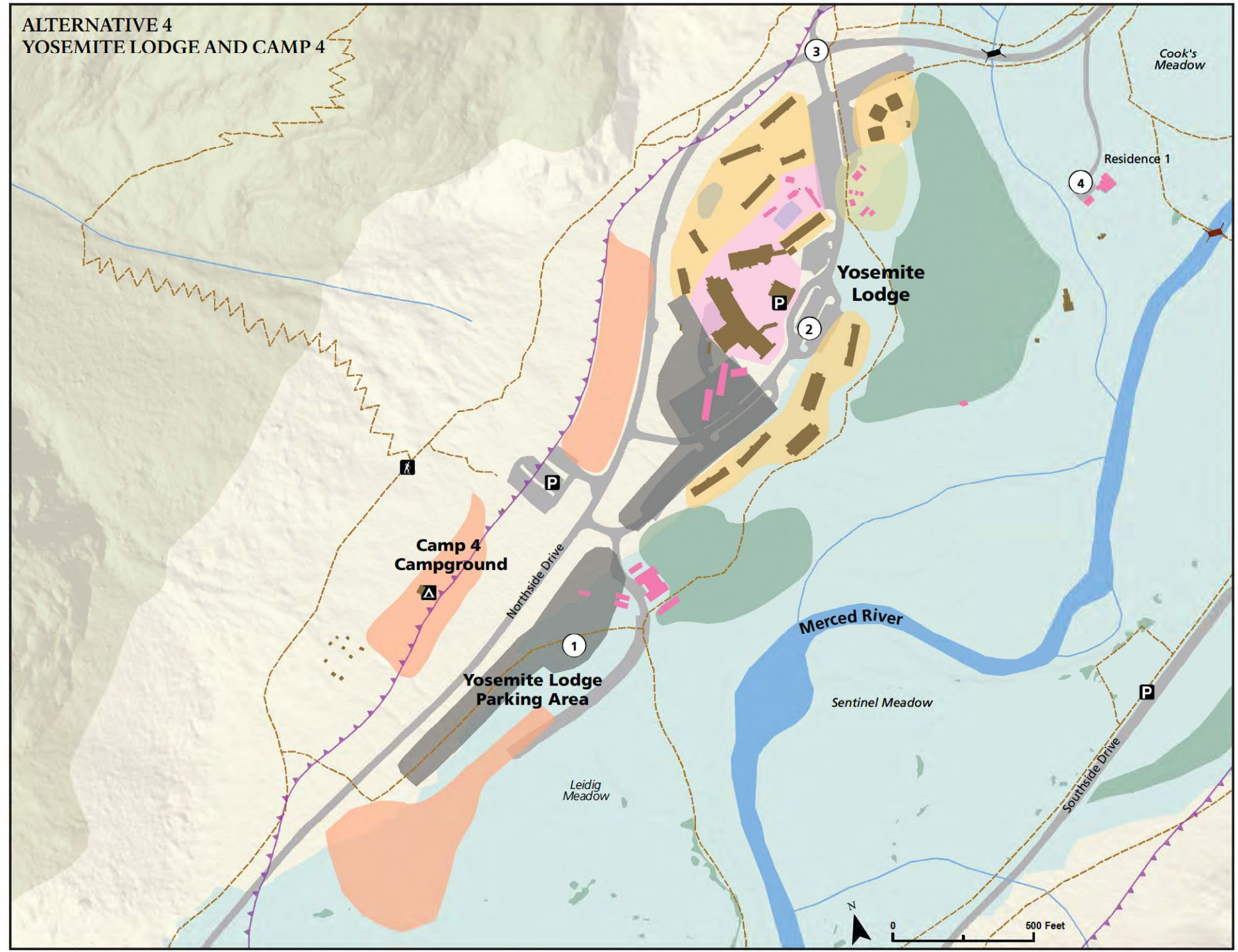
Campgrounds	Road bridge	Contour	Surfaced Areas	Visitor Services	Buildings	Designated Wilderness
Picnic Area	Footbridge	Trails	Restoration Areas	Housing	Retain Building	Recreational Segment
Parking Area	Lakes	Calculated Rock-fall Hazard Line	Camping	Operations	Remove Building	Wild Segment
Trailheads	Stream	Inferred Rock-fall Hazard Line	Lodging	Parking	100-year Floodplain	Scenic Segment



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# ALTERNATIVE 4: RESOURCED-BASED VISITOR EXPERIENCES AND TARGETED RIVERBANK RESTORATION



EAST YOSEMITE VALLEY: YOSEMITE LODGE AND CAMP 4

1. West of Yosemite Lodge
  - Parking: Construct additional 150 day-use parking spaces southwest of Yosemite Lodge. Formalize parking for 15 tour buses in this location. Parking redevelopment will incorporate best management practices to protect water quality.
  - RV Camping: Construct 20 RVs sites adjacent to the new Yosemite Lodge parking area.
2. Yosemite Lodge Area
  - Ecological restoration: Restore riparian and floodplain ecosystem at the site of the former Yosemite Lodge units and cabins (those that were damaged by the 1997 flood and subsequently removed). Delineate a service road to the well house and parking. Remove non-native fill, decompact soils and plant riparian plant species (10.9 acres), per the Secretary of Interior's Standards for the Treatment of Historic Properties and the Historic Structures Report
  - Lodging: Retain the current 245 units at Yosemite Lodge.
  - Services and Facilities: Retain Yosemite Lodge cafeteria and Mountain Room bar and dining service. Re-purpose convenience shop and nature shop. Relocate Yosemite Lodge maintenance. Remove Yosemite Lodge post office, swimming pool, bike rentals, snack stand, employee housing (called Thousands Cabins), Highland Court employee temporary housing, and the NPS Volunteer Office.
  - Tour Buses: Remove temporary housing complex at Highland Court and establish a tour bus drop-off area with three bus loading spaces.
  - Yosemite Lodge Day-Use Parking: Create 25 new parking spaces by re-designing parking near Northside Drive.
  - Yosemite Lodge Concessioner Housing: Construct two new concessioner housing areas for 104 employees and construct 78 employee parking spaces. (Common to all alternatives is to remove housing at Highland Court and at the Thousands Cabins)
3. Yosemite Falls Intersection
  - Traffic Congestion: Construct a pedestrian underpass to address pedestrian/vehicle conflicts and associated traffic congestion at the intersection of Northside Drive and Yosemite Lodge Drive.
4. Residence 1
  - Residence 1: Relocate the historic structure, also known as the Superintendent's House, to the NPS housing area and rehabilitate the building per the Secretary of Interior's Standards for the Treatment of Historic Properties and the Historic Structures Report. Ecologically restore associated informal trails in Cook's Meadow and address continuing use patterns to enhance black oak woodland and meadow habitat.

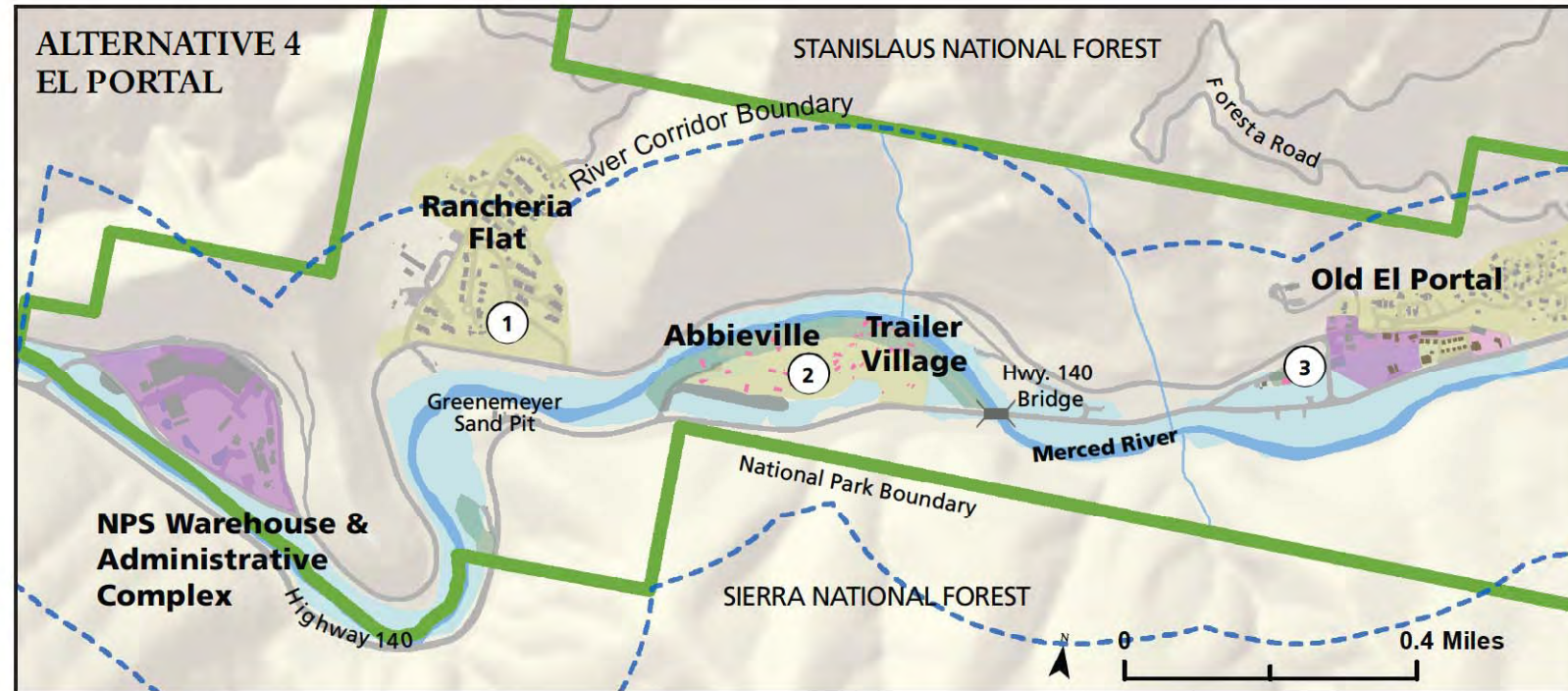
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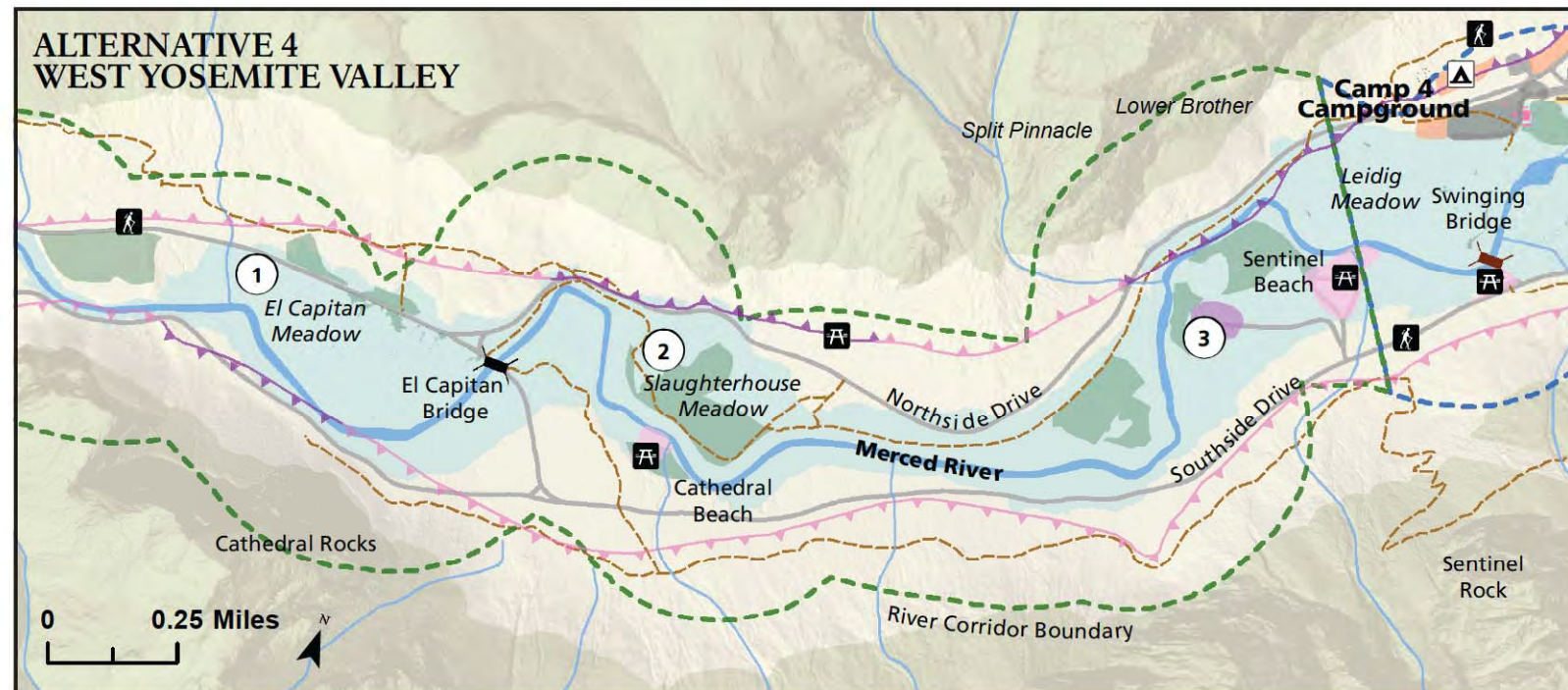


# ALTERNATIVE 4: RESOURCED-BASED VISITOR EXPERIENCES AND TARGETED RIVERBANK RESTORATION



## EL PORTAL

- Rancheria Flat**
  - Employee Housing:** To replace temporary housing units that will be removed from Yosemite Valley, construct eight dormitories, with 12 employees each, for a total of 96 employee beds, away from sensitive resources.
- Abbieville and Trailer Village Area**
  - El Portal Remote Visitor Parking:** Construct a new visitor parking area for 200 spaces serviced by regional transit. Parking redevelopment will incorporate best management practices to protect water quality.
  - Abbieville and Trailer Village Housing:** Remove or relocate 36 existing private residences. Continue to provide for housing land use for 40 employees and volunteers at this location. As homes within the 150-foot riparian buffer become vacant, ecologically restore these areas.
- El Portal Village Center**
  - Valley Oak Restoration:** Restore the rare floodplain community of valley oaks in Old El Portal through implementation of best management practices. Create a valley oak recruitment area of 1 acre in Old El Portal in the vicinity of the current Odger's bulk fuel storage area, including the adjacent parking lots. Decompact soils, plant appropriate native understory plant species, and treat invasive plants. Prohibit new building construction within the oak recruitment area.
  - Odger's Fuel Storage Facility:** Remove bulk fuel storage facility, all associated development, and non-native fill from the floodplain. Decompact soils, and plant appropriate native plant species, including valley oak. Relocate the fuel storage area outside the Merced River corridor or find an alternate source for emergency fuel supplies.



## WEST YOSEMITE VALLEY

- El Capitan Meadow Area**
  - Restoration of Informal Trails:** Remove all informal trails from the meadow that incise, promote habitat fragmentation, or are located in sensitive and frequently inundated areas, and restore to natural condition. Use restoration fencing along northern perimeter of meadow and designate appropriate access points using boardwalks and viewing platforms.
- Valley Loop Trail**
  - Re-Route:** Move portions of the Valley Loop Trail out of sensitive areas; this includes the 780 feet of the trail through Bridalveil Meadow. Construct boardwalks through wet meadow habitat in Slaughterhouse Meadow.
- Yellow Pine Campground**
  - Administrative Use Campground:** Retain Yellow Pine's four group sites (serving up to 120 people) for administrative use.

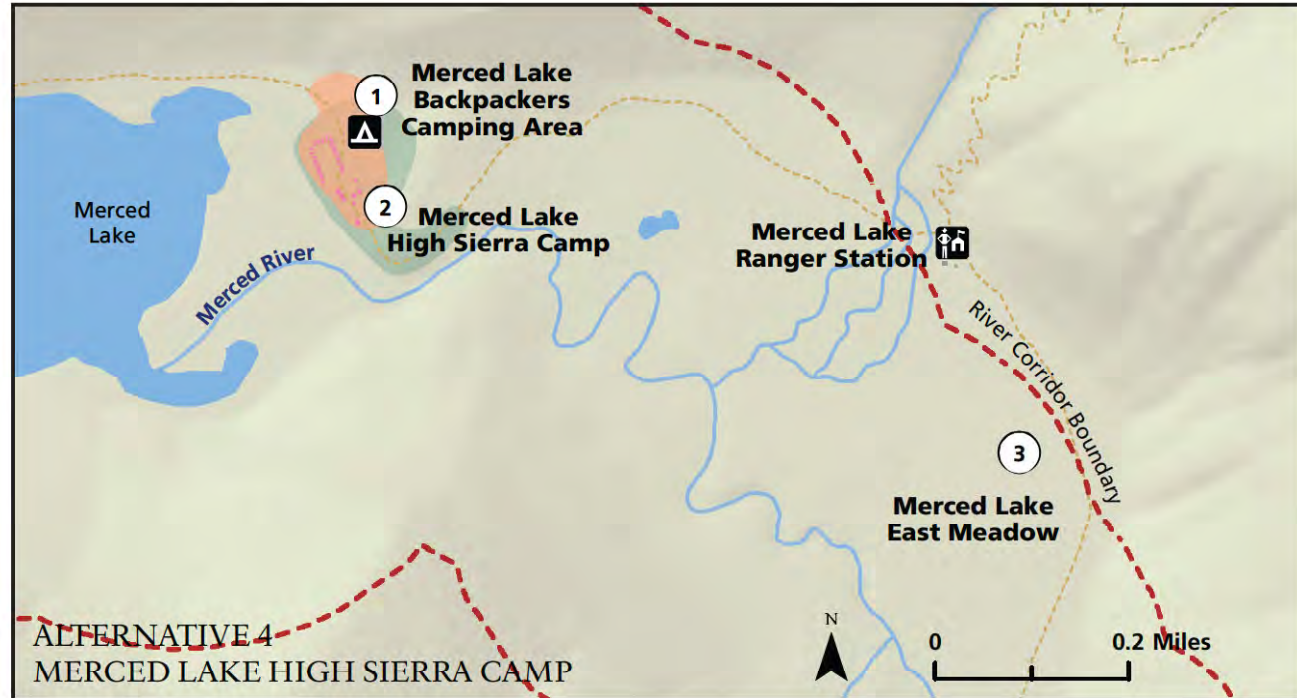




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# ALTERNATIVE 4: RESOURCED-BASED VISITOR EXPERIENCES AND TARGETED RIVERBANK RESTORATION



## MERCED LAKE HIGH SIERRA CAMP

1. Merced Lake Backpackers Camping Area: Expand this designated camping area into the re-purposed Merced Lake High Sierra Camp area. Remove waste water system. Replace flush toilets with composting toilets.
2. Merced Lake High Sierra Camp: Remove lodging facility and all associated infrastructure, including buildings, water system, and septic system. Restore the area to natural conditions, converting the area to designated Wilderness.
3. Merced Lake East Meadow: Remove the meadow from grazing permanently. Require all administrative pack stock passing through area to carry pellet feed.

## OTHER SEGMENT 1 CAMPING AREAS

- Little Yosemite Valley: Decrease the designated camping area in this camping area. Retain infrastructure, such as composting toilets.
- Moraine Dome: Continue designated camping in this camping area.



## WAWONA

1. Wawona Campground: Retain 69 sites, and one group site. Remove 27 sites that are either within 150 feet of the river or in culturally sensitive areas.
2. Wawona Golf Course and Golf Shop: Retain nine-hole golf course and retail and food service at golf shop.
3. Wawona Stables: Eliminate stable operation and commercial day rides. Relocate two stock-use campground sites from sensitive resource area to existing stables area.



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## Detailed Description of Alternative by Segment

### *Segment 1: Wilderness above Nevada Fall (Wild Segment)*

#### **Actions to Protect and Enhance River Values**

In addition to the “Actions Common to Alternatives 2-6” (beginning on page 8-53), Alternative 4 would include the following actions to protect and enhance river values:

##### *Biological Values*

- Prohibit administrative pack stock grazing at Merced Lake East Meadow. Require administrative stock to pack in pellet feed.

##### *Recreational Values*

- Enhance Wilderness character through the removal of the Merced Lake High Sierra Camp and conversion of this area to designated Wilderness.
- Retain designated camping areas at Little Yosemite Valley, Moraine Dome, and Merced Lake.
- Reduce crowding at Little Yosemite Valley by reducing the Wilderness zone capacity and trailhead quotas for trailheads that lead to Little Yosemite Valley; reduce the size of the Little Yosemite Valley designated camping area.
- Expand the Merced Lake backpackers camping area into the former footprint, allowing more space for the campers in this area; retain the current the zone capacity for this area.

#### **User Capacity, Land Use and Facilities Management**

Alternative 4 would reduce the amount of infrastructure in the river corridor for Segment 1. In addition to the “Actions Common to Alternatives 2-6” (page 8-77), Alternative 4 would include the following actions to manage user capacity, land use, and facilities:

##### *Visitor Activities and Services*

Designated camping areas retained in this alternative would include Little Yosemite Valley, Moraine Dome, and the Merced Lake Backpackers camp.

Private boating would be allowed in this segment under this alternative. Generally, this kind of use would consist of short floats using pack raft or other craft that can easily be carried into this remote area. Put-ins and take-outs would be dispersed and the use level would be regulated with a permit system that is supplement to the existing backcountry permit needed for travel in this area. Permits would allow for 5 boats per day.

The Merced Lake High Sierra Camp and all associated infrastructure would be removed.

Up to two overnight commercial groups would be allowed per wilderness zone in Segment 1.

##### *Visitor Overnight Capacity*

Overnight capacities for both Little Yosemite Valley and Merced Lake High Sierra Camp would be reduced (Table 8-33). Services would be managed as follows under Alternative 4:

ALTERNATIVES

- Remove the Merced Lake High Sierra Camp and all associated infrastructure. Convert the area to designated Wilderness.
- Expand the Merced Lake Backpackers designated camping area into the area of the former High Sierra Camp; replace flush toilet with composting toilet and remove associated water system.
- Decrease the designated camping area at Little Yosemite Valley Backpackers Camp and retain the composting toilet. Manage to a capacity of 100 people per day in the Little Yosemite Valley Zone using a zone quota or zone pass through system.
- Retain designated camping at Moraine Dome.

**TABLE 8-33: WILDERNESS ZONE CAPACITIES – ALTERNATIVE 4**

Wilderness Zones	Alt 4 Zonewide Capacity	Alt 4 Zone Capacity Specific to the River Corridor
Little Yosemite Valley Zone	100 people (-50 people)	100 people (-50 people)
Merced Lake Zone	50	50
Washburn Lake Zone	150	100
Mount Lyell Zone	50	10
Clark Range Zone	50	10
* Number of people reduced from Alternative 1 (No Action) to Alternative 4		

**Visitor Day-use Parking Capacity**

Day use access to this segment is addressed under “Actions Common to Alternatives 2-6 (beginning on page 8-53).”

**Administrative Activities**

- Continue current administrative activities, which consist primarily of regular ranger patrols and backcountry utility work as well as occasional trail/restoration crews. These activities are seasonal and minimal in comparison to visitor use and would not affect overall user capacity.

**Segment 2: Yosemite Valley (Recreational and Scenic Segments)**

**Actions to Protect and Enhance River Values**

In addition to the “Actions Common to Alternatives 2-6” (beginning on page 8-53), Alternative 4 would include the following action to protect and enhance river values:

**Free Flow**

- Retain Stoneman Bridge; mitigate the hydrological effects of the bridge by placing large wood on the riverbanks to address scouring, adding brush layering, and increasing channel complexity between Clarks Bridge and Sentinel Bridge (as described in Chapter 5 and Appendix E).
- Remove Sugar Pine and Ahwahnee Bridges and associated berm/elevated trail connecting them; restore b banks to natural conditions; reroute multiuse trail north along the river.

**Water Quality**

- Remove the Concessioner Stable and the pack trail from the stable to Happy Isles; restore to natural conditions.

### Biological Values

Alternative 4 would remove all campsites within 150 feet of the high-water mark:

- Remove all existing campsites and associated infrastructure within 150 feet of the ordinary high-water mark and restore natural floodplain and riparian habitat (12 acres).
  - **Backpackers Camp:** Remove all 25 sites, 21 of which are within 150 feet of the ordinary high-water mark. (Replace 16 sites to the west of the current campground.)
  - **North Pines Campground:** Remove 34 sites from within 150 feet of the ordinary high-water mark; restore native riparian vegetation.
  - **Lower Pines Campground:** Remove 15 sites from within 150 feet of the ordinary high-water mark; restore native riparian vegetation.
  - **Upper Pine Campground:** Retain 238 campsites, 22 of which are in the 100-year floodplain.
- **Former Lower and Upper River Campgrounds:** Remove abandoned facilities within 150 feet of the ordinary high-water mark and restore 19.7 acres of natural floodplain topography and riparian/wetland habitat; re-establish overflow channels where possible. Fence and close the riparian zone at former Upper River Campground to protect the riverbank from trampling; direct visitors to access the river for boating and swimming by way of a path to the Housekeeping Camp eastern beach.
- **Yosemite Lodge:** Retain all lodging at Yosemite Lodge, including four structures within the 100-year floodplain.
- **Former Pine and Oak Units:** Restore 10.9 acres of riparian ecosystem at the site of the former Yosemite Lodge units and cabins (those that were removed after the 1997 flood) and wellness center while maintaining access to the well house.
- **Yosemite Village:** Move the Yosemite Village Day-use Parking Area northward so that it is 150 feet back from the ordinary high-water mark of the Merced River and outside a designated 50-foot setback from Indian Creek; remove fill material and restore the riparian habitat adjacent to the river.
- **Housekeeping Camp:** Remove lodging and other facilities at Housekeeping Camp out of the observed ordinary high-water mark (remove 166 units); restore native riparian habitat (12.2 acres). Direct visitor use and river access to the two resilient beach locations on the western edge of Housekeeping Camp and across the footbridge. Fence off the current eastern river access point located on a steep eroded bank, and actively restore the riverbank with brush layering. Where infrastructure is removed, decompact soils and plant riparian species.

Alternative 4 would enhance meadow connectivity by removing some roads and trails through meadows, and by mitigating the effects of others:

- **Bridalveil Meadow:** Reroute the 780-foot segment of the Valley Loop Trail that currently crosses Bridalveil Meadow closer to the base of the fill slope of the Valley Loop Road.
- **Slaughterhouse Meadow:** Reroute the portion of the Valley Loop Trail to an upland area out of wetlands at Slaughterhouse Meadow.
- **El Capitan Meadow:** Fence the northern perimeter of meadow to protect the restoration area, and designate appropriate access points using boardwalks and viewing platforms.
- **Ahwahnee Meadow:** Retain Northside Drive and bike path in current configuration; add culverts to improve hydrologic connectivity through Ahwahnee Meadow. Install a boardwalk to traverse wet areas through Ahwahnee Meadow (350 feet in length).

## ALTERNATIVES

- **Stoneman Meadow:** Remove the segment of Southside Drive that bisects Stoneman Meadow (1,335 feet); realign Southside Drive through Boys Town. Extend the boardwalk through wet areas to Curry Village (up to 275 feet).

### *Scenic Values*

- Eliminate visual intrusion of Southside Drive through Stoneman Meadow

### *Cultural Values*

- Remove three structures from the collective sites representing the prominent historic patterns of development in Yosemite Valley: Sugar Pine Bridge, Ahwahnee Bridge, and Residence 1.
- Relocate Residence 1 to the NPS housing area and at a minimum stabilize the building per the Secretary of the Interior's Standards for the Treatment of Historic Properties (NPS 1995).

### *Recreational Values*

- Restrict boating to 100 people per day for private vessels and 75 boats at one time for commercial vessels. This reduction in boats would enhance dispersed recreation along the river corridor.
- Reduce the available day-use parking and implement an East Yosemite Valley Day-use Parking Permit System to reduce crowding at key attraction sites, along roadways, and in parking lots and other facilities.

## User Capacity, Land Use and Facilities Management

### *Visitor Activities and Services*

Alternative 4 would protect river-related recreational ORVs through infrastructure improvements where necessary, while reducing recreational activities that are not related to recreational ORVs. It would include the following changes to visitor activities and services in addition to those common to Alternatives 2-6 (see page 8-77):

- Allow both private and commercial boating in this river segment. Put-ins and take-outs would be limited below Clarks Bridge on river right, Sentinel Beach, and Cathedral Beach.
  - Restrict private boating to 100 trips per day through a permit system; monitor use to ensure protection of river values. Restrict private boats to the section of river between the Clarks Bridge and Cathedral Beach.
  - Allow commercial boating between Housekeeping Camp and Sentinel Beach, with staging at Housekeeping Camp. Limit commercial trips to 75 boats at one time (approximately 200 trips per day). Monitor commercial use through a commercial use authorization.
- Improve the Cathedral, Sentinel, and Swinging Bridge picnic areas.
- Convert some of the Housekeeping Camp lodging area into a day use area with access to the river and picnicking facilities.
- Create opportunities for picnicking adjacent to some parking areas, such as Residence 1, Yosemite Village, Church Bowl, and Happy Isles.
- Reduce the Housekeeping Camp restrooms; retain shower houses and laundry; remove the grocery store.
- Remove the Concessioner Stable and restore the area to natural conditions.



- Retain Curry Village raft rental.

### ***Visitor Overnight Capacity: Camping***

Camping would be significantly increased in Yosemite Valley, while ensuring that this activity occurs in appropriate locations, protective of river values:

- **Backpackers Camp:** Remove all 25 sites, 21 of which are in the 100-year floodplains, 16 new sites would be replaced west of Backpackers Campground. Construct 16 new walk-in campsites west of Backpackers Camp.
- **Former Upper River Campground:** Construct a new campground with 30 walk-in sites and 2 group sites, north of the river a minimum of 150 feet away from the ordinary high-water mark.
- **Former Lower River Campground:** Construct a new campground with 40 walk-in sites, 150 feet away from the ordinary high-water mark.
- **North Pines Campground:** Retain 52 campsites. Remove 34 sites from within 150 feet of the ordinary high-water mark; restore native riparian communities.
- **Upper Pines Campground:** Retain 238 campsites. Construct a new recreational vehicle campground loop with 36 RV sites. Construct a new walk-in campground with 49 individual sites and 2 group sites.
- **Lower Pines Campground:** Retain 61 campsites. Remove 15 sites from within 150' of the ordinary high-water mark.
- **New Campground near Yosemite Lodge:** Construct a new campground with 20 RV sites near the parking area west of Yosemite Lodge
- **Camp 4:** Retain 35 walk-in campsites and 35 parking spaces. Construct 35 additional campsites east of Camp 4; establish a new parking area (41 spaces) for the Camp 4 campground expansion in the disturbed footprint of the former service station near Camp 4.
- **New Campgrounds near Curry Village:** Construct a new campground with 41 drive-in sites at the former site of the concessioner stable. Construct a new campground with 40 walk-in campsites at Boys Town; provide 2 parking spaces for each site (78 new spaces along the roadway and 12 new spaces along the eastern edge of the Orchard parking area).

### ***Visitor Overnight Capacity: Lodging***

Lodging would be reduced to allow for ecological restoration. Lodging would total 823 units accommodating up to 2,826 people per night. Common to Alternatives 2-6, The Ahwahnee would continue to provide 123 lodging rooms. The following additional lodging would be retained, removed, or constructed under Alternative 4:

- **Curry Village:** Retain 355 lodging units: 290 tents, 18 units at Stoneman House, and 47 hard-sided cabin with bath units. Remove all existing cabins and associated structures at Boys Town. Provide 300 designated overnight parking spaces at Curry Orchard; restore ecological conditions to part of the existing parking area (removing 50 spaces) to improve natural surface flows to Stoneman Meadow.
- **Housekeeping Camp:** Retain 100 lodging units, associated restrooms, shower houses, and laundry. Remove 166 lodging units (83 duplex lodging units, 4 restrooms, store and office) out of the observed ordinary high water mark.
- **Yosemite Lodge:** Retain 245 lodging units and associated services and facilities (food service, parking).

**Visitor Day-use Parking Capacity and Transit Options**

Alternative 4 would reduce the maximum daily visitation to Yosemite Valley. The day parking, regional transit, and tour bus capacities would accommodate up to 7,554 day users at one time in Segment 2, as listed below.

- Reduce available day-use parking spaces (- 292 spaces) for a total of 2,045 parking spaces accommodating a maximum of 5,337 people at one time.
- Accommodate an estimated 1,160 people at one time in circulation on Valley roads.
- Accommodate a maximum of 337 people at one time arriving to the Valley on regional transit.
- Retain tour bus parking at 15 spaces accommodating up to 720 people at one time.

Conceptual site drawings for the Yosemite Village Day-use Parking Area and the new parking lot west of Yosemite Lodge under Alternative 4 have been completed to allow the analysis of impacts of these potential projects. See "Conceptual Site Drawings" at the end of the Alternative 4 discussion for site details and design drawings.

Visitor circulation would be improved to reduce traffic congestion and to provide a better arrival experience for visitors. Major actions would include the following:

- Redesign day parking at Yosemite Village to provide 750 designated parking spaces and a new comfort station.
- Construct a parking lot with 150 designated day parking spaces and a new 3,000 square foot comfort station west of Yosemite Lodge; provide 15 bus loading/unloading spaces.

Day users would also be able to access Yosemite Valley via by parking in the new El Portal remote parking area (200 parking spaces) and taking a shuttle to the Valley.

Due to the reductions day use parking supply in this alternative, as compared to current peak demand, an East Yosemite Valley Day-use Parking Permit System would be instituted.

Regional transit service would expand and shuttle bus service would be improved, as shown in Table 8-34.

**TABLE 8-34: TRANSIT OPTIONS - ALTERNATIVE 4**

Regional Transit Options	
HWY 140 Merced/Mariposa to Yosemite Valley	8 runs per day (4 from Merced; 4 from Mariposa) (year round)
HWY 41 Fresno/Oakhurst to Yosemite Valley	4 runs per day
HWY 120 West Groveland/Sonora to Yosemite Valley	2 runs per day (summer only)
HWY 120 East Inyo/Mono County (Mammoth Lakes) to Yosemite Valley	1 run per day (summer only)
Yosemite Valley Shuttle Options	
East Yosemite Valley	5 minute peak interval between buses year-round except Visitor Center direct
Visitor Center Express Yosemite Valley Day-use Parking Area to Visitor Center	15 min. interval between buses (summer only)
El Capitan Crossover	30 min. interval between buses (summer only)
West Yosemite Valley	Expand Valley Shuttle service to Bridalveil (summer only) 60-minute interval between buses and stops at El Capitan picnic area, El Capitan Meadow, Bridalveil Fall straight, Cathedral Beach, Yellow Pine, and Four-mile/Swinging Bridge.

### ***Administrative Activities***

Some administrative activities would be relocated:

- Relocate the Yosemite Lodge housekeeping and maintenance facilities to a location behind the Yosemite Lodge cafeteria.

### ***Employee Housing and Employee Parking***

Compared to existing conditions, 228 fewer concessioner employees would be housed in Yosemite Valley. The remaining housing for 923 concessioner employees would be provided as follows:

- Retain housing for 42 employees at The Ahwahnee Hotel.
- Provide housing for 387 employees at Curry Village.
  - Retain permanent housing in the Curry Village residential area (223 employees)
  - Remove housing at Curry Village stable (49 employees)
  - Construct 16 buildings housing 164 employees.
- Provide housing for 390 employees at Yosemite Village:
  - Retain permanent housing at Indian Creek, Lost Arrow, and Upper Tecoya (65 employees)
  - Retain Ahwahnee Row, Y Apartments, garage housing, and Hospital Row (43 employees)
  - Retain Tecoya Dorms (232 employees)
  - Construct new housing at Lost Arrow (50 employees)
- Provide housing for 104 employees at Yosemite Lodge:
  - Construct new housing for 104 employees at Yosemite Lodge (two structures with 26 double-occupancy units each)

Four group administrative campsites (up to 120 people) would be retained at the Yellow Pine Administrative Campground.

### ***Segment 3: Merced Gorge (Scenic Segment)***

#### **Actions to Protect and Enhance River Values**

All actions to protect and enhance river values in Segment 3 for Alternative 4 are included in the “Actions Common to Alternatives 2-6” (page 8-53).

#### **User Capacity, Land Use and Facilities Management**

This alternative would provide for similar kinds and amounts of use that exist today. The majority of actions for Alternative 4 in Segment 3 are discussed in the “Actions Common to Alternatives 2-6” (see page 8-77). Alternative actions that are not included in the Actions Common section are listed below.

#### ***Visitor Activities and Services***

Only private boats would be allowed in this segment in this alternative. It is expected that the craft used would be kayaks in this segment. Boaters would be allowed on the river below Pohono Bridge (in Segment 2) and run

the river into El Portal (Segment 4). Boaters would be allowed to put in and take out at any of the roadside pull outs. This use would be managed by a permit system and restricted to 10 boats per day.

### ***Transit Options***

Public transit options along this segment would be expanded as described in the Yosemite Valley segment (see “Segment 2- Transit Options” above).

## ***Segment 4: El Portal (Scenic Segment)***

### **Actions to Protect and Enhance River Values**

All actions to protect and enhance river values in Segment 4 for Alternative 4 are addressed in “Actions Common to Alternatives 2-6” (see page 8-53).

### **User Capacity, Land Use and Facilities Management**

This alternative would provide for similar kinds and amounts of use that exist today. User capacity in this segment would mostly be affected by increased employee housing in El Portal. While all new units would be built outside of the 100-year floodplain, they would be located within the river corridor.

### ***Visitor Activities and Services***

Most visitor activities and services in Segment 4 are considered in “Actions Common to Alternatives 2-6” (see page 8-77) Additional actions are listed below:

- Private boats would be allowed in Segment 4. Expected use would be mostly rafts and kayaks. Boaters would be permitted below Yosemite View Lodge to beyond the Foresta Bridge (at which point boaters would exit the segment.) Boaters would be able to use put-ins and take-outs below the hotel, at the store/gas station and the Red Bud launch site. This use would be regulated through a permitting system that allows for up to 10 boats per day.

### ***Visitor Overnight Use***

No visitor overnight accommodations on NPS lands are proposed in this alternative.

### ***Visitor Day Use Capacity***

Visitor day-use parking would be expanded in Segment 4. A new remote visitor day-use parking area accommodating a maximum of 200 vehicles would be provided at the Abbieville Site. This parking area would primarily be used for visitor access to Yosemite Valley. The use associated with this parking area is accounted for in the Valley daily visitation levels reported above (see “Visitor Day-use Parking – Segment 2,” above).

The day-use parking capacity specific to this segment would not change. Segment 4 would have 214 visitor parking spaces accommodating up to 740 people at one time.

### ***Administrative Activities***

All administrative activities in Segment 4 are considered in “Actions Common to Alternatives 2-6” (see page 8-53).

### ***Employee Housing Capacity***

In Alternative 4, high density employee housing would be added to the El Portal Village Center (12 beds) and a dormitory in Rancheria Flat (96 beds). All new units would be outside of the 100-year floodplain. These units would be added to accommodate for the units removed from Yosemite Valley. The total housing capacity for El Portal would be 300 people.

### ***Employee and Administrative Parking Capacity***

Most employee and administrative parking actions are discussed in “Actions Common to Alternatives 2-6” (see page 8-53). This additional housing would also include 108 new employee overnight parking spots with the new housing units being built in El Portal Village Center and Rancheria Flat.

### ***Transit Options***

Regional transit options would maintain existing service along the Highway 140 corridor. For a complete summary of transit activity that passes through this segment, see the “Segment 2- Transit Options” section, above.

## ***Segment 5: South Fork Merced River above Wawona (Wild Segment)***

### **Actions to Protect and Enhance River Values**

There are no actions in Alternative 4 that are specific to this segment.

### **User Capacity, Land Use and Facilities Management**

Alternative 4 would provide for similar kinds and amounts of use that exist today in Segment 5. The majority of actions for Alternative 4 in Segment 5 are discussed in the “Actions Common to Alternatives 2-6” (see page 8-77). Alternative actions that are not included in the Actions Common section are listed below.

### ***Visitor Activities and Services***

Private boating would be allowed in this segment. Generally, use in this segment would consist of short floats using pack raft or other craft that can easily be carried into this remote area. Only five boats per day would be allowed, and a permit would be required. The boating permits would be administered by and linked to the overnight backcountry permits.

### ***Transit Options***

Specific transportation options for reaching Segment 5 trailheads are listed below under Segment 7.

## ***Segments 6 and 7: Wawona and Wawona Impoundment (Recreational Segments)***

### **Actions to Protect and Enhance River Values**

In addition to the “Actions Common to Alternatives 2-6” (see page 8-53), protection and enhancement of Cultural Values and Water Quality would be accomplished through the actions described below.

### *Cultural/Water Quality*

- **Campgrounds:** Remove sites that are either within the 100 year floodplain or in culturally sensitive areas.

### **User Capacity, Land Use and Facilities Management**

This alternative would provide for similar kinds and amounts of use that exist today. The majority of actions for Alternative 4 in Segment 7 are discussed in the “Actions Common to Alternatives 2-6” (see page 8-77). Alternative actions that are not included in the Actions Common section are listed below.

### *Visitor Activities and Services*

Most visitor activities and services in Segment 7 are considered in “Actions Common to Alternatives 2-6” (see page 8-53) Additional actions are listed below:

- Retain the Wawona Golf Course and Tennis Courts.
- Discontinue commercial day rides and repurpose the Wawona stables.
- Allow only private boats in Segment 7. Expected use would be mostly kayaks and other small whitewater boats. Boaters would be permitted below Swinging Bridge to beyond the park line, with the exception of the Wawona impoundment. Boaters would be able to use put-ins and take-outs at Swinging Bridge, the store area, South Fork Picnic Area and below the campground. This use would be regulated through a permit and monitoring system that would restrict use to 5 boats per day.

### *Visitor Overnight Capacity*

The overnight capacity for Segment 7 would be 176 units accommodating up to 703 people per night.

The Wawona Campground would reduce campsites to 70 sites (444 people). This includes one group camping site (to accommodate up to 30 persons).

The two stock campsites that would be relocated to the Wawona stables and would accommodate 6 people per night each (12 people per night total).

### *Transit Options*

Tour bus parking would be formalized and all shuttles would remain. In-park shuttle options between Wawona and Yosemite Valley would continue existing service. New regional transit options would be provided along the Highway 41 corridor with four runs between Fresno and the Valley along Hwy 41 would be added. Additionally, the shuttle between Wawona and Yosemite Valley would be expanded to 2 runs per day. Maximum capacity from regional in this segment would be 104 people at one time.

### ***Segment 8: South Fork Merced River below Wawona (Wild Segment)***

### **Actions to Protect and Enhance River Values**

There are no actions in Alternative 4 that are specific to this segment.



## **User Capacity, Land Use and Facilities Management**

Alternative 4 would provide for similar kinds and amounts of use that exist today in Segment 8 and significant changes are not proposed. The majority of actions for Alternative 4 in Segment 8 are discussed in the “Actions Common to Alternatives 2-6” (see page 8-77). Alternative actions that are not included in the Actions Common section are listed below.

### ***Visitor Activities and Services***

Private boating would be allowed in Segment 7. Generally, use in this segment would consist of short floats using pack raft or other craft that can easily be carried into this remote area. Up to five boats per day would be allowed, and a permit would be required. The boating permits would be administered by and linked to the overnight backcountry permits.

### ***Transit Options***

Transit services for access to this segment are described above under Segment 7.

## **Analysis of Facilities and Services**

Table 8-35 presents the park’s assessment of the particular facilities and services that would be needed to support public use and/or to protect river resources based on the types, levels, and locations of use proposed for Alternative 4. As an example, the goals of this alternative include a resource-based visitor experiences and targeted riverbank restoration. This alternative prescribes targeted restoration within 150 feet of the Merced River and visitor use levels that are slightly lower than the peak levels experienced in the recent past. Visitor facilities and services would be resource-based and additional camping opportunities would be provided in Yosemite Valley, therefore making it possible to convert the Concessioner Stables and Boys Town into campgrounds and providing walk-in camping at the Upper and Lower River Campgrounds.

**TABLE 8-35: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 4**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 1: Wild</b>			
Merced Lake High Sierra Camp	Removed and restored to natural conditions	<b>No:</b> This facility is not needed to support public use because use levels are substantially lower. Therefore, the level of overnight accommodations and camping is substantially lower, and this facility can be removed.	<b>No:</b> The High Sierra Camp is outside designated Wilderness; however it is surrounded by designated wilderness. Designated wilderness precludes the construction of new facilities such as this. Alternatives in Chapter 8 consider various means of addressing impacts to ORVs.
Merced Lake Backpackers Camping Area	Designated camping expanded	<b>Yes:</b> This undeveloped campground is used by backpackers. Backpacking is a component of the recreational ORV in this segment. This campground is necessary to allow support overnight wilderness use. Designated camping protects resources in popular areas from radiating impacts by limiting camping to the designated area.	<b>No:</b> A designated campground reduces resource impacts from dispersed camping. Alternatives in Chapter 8 consider various mitigations for the existing campground.
Little Yosemite Valley Camping Area	Reduced designated camping area	<b>Yes:</b> This undeveloped campground is used by backpackers. Backpacking is a component of the recreational ORV in this segment. This campground is necessary to support overnight wilderness use. Designated camping protects resources in popular areas from radiating impacts by limiting camping to the designated area.	<b>No:</b> A designated campground reduces resource impacts from dispersed camping. Alternatives in Chapter 8 consider various mitigations for the existing campground.
Moraine Dome Camping Area	Retained as designated camping	<b>Yes:</b> This undeveloped campground is used by backpackers. Backpacking is a component of the recreational ORV in this segment. This campground is necessary to support overnight wilderness use. Designated camping protects resources in popular areas from radiating impacts by limiting camping to the designated area.	<b>No:</b> A designated campground reduces resource impacts from dispersed camping. Alternatives in Chapter 8 consider various mitigations for the existing campground.
<b>Segment 2: Curry Village and Campgrounds</b>			
Upper Pines Campground	Reduced	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.
Lower Pines Campground	Reduced	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.

**TABLE 8-35: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 4**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Curry Village and Campgrounds (cont.)</b>			
North Pines Campground	Reduced	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.
Backpackers Campground	Removed (partially re-located)	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience. In addition, this campground provides is critical for backpackers who need to start or end their wilderness trip in Yosemite Valley.	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.
Valley Campground Reservation Center	Re-located (due to Southside Drive re-routing)	<b>Yes:</b> The Valley Campground Reservation Center is an essential National Park Service point-of-contact for campers, and those who seek campsites, in Yosemite Valley. The Campground Reservation Center staff sells campsite reservations for all campsites in the park available for reservations. The Reservation Center is operated on a year-round basis.	<b>Yes.</b> The Campground Reservation could be moved from its existing location. However, it is important to the successful delivery of services provided from the reservation center that any alternative location be near the Valley campgrounds.
Housekeeping Camp Lodging Units	Reduced	<b>Yes:</b> Housekeeping Camp offers rustic overnight guest accommodations for visitors who do not or are unable to camp. The number of units allowed under this alternative are needed to support public use in a manner that is consistent with the types and amounts of visitor use that have been found to protect and enhance ORVs.	<b>No.</b> No alternative areas of sufficient size to accommodate this lodging facility (adjacent to the river, which is an integral part of the overnight experience )are available for development in Yosemite Valley.
Housekeeping Camp Laundry	Retained	<b>Yes:</b> The public laundromat at Housekeeping Camp is a small facility that supports visitor use. The nearest public laundry facilities outside the park are located 50 miles from Yosemite Valley. Visitors spending multiple nights in the park frequently need to launder their clothing, and, in some cases, sleeping bags, blankets or other outdoor items.	<b>No.</b> This service is provided for Housekeeping Camp guests and is directly linked to the camp; relocating the service and providing a general laundry facility for park visitors is not necessary.
Housekeeping Camp Shower Houses and Restrooms	Shower House Retained. Restrooms reduced.	<b>Yes:</b> Public restrooms are needed in many areas throughout the river corridor to comply with public health regulations and meet the basic personal needs of visitors and employees. The public showers at Housekeeping Camp are provided for guest use as well as other patrons, including campers and hikers.	<b>No.</b> The Housekeeping Camp restrooms and shower houses are components of the overnight guest accommodations at this location. They are required to be located within or very near the overnight sleeping units.
Housekeeping Camp Grocery	Service eliminated / facility removed	<b>No:</b> This need for the grocery store is tied to the level of lodging units at Housekeeping Camp. With a reduction of lodging, the grocery store is not needed.	<b>N/A:</b> This service will be eliminated.

**TABLE 8-35: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 4**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Curry Village and Campgrounds (cont.)</b>			
Curry Village Lodging and Shower Houses	Reduced	Yes: Curry Village offers rustic and economy overnight guest accommodations consistent with the types and amounts of visitor use that have been found to be protect and enhance ORVs. This facility is needed to support public use by visitors who do not camp.	No. This lodging facility is part of a National Register Historic District. It is not feasible to relocate the complex, including shower and toilet facilities needed by guests in without-bath accommodations, to locations outside the river corridor.
Curry Village Overnight Parking	Reduced	<b>Yes:</b> Parking at Curry Village is needed to support the day and overnight visitors who use Curry Village.	<b>No.</b> Parking areas of in these locations are needed to support overnight guests at this location.
Curry Orchard Parking Area	Reduced	<b>Yes:</b> Parking at Curry Village Orchard is needed to support day and overnight visitors who use Curry Village.	<b>No.</b> Parking areas of in these locations are needed to support overnight guests at this location.
Curry Village Raft Rental	Reduced (need commercial-use permit)	<b>Yes:</b> Consistent with the land use restoration and visitor experience goals of this alternative, raft rentals are necessary.	<b>No.</b> By its very nature, the raft rental facility should be located within the river corridor.
Concessioner Stables	Re-purposed as campground	<b>No:</b> The stable operation at Curry Village is not necessary as the High Sierra Camp operations are eliminated under this alternative, as are horseback day rides.	<b>No.</b> There are no other suitable locations for a stable operation, neither in proximity to other visitor services nor proximity to the Valley trail system used to access the Merced Lake High Sierra Camp.
Concessioner Stables Employee Housing Area	Removed	<b>No:</b> Under this alternative this housing facility is not necessary to accommodate a employees who provide visitor services due to a reduced level of visitor services.	<b>No.</b> There are no other suitable locations to move employee housing to in Yosemite Valley both in terms of size of these facilities and the need for them to be proximate to guest services to accommodate shift work schedules.
Northside Drive (Stoneman Bridge to Yosemite Village Day-use Parking Area)	Retained	<b>Yes:</b> This road is needed to support public use of the river corridor. It is a component of the primary transportation & circulation road system that connects all major visitor service nodes. It is also used for by NPS for law enforcement and fire protection	<b>No.</b> It is not feasible to relocate the existing roadway from its present location.
Southside Drive (through Stoneman Meadow)	Roadway section removed	<b>No:</b> Under this alternative this segment of Southside Drive through Stoneman Meadow is and traffic is routed through Curry Village giving pedestrians, bicycles, NPS law enforcement and fire protection access the east Yosemite Valley. This change in traffic circulation for Yosemite Valley would be feasible due to substantial reduction in visitor use levels.	<b>N/A</b> This section of roadway is removed and traffic is re-routed to Yosemite Valley destinations using nearby roadway sections.

**TABLE 8-35: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 4**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Curry Village and Campgrounds (cont.)</b>			
Sugar Pine Bridge	Removed	<b>No.</b> Under this alternative this pedestrian, bicycle, and emergency vehicle bridge is not needed to support public use of the river corridor. Pedestrian, bicycle, NPS law enforcement and fire protection traffic would be re-routed north of river so that visitors can access points of interest in Yosemite Valley. Removal of this bridge will restore free-flowing conditions and riparian habitat.	<b>No.</b> It is not feasible to relocate the existing roadway and bridges from their present location given the circulation system for Yosemite Valley.
Ahwahnee Bridge	Removed	<b>No.</b> Under this alternative this pedestrian, bicycle, and emergency vehicle bridge is not needed to support public use of the river corridor. Pedestrian, bicycle, NPS law enforcement and fire protection traffic would be re-routed north of river so that visitors can access points of interest in Yosemite Valley. Removal of this bridge will restore free-flowing conditions and riparian habitat.	<b>No.</b> It is not feasible to relocate the existing roadway and bridges from their present location given the circulation system for Yosemite Valley.
Stoneman Bridge	Retained	<b>Yes:</b> This pedestrian, bicycle, and emergency vehicle bridge is needed to support public use of the river corridor. It allows safe crossing of the Merced River so that visitors can access points of interest in Yosemite Valley. Pedestrian and bicycle bridges also protect riparian habitat from destruction caused by random crossings throughout the river corridor. It is also used for by NPS for law enforcement and fire protection.	<b>No.</b> It is not feasible to relocate the existing roadway and bridges from their present location given the circulation system for Yosemite Valley.
Upper Pines RV and Walk-in Campground (New)	Constructed	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience.	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.
Former Upper River Walk-in Campground (New)	Constructed	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience.	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.
Former Lower River Walk-in Campground (New)	Constructed	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience.	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.
Boys Town Campground (New)	Constructed	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience.	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.

**TABLE 8-35: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 4**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Curry Village and Campgrounds (cont.)</b>			
Concessioner Stables Area Campground (New)	Constructed	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience.	<b>No.</b> No alternative areas of sufficient size (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.
<b>Segment 2: Yosemite Village and Housekeeping Camp</b>			
Ahwahnee Row Employee Housing	Retained	<b>Yes:</b> This housing facility is necessary to accommodate a employees who provide visitor services that are consistent with the types and amounts of visitor use that have been found to protect and enhance river values.	<b>No.</b> There are no other suitable locations to move employee housing to in Yosemite Valley both in terms of size of these facilities and the need for them to be proximate to guest services to accommodate shift work schedules.
Lower Tecoya Employee Housing Area	Retained	<b>Yes:</b> Housing facilities to accommodate a portion of the workforce necessary to provide visitor services consistent with the land use restoration and visitor experience goals of this alternative.	<b>No.</b> There are no other suitable locations to move employee housing to in Yosemite Valley both in terms of size of these facilities and the need for them to be proximate to guest services to accommodate shift work schedules.
Lost Arrow Employee Housing Area	Re-developed (with permanent housing)	<b>Yes:</b> Housing facilities to accommodate a portion of the workforce necessary to provide visitor services consistent with the land use restoration and visitor experience goals of this alternative.	<b>No.</b> There are no other suitable locations to move employee housing to in Yosemite Valley both in terms of size of these facilities and the need for them to be proximate to guest services to accommodate shift work schedules.
Re-aligned intersection of Northside Drive and Village Drive, with three-way entry into the Yosemite Village Day-use Parking Area	Redesigned intersection with 1 pedestrian crossing on west side of intersection	<b>Yes:</b> This intersection of Northside Drive, Village Drive, and the entrance into the Yosemite Village Day-use Parking Area is a critical intersection in Yosemite Valley. Northside Drive is the exit road for all East Yosemite Valley traffic. Pedestrians cross the road to access numerous visitor services including the primary visitor center, museum, and the Valley shuttle.	<b>No.</b> While some changes to the exact location of the intersection are feasible; the intersection could not be removed in its entirety unless a suitable replacement that would accommodate high volume westbound traffic.
Yosemite Village Day-use Parking Area	Re-developed and expanded	<b>Yes:</b> This facility will serve as the primary day-use parking lot for Yosemite Valley because it is proximate to numerous visitor services including the primary visitor center, museum, and the Valley shuttle. A day-use visitor parking area of this size is needed to support the level of public use that has been found to protect and enhance river values.	<b>No.</b> While some changes to the exact location of the parking lot and road system leading to the parking lot could be feasibly relocated, the parking lot could not be removed in its entirety unless a suitable replacement that would accommodate high volume visitor parking in Yosemite Valley is identified.



**TABLE 8-35: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 4**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Yosemite Village and Housekeeping Camp (cont.)</b>			
Residence 1 (Superintendent’s House)	Relocated	<b>Yes.</b> This historic structure is a component of the Historic Resources ORV and would be rehabilitated and used to support the visitor experience.	<b>Yes.</b> Under this alternative, the facility would no longer be a component of the Historic Resources ORV and could be relocated outside the river corridor to the lower NPS housing area.
<b>Segment 2: Yosemite Lodge and Camp 4 Area</b>			
Yosemite Lodge Overnight Units	Retained	<b>Yes:</b> Yosemite Lodge offers mid-scale and economy overnight guest accommodations for visitors who do not or are unable to camp. The number of units allowed under this alternative are needed to support public use in a manner that is consistent with the types and amounts of visitor use that have been found to protect and enhance ORVs.	<b>No.</b> While some buildings within the Yosemite Lodge complex could be relocated to sites further north of the Merced River, however, it is not feasible to consider a wholesale relocation of the complex to an alternative location.
Yosemite Lodge Overnight Parking	Retained	<b>Yes:</b> Parking is needed to support visitors who stay at Yosemite Lodge. Parking is also needed for park partner organizations and NPS staff who use the Lodge’s meeting and interpretive spaces (i.e., the Cliff Room, Gardner Terrace, and the outdoor amphitheater).	<b>No.</b> As long as visitor services are provided at Yosemite Lodge, it will be necessary to provide parking near the Lodge complex.
Yosemite Lodge Garden Terrace and Cliff Room	Retained	<b>Yes:</b> These areas are used for interpretive programs and for training courses, meetings, and special events. These facilities are vital to National Park Service and park partner operations.	<b>No.</b> The Garden Terrace and Cliff Rooms are within the existing buildings at the Yosemite Lodge complex. The activities taking place at these locations could be considered for relocation to alternative facilities; however, it is not feasible to consider removing the buildings in their entirety.
Yosemite Lodge Gift and Grocery	Reduced	<b>Yes:</b> The facility provides visitors a limited range of merchandise including packaged and fresh groceries, sundries, and outdoor products frequently needed by campers and hikers.	<b>No.</b> The building currently housing the Yosemite Lodge Gift and Grocery Store is part of the Yosemite Lodge food service and retail structure and would be infeasible to relocate. However, the merchandise offered for sale from this facility could be relocated to other retail outlets in Yosemite Valley if sites outside the river corridor are identified.
Yosemite Lodge Mountain Room Bar & Food Service	Retained	<b>Yes:</b> Food services are necessary to support day visitors and those overnight visitors who are staying in lodging units without kitchenettes.	<b>No.</b> The building currently housing the Mountain Room Bar is part of the Yosemite Lodge food service structure and would be infeasible to relocate.

**TABLE 8-35: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 4**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Yosemite Lodge and Camp 4 Area (cont.)</b>			
Yosemite Lodge Mountain Room Restaurant	Retained	<b>Yes:</b> Food services are necessary to support day visitors and those overnight visitors who are staying in lodging units without kitchenettes.	<b>No.</b> The building currently housing the Mountain Room restaurant is part of the Yosemite Lodge food service structure and would be infeasible to relocate. However, the merchandise offered for sale from this facility could be relocated to other retail outlets in Yosemite Valley if sites outside the river corridor are identified.
Yosemite Lodge Highland Court Employee Housing (Existing and New)	Replaced with permanent housing proximate to current location	<b>Yes:</b> This housing facility is necessary to house employees who provide visitor services at the Yosemite Lodge complex that are consistent with the types and amounts of visitor use that have been found to protect and enhance ORVs. Employee housing proximate to work site are vital given the demand for shift-workers and to reduce inter-Valley commuting.	<b>No.</b> The employees who are accommodated at this facility work at the Yosemite Lodge and need to be collocated for operational efficiencies.
Yosemite Lodge Employee Housing (Thousands Cabins) (Existing)	Removed and relocated (incorporated into permanent housing above)	<b>Yes:</b> This housing facility is necessary to house employees who provide visitor services at the Yosemite Lodge complex that are consistent with the types and amounts of visitor use that have been found to protect and enhance ORVs. Employee housing proximate to work site are vital given the demand for shift-workers and to reduce inter-Valley commuting.	<b>No.</b> The employees who are accommodated at this facility work at the Yosemite Lodge and need to be collocated for operational efficiencies.
West of Lodge RV Campground (New)	Constructed	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience.	<b>No.</b> No alternative areas of sufficient size or location could accommodate this campground.
Yosemite Falls Pedestrian Underpass (New)	Constructed	<b>Yes:</b> A pedestrian underpass is vital to reduce pedestrian and vehicle conflicts at this extremely busy intersection area. The pedestrian underpass would connect the pedestrians from the Yosemite Lodge Area to the Lower Yosemite Fall Area without requiring westbound traffic on Northside Drive to stop and allow pedestrians to cross the road.	<b>No.</b> No changes are proposed for the existing road system in Yosemite Valley. Improvements for this location are required to increase efficiency of transportation circulation.
Yosemite Lodge Day-use Parking Area (New)	Constructed	<b>Yes:</b> This facility will serve as a critical day-use parking lot for Yosemite Valley because substantial numbers of roadside parking spaces adjacent to meadows will be removed in the vicinity of the Yosemite Village Day-use Parking Area. This new parking area will serve as trailhead parking for the upper and lower Yosemite Falls trail, and overflow evening parking for Camp 4 Campground. It will also be used for the Wahhoga Cultural Center.	<b>No.</b> No alternative areas of sufficient size or location proximate to upper and lower Yosemite Falls trailhead, Wahhoga, Camp 4 and the Yosemite Lodge could accommodate this parking area.

**TABLE 8-35: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 4**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: West Yosemite Valley</b>			
Yellow Pine Campground	Retained	<b>Yes:</b> This administrative camping area is used by volunteers and researchers whose work is critical to meeting our NPS mission.	<b>No.</b> No alternative areas of sufficient size or location could accommodate this campground.
<b>Segment 4: El Portal</b>			
Rancheria Employee Housing Area (New)	Constructed	<b>Yes:</b> This housing facility is necessary to accommodate employees who provide visitor services that are consistent with the types and amounts of visitor use that have been found to be protect and enhance ORVs, and to accommodate employees who provide resource protection services consistent with the mission of the National Park Service and current agency management policies.	<b>No.</b> In-fill employee housing should occur within existing employee housing areas
El Portal Remote Parking at Abbeville / Trailer Village (New)	Constructed	<b>Yes:</b> This parking area will provide a vital queuing and staging area during peak use periods when congestion in the East Yosemite Valley reaches conditions whereby the National park Service would not permit more vehicles to add to the crowding. Day-use visitors would be provided shuttle service to Yosemite Valley from this location.	<b>No.</b> There are no other suitable locations proximate with direct access to Highway 140 before entering Yosemite National Park boundary.
<b>Segment 5 (Wild), Segments 6 &amp;7 (Recreational), Segment 8 (Wild)</b>			
Wawona Campground	Reduced	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience.	<b>No.</b> This campground could not be relocated as no suitable alternative site exist in the Wawona proper adjacent to the river, which is an integral part of the camping experience.
Wawona Hotel Tennis Court	Retained	<b>Yes:</b> This visitor activity is a component of the Wawona Hotel NHL. Opportunities for this type of visitor recreation are unique in terms of setting attributes and the historic setting of the district.	<b>No.</b> The Wawona Hotel and its surrounding buildings, lawn, swimming tank, golf course are listed on the National Register of Historic Place. Their locations are integral to their historic significance that would be diminished by any relocation outside the river corridor.
Wawona Hotel Golf Course & Shop	Retained	<b>Yes:</b> This visitor activity is a component of the Wawona Hotel NHL. Opportunities for this type of visitor recreation are unique in terms of setting attributes and the historic setting of the district.	<b>No.</b> The Wawona Hotel and its surrounding buildings, lawn, swimming tank, golf course are listed on the National Register of Historic Place. Their locations are integral to their historic significance that would be diminished by any relocation outside the river corridor.

**TABLE 8-35: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 4**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 5 (Wild), Segments 6 &amp;7 (Recreational), Segment 8 (Wild) (cont.)</b>			
Wawona Stables	Retained	<b>Yes:</b> The Wawona Stables offer visitors commercial equestrian day rides to points of interest in the Wawona area. This facility is necessary to support horseback riding, which is a type of use that has been found to be consistent with the protection and enhancement of river values.	<b>No.</b> The stable operates from a historic structure that could not be feasibly relocated.
Wawona Commercial Horseback Day Rides	Eliminated	<b>No:</b> Opportunities for this type of visitor recreation is not a vital visitor service under this alternative.	<b>N/A:</b> This service will be eliminated.

## **Conceptual Site Drawings**

### ***Boys Town***

In Alternative 4, the existing Boys Town cabins and facilities would be removed and replaced with 40 walk-in campsites. Each of the campsites would have 2 parking spaces for a total of 90 spaces, in addition to 78 new parking spaces along the existing roadway, and 12 new spaces along the eastern edge of the Orchard parking area. A new pedestrian walkway, a comfort station with showers, and a guest check-in building would also be constructed within the existing developed footprint. The Curry Orchard Day-use Parking Area would be partially restored to facilitate Stoneman Meadow restoration, while retaining approximately 300 parking spaces. New ground disturbance within the existing 8.4 acre footprint of Boys Town would include approximately 4,000 square feet for new buildings, 2,000 square feet of utility trenching, 153,860 square feet for the new camping area, 4,300 square feet for a plaza and pedestrian pathways around the comfort station, and 27,000 square feet of new parking for a total of 4.4 acres. Construction staging would require an area of approximately 1.4 acres and would likely take place within the existing Orchard parking area.

### ***Yosemite Village Day-use Parking Area***

In Alternative 4, the existing 6-acre Yosemite Village Day-Use Parking Area would be moved northward 150 feet away from the river to facilitate riparian restoration goals and to prevent further resource damage. Restoration actions would remove non-native fill material, re-contour the topography, and plant native vegetation. The redesigned parking area would be formalized to provide a total of 750 parking spaces and a new comfort station. The intersection would be realigned at Northside Drive and Village Drive to address traffic flow on peak days. The Concessioner General Office and Garage, Arts and Activities Center (former bank building) would be removed and the Village Sport Shop repurposed to a visitor contact station.

The area of disturbance for improvements at Camp 6 in Alternative 4 would cover approximately 27.5 acres and include 19 acres of clearing and grubbing, 1.1 acres for existing building removal, 4,000 square feet for the new comfort station, 5.4 acres of pavement removal, 2.2 acres of new roadway, 5.1 acres for new parking, 15,220 square feet of utility service trenching, and 43,350 square feet for new pedestrian pathways. Construction staging would cover an area of approximately 2 acres.

### ***Yosemite Lodge Parking Area***

In Alternative 4, the area west of Yosemite Lodge, currently used as parking for tour buses, transit buses and overnight guests, would be re-developed to provide 150 day-use parking spaces, designated campsites for 20 RVs, parking for 15 buses, a new 3,000 square foot comfort station, and a re-located shuttle stop. The existing tour bus drop off area would be relocated to the Highland Court area. The wellness center, linen storage and laundry buildings would be removed. Ground disturbance within a 11.2 acre footprint west of the Lodge would include 8.6 acres of clearing and grubbing, 55,850 square feet of existing building and pavement removal, 3,000 square feet for the new comfort station and shuttle stop, 13,300 square feet of utility service trenching, 2.5 acres for parking, and 2,500 square feet for pedestrian pathways. Construction staging would take place over a 2 acre area within the existing footprint. Existing vegetation would be retained to separate and screen parking bays while bioswales would serve to filter and treat storm water run-off.

### *Yosemite Lodge Housing*

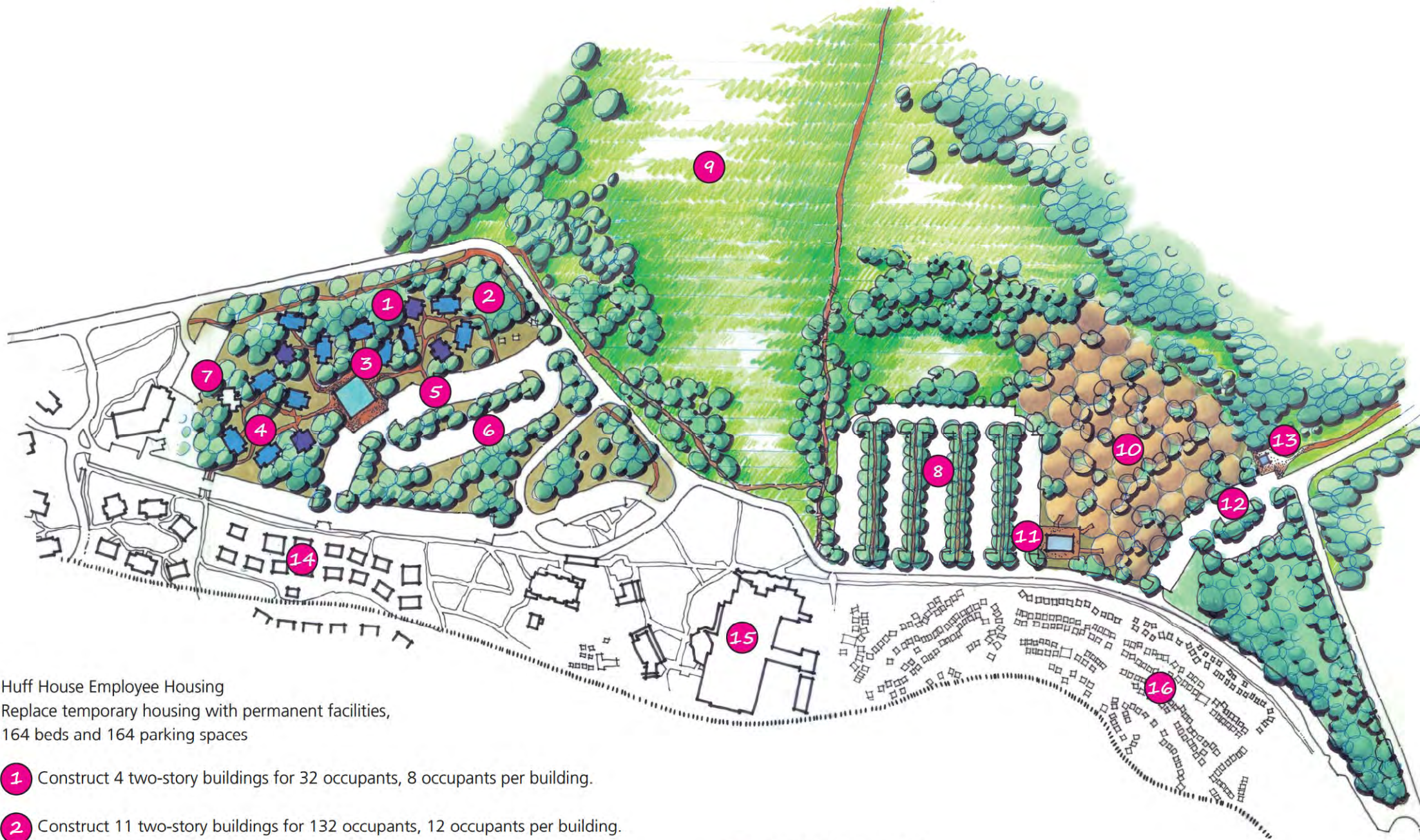
In Alternative 4, the temporary modular housing at Highland Court and the Thousand Cabins would be removed and replaced with two new buildings to house 104 concessioner employees. In addition, a new parking area would provide 78 employee parking spaces, parking for 3 shuttle buses loading spaces, and 53 day-use parking spaces for the public. Ground disturbance for the two housing sites would cover a total of 7.4 acres and would include 45,500 square feet of preparation for the new buildings, 5,500 square feet of utility service trenching, and 1.8 acres for parking.

### *Concessioner General Office*

The 18,000 square foot Concessioner General Office building located in Yosemite Village, just south of the Village Store parking lot, would be removed to allow redesign and expansion of visitor parking, improved traffic and pedestrian circulation and resource restoration. The office space would be replaced by reconfiguring the interior of the existing Concessioner Maintenance and Warehouse building located east of the NPS Government Utility Area. The existing structure would be updated to include office space on a mezzanine floor. In addition to this, nearby existing concessioner employee housing would be converted to office use. The residential needs of employees displaced from housing facilities would be accommodated in other buildings in Yosemite Valley.

Additional parking spaces for vehicles associated with the existing and relocated maintenance and warehousing operations, administrative vehicles and private vehicles used by employees would be expanded near the facility to accommodate the increased occupancy of the remodeled worksite. Specific locations being considered for parking include formalizing approximately 17 spaces along Village Drive, 6 spaces to the northeast of the warehouse building, approximately 16 spaces along Boulder Lane, approximately 15 spaces along the north side of Tenaya Way and an additional 15 spaces north of the existing auditorium. Development of parking spaces behind the auditorium would require the removal of one existing employee residence.





**Huff House Employee Housing**  
 Replace temporary housing with permanent facilities,  
 164 beds and 164 parking spaces

- 1 Construct 4 two-story buildings for 32 occupants, 8 occupants per building.
- 2 Construct 11 two-story buildings for 132 occupants, 12 occupants per building.
- 3 Provide common recreational area, approximately 3,600 square feet.
- 4 Build plaza areas and walkways with site furnishings, accent paving, and enhanced landscaping.
- 5 Construct a shuttle bus stop.
- 6 Remove ice rink and bicycle rentals. Construct an employee parking facility with 164 spaces.
- 7 Retain historic residence for housing purposes.

**Curry Orchard Parking Area**

- 8 Improve parking facility with 300 spaces and landscape buffers with trees and bioswales that will treat storm water run-off. Provide pedestrian walkways.

**Stoneman Meadow Restoration**

- 9 Remove Stoneman Road and adjacent recreation trail. Extend boardwalk from existing terminus (at Stoneman Road) to Curry Village Pavilion area. Improve hydrology, remove invasive species, promote weed control and plant native species.

**Boys Town**

- 10 Replace existing guest accommodations with a walk-in campground consisting of 40 sites.
- 11 Construct restroom with showers.
- 12 Construct a roadway to connect Curry Village and East Valley campgrounds. Provide additional roadside parking.
- 13 Relocate Campground Reservation Center and provide 8 parking spaces.

**Existing Curry Village Visitor Services**

- 14 Retain existing historic cabins and Stoneman Cottage (65 lodging units).
- 15 Retain existing Curry Pavilion.
- 16 Retain 290 tents.



NORTH

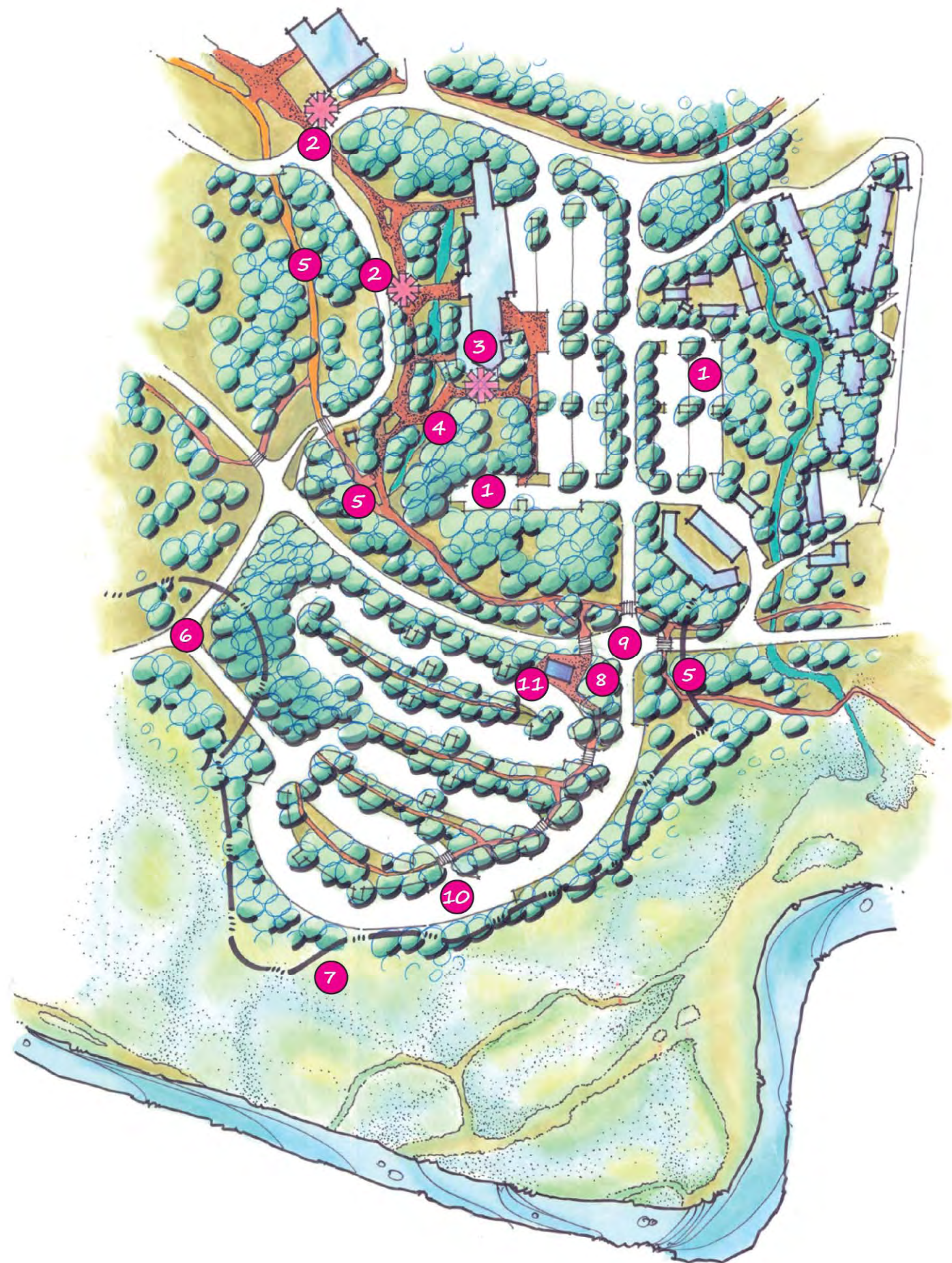
**Alternative 4**  
**Conceptual Site Drawing for**  
**Curry Village**  
 Yosemite National Park  
 United States Department of the Interior • National Park Service

\* These drawings are provided to demonstrate where facilities would be removed, relocated, or constructed according to actions more fully described by project alternatives. The drawings do not represent a final proposal. More detailed design and construction documents would be developed consistent with the general concepts presented here.



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- 1 Eliminate Concessioner General Office and Garage between the Village Store and Ahwahnee Meadow, providing more space for visitor parking.
- 2 Retain shuttle stops on Visitor Center Loop Drive.
- 3 Replace Village Sport Shop with visitor contact station.
- 4 Eliminate art activity center and improve pedestrian access.
- 5 Improve pedestrian connections and bike paths east and west of the day-use parking area.
- 6 Provide a two-way access driveway from Sentinel Drive as the primary entrance to the day-use parking area.
- 7 Redesign the day-use parking area to provide a 150-foot buffer from the river. Restore wetlands and meadow.
- 8 Create pedestrian pathways to lead visitors into the Yosemite Village mall. Construct a comfort station in a central location connected to the main pedestrian concourse.
- 9 Remove offset intersection and re-align day-use parking area driveway as a conventional four-way intersection at Village Drive and Northside Drive. Shift pedestrian crosswalk on Northside Drive from the east to the west side of this intersection.
- 10 Provide 750 day-use parking spaces. Design planters to retain large numbers of trees, including bioswales that eliminate pollutants from parking area. Create pedestrian pathways with a wayfinding system leading visitors to the Yosemite Village mall.
- 11 Relocate shuttle bus pick-up and drop-off area. Replace comfort station.



**Alternative 4**  
**Conceptual Site Drawing for**  
**Yosemite Village Day-use Parking Area**  
 Yosemite National Park  
 United States Department of the Interior • National Park Service

\*These drawings are provided to demonstrate where facilities would be removed, relocated, or constructed according to actions more fully described by project alternatives. The drawings do not represent a final proposal. More detailed design and construction documents would be developed consistent with the general concepts presented here.



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**1** Re-align Yosemite Lodge intersection within the limits of existing developed areas.

**2** Maintain all existing Yosemite Lodge buildings and parking areas.

**3** Enhance pedestrian circulation system.

**4** Construct tour bus loading and unloading area, with shelter.

**5** Construct employee housing in 2 two-story buildings with 52 occupants per building and 39 employee parking spaces per building.

**6** Relocate linen storage and laundry buildings from the 100-year floodplain to an addition to the food service building. Reconfigure truck loading and unloading area. Demolish and remove existing NPS volunteer office.

**7** Reconstruct a section of the Yosemite Lodge entrance road as a promenade with a 5% slope to a pedestrian underpass. Install accent paving, landscaping, wayfinding and site furnishings, low-voltage site lighting consistent with design features of the Yosemite Falls trail.

**8** Construct 150 visitor parking spaces at Yosemite Lodge Day-use Parking Area. Maintain existing vegetation as buffers to separate and screen parking bays, provide pedestrian pathways and bioswales that will treat storm water run-off.

**9** Construct 15 tour bus parking spaces.

**10** Construct a shuttle bus stop with shelter and comfort station.

**11** Construct 41 additional parking spaces at Camp 4.

**12** Retain 35 existing walk-in campsites at Camp 4. Construct 35 additional walk-in sites opposite existing parking facility. Occupancy is limited to 6 campers per site. Standard walk-in campsite is 3,850 square feet (70-foot diameter), including 1,200 square feet of clearance with a 15-foot perimeter buffer.

**13** Protect and enhance a 150-foot riparian buffer.

**14** Construct an RV loop with 20 campsites.

\* These drawings are provided to demonstrate where facilities would be removed, relocated, or constructed according to actions more fully described by project alternatives. The drawings do not represent a final proposal. More detailed design and construction documents would be developed consistent with the general concepts presented here.



NORTH

**Alternative 4**  
**Conceptual Site Drawing for**  
**Yosemite Lodge and Camp 4**  
**Yosemite National Park**

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## **ALTERNATIVE 5 (PREFERRED ALTERNATIVE): ENHANCED VISITOR EXPERIENCE AND ESSENTIAL RIVER BANK RESTORATION**

### **Overview**

The guiding principles of Alternative 5 would include significant restoration within 100 feet of the river and in meadow and riparian areas, maintaining daily visitation in Yosemite Valley to accommodate the same peak levels observed in recent years, and reducing unnecessary facilities and services, and converting facilities from administrative use to public use where feasible.

Management actions in Alternative 5 would:

- Restore 203 acres of meadow and riparian habitat.
- Significantly increase the campsite inventory in all river segments (+28%) and in Yosemite Valley (+37%).
- Minimally increase available lodging in all river segments (less than 1%) and in Yosemite Valley (+2%).
- Increase day-use parking spaces in Yosemite Valley (+11%).
- Reduce commercial services.
- Make significant changes to the traffic circulation pattern in Yosemite Valley to accommodate ecological restoration goals and reduce traffic congestion.
- Accommodate approximately 19,900 visitors per day in East Yosemite Valley.
- Continue to manage overnight use capacity through wilderness permits and reservation systems for lodging and camping.
- Manage day-use capacity for East Yosemite Valley through intentional traffic diversions and monitoring.

### ***Actions to Protect and Enhance River Values***

Alternative 5 would protect and enhance river values through essential ecological restoration of riverbanks and riparian and meadow habitat. Targeted infrastructure within the bed and banks of the river would be removed, along with much of the development within 100 feet of the river, and the sites would be ecologically restored. This alternative would also create a valley oak habitat protection area. The free-flowing condition of the river would be enhanced by removing one bridge from the bed and banks that constricts flow during high-water events. Hydrologic connectivity of meadows to the riparian floodplain would be enhanced through engineering and design treatments, such as installation of large box culverts and permeable subgrades to improve surface water flow.

Cultural and scenic values would be protected and enhanced as described under “Actions Common to Alternatives 2-6” (beginning on page 8-53). Recreational values would additionally be protected and enhanced by dispersing lower levels of recreational boating along the river through Yosemite Valley and by reducing traffic congestion. Table 8-36 provides a summary of the additional actions that would occur under Alternative 5 to protect and enhance river values.

**TABLE 8-36: ADDITIONAL ACTIONS TO PROTECT AND ENHANCE RIVER VALUES, ALTERNATIVE 5**

<b>Ecological Restoration Actions (Free Flow, Water Quality, Geologic/Hydrologic, and Biological Values)</b>	
<b>Corridorwide</b>	
<b>Ecological Restoration Acreage</b>	164 acres (common to all) plus an additional 39 acres (refer to Appendix E for specific locations)
<b>Riprap to be Removed</b>	5,700 linear feet (common to all) plus an additional 435 feet (refer to Appendix E for specific locations)
<b>Segment 1: Wilderness above Nevada Fall</b>	
<b>Riparian Buffer / Floodplain</b>	<ul style="list-style-type: none"> <li>Remove some facilities and reduce the capacity of the Merced Lake High Sierra Camp.</li> </ul>
<b>Segment 2: Yosemite Valley</b>	
<b>Free Flow /Geologic/ Hydrologic Values</b>	<ul style="list-style-type: none"> <li>Remove Sugar Pine Bridge to enhance the free-flowing condition of the river.</li> </ul>
<b>Riparian Buffer / Floodplain</b>	<ul style="list-style-type: none"> <li>Ecologically restore portions of Backpackers Camp, North Pines Campground, and Lower Pines Campground.</li> <li>Ecologically restore 35.6 acres of habitat in former Upper and Lower River Campgrounds and construct new campsites 150 feet away from the river</li> <li>Move Yosemite Village Day-use Parking Area parking north at least 150 feet away from the river.</li> </ul>
<b>Recreational Values</b>	
<b>Segment 1: Wilderness above Nevada Fall</b>	
<b>Wilderness Recreation</b>	<ul style="list-style-type: none"> <li>Reduce zone capacities and trailhead quotas above Nevada Fall.</li> <li>Visitor overnight use concentrated to designated camping areas</li> </ul>

*User Capacity, Land Use, and Facilities Management*

Alternative 5 would focus on providing an enhanced visitor experience while protecting river values. It would maintain a range of recreation opportunities that are sensitive to river resources and accommodate current peak use levels (see Table 8-37). Proper infrastructure design and site delineation in high use areas would be incorporated to ensure the long-term protection of river values.

**TABLE 8-37: USER CAPACITIES BY USE TYPE AND LOCATION- ALTERNATIVE 5**

User Capacities by Use Type and Location		Alt 1 (No Action)		Alt 5	
	Unit Type	Units	People	Units	People
<b>Wilderness Above Nevada Fall</b>					
Visitor Overnight Use	Zone Capacities & Beds	380	380	362	362
Visitor Day Use	Day Hikers	350	350	350	350
Employee Housing	Employee Beds	15	15	15	15
Administrative Day Use	Day Patrols	5	5	5	5
<b>Yosemite Valley</b>					
Visitor Overnight Use	Rooms & Campsites	1,500	6,564	1,693	7,729
Visitor Day Use	Parking Spaces& Buses	-	8,272	-	8,954
Employee Housing	Employee Beds	1,315	1,315	1,136	1,136
Administrative Day Use	Parking Spaces	166	332	166	332
<b>Merced Gorge</b>					
Visitor Overnight Use	Rooms & Campsites	-	-	-	-
Visitor Day Use	Parking Spaces	180	869	180	869
Employee Housing	Employee Beds	9	9	9	9
Administrative Day Use	Parking Spaces	2	4	2	4

**TABLE 8-37: USER CAPACITIES BY USE TYPE AND LOCATION- ALTERNATIVE 5**

User Capacities by Use Type and Location		Alt 1 (No Action)		Alt 5	
	Unit Type	Units	People	Units	People
<b>EI Portal</b>					
Visitor Overnight Use	Rooms & Campsites	-	-	-	-
Visitor Day Use	Parking Spaces	214	740	414	740
Employee Housing	Employee Beds	192	192	288	288
Administrative Day Use	Parking Spaces	610	1,220	610	1,220
<b>South Fork Above Wawona</b>					
Visitor Overnight Use	Permits	20	20	20	20
Visitor Day Use	Day Hikers	6	6	6	6
Employee Housing	Employee Beds	-	-	-	-
Administrative Day Use	Day Patrols	1	1	1	1
<b>Wawona</b>					
Visitor Overnight Use	Rooms & Campsites	203	865	190	787
Visitor Day Use	Parking Spaces& Buses	-	1,295	-	1,606
Employee Housing	Employee Beds	121	121	121	121
Administrative Day Use	Parking Spaces	30	60	30	60
<b>South Fork Below Wawona</b>					
Visitor Overnight Use	Overnight Hikers	3	3	3	3
Visitor Day Use	Day Hikers	3	3	3	3
Employee Housing	Employee Beds	-	-	-	-
Administrative Day Use	Day Patrols	1	1	1	1

## Visitor Overnight Capacity

### Camping

The campsite inventory in the Merced Wild and Scenic River corridor and Yosemite Valley would be increased by approximately 28%. All campsites within 100 feet of the river would be removed. Campsite losses would be offset with the addition of new camping adjacent to Upper Pines Campground and east of the Camp 4 Campground, as well as new sites west of Backpackers Campground and in the former Upper and Lower River Campgrounds area. Under Alternative 5, the total number of campsites in Yosemite Valley would increase to 640—a net gain of 174 sites—and the total number of campsites available in the corridor would be 726. Table 8-38 provides a summary of the proposed changes to camping and the reasons for those proposed changes.

**TABLE 8-38: CAMPING FACILITIES- ALTERNATIVE 5**

Existing Locations	Alt 1 (No Action)	Alt 5	Details
Backpackers	25 sites	10 sites	15 walk-in sites within 100 feet of river relocated to less sensitive area outside 100-year floodplain
Camp 4	35 sites	35 sites	No change to this National Historic Register Site
Lower Pines	76 sites	71 sites	5 sites within 100 feet of the river removed
North Pines	86 sites	72 sites	14 sites within 100 feet of the river removed
Upper Pines	240 sites	238 sites	2 sites removed for cultural resource concerns
Yellow Pine Administrative	4 sites	4 sites	No changes to these group administrative sites
Wawona Campground	99 sites	86 sites	13 sites within 100 feet of river or in culturally sensitive areas removed

**TABLE 8-38: CAMPING FACILITIES- ALTERNATIVE 5**

<b>Total Existing Locations</b>	565 sites	516 sites	
<b>New Locations</b>	<b>Sites</b>	<b>Alt 5</b>	<b>Details</b>
West of Backpackers	0 sites	16 sites	16 walk-in sites relocated from Backpackers Camp to less sensitive area outside 100-year floodplain
East of Camp 4	0 sites	35 sites	35 walk-in sites constructed in area east of Camp 4
Upper Pines	0 sites	87 sites	36-site RV loop and a walk-in campground with 49 sites and 2 group sites
Former Upper River	0 sites	32 sites	30 walk-in and 2 group sites constructed in the footprint of the former Upper River Campground, but at least 150 feet from the river
Eagle Creek		42 sites	40 auto sites and 2 group campsites
<b>Total New Camping</b>	<b>0 sites</b>	<b>210 sites</b>	
<b>Total Camping in Corridor</b>	<b>565 sites</b>	<b>726 sites</b>	

*Lodging*

In-park lodging availability would be increased by a minimal amount compared to existing conditions. Management actions related to lodging would focus on removing lodging from the ordinary high-water mark at Housekeeping Camp, and slightly reducing lodging in Wilderness. Tent cabins in the Boys Town area would be replaced with hard-sided units. As a result of these actions, the in-park lodging inventory would be increased from 1,160 units to 1,168 units. Table 8-39 provides a summary of the proposed changes to lodging and the reasons for those proposed changes.

**TABLE 8-39: LODGING FACILITIES- ALTERNATIVE 5**

<b>Wilderness</b>	<b>Alt 1 (No Action)</b>	<b>Alt 5</b>	<b>Details</b>
Merced Lake High Sierra Camp	22 units (60 beds)	11 units (42 beds)	18 beds removed from Wilderness lodging facility
<b>Yosemite Valley</b>	<b>Alt 1</b>	<b>Alt 5</b>	<b>Details</b>
Ahwahnee Hotel	123 rooms	123 rooms	No change at this National Historic Landmark
Housekeeping Camp	266 tent cabins	232 tent cabins	Remove 34 units out of the ordinary high-water mark (bed and banks of the river)
Curry Village	400 units	453 units (290 tents and 163 hard-sided units)	<ul style="list-style-type: none"> <li>▪ Retain 290 tents</li> <li>▪ Retain 18 units at Stoneman House</li> <li>▪ Retain 47 cabin-with-bath units.</li> <li>▪ Construct 98 hard-sided units in Boys Town</li> </ul>
Yosemite Lodge	245 rooms	245 rooms	No changes at lodging facility
<b>Wawona</b>	<b>Alt 1</b>	<b>Alt 5</b>	<b>Details</b>
Wawona Hotel	104 rooms	104 rooms	No change at this National Historic Landmark
<b>Total Lodging in Corridor</b>	<b>1,160 units</b>	<b>1,168 units</b>	
<b>* El Portal:</b> Private accommodations exist but are not on NPS land; therefore, they are not listed here.			

## Visitor Day Use Capacity and Access Improvements

Day-use parking capacity in Yosemite Valley would be expanded by 5% to meet current peak use levels. The total number of day-use parking spaces available across all segments in Alternative 5 is shown in Table 8-40. If day-use parking demand continued to increase in the future, additional proactive management actions would be implemented.

**TABLE 8-40: NUMBER OF DAY-USE PARKING SPACES IN SEGMENTS – ALTERNATIVE 5**

Location	Alt 1 (No Action)	Alt 5
Segment 2: Yosemite Valley	2,337 spaces	2,448 spaces
Segment 3: The Gorge	180 spaces	180 spaces
Segment 4: El Portal	214 spaces	414 spaces*
Segment 7: Wawona	290 spaces	290 spaces
<b>Total Parking</b>	<b>3,021 spaces</b>	<b>3,482 spaces</b>
*The 200 new spaces in El Portal are located in the Abbieville Remote Parking area. While these spaces are located in El Portal, most of the use associated with these spaces would occur in Yosemite Valley.		

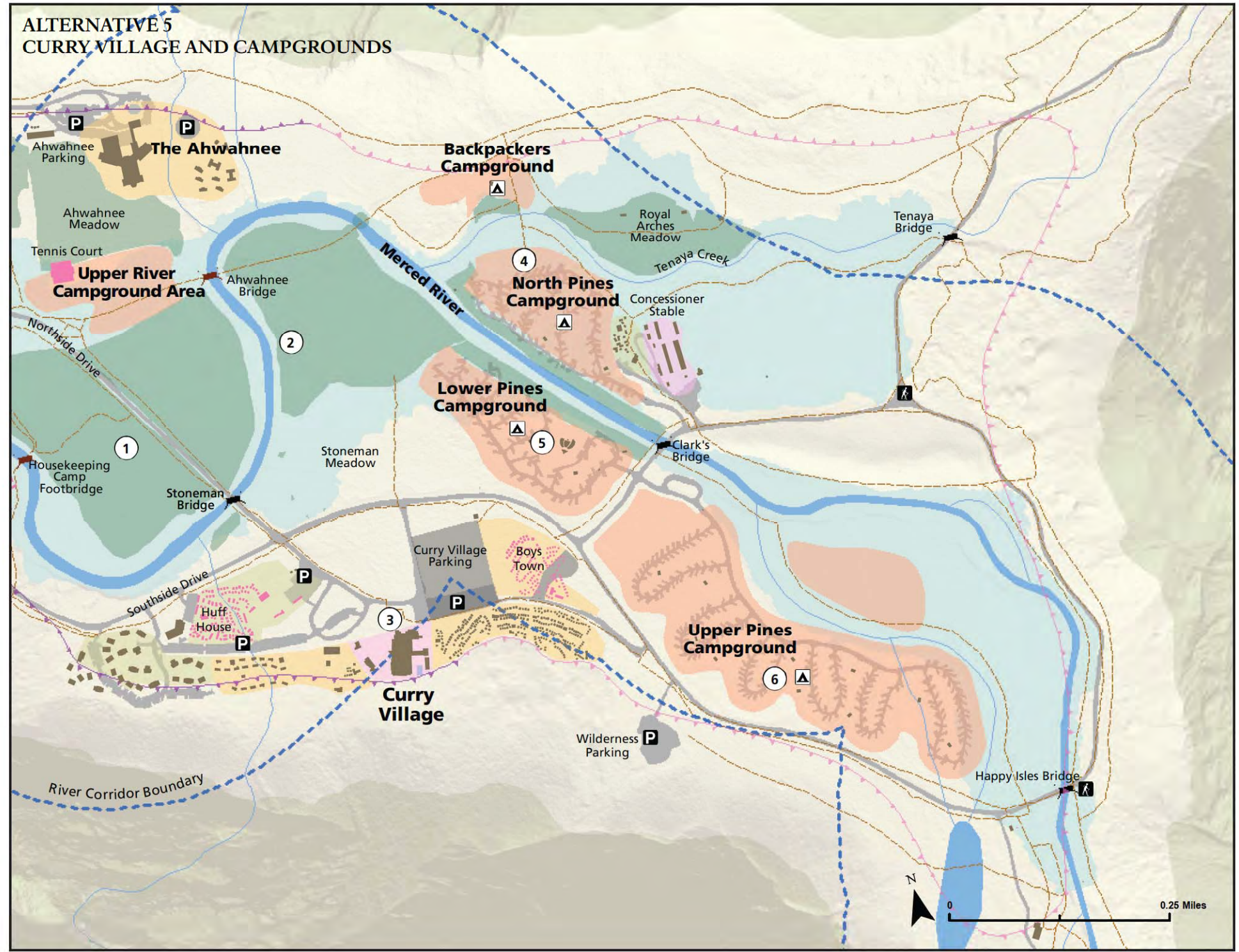
The most significant changes to parking and circulation would take place in the vicinity of the Yosemite Village Day-use Parking Area, at Yosemite Lodge, in the West Valley, and at El Portal. The Yosemite Village parking area would be redesigned with a total of 850 parking spaces. A new day-use parking area with a total of 300 parking spaces would be constructed west of Yosemite Lodge. Overflow parking during times of peak visitation would be provided in West Yosemite Valley (100 parking spaces) and in El Portal at Abbieville (200 parking spaces). Total parking for East Yosemite Valley (including day, overnight and administrative uses) would be approximately 5,300.

Regional transit options would also be expanded in this alternative, and the service frequency of Valley shuttle services would be reduced (see the detailed descriptions for Segment 2, below).

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# ALTERNATIVE 5: ENHANCED VISITOR EXPERIENCES AND ESSENTIAL RIVERBANK RESTORATION



## EAST YOSEMITE VALLEY: CURRY VILLAGE AND CAMPGROUNDS

- Former Upper and Lower River Campground**
  - Former Lower River Campground: Ecologically restore to natural conditions. Provide picnic tables and parking for day use and directed river access to the Housekeeping Camp eastern beach.
  - New Upper River Campground: Construct a new campground out of the 25-year floodplain with 30 walk-in sites. Restore hydrologic processes in the southeast portion of the area.
  - Restoration: Restore 35.6 acres of floodplain. Protect the riverbank from trampling by fencing sensitive areas.
- River Reach Between Bridges**
  - Ahwahnee and Sugar Pine Bridges: Retain Ahwahnee Bridge. Remove the Sugar Pine Bridge to enhance free-flowing condition of the river. Re-route the multiple-use trail to the north bank of the river. Add another trail from the end of Ahwahnee Bridge toward Lower Pines Campground. Construct a new bridge to span the cutoff channel.
  - Stoneman Bridge: Mitigate effects of bridge to free-flowing condition through engineered solutions: place large wood to lessen scouring, and use brushlayering, a constructed log jam, and culverts along Northside Drive.
- Curry Village Area**
  - Lodging: Total would be 453 guest units, including: 290 tents in Curry Village retained; 98 hard-sided units in Boys Town constructed; 18 units at Stoneman House retained; and 47 cabin-with-bath units in Curry Village retained.
  - Curry Orchard Parking Area: Provide 430 parking spaces through a re-design of the parking area that incorporates best management practices to protect water quality. Also, apply engineering solutions to promote water flow and to increase drainage to Stoneman Meadow. Remove apple trees to mitigate human-bear interactions and plant native vegetation.
- North Pines Campground Area**
  - Ecological Restoration at Campgrounds: Remove campsites within 100 feet of the river at North Pines, Backpackers and Lower Pines campgrounds. Restore 6.5 acres of riparian habitat. Designate a formal river access point at North Pines campground.
  - Backpackers Campground: Retain 10 walk-in sites. Remove 15 walk-in sites within the 100-foot riparian buffer to be replaced by 16 walk-in sites west of Backpackers Campground.
  - North Pines Campground: Retain 72 campsites. Remove 14 sites from within 100 feet of river.
  - Concessioner Stables in Yosemite Valley: Retain stables to support the operation of the Merced Lake High Sierra Camp. Provide overflow parking for campgrounds at the stables. Retain kennel service. Retain associated housing (25 beds).
- Lower Pines Campground Area**
  - Campground Sites: Retain 71 campsites and remove five sites from within 100 feet of river.
- Upper Pines Campground Area**
  - Campground Sites: Retain 238 campsites. Remove two sites for sensitive resource concerns.
  - New RV Loop: Construct a new campground loop with 36 RV sites.
  - New Walk-in Sites: Construct a new walk-in campground with 49 sites and two group camping sites.

**Legend**

Campgrounds	Road bridge	Contour	Surfaced Areas	Visitor Services	Buildings	Designated Wilderness
Picnic Area	Footbridge	Trails	Restoration Areas	Housing	Retain Building	Recreational Segment
Parking Area	Lakes	Calculated Rock-fall Hazard Line	Camping	Operations	Remove Building	Wild Segment
Trailheads	Stream	Inferred Rock-fall Hazard Line	Lodging	Parking	100-year Floodplain	Scenic Segment



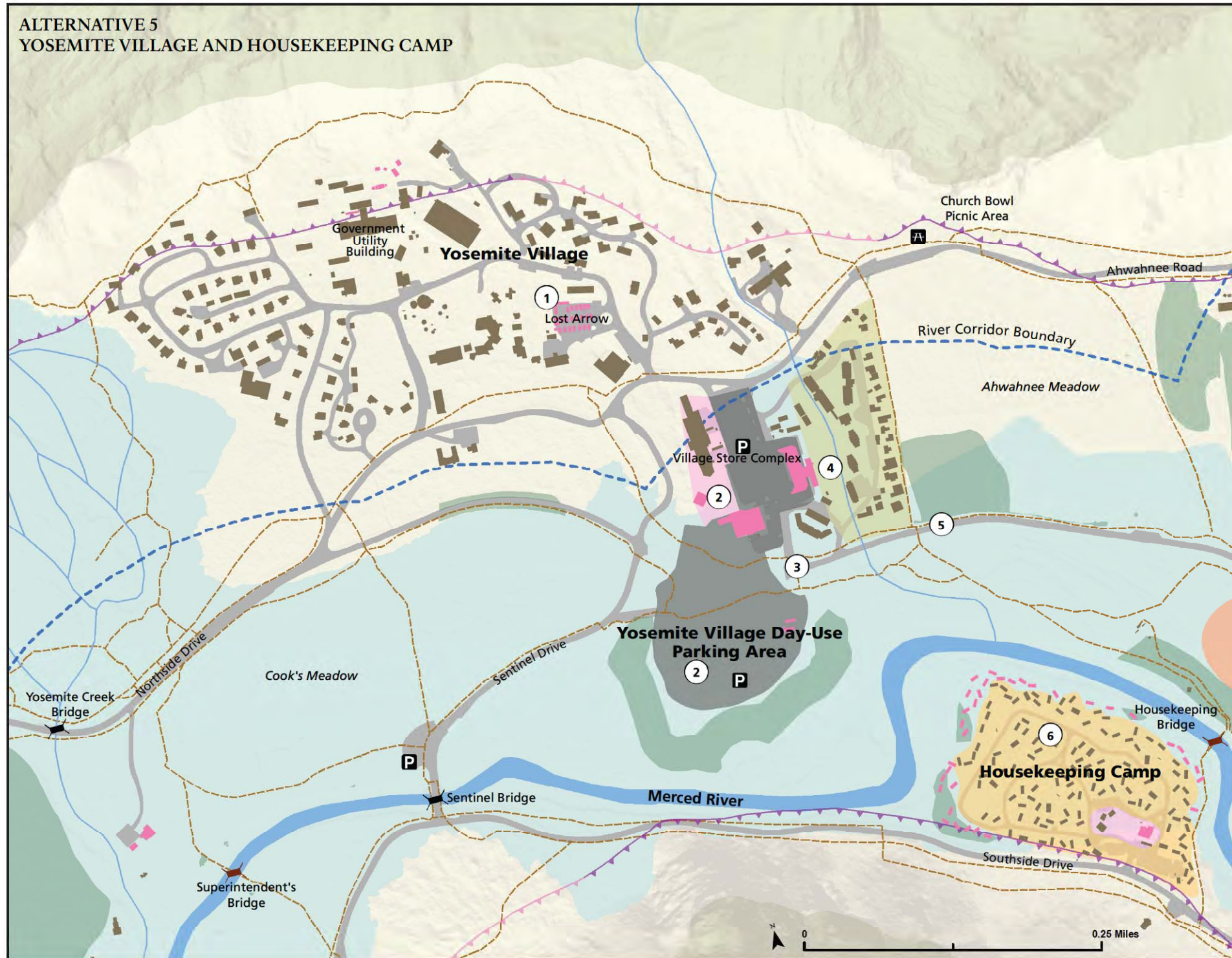
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# ALTERNATIVE 5: ENHANCED VISITOR EXPERIENCES AND ESSENTIAL RIVERBANK RESTORATION



## ALTERNATIVE 5 YOSEMITE VILLAGE AND HOUSEKEEPING CAMP



### EAST YOSEMITE VALLEY: YOSEMITE VILLAGE AND HOUSEKEEPING CAMP

1. Lost Arrow: Replace temporary employee housing with permanent housing units for 50 beds.
2. Yosemite Village Day-use Parking Area: Move the Yosemite Village Day-use Parking Area northward 150 feet away from the river to facilitate riparian restoration goals. Using best management practices to protect water quality, formalize the parking area to have a total of 850 parking places by redeveloping part of the current administrative footprint as parking.
3. Pedestrian/Vehicle Conflicts: Re-route Northside Drive to the south of the Yosemite Village Day-use Parking Area and construct a traffic circle at Northside Drive and Village Drive to address traffic congestion and pedestrian vehicle conflicts. Re-routing the road south of the parking area is a traffic circulation pattern that will not require an underpass or pedestrian road crossings. Consolidate parking to the north of the road and provide walkways leading to Yosemite Village separating vehicle and pedestrian traffic. Add a three-way intersection at Sentinel Drive and the entrance to the parking area to improve traffic flow and alleviate congestion.
4. Concessioner Employee Housing: Create a 50-foot setback from Indian Creek. Ecologically restore the riparian habitat, and protect using restoration fencing. Retain Ahwahnee Row and Tecoya employee housing.
5. Ahwahnee Meadow Restoration: Retain Northside Drive and bike path but increase culverts to improve hydrologic connectivity. Replace 350 feet of trail with a boardwalk to protect wetlands.
6. Housekeeping Camp Lodging: Retain 232 lodging units, and remove 34 lodging units out of the bed and banks. Retain Housekeeping Camp shower houses, restrooms, and laundry, and remove grocery store. Restore one acre of the riparian ecosystem.

### Legend

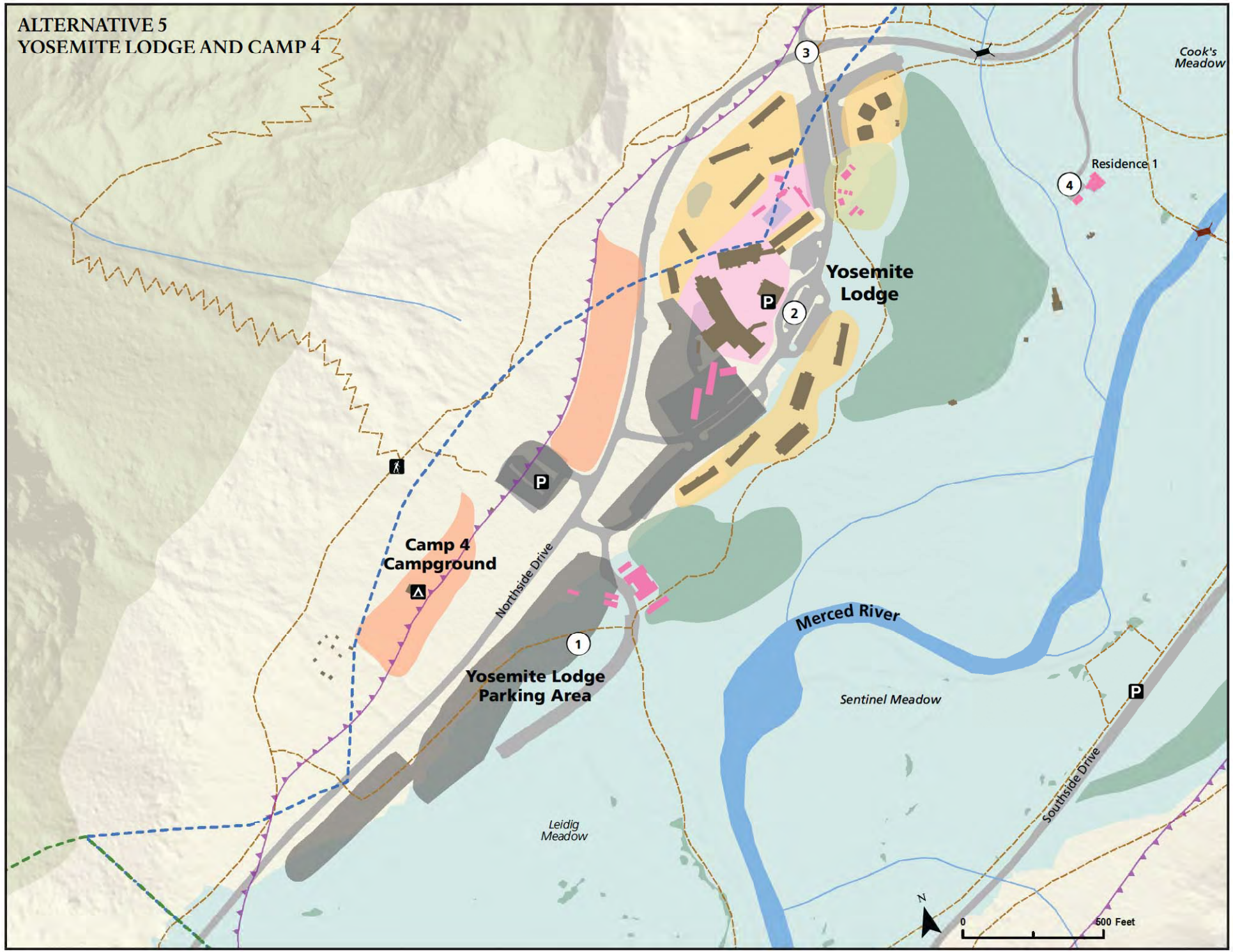
Campgrounds	Road bridge	Contour	Surfaced Areas	Visitor Services	Buildings	Designated Wilderness
Picnic Area	Footbridge	Trails	Restoration Areas	Housing	Retain Building	Recreational Segment
Parking Area	Lakes	Calculated Rock-fall Hazard Line	Camping	Operations	Remove Building	Wild Segment
Trailheads	Stream	Inferred Rock-fall Hazard Line	Lodging	Parking	100-year Floodplain	Scenic Segment



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# ALTERNATIVE 5: ENHANCED VISITOR EXPERIENCES AND ESSENTIAL RIVERBANK RESTORATION



## EAST YOSEMITE VALLEY: YOSEMITE LODGE AND CAMP 4

1. West of Yosemite Lodge
  - **Parking:** Redevelop area southwest of Yosemite Lodge to provide an additional 300 day-use parking spaces. This will include 15 spaces for tour bus parking. Parking redevelopment will incorporate best management practices to protect water quality.
2. Yosemite Lodge
  - **Ecological restoration:** restore riparian and floodplain ecosystem at the site of the former Yosemite Lodge units and cabins (those that were damaged by the 1997 flood and subsequently removed). Delineate one service road to the well house and parking. Remove non-native fill, decompact soils, and plant riparian plant species (10.9 acres).
  - **Lodging:** Retain the current 245 units at Yosemite Lodge.
  - **Services and Facilities:** Retain Yosemite Lodge Food Court and Mountain Room bar and dining service. Re-purpose convenience shop and nature shop. Relocate Yosemite Lodge maintenance. Remove Yosemite Lodge post office, swimming pool, bike rentals, snack stand, employee housing (called Thousands Cabins), Highland Court employee temporary housing, and the NPS Volunteer Office.
  - **Tour Buses:** Remove temporary housing complex at Highland Court and establish a tour bus drop-off area with three bus loading spaces.
  - **Concessioner Housing:** Construct two new concessioner housing areas for 104 employees and construct 78 employee parking spaces. (Common to all alternatives is to remove housing at Highland Court and at the Thousands Cabins.)
3. Yosemite Falls Intersection
  - **Traffic Congestion:** Construct a pedestrian underpass to alleviate pedestrian/vehicle conflicts and associated traffic congestion at the intersection of Northside Drive and Yosemite Lodge Drive.
4. Residence 1
  - **Residence 1:** Relocate Residence 1 (the Superintendent's House) to the NPS housing area and rehabilitate the building per the Secretary of Interior's Standards for the Treatment of Historic Properties and the Historic Structures Report. Ecologically restore associated informal trails in Cook's Meadow and address continuing use patterns to enhance black oak woodland and meadow habitat.

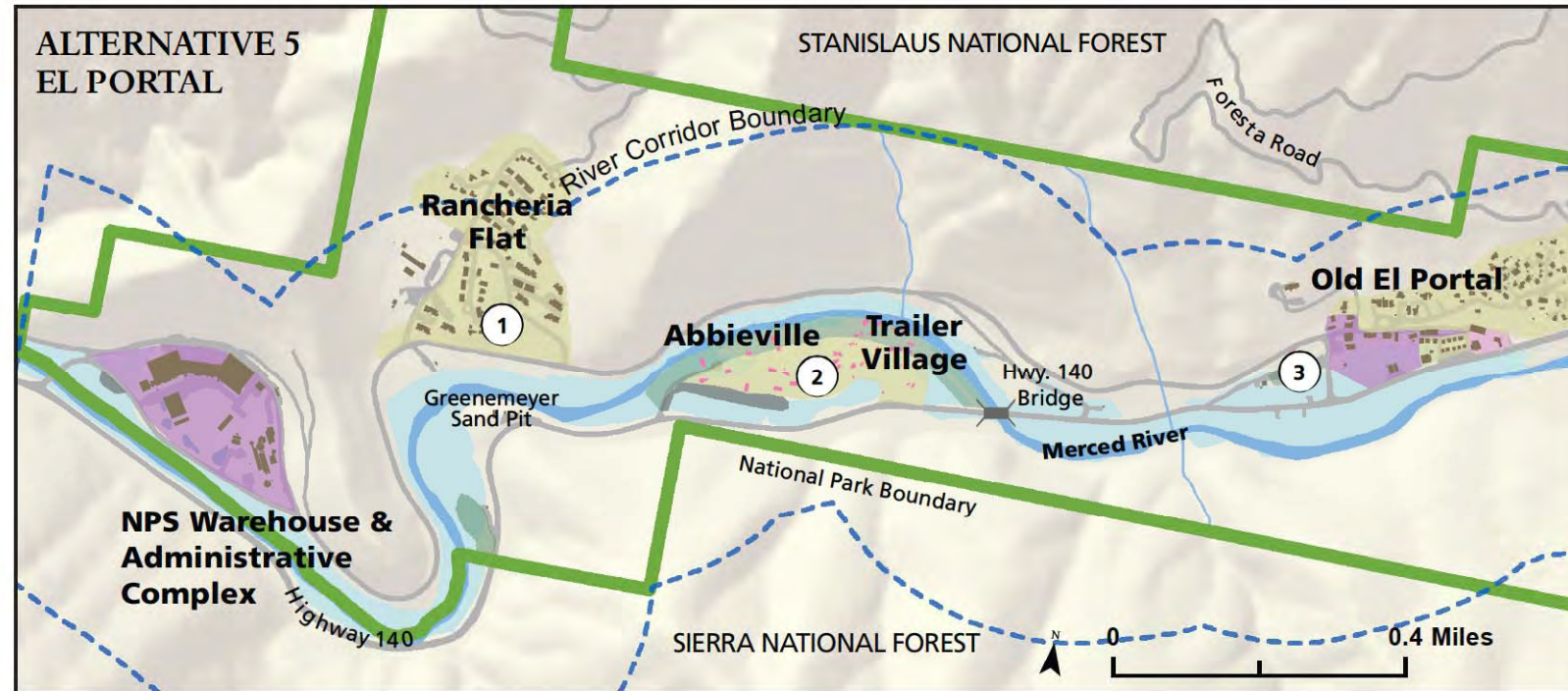
Legend						
Campgrounds	Road bridge	Contour	Surfaced Areas	Visitor Services	Buildings	Designated Wilderness
Picnic Area	Footbridge	Trails	Restoration Areas	Housing	Retain Building	Recreational Segment
Parking Area	Lakes	Calculated Rock-fall Hazard Line	Camping	Operations	Remove Building	Wild Segment
Trailheads	Stream	Inferred Rock-fall Hazard Line	Lodging	Parking	100-year Floodplain	Scenic Segment



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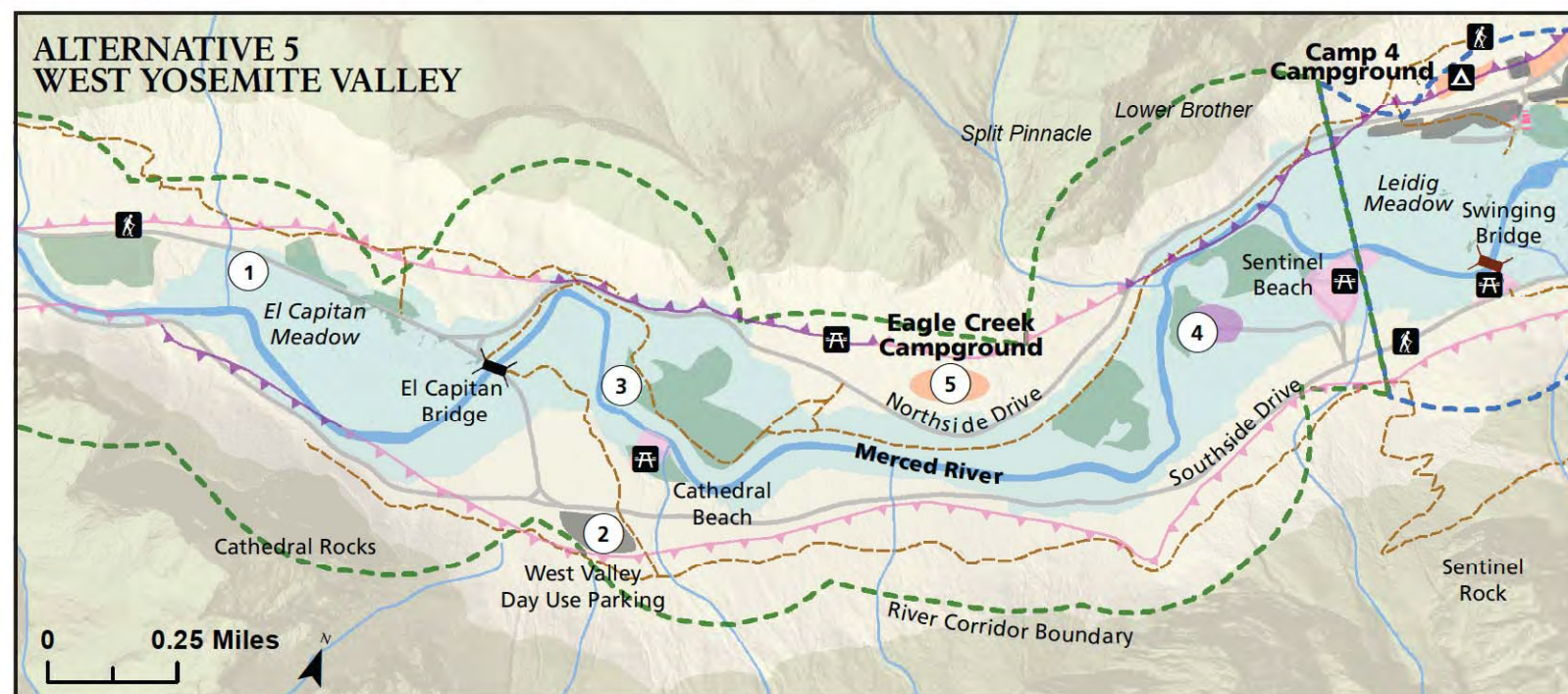


# ALTERNATIVE 5: ENHANCED VISITOR EXPERIENCES AND ESSENTIAL RIVERBANK RESTORATION



## EL PORTAL

- Rancheria Flat**
  - Employee Housing:** To replace temporary housing that will be removed from Yosemite Valley, construct seven dormitories, with 12 employees each, for a total of 84 employee beds, away from sensitive resources.
- Abbieville and Trailer Village Area**
  - El Portal Remote Visitor Parking:** Construct a new visitor parking area for 200 spaces serviced by regional transit. Parking redevelopment will incorporate best management practices to protect water quality.
  - Abbieville and Trailer Village Housing:** Remove or relocate 36 existing private residences. Continue to provide for housing land use for 40 employees and volunteers at this location. As homes within the 150-foot riparian buffer become vacant, ecologically restore these areas.
- El Portal Village Center**
  - Valley Oak Restoration:** Restore the rare floodplain community of valley oaks in Old El Portal through implementation of best management practices. Create a valley oak recruitment area of 1 acre in Old El Portal in the vicinity of the current Odger's bulk fuel storage area, including the adjacent parking lots. Decompact soils, plant appropriate native understory plant species, and treat invasive plants. Prohibit new building construction within the oak recruitment area.
  - Odger's Fuel Storage Facility:** Remove bulk fuel storage facility, all associated development, and non-native fill from the floodplain. Decompact soils, and plant appropriate native plant species, including valley oak. Relocate the fuel storage area outside the Merced River corridor or find an alternate source for emergency fuel supplies.



## WEST YOSEMITE VALLEY

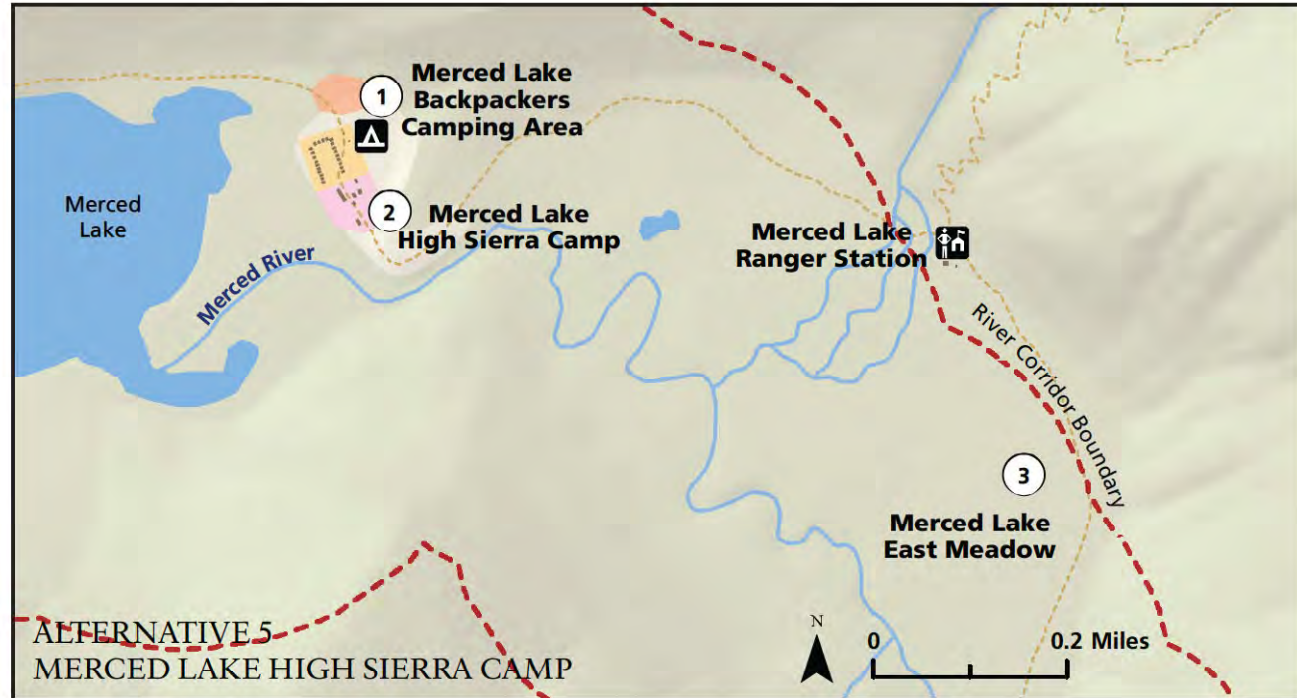
- El Capitan Meadow Area**
  - Restoration of Informal Trails:** Remove all informal trails from the meadow that incise, promote habitat fragmentation, or are located in sensitive and frequently inundated areas, and restore to natural condition. Use restoration fencing along northern perimeter of meadow and designate appropriate access points using boardwalks and viewing platforms. Selectively remove mature conifers that block views of El Capitan from the roadside.
- West Valley Overflow Parking**
  - Day-Use Parking:** Construct a new 100-space West Valley Overflow Parking Area on the south side of Southside Drive at the intersection of El Capitan Crossover. Parking development will incorporate best management practices to protect water quality. Expand shuttle service to serve West Valley locations.
- Valley Loop Trail**
  - Re-Route:** Move portions of the Valley Loop Trail out of sensitive areas; this includes the 780 feet of the trail through Bridalveil Meadow. Construct boardwalks through wet meadow habitat in Slaughterhouse Meadow.
- Yellow Pine Campground**
  - Administrative Use Campground:** Retain Yellow Pine's four group sites (serving up to 120 people) for administrative use.
- Eagle Creek Campground**
  - New Campground:** Construct campground with 40 car campsites and 2 group campsites east of El Capitan Picnic Area.





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# ALTERNATIVE 5: ENHANCED VISITOR EXPERIENCES AND ESSENTIAL RIVERBANK RESTORATION

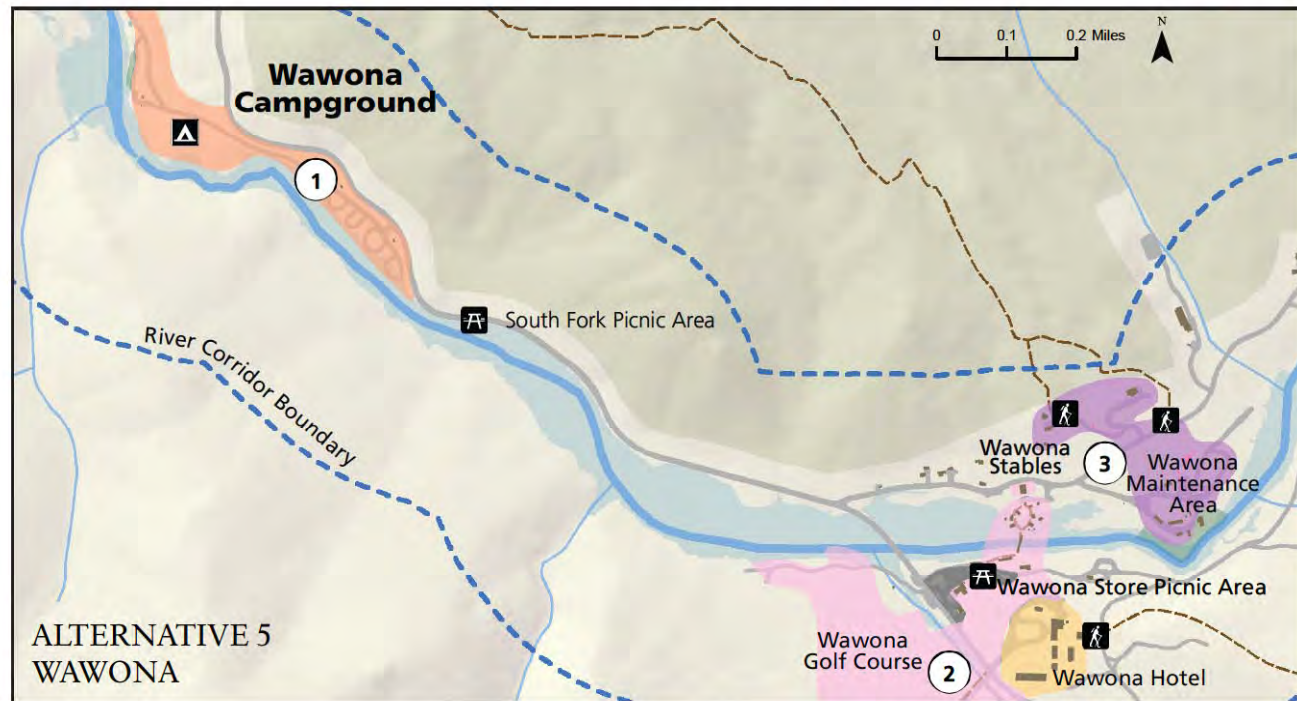


## MERCED LAKE HIGH SIERRA CAMP

1. Merced Lake Backpackers Camping Area: Retain the designated camping area. Replace flush toilets with composting toilets.
2. Merced Lake High Sierra Camp: Retain 11 units (42 beds) at this lodging facility. Replace flush toilet with composting toilets.
3. Merced Lake East Meadow: Develop preliminary grazing capacities for the meadow. When the meadow recovers, allow administrative grazing at established capacities. Monitor annually for five years, adapting use levels as needed to protect the meadow.

## OTHER SEGMENT 1 CAMPING AREAS

- Little Yosemite Valley: Continue designated camping in this camping area. Retain infrastructure, such as composting toilets.
- Moraine Dome: Continue designated camping in this camping area.



## WAWONA

1. The Wawona Campground: Retain 83 sites and one group site. Remove 13 sites that are either within 100 feet of the river or in culturally sensitive areas.
2. Wawona Golf Course and Golf Shop: Retain nine-hole golf course and retail and food service at golf shop.
3. Wawona Stables Area and Maintenance Yard
  - Stables Operation: Retain stables and commercial day rides.
  - Stock-Use: Campsites: Relocate two stock-use campground sites away from sensitive resource areas to an appropriate location within the Wawona Maintenance Yard area.



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## **Detailed Description of Alternative 5 by Segment**

### ***Segment 1: Wilderness above Nevada Falls (Wild Segment)***

#### **Actions to Protect and Enhance River Values**

In addition to the “Actions Common to Alternatives 2-6” (beginning on page 8-53), Alternative 5 would include the following action to protect and enhance river values:

##### ***Biological Values***

- Establish preliminary grazing capacities for Merced Lake East Meadow; monitor, and adapt as necessary.

##### ***Recreational Values***

- Reduce the capacity of the Merced Lake High Sierra Camp by 11 tents, and reduce the visual contrast of the camp at the time that tents need replacement.
- Continue to concentrate visitor use at Little Yosemite Valley and Merced Lake by retaining designated camping areas in these zones.

#### **User Capacity, Land Use and Facilities Management**

Alternative 5 would accommodate generally the same kinds and amounts of use that exist today in this segment. In addition to the “Actions Common to Alternatives 2-6” (page 8-77), Alternative 5 would include the following actions to manage user capacity, land use, and facilities:

##### ***Visitor Activities and Services***

Overnight users would stay at the Merced Lake High Sierra Camp or backpack (staying overnight at designated camping areas or dispersed throughout the wilderness).

Private boating would be allowed in Segment 1. Generally, use in this segment would consist of short floats using pack raft or other craft that can easily be carried into this remote area. Only 10 boats per day would be allowed, and a permit would be required. The boating permits would be administered by and linked to the overnight backcountry permits.

Up to two overnight commercial groups would be allowed per Wilderness zone in Segment 1.

##### ***Visitor Overnight Capacity***

All zone capacities would remain the same (Table 8-41). Services would be managed as follows:

- Retain the Merced Lake Backpackers Camping Area; replace flush toilets with composting toilets.
- Retain the Merced Lake High Sierra Camp at a reduced capacity of 42 beds; replace flush toilets with composting toilets.
- Retain designated camping areas at Little Yosemite Valley and Moraine Dome.

**TABLE 8-41: WILDERNESS ZONE CAPACITIES FOR ALTERNATIVE 5**

Wilderness Zones	Alt 5 Zonewide Capacity	Alt 5 Zone Capacity Specific to the River Corridor
Little Yosemite Valley Zone	<b>150</b> people	<b>150</b> people
Merced Lake Zone	<b>50</b>	<b>50</b>
Washburn Lake Zone	<b>150</b>	<b>100</b>
Mount Lyell Zone	<b>50</b>	<b>10</b>
Clark Range Zone	<b>50</b>	<b>10</b>

### *Visitor Day-use Parking Capacity*

Day use access to this segment is addressed under “Actions Common to Alternatives 2-6” (beginning on page 8-53.)

### *Administrative Activities*

- Continue current administrative activities, which consist primarily of regular ranger patrols and backcountry utility work as well as occasional trail/restoration crews. These activities are seasonal and minimal in comparison to visitor use and would not affect overall user capacity.

### *Segment 2: Yosemite Valley (Recreational and Scenic Segments)*

#### **Actions to Protect and Enhance River Values**

In addition to the “Actions Common to Alternatives 2-6” (beginning on page 8-53), Alternative 5 would include the following action to protect and enhance river values:

#### *Free Flow*

- Retain Stoneman Bridge; mitigate the hydrological effects of the bridge by placing large wood on the riverbanks to address scouring, adding brush layering, and increasing channel complexity between Clarks Bridge and Sentinel Bridge (as described in Chapter 5 and Appendix E).
- Remove the Sugar Pine Bridge and berm connecting it to the Ahwahnee Bridge; reroute the multi-use trail along the north bank of the river.
- Retain the Ahwahnee Bridge; mitigate the hydrological effects of the bridge by placing large wood on the riverbanks to address scouring, adding brush layering, and increasing channel complexity between Clarks Bridge and Sentinel Bridge (as described in Chapter 5 and Appendix E). Construct a multi-use trail from the end of the Ahwahnee Bridge to connect to the Lower Pines area.

#### *Water Quality*

- Reroute the pack stock trail from the Concessioner Stable farther north, adjacent to the Happy Isles Loop Road.

#### *Biological Values*

Alternative 5 would remove existing campsites within 100 feet of the ordinary high-water mark:

- Remove all existing campsites and associated infrastructure within 100 feet of the ordinary high-water mark and restore natural floodplain and riparian habitat (12 acres).



- **Backpackers Camp:** Remove 15 sites within 100 feet of the ordinary high-water mark. (Replace all these sites to the west of the current campground.)
- **North Pines Campground:** Remove 14 campsites from within 100 feet of the ordinary high-water mark ; restore native riparian vegetation
- **Lower Pine Campground:** Remove 5 sites from within 100 feet of the ordinary high-water mark; restore native riparian vegetation.
- **Upper Pine Campground:** Retain 238 campsites, 22 of which are in the 100-year floodplain.
- **Former Lower and Upper River Campgrounds:** Remove abandoned facilities within the 10-year floodplain and restore 35.6 acres of natural floodplain topography and riparian/wetland habitat; reestablish overflow channels where possible. Fence and close the riparian zone at former Upper River to protect the riverbank from trampling; direct visitors to access the river for boating and swimming by way of a path to the Housekeeping Camp eastern beach.
- **Yosemite Lodge:** Retain all lodging at Yosemite Lodge, including four structures within the 100-year floodplain
- **Former Pine and Oak Units:** Restore 10.9 acres of riparian ecosystem at the site of the former Yosemite Lodge units and cabins (those that were removed after the 1997 flood) and wellness center while maintaining access to the well house.
- **Yosemite Village:** Move the Yosemite Village Day-use Parking Area northward so that it is 150 feet back from the ordinary high-water of the Merced River and outside a designated 50-foot setback from Indian Creek; remove fill material and restore the riparian habitat adjacent to the river.
- **Housekeeping Camp:** Remove lodging and other facilities at Housekeeping Camp out of the ordinary high-water mark (remove 34 units); restore native riparian habitat (1 acre). Direct visitor use and river access to the two resilient beach locations on the western edge of Housekeeping Camp and across the footbridge; fence off the current eastern river access point located on a steep eroded bank, and actively restore the riverbank with brush layering.

Alternative 5 would remove or mitigate the effects of trails and roads through meadows:

- **Bridalveil Meadow:** Reroute the 780-foot segment of the Valley Loop Trail that currently crosses Bridalveil Meadow so that it is adjacent to Southside Drive.
- **Slaughterhouse Meadow:** Construct boardwalks through sensitive wet meadow habitat at Slaughterhouse Meadow.
- **El Capitan Meadow:** Fence the northern perimeter of the meadow to protect the restoration area, and designate appropriate access points using boardwalks and viewing platforms. Selectively remove mature conifers that block views of El Capitan from the roadside to discourage foot traffic into the meadow.
- **Ahwahnee Meadow:** Retain Northside Drive and bike path in current configuration; add culverts to improve hydrologic connectivity through Ahwahnee Meadow. Install a boardwalk to traverse wet areas through Ahwahnee Meadow (350 feet long).
- **Stoneman Meadow:** Retain Southside Drive through Stoneman Meadow; conduct transportation and engineering studies to examine the impact of removing this road segment, given the traffic volumes and patterns associated with this alternative. Expand the fenced area on the north end of the meadow near Lower Pines Campground to protect wetlands. Remove roadside parking along Stoneman Meadow to discourage foot traffic into the meadow.

*Cultural Values*

- Remove two structures from the collective sites representing the prominent historic patterns of development in Yosemite Valley: Sugar Pine Bridge and Residence 1.
- Relocate Residence 1 to the NPS housing area and at a minimum stabilize the building per the Secretary of the Interior's Standards for the Treatment of Historic Properties (NPS 1995).

*Recreational Values*

- Restrict boating to 100 people per day using private vessels only and to specific stretches of river in Yosemite Valley. This reduction in boats would enhance dispersed recreation along the river corridor.
- Mitigate traffic congestion in East Yosemite Valley through intentional traffic management as well as the addition of remote parking lots with bus and shuttle access to Yosemite Valley destinations.

**User Capacity, Land Use and Facilities Management***Visitor Activities and Services*

Alternative 5 would generally continue the kinds and amounts of use in Yosemite Valley that exist today, with improvements in the types and ease of access provided to visitors. It would include the following changes in visitor activities and services in addition to those common to Alternatives 2-6 (page 8-77):

- Allow only private boating in this river segment, and expand private boating access to a longer section of the river in the Valley. Private boaters would be allowed between Lower River Campground and Sentinel Beach/Yellow Pine. The put-ins and take-outs for this river segment would be located at the Lower River Day-use Area and Sentinel Beach. A maximum of 100 permits per day would be issued for private boaters in this river segment.
- Expand picnicking and day-use opportunities at Yosemite Village, Church Bowl, and Happy Isles.
- Provide a new picnic area (8 tables and 20 parking spaces) and designated river access for rafting in the Lower River area.
- Retain the Housekeeping Camp shower houses, restrooms, and laundry; remove the grocery store.
- Retain Concessioner Stables in Yosemite Valley to support Merced Lake High Sierra Camp and overflow parking for campgrounds. Eliminate commercial day horseback rides from Yosemite Valley. Kennel service remains.
- Remove the Curry Village raft rental.

*Visitor Overnight Capacity: Camping*

Camping would be increased to 640 sites accommodating 4,032 people per night:

- **Backpackers Camp:** Retain 10 walk-in sites. Remove 15 sites within 100 feet of the ordinary high-water mark. Construct 16 new walk-in campsites west of Backpackers Camp.
- **Former Upper River Campground:** Construct a new campground with 30 walk-in sites, north of the river outside the 25-year floodplain. Restore hydrologic processes in the southeast portion of the former campground area.
- **North Pines Campground:** Retain 72 campsites. Remove 14 sites from within 100 feet of the ordinary high-water mark.

- **Upper Pines Campground:** Retain 238 campsites. Construct a new recreational vehicle campground loop with 36 RV sites. Construct a new walk-in campground with 49 individual sites and 2 group sites.
- **Lower Pines Campground:** Retain 71 campsites. Remove 5 sites from within 100' of the ordinary high-water mark.
- **Camp 4:** Retain 35 walk-in campsites and 35 parking spaces. Construct 35 additional campsites east of Camp 4; establish a new parking area (41 spaces) for the Camp 4 campground expansion in the disturbed footprint of the former service station near Camp 4.
- **Eagle Creek:** Construct a new campground with 40 drive-in sites and 2 group sites.

### *Visitor Overnight Capacity: Lodging*

Lodging would be slightly increased to 1,053 units accommodating 3,697 people per night. Common to Alternatives 2-6, The Ahwahnee would continue to provide 123 lodging rooms. The following additional lodging would be retained, removed, or constructed under Alternative 5:

- **Curry Village:** Retain 355 lodging units: 290 tents, 18 units at Stoneman House, 47 hard-sided cabins with bath. Remove all existing cabins and associated structures at Boys Town. Construct 98 new lodging units suitable for year-round use (25 duplex buildings, two 4-plex buildings, and five two-story 8-plex buildings, all with private baths); construct a new guest check-in building and pedestrian pathway; provide 78 new parking spaces along the existing roadway and 20 new parking spaces along the eastern edge of the orchard parking lot, all within the existing developed footprint. Provide 450 designated overnight parking spaces at Curry Orchard.
- **Housekeeping Camp:** Retain 232 units and associated facilities. Remove 34 units out of the ordinary high water mark defined by the Army Corps of Engineers.
- **Yosemite Lodge:** Retain 245 lodging units and associated services and facilities (food service, parking).

Conceptual site drawings for lodging improvements at Boys Town under Alternative 5 have been completed to allow the analysis of impacts of this potential project. See "Conceptual Site Drawings" at the end of the Alternative 5 discussion for site details and design drawings.

### *Visitor Day-use Parking Capacity, Transit Options, and Circulation*

Alternative 5 would increase the maximum daily visitation in Yosemite Valley. The day parking, regional transit, and tour bus capacities would accommodate up to 8,954 day users at one time in Segment 2:

- Increase available day-use parking spaces (+ 111 spaces) for a total of 2,448 parking spaces, accommodating a maximum of 6,389 people at one time.
- Accommodate an estimated 1,160 people at one time in circulation on Valley roads.
- Accommodate a maximum of 684 people at one time arriving to the Valley on regional transit.
- Retain tour bus parking at 15 spaces, accommodating up to 720 people at one time.

Visitor circulation would be improved to reduce traffic congestion and to provide a better arrival experience for visitors. Major actions would include the following:

## ALTERNATIVES

- Redesign day parking at Yosemite Village to provide 850 designated spaces and a new comfort station.
- Construct a new parking lot and a comfort station, providing 300 parking spaces for day visitors and 15 spaces for tour buses, west of Yosemite Lodge.
- Construct a new parking lot to accommodate overflow parking for 100 vehicles south of Southside Drive; expand Yosemite Valley shuttle service to West Valley.

Conceptual site drawings for the Yosemite Village Day-use Parking Area and the new parking lot west of Yosemite Lodge under Alternative 5 have been completed to allow the analysis of impacts of these potential projects. See "Conceptual Site Drawings" at the end of the Alternative 5 discussion for site details and design drawings.

Day users would also be able to access the Valley by parking in the new El Portal remote parking area (200 parking spaces) and taking a shuttle to the Valley.

An East Yosemite Valley day-use parking permit system would be implemented if conditions reached the point where day use visitation to the East Yosemite Valley from private vehicles exceeded the parking availability, and formal traffic diversions at El Capitan Crossover were instituted for 14 days or more during the summer season for 2 consecutive years (see Chapter 5).

Regional transit services into Yosemite Valley during the peak summer season would be expanded to accommodate a maximum of 684 people at one time in Yosemite Valley.

- Highway 140 (Merced to Yosemite Valley): Maintain service at 12 runs per day. Add a stop at the El Portal remote day-use parking area.
- Highway 41 between Fresno and Yosemite Valley: Implement new public transit service at 12 runs/day.
- Implement a dedicated shuttle to Badger Pass for transfer shuttle to Glacier Point.
- Highway 120 West (Groveland to Yosemite Valley): Reduce service to 4 runs per day (summer only).
- Highway 120 East (Mammoth Lakes to Yosemite Valley): Maintain service at 2 runs per day (summer only)

Under all the action alternatives, including Alternative 2, shuttle bus service would be improved by increasing the frequency of the year-round East Valley service to 5 minute intervals during peak use. The Visitor Center Express shuttle service (summer only) would be improved by increasing the frequency to 7 minute intervals between buses. Shuttle service would be expanded as follows:

- Expand Valley Shuttle service to Bridalveil (summer only) with 60-minute interval between buses and stops at El Capitan picnic area, El Capitan Meadow, Bridalveil Fall straight, Cathedral Beach, Yellow Pine, and Four-mile/Swinging Bridge.

### *Administrative Activities*

Some administrative activities would be relocated:

- Relocate the Yosemite Lodge housekeeping and maintenance facilities to a location behind the Yosemite Lodge cafeteria.

**TABLE 8-42: TRANSIT OPTIONS- ALTERNATIVE 5**

Regional Transit Options	
HWY 140 Merced/Mariposa to Yosemite Valley	12 runs per day Additional stop at the El Portal remote day-use parking area (year round)
HWY 41 Fresno/Oakhurst to Yosemite Valley	12 runs per day Dedicated shuttle to Badger Pass as collection point for shuttle to Glacier Point
HWY 120 West Groveland/Sonora to Yosemite Valley	4 runs per day (summer only)
HWY 120 East Inyo/Mono County (Mammoth Lakes) to Yosemite Valley	2 runs per day (summer only)
Yosemite Valley Shuttle Options	
East Yosemite Valley	5 minute peak interval between buses Year round except Visitor Center direct
Visitor Center Express Yosemite Valley Day-use Parking Area to Visitor Center	7 minute interval between buses (summer only)
El Capitan Crossover	30 minute interval between buses (summer only)
West Yosemite Valley	Expand Valley Shuttle service to Bridalveil (summer only) 60-minute interval between buses Stops at El Capitan picnic area, El Capitan Meadow, Bridalveil Fall straight, Cathedral Beach, Yellow Pine, and Four-mile/Swinging Bridge

***Employee Housing and Employee Parking***

Compared to existing conditions, 179 fewer concessioner employees would be housed in Yosemite Valley. The remaining housing for 972 concessioner employees would be provided as follows:

- Retain housing for 42 employees at The Ahwahnee Hotel.
- Provide housing for 436 employees at Curry Village.
  - Retain permanent housing in the Curry Village residential area (223 employees).
  - Retain housing at Concessioner Stable (49 employees).
  - Construct 16 buildings housing 164 employees.
- Provide housing for 390 employees at Yosemite Village:
  - Retain permanent housing at Indian Creek, Lost Arrow, and Upper Tecoya (65 employees).
  - Retain Ahwahnee Row, Y Apartments, garage housing, and Hospital Row (43 employees).
  - Retain Tecoya Dorms (232 employees).
  - Construct new housing at Lost Arrow for 50 employees.
- Provide housing for 104 employees at Yosemite Lodge:
  - Construct new housing for 104 employees at Yosemite Lodge (two structures with 26 double-occupancy units each)

Four group administrative campsites (up to 120 people) would be retained at the Yellow Pine Administrative Campground.

An additional 96 Valley employees working in Yosemite Valley would be housed at El Portal.

### ***Segment 3: Merced Gorge (Scenic Segment)***

#### **Actions to Protect and Enhance River Values**

All actions to protect and enhance river values in Segment 3 for Alternative 5 are included in the “Actions Common to Alternatives 2-6” (page 8-53).

#### **User Capacity, Land Use and Facilities Management**

This alternative would provide for similar kinds and amounts of use that exist today. The majority of actions for Alternative 5 in Segment 3 are discussed in the “Actions Common to Alternatives 2-6” (page 8-77). Alternative actions that are not included in the Actions Common section are listed below.

#### ***Visitor Activities and Services***

Kayaking would not be allowed in this segment under this alternative due to the safety concerns associated with accessing the river for search and rescue operations during high use periods. This section of river is steep and rocky, and boatable only by the most advanced paddlers.

#### ***Transit Options***

Public transit options along this segment would be expanded as described in the Yosemite Valley segment (see Segment 2 above).

### ***Segment 4: El Portal (Scenic Segment)***

#### **Actions to Protect and Enhance River Values**

In addition to the “Actions Common to Alternatives 2-6” (see page 8-53), Alternative 5 would protect and enhance biological values as follows:

#### ***Biological Values***

- **Abbieville and Trailer Village Housing-** The riverbanks at Abbieville and Trailer Village would be protected with a 150-foot riparian buffer measured from the ordinary high-water mark of the Merced River. Riparian habitat within the 150-foot buffer would be restored by removing unnecessary roads and parking, de-compacting soils, and planting with native riparian and oak woodland species.

#### **User Capacity, Land Use and Facilities Management**

The majority of actions for Segment 3 are discussed in the “Actions Common to Alternatives 2-6” (see page 8-77). Alternative actions that are not included in the Actions Common section are listed below.

#### ***Visitor Activities and Services***

Alternative 5 would allow for unrestricted private boater use of the river in Segment 4. Boaters would be permitted below Yosemite View Lodge to beyond the Foresta Bridge (at which point boaters would exit the



segment). Boaters would be able to use put-ins and take-outs below the hotel, at the store/gas station and the Red Bud launch site.

### ***Visitor Overnight Use***

No visitor overnight accommodations on NPS lands are proposed in Alternative 5.

### ***Visitor Day-use Parking Capacity***

A new remote visitor day-use parking area accommodating a maximum of 200 vehicles would be provided at the Abbeville site. This parking area would primarily be used for visitor access to Yosemite Valley by way of the YARTS route on Highway 140. The visitor use capacity associated with this parking area is accounted for in the Yosemite Valley segment, though the physical parking spaces are located in El Portal.

The total available day-use parking capacity in this segment would be 414 spaces; 214 spaces for visitors to El Portal and 200 spaces for visitors to Yosemite Valley (or other Yosemite destinations).

### ***Transit Options***

As noted in the Yosemite Valley and Merced Gorge segment discussions above, public transit along the Highway 140 travel corridor would be expanded. Regional transit buses would stop at the new day-use parking area at Abbeville. Bus service would be provided on a 30-minute interval during peak use season and run directly to Yosemite Valley. For a complete summary of the transit option along this corridor, see the Segment 2 summary above.

### ***Administrative Activities***

All administrative activities in Segment 4 are considered in “Actions Common to Alternatives 2-6” (see page 8-53).

### ***Employee Housing Capacity***

In Alternative 5, high density employee housing would be added to the El Portal Village Center (12 beds) and a dormitory in Rancheria Flat (84 beds). All new units would be outside of the 100 year flood plain. These units would be added to accommodate for the units removed from Segment 2.

### ***Employee and Administrative Parking Capacity***

Most employee and administrative parking actions are discussed in “Actions Common to Alternatives 2-6” (page 8-53). Additionally, 84 spaces would be added with the Rancheria Dormitory and 12 spaces within the El Portal Village Center.

## ***Segment 5: South Fork Merced River Above Wawona (Wild Segment)***

### **Actions to Protect and Enhance River Values**

There are no actions in Segment 5 in addition to what is proposed under “Actions Common to Alternatives 2-6” (page 8-53).

## **User Capacity, Land Use and Facilities Management**

Alternative 5 would provide for similar kinds and amounts of use that exist today in Segment 5. The majority of actions for Alternative 5 in Segment 5 are discussed in the “Actions Common to Alternatives 2-6” (page 8-77). Alternative actions that are not included in the Actions Common section are listed below.

### *Visitor Activities and Services*

Private boating would be allowed in Segment 5. Generally, use would consist of short floats using pack raft or other craft that can easily be carried into this remote area. Only 10 boats per day would be allowed, and a permit would be required. The boating permits would be administered by and linked to the overnight backcountry permits.

### *Transit Options*

Specific transportation options for reaching Segment 5 trailheads are listed below under Segment 7.

## ***Segments 6 and 7: Wawona and Wawona Impoundment (Recreational Segments)***

### **Actions to Protect and Enhance River Values**

In addition to the “Actions Common to Alternatives 2-6” (see page 8-53), protection and enhancement of cultural values and water quality would be accomplished through the actions described below.

### *Cultural Values*

- Wawona stock use campground – Two stock use campground sites would be relocated away from a culturally sensitive area to the Wawona Maintenance Yard area.

## **User Capacity, Land Use and Facilities Management**

Overall, Alternative 5 would provide for similar kinds and amounts of use that exist today in the Wawona area. The majority of actions for Alternative 5 in Segment 7 are discussed in the “Actions Common to Alternatives 2-6” (page 8-77). Alternative actions that are not included in the Actions Common section are listed below.

### *Visitor Activities and Services*

A range of visitor recreation activities would continue to be available. River related activities would include swimming, fishing and boating and other activities common to Alternatives 2-6. In addition:

- Boating would be limited to private use only by permit with a maximum of 10 boats per day. The allowable reach of the river would be from below the Swinging Bridge area to the Park Boundary, excluding the Wawona impoundment.

### *Visitor Overnight Use*

The total overnight capacity of the Wawona area would be 190 units accommodating up to 787 people per night under Alternative 5.

The Wawona Campground capacity would be reduced slightly to 84 sites (including one group site), accommodating 528 people per night (13 campsites are removed from within 100-feet of the ordinary high-water mark of the South Fork Merced River and other culturally sensitive areas).

The two campsites at the Wawona stock camp would be relocated and would accommodate 6 people per night each (12 people per night total).

### ***Transit Options***

Transit options would be expanded in Alternative 5. Regional bus service, similar to that provided on the Highway 140 corridor, would be introduced. A maximum of 12 runs per day would be made between Fresno and Yosemite Valley. Using 48-passenger buses this would accommodate a maximum of 311 people at one time. Additionally, the Wawona area shuttle would continue, serving the key destinations within this segment along with the Mariposa Grove of Giant Sequoias. Finally, up to two concessioner-operated runs per day would be made between Wawona and Yosemite Valley.

## ***Segment 8: South Fork Merced River Below Wawona (Wild Segment)***

### **Actions to Protect and Enhance River Values**

There are no actions specific to Segment 8 in Alternative 5. For a list of actions common to all action alternatives in Segment 8, please see “Actions Common to Alternatives 2-6,” (page 8-53).

### **User Capacity, Land Use and Facilities Management**

Alternative 5 would provide for similar kinds and amounts of use that exist today in Segment 8; significant changes are not proposed. The majority of actions for Alternative 5 in Segment 8 are discussed in the “Actions Common to Alternatives 2-6” (page 8-77). Actions that are not included in the Actions Common section are listed below.

### ***Visitor Activities and Services***

Private boating would be allowed in this segment. Generally, use in this segment would consist of short floats using pack raft or other craft that can easily be carried into this remote area. Only ten boats per day would be allowed, and a permit would be required. The boating permits would be administered by and linked to the overnight backcountry permits.

### ***Transit Options***

Transit services for access to this segment are described above, under Segment 7.

## **Analysis of Facilities and Services**

Table 8-43 presents the park’s assessment of the particular facilities and services that would be needed to support public use and/or to protect river resources based on the types, levels, and locations of use proposed for Alternative 5. As an example, the goals of this alternative include enhanced visitor experiences and essential riverbank restoration. This alternative prescribes essential restoration within 100 feet of the Merced River and visitor use levels that are the same as current levels. There would be a moderate increase in camping and day-use parking opportunities, therefore additional camping would be provided at the Upper River and Eagle Creek Campgrounds, and additional overflow parking for East Yosemite Valley near El Capitan Crossover as well as expanded parking at the Yosemite Lodge area.

**TABLE 8-43: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 5**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 1: Wild</b>			
Merced Lake High Sierra Camp	Reduced	<b>Yes:</b> This facility offers rustic accommodations to visitors traveling independently or as a part of the organized High Sierra Loop Trip offered by the concessioner in cooperation with the NPS. The number of camp beds allowed under this alternative are needed to support public use in a manner that is consistent with the types and amounts of visitor use that have been found to protect and enhance river values.	<b>No:</b> The High Sierra Camp is outside designated Wilderness; however it is surrounded by designated wilderness. Designated wilderness precludes the construction of new facilities such as this. Alternatives in Chapter 8 consider various means of addressing impacts to ORVs.
Merced Lake Backpackers Camping Area	Retained	<b>Yes:</b> This undeveloped campground is used by backpackers. Backpacking is a component of the recreational ORV in this segment. This campground is necessary to allow support overnight wilderness use. Designated camping protects resources in popular areas from radiating impacts by limiting camping to the designated area.	<b>No:</b> A designated campground reduces resource impacts from dispersed camping. Alternatives in Chapter 8 consider various mitigations for the existing campground.
Little Yosemite Valley Camping Area	Retained	<b>Yes:</b> This undeveloped campground is used by backpackers. Backpacking is a component of the recreational ORV in this segment. This campground is necessary to support overnight wilderness use. Designated camping protects resources in popular areas from radiating impacts by limiting camping to the designated area.	<b>No:</b> A designated campground reduces resource impacts from dispersed camping. Alternatives in Chapter 8 consider various mitigations for the existing campground.
Moraine Dome Camping Area	Retained	<b>Yes:</b> This undeveloped campground is used by backpackers. Backpacking is a component of the recreational ORV in this segment. This campground is necessary to support overnight wilderness use. Designated camping protects resources in popular areas from radiating impacts by limiting camping to the designated area.	<b>No:</b> A designated campground reduces resource impacts from dispersed camping. Alternatives in Chapter 8 consider various mitigations for the existing campground.
<b>Segment 2: Curry Village and Campgrounds</b>			
Upper Pines Campground	Reduced	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.
Lower Pines Campground	Reduced	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.
North Pines Campground	Reduced	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.

TABLE 8-43: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 5

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Curry Village and Campgrounds (cont.)</b>			
Backpackers Campground	Reduced (partially re-located)	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience. In addition, this campground provides is critical for backpackers who need to start or end their wilderness trip in Yosemite Valley.	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.
Valley Campground Reservation Center	Retained	<b>Yes:</b> The Valley Campground Reservation Center is an essential National Park Service point-of-contact for campers, and those who seek campsites, in Yosemite Valley. The Campground Reservation Center staff sells campsite reservations for all campsites in the park available for reservations. The Reservation Center is operated on a year-round basis.	<b>Yes.</b> The Campground Reservation could be moved from its existing location. However, it is important to the successful delivery of services provided from the reservation center that any alternative location be near the Valley campgrounds.
Housekeeping Camp Lodging Units	Reduced	<b>Yes:</b> Housekeeping Camp offers rustic overnight guest accommodations for visitors who do not or are unable to camp. The number of units allowed under this alternative are needed to support public use in a manner that is consistent with the types and amounts of visitor use that have been found to protect and enhance ORVs.	<b>No.</b> No alternative areas of sufficient size to accommodate this lodging facility (adjacent to the river, which is an integral part of the overnight experience )are available for development in Yosemite Valley
Housekeeping Camp Laundry	Retained	<b>Yes:</b> The public laundromat at Housekeeping Camp is a small facility that supports visitor use. The nearest public laundry facilities outside the park are located 50 miles from Yosemite Valley. Visitors spending multiple nights in the park frequently need to launder their clothing, and, in some cases, sleeping bags, blankets or other outdoor items.	<b>No.</b> This service is provided for Housekeeping Camp guests and is directly linked to the camp; relocating the service and providing a general laundry facility for park visitors is not necessary.
Housekeeping Camp Shower Houses and Restrooms	Retained	<b>Yes:</b> Public restrooms are needed in many areas throughout the river corridor to comply with public health regulations and meet the basic personal needs of visitors and employees. The public showers at Housekeeping Camp are provided for guest use as well as other patrons, including campers and hikers.	<b>No.</b> The Housekeeping Camp restrooms and shower houses are components of the overnight guest accommodations at this location. They are required to be located within or very near the overnight sleeping units.
Housekeeping Camp Grocery	Service eliminated / facility removed	<b>No:</b> This need for the grocery store is tied to the level of lodging units at Housekeeping Camp. With a reduction of lodging, the grocery store is not needed.	<b>N/A:</b> This service will be eliminated.
Camp Curry Overnight Parking	Retained	<b>Yes:</b> Parking at Curry Village is needed to support the day and overnight visitors who use Curry Village.	<b>No.</b> Parking areas of in these locations are needed to support overnight guests at this location.
Curry Orchard Parking Area	Re-developed	<b>Yes:</b> Parking at Curry Village Orchard is needed to support day and overnight visitors who use Curry Village.	<b>No.</b> Parking areas of in these locations are needed to support overnight guests at this location.
Curry Village Lodging and Shower Houses	Expanded	<b>Yes:</b> Curry Village offers rustic and economy overnight guest accommodations consistent with the types and amounts of visitor use that have been found to be protect and enhance ORVs. This facility is needed to support public use by visitors who do not camp.	<b>No.</b> This lodging facility is part of a National Register Historic District. It is not feasible to relocate the complex, including shower and toilet facilities needed by guests in without-bath accommodations, to locations outside the river corridor.

**TABLE 8-43: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 5**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Curry Village and Campgrounds (cont.)</b>			
Curry Village Raft Rental	Service eliminated / facility removed	<b>No:</b> This is not a vital visitor service under this alternative.	<b>N/A:</b> This service will be eliminated.
Concessioner Stables	Retained (but day-rides eliminated)	<b>Yes:</b> The stable operation at Curry Village supports the High Sierra Camp operations. The location of the stables is within reach of each of the high sierra camps by one day's ride and trailering stock from El Portal or Wawona would be a substantial operational burden due to time and distance required to reach trailheads.	<b>No.</b> There are no other suitable locations for a stable operation, neither in proximity to other visitor services nor proximity to the Valley trail system used to access the Merced Lake High Sierra Camp.
Concessioner Stables Employee Housing Area	Retained	<b>Yes:</b> This housing facility is necessary to accommodate a employees who provide visitor services that are consistent with the types and amounts of visitor use that have been found to protect and enhance ORVs.	<b>No.</b> There are no other suitable locations to move employee housing to in Yosemite Valley both in terms of size of these facilities and the need for them to be proximate to guest services to accommodate shift work schedules.
Northside Drive (Stoneman Bridge to Yosemite Village Day-use Parking Area)	Retained	<b>Yes:</b> This road is needed to support public use of the river corridor. It is a component of the primary transportation & circulation road system that connects all major visitor service nodes. It is also used for by NPS for law enforcement and fire protection	<b>No.</b> It is not feasible to relocate the existing roadway from its present location.
Southside Drive (through Stoneman Meadow)	Retained	<b>Yes:</b> This road is needed to support public use of the river corridor. It is a component of the primary transportation & circulation road system that connects all major visitor service nodes. It is also used for by NPS for law enforcement and fire protection	<b>No.</b> It is not feasible to relocate the existing roadway from its present location.
Sugar Pine Bridge	Removed	<b>No.</b> Under this alternative removal of this facility is consistent with land use restoration goals, and pedestrian and bicycle traffic would be re-routed north of river.	<b>No.</b> It is not feasible to relocate the existing roadway and bridges from their present location given the circulation system for Yosemite Valley.
Ahwahnee Bridge	Retained	<b>Yes:</b> This pedestrian, bicycle, and emergency vehicle bridge is needed to support public use of the river corridor. It allows safe crossing of the Merced River so that visitors can access points of interest in Yosemite Valley. Pedestrian and bicycle bridges also protect riparian habitat from destruction caused by random crossings throughout the river corridor. It is also used for by NPS for law enforcement and fire protection	<b>No.</b> It is not feasible to relocate the existing roadway and bridges from their present location given the circulation system for Yosemite Valley.
Stoneman Bridge	Retained	<b>Yes:</b> This pedestrian, bicycle, and emergency vehicle bridge is needed to support public use of the river corridor. It allows safe crossing of the Merced River so that visitors can access points of interest in Yosemite Valley. Pedestrian and bicycle bridges also protect riparian habitat from destruction caused by random crossings throughout the river corridor. It is also used for by NPS for law enforcement and fire protection	<b>No.</b> It is not feasible to relocate the existing roadway and bridges from their present location given the circulation system for Yosemite Valley.



TABLE 8-43: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 5

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Curry Village and Campgrounds (cont.)</b>			
Upper Pines RV and Walk-in Campground (New)	Constructed	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.
Former Upper River Walk-in Campground (New)	Constructed	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.
Eagle Creek Campground (New)	Constructed	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.
<b>Segment 2: Yosemite Village and Housekeeping Camp</b>			
Ahwahnee Row Employee Housing	Retained	<b>Yes:</b> This housing facility is necessary to accommodate a employees who provide visitor services that are consistent with the types and amounts of visitor use that have been found to protect and enhance river values.	<b>No.</b> There are no other suitable locations to move employee housing to in Yosemite Valley both in terms of size of these facilities and the need for them to be proximate to guest services to accommodate shift work schedules.
Lower Tecoya Employee Housing Area	Retained	<b>Yes:</b> Housing facilities to accommodate a portion of the workforce necessary to provide visitor services consistent with the land use restoration and visitor experience goals of this alternative.	<b>No.</b> There are no other suitable locations to move employee housing to in Yosemite Valley both in terms of size of these facilities and the need for them to be proximate to guest services to accommodate shift work schedules.
Lost Arrow Employee Housing Area	Re-developed (with permanent housing)	<b>Yes:</b> Housing facilities to accommodate a portion of the workforce necessary to provide visitor services consistent with the land use restoration and visitor experience goals of this alternative.	<b>No.</b> There are no other suitable locations to move employee housing to in Yosemite Valley both in terms of size of these facilities and the need for them to be proximate to guest services to accommodate shift work schedules.
Re-route Northside Drive south of Yosemite Village Day-use Parking Area at least 150 feet from the ordinary high-water mark	Re-routed roadway	<b>Yes:</b> This roadway serves as the exit road for all Yosemite Valley traffic. The congestion created in this vicinity is a result of pedestrian-vehicle conflicts that would be completely mitigated if no pedestrians were required to cross the road from the parking lot to access numerous visitor services including the primary visitor center, museum, and the Valley shuttle.	<b>No.</b> While some changes to the exact location of the road system could be feasibly rerouted for approximately ¼ mile, it could not be removed in its entirety unless a suitable replacement that would accommodate high volume visitor traffic in Yosemite Valley is identified.
Traffic Circle at Intersection of Northside Drive and Village Drive (at Yosemite Village Day-use Parking Area) (New)	Constructed	<b>Yes:</b> Planned components of the primary transportation & circulation road system that connects all major visitor service nodes.	<b>No.</b> No changes are proposed for the existing road system in Yosemite Valley. Improvements for this location are required to increase efficiency of transportation circulation.

**TABLE 8-43: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 5**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Yosemite Village and Housekeeping Camp (cont.)</b>			
Yosemite Village Day-use Parking Area	Re-developed and expanded	<b>Yes:</b> This facility will serve as the primary day-use parking lot for Yosemite Valley because it is proximate to numerous visitor services including the primary visitor center, museum, and the Valley shuttle. A day-use visitor parking area of this size is needed to support the level of public use that has been found to protect and enhance river values.	<b>No.</b> While some changes to the exact location of the parking lot and road system leading to the parking lot could be feasibly relocated, the parking lot could not be removed in its entirety unless a suitable replacement that would accommodate high volume visitor parking in Yosemite Valley is identified.
Residence 1 (Superintendent’s House)	Relocated	<b>Yes.</b> This historic structure is a component of the Historic Resources ORV and would be rehabilitated and used to support the visitor experience.	<b>Yes.</b> Under this alternative, the facility would no longer be a component of the Historic Resources ORV and could be relocated outside the river corridor to the lower NPS housing area.
<b>Segment 2: Yosemite Lodge and Camp 4 Area</b>			
Yosemite Lodge Overnight Units	Retained	<b>Yes:</b> Yosemite Lodge offers mid-scale and economy overnight guest accommodations for visitors who do not or are unable to camp. The number of units allowed under this alternative are needed to support public use in a manner that is consistent with the types and amounts of visitor use that have been found to protect and enhance ORVs.	No. While some buildings within the Yosemite Lodge complex could be relocated to sites further north of the Merced River, however, it is not feasible to consider a wholesale relocation of the complex to an alternative location.
Yosemite Lodge Overnight Parking	Retained	<b>Yes:</b> Parking is needed to support visitors who stay at Yosemite Lodge. Parking is also needed for park partner organizations and NPS staff who use the Lodge’s meeting and interpretive spaces (i.e., the Cliff Room, Gardner Terrace, and the outdoor amphitheater).	<b>No.</b> As long as visitor services are provided at Yosemite Lodge, it will be necessary to provide parking near the Lodge complex.
Yosemite Lodge Garden Terrace and Cliff Room	Retained	<b>Yes:</b> These areas are used for interpretive programs and for training courses, meetings, and special events. These facilities are vital to National Park Service and park partner operations.	<b>No.</b> The Garden Terrace and Cliff Rooms are within the existing buildings at the Yosemite Lodge complex. The activities taking place at these locations could be considered for relocation to alternative facilities, however, it is not feasible to consider removing the buildings in their entirety.
Yosemite Lodge Gift and Grocery (Convenience Shop)	Reduced	<b>Yes:</b> The facility provides visitors a limited range of merchandise including packaged and fresh groceries, sundries, and outdoor products frequently needed by campers and hikers.	<b>No.</b> The building currently housing the Yosemite Lodge Gift and Grocery Store is part of the Yosemite Lodge food service and retail structure and would be infeasible to relocate. However, the merchandise offered for sale from this facility could be relocated to other retail outlets in Yosemite Valley if sites outside the river corridor are identified.
Yosemite Lodge Mountain Room Bar & Food Service	Retained	<b>Yes:</b> Food services are necessary to support day visitors and those overnight visitors who are staying in lodging units without kitchenettes.	<b>No.</b> The building currently housing the Mountain Room Bar is part of the Yosemite Lodge food service structure and would be infeasible to relocate.

TABLE 8-43: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 5

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Yosemite Village and Housekeeping Camp (cont.)</b>			
Yosemite Lodge Mountain Room Restaurant	Retained	<b>Yes:</b> Food services are necessary to support day visitors and those overnight visitors who are staying in lodging units without kitchenettes.	<b>No.</b> The building currently housing the Mountain Room restaurant is part of the Yosemite Lodge food service structure and would be infeasible to relocate. However, the merchandise offered for sale from this facility could be relocated to other retail outlets in Yosemite Valley if sites outside the river corridor are identified.
Yosemite Lodge Highland Court Employee Housing (Existing and New)	Replaced with permanent housing proximate to current location	<b>Yes:</b> This housing facility is necessary to house employees who provide visitor services at the Yosemite Lodge complex that are consistent with the types and amounts of visitor use that have been found to protect and enhance ORVs. Employee housing proximate to work site are vital given the demand for shift-workers and to reduce inter-Valley commuting.	<b>No.</b> The employees who are accommodated at this facility work at the Yosemite Lodge and need to be collocated for operational efficiencies.
Yosemite Lodge Employee Housing (Thousands Cabins) (Existing)	Removed and relocated (incorporated into permanent housing above)	<b>Yes:</b> This housing facility is necessary to house employees who provide visitor services at the Yosemite Lodge complex that are consistent with the types and amounts of visitor use that have been found to protect and enhance ORVs. Employee housing proximate to work site are vital given the demand for shift-workers and to reduce inter-Valley commuting.	<b>No.</b> The employees who are accommodated at this facility work at the Yosemite Lodge and need to be collocated for operational efficiencies.
Yosemite Lodge Day-use Parking Area (New)	Constructed	<b>Yes:</b> This facility will serve as a critical day-use parking lot for Yosemite Valley because substantial numbers of roadside parking spaces adjacent to meadows will be removed in the vicinity of the Yosemite Village Day-use Parking Area. This new parking area will serve as trailhead parking for the upper and lower Yosemite Falls trail, and overflow evening parking for Camp 4 Campground. It will also be used for the Wahhoga Cultural Center.	<b>No.</b> No alternative areas of sufficient size or location proximate to upper and lower Yosemite Falls trailhead, Wahhoga, Camp 4 and the Yosemite Lodge could accommodate this parking area.
Yosemite Lodge intersection with Northside Drive: Yosemite Falls Pedestrian Underpass (New)	Constructed	<b>Yes:</b> A pedestrian underpass is vital to reduce pedestrian and vehicle conflicts at this extremely busy intersection area. The pedestrian underpass would connect the pedestrians from the Yosemite Lodge Area to the Lower Yosemite Fall Area without requiring westbound traffic on Northside Drive to stop and allow pedestrians to cross the road.	<b>No.</b> No changes are proposed for the existing road system in Yosemite Valley. Improvements for this location are required to increase efficiency of transportation circulation.
<b>Segment 2: West Yosemite Valley</b>			
West Valley Overflow Parking Area (New)	Constructed	<b>Yes:</b> This parking area will provide a vital queuing and staging area during peak use periods when congestion in the East Yosemite Valley reaches conditions whereby the National Park Service would not permit more vehicles to add to the crowding. Visitors would have a choice to either use El Capitan Cross-over and visit other areas of the park, or wait until outbound traffic has reduced congestion in the East Yosemite Valley.	<b>No.</b> There are no other suitable locations (i.e., near the intersection of North- and Southside Drives with the El Capitan Crossover) that allow for the redirection of vehicle traffic entering east Yosemite Valley.
Yellow Pine Administrative	Retained	<b>Yes:</b> This administrative camping area is used by volunteers and researchers whose work is critical to meeting our NPS mission.	<b>No.</b> No alternative areas of sufficient size or location could accommodate this campground.

**TABLE 8-43: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 5**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 4: El Portal</b>			
Rancheria Employee Housing Area (New)	Constructed	<b>Yes:</b> This housing facility is necessary to accommodate employees who provide visitor services that are consistent with the types and amounts of visitor use that have been found to be protect and enhance ORVs, and to accommodate employees who provide resource protection services consistent with the mission of the National Park Service and current agency management policies.	<b>No.</b> In-fill employee housing should occur within existing employee housing areas
El Portal Remote Parking at Abbieville / Trailer Village (New)	Constructed	<b>Yes:</b> This parking area will provide a vital queuing and staging area during peak use periods when congestion in the East Yosemite Valley reaches conditions whereby the National park Service would not permit more vehicles to add to the crowding. Day-use visitors would be provided shuttle service to Yosemite Valley from this location.	<b>No.</b> There are no other suitable locations proximate with direct access to Highway 140 before entering Yosemite National Park boundary.
<b>Segment 5 (Wild), Segments 6 &amp; 7 (Recreational), Segment 8 (Wild)</b>			
Wawona Campground	Reduced	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience.	<b>No.</b> This campground could not be relocated as no suitable alternative site exists in the Wawona proper adjacent to the river, which is an integral part of the camping experience.
Wawona Hotel Tennis Court	Retained	<b>Yes:</b> This visitor activity is a component of the Wawona Hotel NHL. Opportunities for this type of visitor recreation are unique in terms of setting attributes and the historic setting of the district.	<b>No.</b> The Wawona Hotel and its surrounding buildings, lawn, swimming tank, golf course are listed on the National Register of Historic Place. Their locations are integral to their historic significance that would be diminished by any relocation outside the river corridor.
Wawona Hotel Golf Course & Shop	Retained	<b>Yes:</b> This visitor activity is a component of the Wawona Hotel NHL. Opportunities for this type of visitor recreation are unique in terms of setting attributes and the historic setting of the district.	<b>No.</b> The Wawona Hotel and its surrounding buildings, lawn, swimming tank, golf course are listed on the National Register of Historic Place. Their locations are integral to their historic significance that would be diminished by any relocation outside the river corridor.
Wawona Stables	Retained	<b>Yes:</b> The Wawona Stables offer visitors commercial equestrian day rides to points of interest in the Wawona area. This facility is necessary to support horseback riding, which is a type of use that has been found to be consistent with the protection and enhancement of river values.	<b>No.</b> The stable operates from a historic structure that could not be feasibly relocated.
Wawona Commercial Horseback Day Rides	Retained	<b>Yes:</b> The Wawona Area will be the only are within Yosemite National Park that provides an opportunity for this type of visitor recreation. Commercial day rides are proposed to be eliminated in Yosemite Valley and Tuolumne Meadows.	<b>No.</b> The stable operates from a historic structure that could not be feasibly relocated.

## **Conceptual Site Drawings for Potential Project Implementation**

### ***Boys Town***

In Alternative 5, the existing Boys Town cabins and facilities would be removed and replaced with 98 new lodging units suitable for year-round accommodation. This would consist of 25 duplex buildings, two 4-plex buildings, and five two-story 8-plex buildings, all with private baths. A new 2,840 foot long pedestrian pathway, a guest check-in building, 78 new parking spaces along the existing roadway, and 20 new parking spaces along the eastern edge of the Orchard Parking lot would also be constructed within the existing developed footprint. The Curry Orchard Day-use Parking Area would be formalized using best management practices to have a total of 450 parking spaces. New ground disturbance within the existing 8.4 acre footprint of Boys Town would include approximately 33,000 square feet for new buildings, 56,800 square feet of utility trenching, 14,200 square feet for pedestrian pathways, and 29,400 square feet of new parking for a total of 3 acres. Construction staging would require an area of approximately 1.4 acres and would likely take place within the existing Orchard Parking area.

### ***Yosemite Village Day-use Parking Area***

In Alternative 5, the existing 6-acre Yosemite Village Day-use Parking Area and all associated roadway improvements would be moved 150 feet north from the high water mark of the river to facilitate riparian restoration goals and to prevent further resource damage. Restoration actions would remove non-native fill material, re-contour the topography, and plant native vegetation. The redesigned parking area would be formalized to provide a total of 850 parking spaces and a new comfort station. Northside drive would be realigned to the south edge of the parking area where it would connect with Sentinel Drive and continue west to Yosemite Falls and park exits. A new three-way intersection would be constructed connecting Sentinel Drive with the re-routed Northside Drive, and the shuttle bus road into the Village. This intersection would include turning lanes to minimize traffic delays and maintain proper traffic flow. Consolidating the parking to the north of Northside Drive, with new and improved walkways to Yosemite Village, would eliminate vehicle and pedestrian conflicts. A roundabout would be constructed at the Village Drive/Northside Drive intersection which would improve traffic flow. The Concessioner General Office, Valley Garage, and Arts and Activities Center (former bank building) would be removed and the Village Sport Shop repurposed to a visitor contact station.

The area of disturbance for improvements at Camp 6 in Alternative 5 would cover approximately 27.5 acres and include 19 acres of clearing and grubbing, 1.2 acres for existing building removal, 4,000 square feet for the new comfort station, 5.4 acres of pavement removal, 2.3 acres of new roadway, 8.3 acres for new parking, 18,280 square feet of utility service trenching, and 50,070 square feet for new pedestrian pathways. Construction staging would cover an area of approximately 2 acres within the area to be redeveloped.

### ***Yosemite Lodge Parking Area***

In Alternative 5, an area west of Yosemite Lodge currently used as parking for tour buses, transit buses, and overnight guests would be re-developed to provide 300 day-use parking spaces, parking for 15 buses, a new 3,000 square foot comfort station, and a relocated shuttle stop. The existing tour bus drop off area would be relocated to the Highland Court area. The wellness center, linen storage and laundry buildings would be removed. Ground disturbance over a 13.5 acre area west of the Lodge would include 10.6 acres of clearing

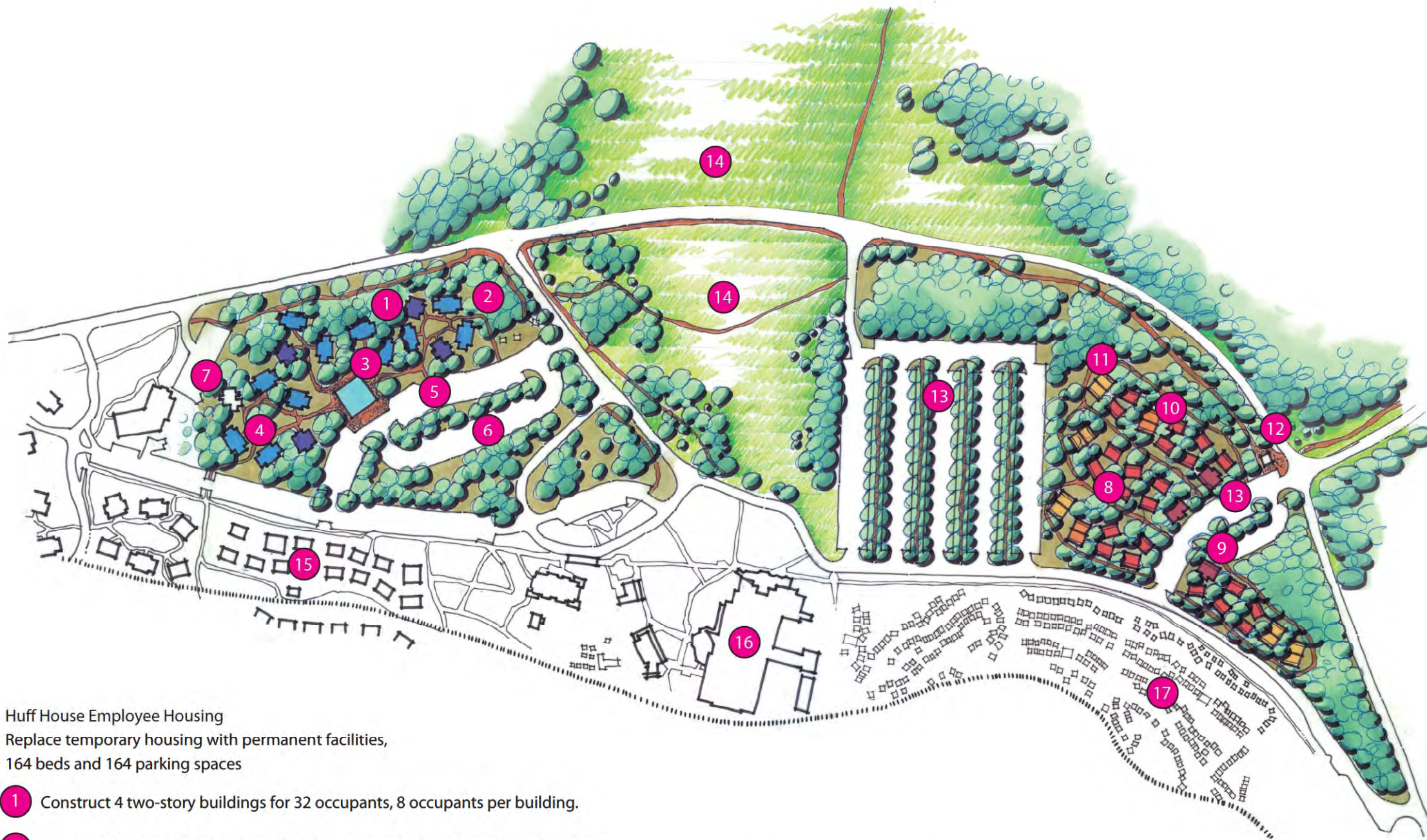
## ALTERNATIVES

and grubbing, 55,850 square feet of existing building and pavement removal, 3,000 square feet for the new comfort station and shuttle stop, 17,300 square feet of utility service trenching, 3.6 acres for parking, and 5,000 square feet for pedestrian pathways. Construction staging would take place over a 2 acre area within the existing footprint. Existing vegetation would be retained to separate and screen parking bays while bioswales would serve to filter and treat storm water run-off.

### *Yosemite Lodge Housing*

In Alternative 5, the temporary modular housing at Highland Court and the Thousands Cabins would be removed and replaced with two new buildings to house 104 concessioner employees. In addition, a new parking area would provide 78 employee parking spaces, parking for 3 shuttle buses, and 53 day-use parking spaces for the public. Ground disturbance for the two housing sites would cover a total of 7.4 acres and would include 45,500 square feet of preparation for the new buildings, 5,500 square feet of utility service trenching, and 1.8 acres for parking.





**Huff House Employee Housing**  
 Replace temporary housing with permanent facilities,  
 164 beds and 164 parking spaces

- 1 Construct 4 two-story buildings for 32 occupants, 8 occupants per building.
- 2 Construct 11 two-story buildings for 132 occupants, 12 occupants per building.
- 3 Provide common recreational area, approximately 3,600 square feet.
- 4 Build plaza areas and walkways with site furnishings, accent paving, and enhanced landscaping.
- 5 Construct a shuttle bus stop.
- 6 Remove ice rink and bicycle rentals. Construct an employee parking facility with 164 spaces.
- 7 Retain historic residence for housing purposes.

**Boys Town Guest Lodging**  
 Replace tent cabins with 98 permanent guest cabins and 78 parking spaces

- 8 Construct 25 duplex buildings replicating historic cabins, or 50 units subtotal.
- 9 Construct 2 four-plex buildings, or 8 units subtotal
- 10 Construct 5 eight-plex buildings, or 40 units subtotal
- 11 Relocate Campground Reservation Center, provide 8 parking spaces.
- 12 Construct a roadway connecting Curry Village and East Valley Campgrounds with 78 parking spaces guests and 8 short-term parking spaces for Campground Reservation Center. 20 parking spaces will be reserved for guest use in Curry Orchard Parking Area.

**Curry Orchard Parking Area**

- 13 Improve parking area with 430 spaces and landscape buffers with trees and bioswales that will treat storm water run-off.

**Meadow Restoration Area**

- 14 Improve hydrology, remove invasive species, promote weed control and plant native species.

**Existing Curry Village Visitor Services**

- 15 Retain existing historic cabins and Stoneman Cottage (65 lodging units).
- 16 Retain existing Curry Pavilion.
- 17 Retain 290 tents.

\* These drawings are provided to demonstrate where facilities would be removed, relocated, or constructed according to actions more fully described by project alternatives. The drawings do not represent a final proposal. More detailed design and construction documents would be developed consistent with the general concepts presented here.



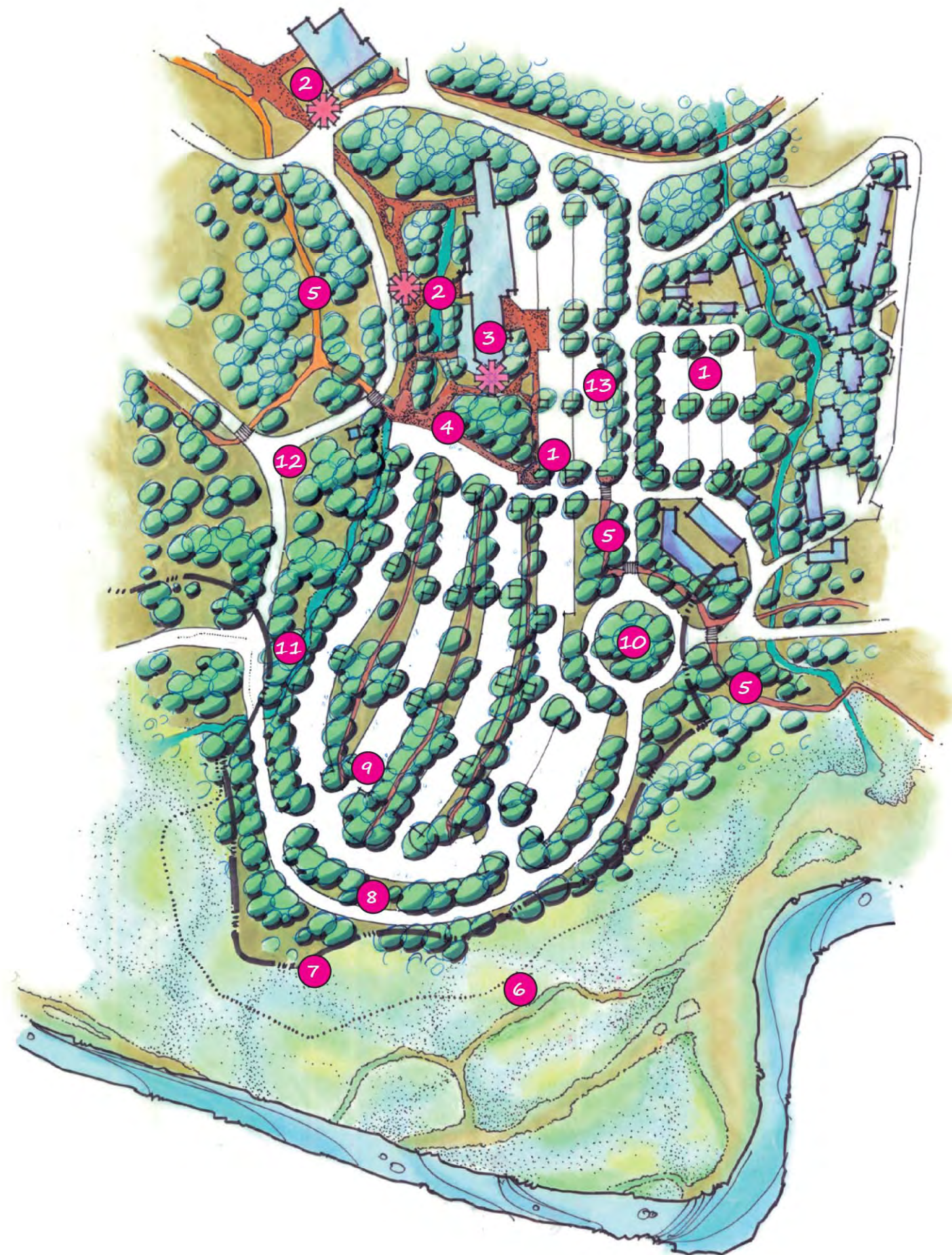
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**Alternatives 5 and 6**  
**Conceptual Site Drawing for**  
**Curry Village**  
 Yosemite National Park  
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- 1 Eliminate Concessioner General Office and Garage located between the Village Store and Ahwahnee Meadow, providing more space for visitor parking.
- 2 Retain shuttle stops on Visitor Center Loop Drive.
- 3 Replace Village Sport Shop with visitor contact station.
- 4 Eliminate existing art activity center and improve pedestrian access.
- 5 Improve pedestrian connections and bike paths east and west of the day-use parking area.
- 6 Linework represents existing day-use parking area limits.
- 7 Reduce encroachment of day-use parking area to provide 150-foot riparian buffer. Restore wetlands and meadows.
- 8 Re-route Northside Drive to conform to the 150-foot riparian buffer. Consolidate all parking north of the roadway, minimizing pedestrian and vehicular conflicts.
- 9 Provide 850 day-use parking spaces. Provide landscaped areas to retain large numbers of trees and screen parking bays and bioswales that will treat storm water run-off. Provide pedestrian pathways.
- 10 Construct a roundabout to alleviate traffic congestion at the intersection of Northside Drive and Village Drive.
- 11 Re-align Sentinel Drive into a "T" intersection with a re-routed Northside Drive. Provide left-hand turn lanes off Sentinel Drive and Northside Drive. Create a sense of arrival through wayfinding and landscape treatments.
- 12 Reconstruct Northside Drive and Visitor Center Loop Drive as a "T" intersection.
- 13 Enhance Village Drive by establishing a tree-lined roadway as a connection to day-use parking facilities and lodging.



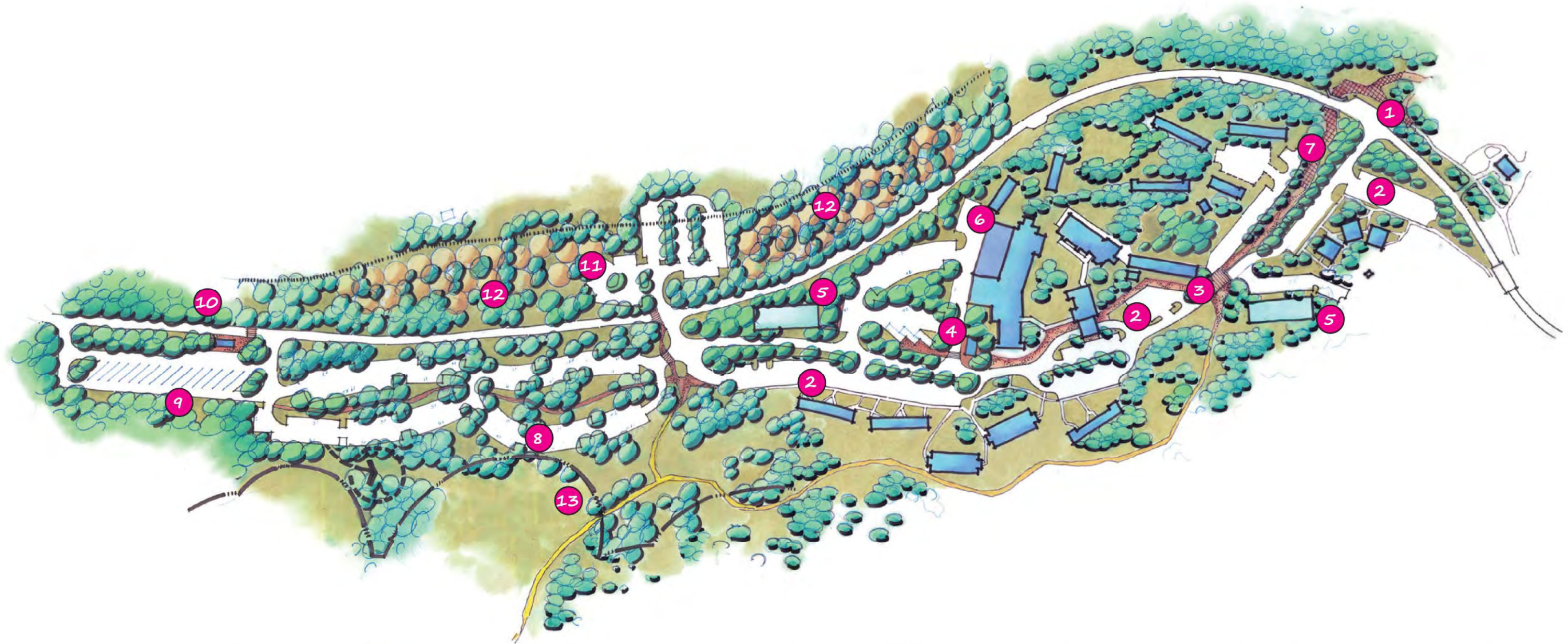
**Alternative 5**  
**Conceptual Site Drawing for**  
**Yosemite Village Day-use Parking Area**  
 Yosemite National Park  
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\*These drawings are provided to demonstrate where facilities would be removed, relocated, or constructed according to actions more fully described by project alternatives. The drawings do not represent a final proposal. More detailed design and construction documents would be developed consistent with the general concepts presented here.



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**1** Re-align Yosemite Lodge intersection within the limits of existing developed areas.

**2** Maintain all existing Yosemite Lodge buildings and parking areas.

**3** Enhance pedestrian circulation system.

**4** Construct tour bus loading and unloading area, with shelter.

**5** Construct employee housing in 2 two-story buildings with 52 occupants per building and 39 employee parking spaces per building.

**6** Relocate linen storage and laundry buildings from the 100-year floodplain to an addition to the food service building. Reconfigure truck loading and unloading area. Demolish and remove existing NPS volunteer office.

**7** Re-construct a section of the Yosemite Lodge entrance road as a promenade with 5% slope to underpass. Install accent paving, landscaping, wayfinding and site furnishings, low-voltage site lighting consistent with design features of the Yosemite Falls trail.

**8** Construct 300 visitor parking spaces at Yosemite Lodge Day-use Parking Area. Maintain existing vegetation as buffers to separate and screen parking bays, provide pedestrian pathways and bioswales that will treat storm water run-off.

**9** Construct 15 tour bus parking spaces.

**10** Construct a shuttle bus stop with shelter and comfort station.

**11** Construct 41 additional parking spaces at Camp 4.

**12** Retain 35 existing walk-in campsites at Camp 4. Construct 35 additional walk-in sites opposite existing parking facility. Occupancy is limited to 6 campers per site. Standard walk-in campsite is 3,850 square feet (70-foot diameter), including 1,200 square feet of clearance with a 15-foot perimeter buffer.

**13** Protect and enhance a 150-foot riparian buffer.

\* These drawings are provided to demonstrate where facilities would be removed, relocated, or constructed according to actions more fully described by project alternatives. The drawings do not represent a final proposal. More detailed design and construction documents would be developed consistent with the general concepts presented here.



**Alternative 5**  
**Conceptual Site Drawing for**  
**Yosemite Lodge and Camp 4**  
 Yosemite National Park  
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## ALTERNATIVE 6: DIVERSIFIED VISITOR EXPERIENCES AND SELECTIVE RIVERBANK RESTORATION

### Overview

The guiding principles of Alternative 6 include limited restoration within 100 feet of the river and in meadow and riparian areas, infrastructure improvements to accommodate growth in peak daily visitation in Yosemite Valley, and expansion of facilities and services to allow for diversified visitor experiences.

Management actions in Alternative 6 would:

- Restore 170 acres of meadow and riparian habitat.
- Significantly increase the campsite inventory in all river segments (+46%) and in Yosemite Valley (+59%).
- Significantly increase the lodging inventory in all river segments (+18%) and in Yosemite Valley (+21%)
- Increase day-use parking for Yosemite Valley (+11%).
- Expand facilities and services to accommodate growth in visitation.
- Reduce traffic congestions and improve traffic circulation through infrastructure improvements such as roundabouts and underpasses.
- Accommodate approximately 21,800 visitors per day in East Yosemite Valley.
- Continue to manage overnight use capacity through wilderness quotas and reservation systems for lodging and camping.
- Manage day-use capacity for East Yosemite Valley through intentional traffic diversions and monitoring.

### *Actions to Protect and Enhance River Values*

Alternative 6 would protect and enhance river values through selective ecological restoration of riverbanks and riparian and meadow habitat, corridorwide. This alternative would ecologically restore the area of Housekeeping Camp that is within the bed and banks of the river and remove much of the development within 100 feet of the river. Hydrologic connectivity of meadows to the riparian floodplain would be enhanced through engineering and design treatments, such as installation of large box culverts and permeable subgrades to improve surface water flow. Alternative 6 would include a valley oak habitat protection area in El Portal.

All historic bridges would be retained; however, the free-flowing condition of the river would be enhanced by increasing channel complexity through installation of constructed log jams, strategic placement of large wood, removal of rip rap, and bioengineering of the riverbank. If subsequent monitoring of riparian condition reveals insufficient improvement over time, more aggressive management action may be initiated, including the possible removal of Sugar Pine Bridge.

Cultural and scenic values would be protected and enhanced as described under “Actions Common to Alternatives 2-6” (beginning on page 8-53). Recreational values would be protected and enhanced by dispersing lower levels of boating along the river through Yosemite Valley and by reducing traffic congestion. Table 8-44 provides a summary of the proposed ecological restoration actions and the reasons for those proposed actions.

**TABLE 8-44: ADDITIONAL ACTIONS TO PROTECT AND ENHANCE RIVER VALUES, ALTERNATIVE 6**

<b>Ecological Restoration Actions (Free Flow, Water Quality, Geologic/Hydrologic, and Biological Values)</b>	
<b>Corridorwide</b>	
<b>Ecological Restoration Acreage</b>	164 acres (common to all) plus an additional 6 acres (refer to Appendix E for specific locations)
<b>Riprap to be Removed</b>	5,700 linear feet (common to all) plus an additional 348 feet (refer to Appendix E for specific locations)
<b>Segment 2: Yosemite Valley</b>	
<b>Free Flow / Geologic/Hydrologic Values</b>	<ul style="list-style-type: none"> <li>Remove Sugar Pine Bridge to enhance the free-flowing condition of the river.</li> </ul>
<b>Riparian Buffer / Floodplain</b>	<ul style="list-style-type: none"> <li>Ecologically restore part of Housekeeping Camp within the ordinary high-water mark (bed and banks) of the river.</li> <li>Ecologically restore portions of Backpackers Camp, North Pines Campground, and Lower Pines Campground that are within 100 feet of the river.</li> <li>Ecologically restore 19.7 acres of habitat in former Upper and Lower River Campgrounds and construct new campsites 150 feet away from the river.</li> <li>Move Yosemite Village Day-use Parking Area parking north at least 150 feet away from the river.</li> </ul>
<b>Recreational Values</b>	
<b>Segment 1: Wilderness above Nevada Fall</b>	
<b>Wilderness Recreation</b>	<ul style="list-style-type: none"> <li>Visitor overnight use concentrated to designated camping areas</li> </ul>

***User Capacity, Land Use, and Facilities Management***

Alternative 6 would focus on providing diverse visitor experiences, and allows for an increase in peak visitor use levels. It would accommodate the largest increase in camping and provide for expanded facilities and services (see Table 8-45). Proper infrastructure design and site delineation in high use areas would be incorporated to ensure the long-term protection of river values.

**Table 8-45: User Capacities by Use Type and Location - Alternative 6**

<b>User Capacities by Use Type and Location</b>		<b>Alt 1 (No Action)</b>		<b>Alt 6</b>	
	<b>Unit Type</b>	<b>Units</b>	<b>People</b>	<b>Units</b>	<b>People</b>
<b>Wilderness Above Nevada Fall</b>					
Visitor Overnight Use	Zone Capacities & Beds	380	380	380	380
Visitor Day Use	Day Hikers	350	350	350	350
Employee Housing	Employee Beds	15	15	15	15
Administrative Day Use	Day Patrols	5	5	5	5
<b>Yosemite Valley</b>					
Visitor Overnight Use	Rooms & Campsites	1,500	6,564	1,987	9,006
Visitor Day Use	Parking Spaces	-	8,272	-	9,449
Employee Housing	Employee Beds	1,315	1,315	1,136	1,136
Administrative Day Use	Parking Spaces	166	332	166	332
<b>Merced Gorge</b>					
Visitor Overnight Use	Rooms & Campsites	-	-	-	-
Visitor Day Use	Parking Spaces	180	869	180	869
Employee Housing	Employee Beds	9	9	9	9
Administrative Day Use	Parking Spaces	2	4	2	4

**Table 8-45: User Capacities by Use Type and Location - Alternative 6**

User Capacities by Use Type and Location		Alt 1 (No Action)		Alt 6	
	Unit Type	Units	People	Units	People
<b>El Portal</b>					
Visitor Overnight Use	Rooms & Campsites	-	-	-	-
Visitor Day Use	Parking Spaces	214	740	414	740
Employee Housing	Employee Beds	192	192	506	506
Administrative Day Use	Parking Spaces	610	1,220	610	1,220
<b>South Fork Above Wawona</b>					
Visitor Overnight Use	Permits	20	20	20	20
Visitor Day Use	Day Hikers	6	6	6	6
Employee Housing	Employee Beds	-	-	-	-
Administrative Day Use	Day Patrols	1	1	1	1
<b>Wawona</b>					
Visitor Overnight Use	Rooms & Campsites	203	865	190	787
Visitor Day Use	Parking Spaces	-	1,295	-	1,606
Employee Housing	Employee Beds	121	121	121	121
Administrative Day Use	Parking Spaces	30	60	30	60
<b>South Fork Below Wawona</b>					
Visitor Overnight Use	Overnight Hikers	3	3	3	3
Visitor Day Use	Day Hikers	3	3	3	3
Employee Housing	Employee Beds	-	-	-	-
Administrative Day Use	Day Patrols	1	1	1	1

## Visitor Overnight Capacity

### Camping

The campsite inventory in the Merced Wild and Scenic River corridor, including Yosemite Valley, would be increased by approximately 59%. All campsites within 100 feet of the river would be removed. Campsite losses would be offset with the addition of new camping adjacent to Upper Pines Campground and east of Camp 4, as well as new sites west of the Backpackers Camp, in the former Upper and Lower River Campgrounds area, and in the West Valley. Under Alternative 6, the total number of campsites in Yosemite Valley would increase to 739—a net gain of 273 sites—and the total number of campsites available in the corridor would be 825. Table 8-46 provides a summary of the proposed changes to camping.

**TABLE 8-46: CAMPING FACILITIES - ALTERNATIVE 6**

Existing Locations	Alt 1 (No Action)	Alt 6	Details
Backpackers	25 sites	10 sites	15 walk-in sites removed within 100 feet of river and relocated west of the area
Camp 4	35 sites	35 sites	No change to this National Historic Register Site
Lower Pines	76 sites	71 sites	5 sites removed from within 100 feet of the river
North Pines	86 sites	72 sites	14 sites removed from within 100 feet of the river
Upper Pines	240 sites	238 sites	2 sites for cultural resource concerns
Yellow Pine Administrative	4 sites	4 sites	No changes to these group administrative sites
Wawona Campground	99 sites	86 sites	13 sites removed within 100 feet of river or in culturally sensitive areas
<b>Total Existing Locations</b>	<b>565 sites</b>	<b>516 sites</b>	

**TABLE 8-46: CAMPING FACILITIES - ALTERNATIVE 6**

New Locations	Alt 1	Alt 6	Details
West of Backpackers	0 sites	16 sites	16 walk-in sites relocated from Backpackers Camp outside 100-year floodplain
East of Camp 4	0 sites	35 sites	35 walk-in sites in area east of Camp 4
Upper Pines	0 sites	87 sites	36-site RV loop and a walk-in campground with 49 sites and 2 group sites
Former Upper River	0 sites	32 sites	30 walk-in and 2 group sites created 150 feet from river in the former footprint of the Upper River Campground impacted by the 1997 flood
Former Lower River	0 sites	40 sites	40 walk-in sites created 150 feet from the river in the former footprint of the Upper River Campground impacted by the 1997 flood
Yosemite Lodge	0 sites	20 sites	20 RV sites west of lodge and adjacent to parking area
Eagle Creek	0 sites	79 sites	79 car & RV sites added east of El Capitan Picnic Area
<b>Total New Camping</b>	<b>0 sites</b>	<b>309 sites</b>	
<b>Total Camping in Corridor</b>	<b>565 sites</b>	<b>825 sites</b>	

**Lodging**

In-park lodging availability would be increased by approximately 21% as compared to existing conditions. Management actions related to lodging would focus on removing lodging from the ordinary high water mark at Housekeeping Camp and maintaining or increasing lodging capacities at other locations. Some tent cabins would be replaced with hard-sided lodging in Curry Village to increase the availability of year-round accommodations. Yosemite Lodge would be redeveloped outside of the 100-year floodplain with new three-story lodging structures with a total of 440 units. As a result of these actions, the in-park lodging inventory would be increased from 1,160 units to 1,374 units. Table 8-47 provides a summary of the proposed changes to lodging and the reasons for those proposed changes.

**TABLE 8-47: LODGING FACILITIES- ALTERNATIVE 6**

Wilderness	Alt 1 (No Action)	Alt 6	Details
Merced Lake High Sierra Camp	22 units (60 beds)	22 units (60 beds)	No change to this Wilderness lodging facility
<b>Yosemite Valley</b>	<b>Alt 1</b>	<b>Alt 6</b>	<b>Details</b>
Ahwahnee Hotel	123 rooms	123 rooms	No change at this National Historic Landmark
Housekeeping Camp	266 tent cabins	232 tent cabins	Remove 34 units out of the ordinary high-water mark (bed and banks of the river)
Curry Village	400 units	453 units (290 tents and 163 hard-sided units)	Retain 290 tents Retain 18 units at Stoneman House Retain 47 cabin-with-bath units Construct 98 hard-sided units in Boys Town
Yosemite Lodge	245 rooms	440 rooms	Construct a new three-story lodging structures with 440 units located outside the 100-year floodplain
<b>Wawona</b>	<b>Alt 1</b>	<b>Alt 6</b>	<b>Details</b>
Wawona Hotel	104 rooms	104 rooms	No change at this National Historic Landmark
<b>Total Lodging in Corridor</b>	<b>1,160 units</b>	<b>1,374 units</b>	

### Visitor Day Use Capacity and Access Improvements

Day-use parking capacity in Yosemite Valley would be expanded by 11% to meet current peak use demand and accommodate some future growth. **Error! Reference source not found.** provides a summary of the total number of parking spaces for each relevant segment of the corridor. If day-use parking demand continued to increase in the future, additional proactive management actions would be implemented.

**TABLE 8-48: NUMBER OF DAY-USE PARKING SPACES IN SEGMENTS – ALTERNATIVE 6**

Location	Alt 1 (No Action)	Alt 6
Segment 2: Yosemite Valley	2,337 spaces	2,598 spaces
Segment 3: The Gorge	180 spaces	180 spaces
Segment 4: El Portal	214 spaces	414 spaces*
Segment 7: Wawona	290 spaces	290 spaces
<b>Total Parking</b>	<b>3,021 spaces</b>	<b>3,482 spaces</b>
*The 200 new spaces in El Portal are located in the Abbieville Remote Parking area. While these spaces are located in El Portal, most of the use associated with these spaces will occur in Yosemite Valley.		

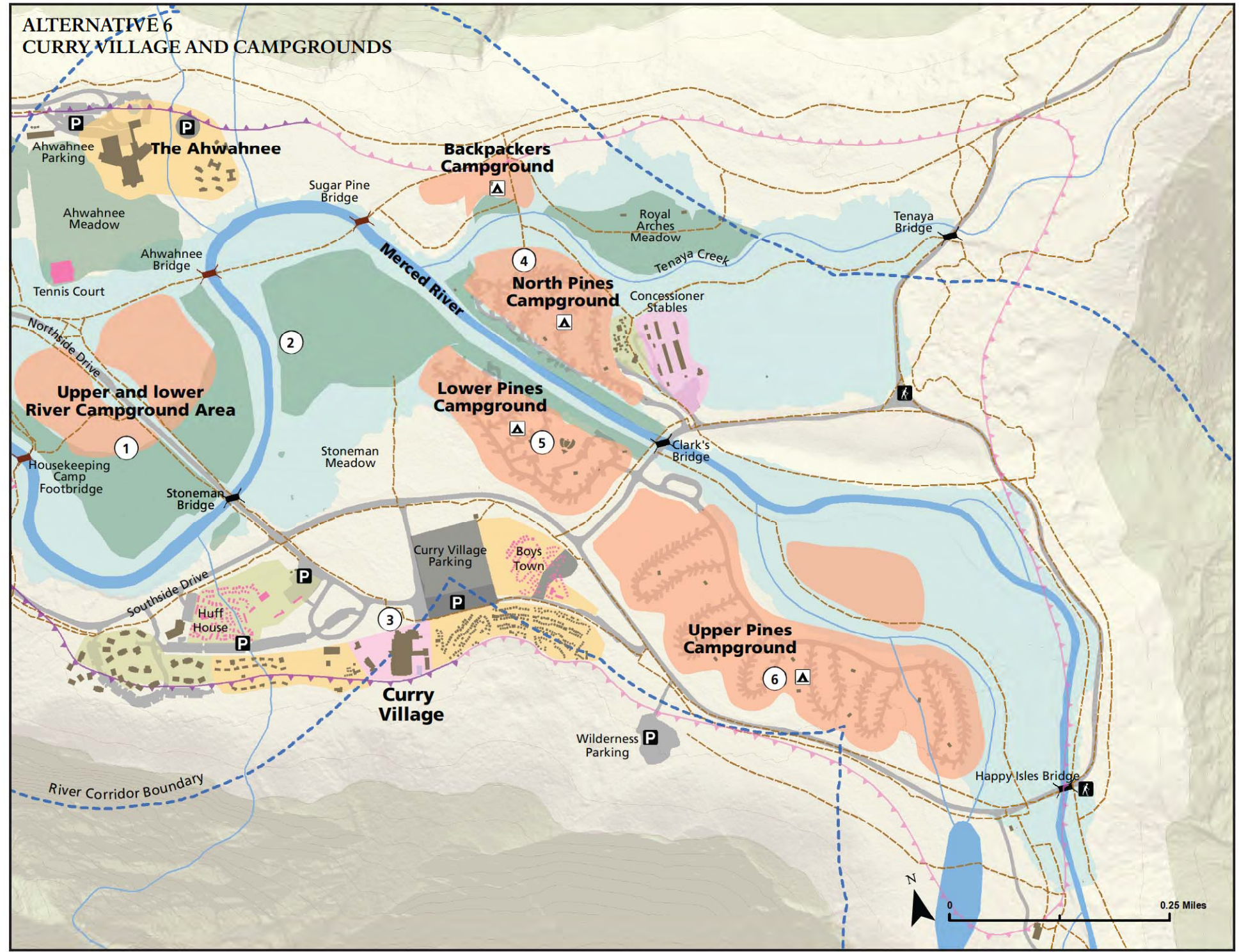
The most significant changes to parking and circulation would take place in the vicinity of Yosemite Village Day-use Parking Area, Yosemite Lodge, the West Valley, and in El Portal. Day use visitors would park at a redesigned parking area at Yosemite Village Day-use Parking Area, with a total of 850 parking spaces. A new day-use parking area with a total of 300 parking spaces would be constructed west of Yosemite Lodge. Overflow parking during times of peak visitation would be provided in West Yosemite Valley (300 parking spaces) and in El Portal at Abbieville (200 parking spaces). Total parking for East Yosemite Valley (including day, overnight and administrative uses) would be approximately 5,900 spaces.

Regional transit options would be expanded and optimized in this alternative. New services into Yosemite Valley would provide additional alternative transportation options to visitors. The NPS shuttle system would be expanded to serve locations in West Yosemite Valley, including Bridalveil Fall.

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# ALTERNATIVE 6: DIVERSIFIED VISITOR EXPERIENCES AND SELECTIVE RIVERBANK RESTORATION



## EAST YOSEMITE VALLEY: CURRY VILLAGE AND CAMPGROUNDS

- Former Upper and Lower River Campground**
  - New Lower River Campground: Construct a new campground 150 feet away from the river with 40 walk-in sites. Provide picnic tables and parking for day use and directed river access to the Housekeeping Camp eastern beach. Restore hydrologic processes in the southeast portion of the area.
  - New Upper River Campground: Construct a new campground 150 feet away from the river with 30 walk-in sites and 2 group sites. Restore hydrologic processes in the southeast portion of the area.
  - Restoration: Restore 19.7 acres of floodplain. Protect the riverbank from trampling by fencing sensitive areas.
- River Reach Between Bridges**
  - Ahwahnee and Sugar Pine Bridges: Retain both Ahwahnee and Sugar Pine bridges. Mitigate effects of bridge to ensure free-flowing condition through engineered solutions: Improve channel complexity by installing constructed log jams. Deposit large wood below Sugar Pine Bridge. Fill in the existing cut off channel before the Sugar Pine Bridge.
  - Stoneman Bridge: Mitigate effects of bridge to ensure free-flowing condition through engineered solutions: place large wood to lessen scouring, and use brushlayering, a constructed log jam, and culverts along Northside Drive.
- Curry Village Area**
  - Lodging: Total would be 453 guest units, including: 290 tents in Curry Village retained; 98 hard-sided units constructed in Boys Town; 18 units at Stoneman House retained; and 47 cabin-with-bath units in Curry Village retained.
  - Curry Orchard Parking Area: Provide 430 parking spaces through a re-design of the parking lot that uses best management practices to protect water quality. Also, apply engineering solutions to promote water flow and to increase drainage to Stoneman Meadow. Remove apple trees to mitigate human-bear interactions and plant native vegetation.
- Lower Pines Campground Area**
  - Campground Sites: Retain 71 campsites and remove five sites from within 100 feet of river. Restore native plant communities in riparian area.
- North Pines Campground Area**
  - North Pines Campground: Retain 72 campsites. Remove 14 sites from within 100 feet of river. Designate a formal river access point and restore native plant communities.
  - Backpackers Campground: Retain 10 walk-in sites. Remove 15 walk-in sites within the 100-foot riparian buffer to be replaced by 16 walk-in sites west of Backpackers Campground.
  - Concessioner Stables in Yosemite Valley: Retain the stables only to support the operation of the Merced Lake High Sierra Camp. Retain the kennel service. Retain associated housing (25 beds).
- Upper Pines Campground Area**
  - Campground Sites: Retain 238 campsites. Remove two sites from sensitive resource area.
  - New RV Loop: Construct a new campground loop with 36 RV sites.
  - New Walk-in Campground: Construct a new walk-in campground with 49 sites and two group camping sites.

Legend						



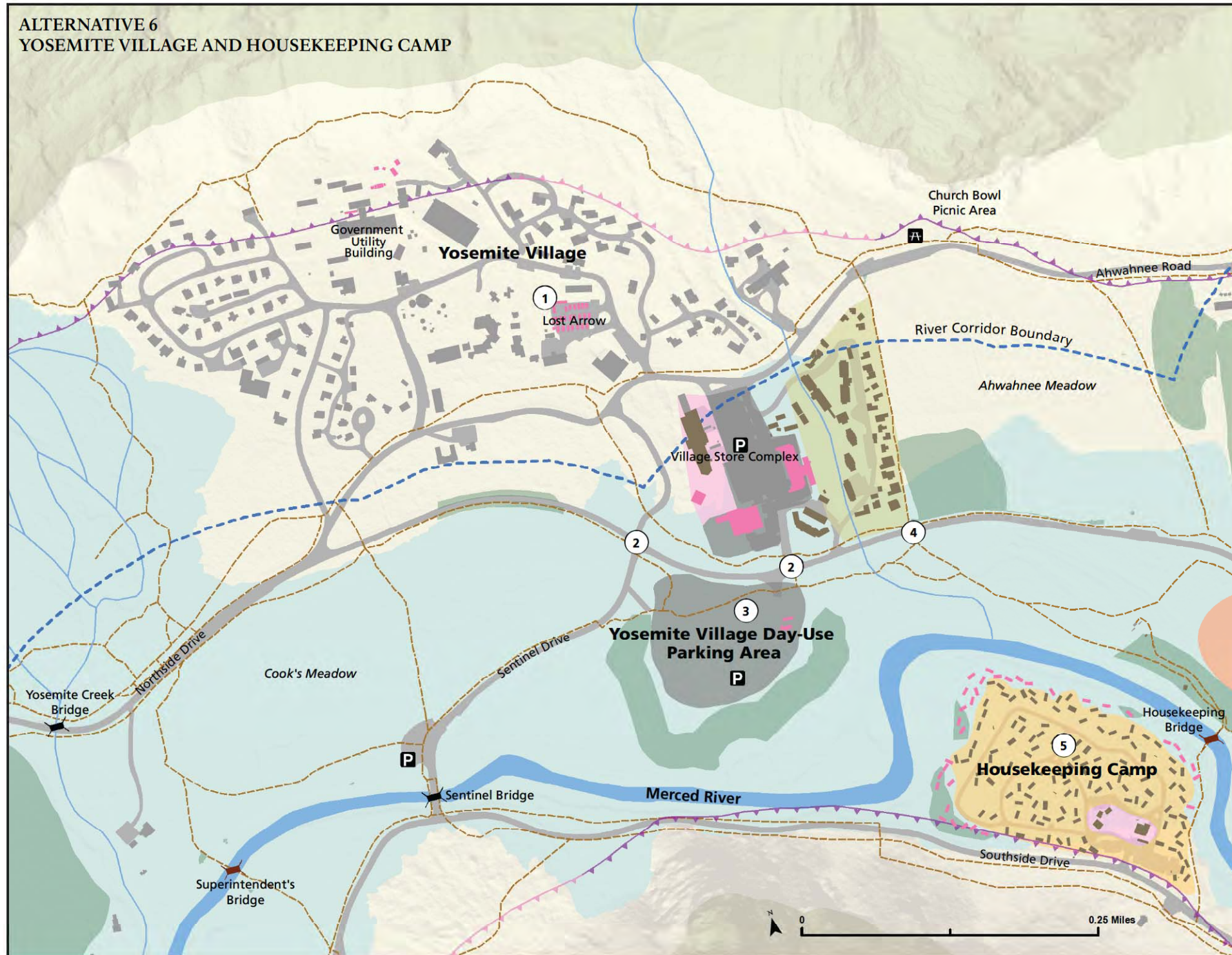
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# ALTERNATIVE 6: DIVERSIFIED VISITOR EXPERIENCES AND SELECTIVE RIVERBANK RESTORATION



## ALTERNATIVE 6 YOSEMITE VILLAGE AND HOUSEKEEPING CAMP



### EAST YOSEMITE VALLEY: YOSEMITE VILLAGE AND HOUSEKEEPING CAMP

1. Lost Arrow: Replace temporary employee housing with permanent housing units for 50 beds.
2. Roadway Intersections
  - Sentinel Drive and Northside Drive: Construct a roundabout at Sentinel Road and Northside Drive (the "Bank 3-Way" intersection) to reduce vehicle congestion and improve traffic circulation.
  - Yosemite Village Day-use Parking Area: Construct a roundabout at Village Drive and Northside Drive to reduce vehicle congestion and improve circulation. Construct a pedestrian underpass beneath Northside Drive to minimize conflict between pedestrians and motorists. Add three-way intersection at Sentinel Drive and the entrance to the parking area to improve traffic flow and alleviate congestion at nearby intersections.
3. Yosemite Village Day-use Parking Area
  - Yosemite Village Day-use Parking Area: Move the parking area northward 150 feet away from the river to facilitate riparian restoration goals. Using best management practices to protect water quality, formalize the parking area with 850 parking places by re-developing part of the current administrative footprint as parking.
4. Indian Creek and Ahwahnee Meadow
  - Concessioner Employee Housing: Create a 50-foot setback from Indian Creek. Ecologically restore the riparian habitat, and protect using restoration fencing. Retain Ahwahnee Row and Tecoya employee housing.
  - Ahwahnee Meadow Restoration: Retain Northside Drive and bike path but increase culverts to improve hydrologic connectivity of the meadow. Replace 350 feet of trail with boardwalk to protect wetlands.
5. Housekeeping Camp
  - Housekeeping Camp Lodging: Retain 232 lodging units, and remove 34 lodging units out of the bed and banks of the river. Retain Housekeeping Camp shower houses, restrooms, laundry, and grocery store.

### Legend

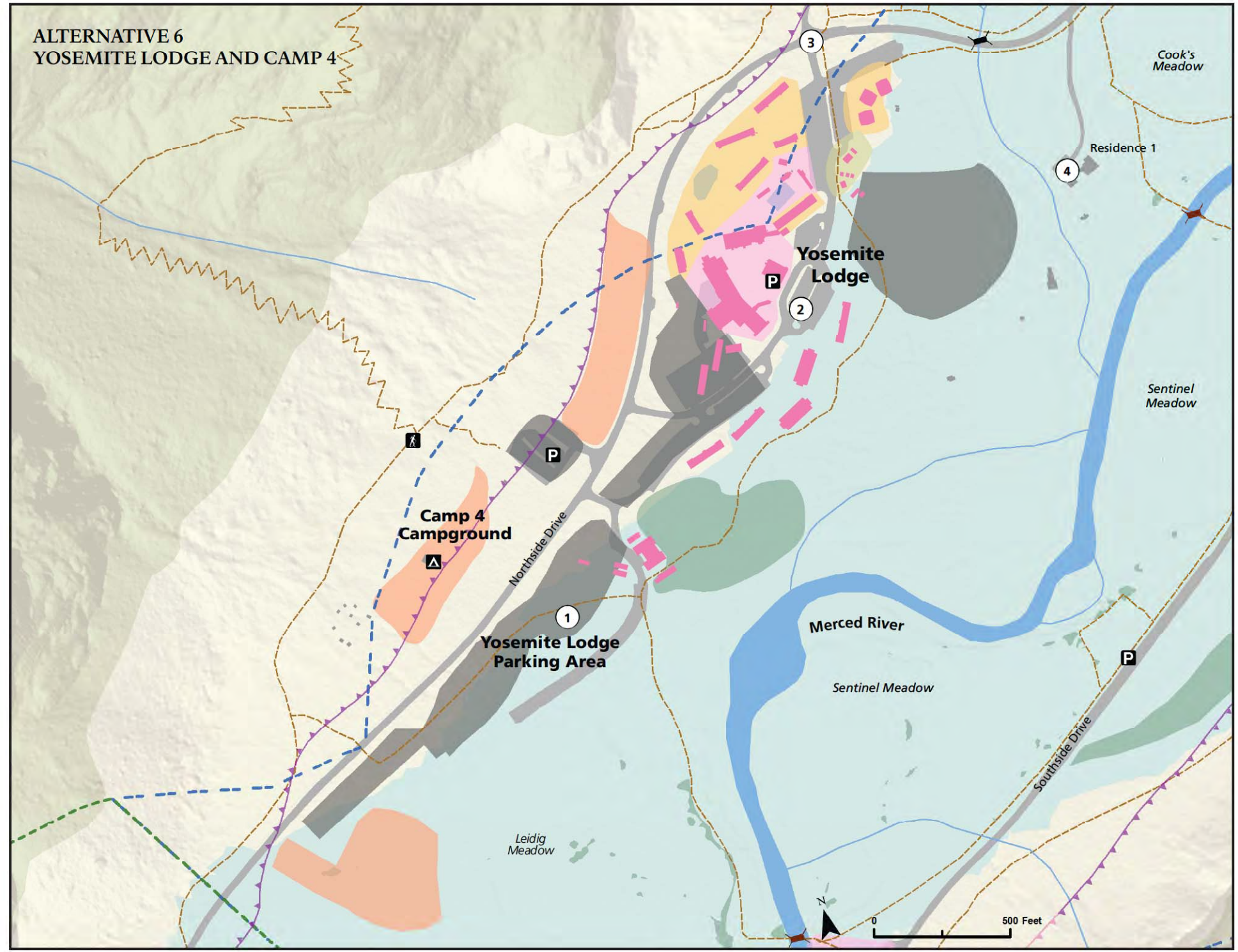
Campgrounds	Road bridge	Contour	Surfaced Areas	Visitor Services	Buildings	Designated Wilderness
Picnic Area	Footbridge	Trails	Restoration Areas	Housing	Retain Building	Recreational Segment
Parking Area	Lakes	Calculated Rock-fall Hazard Line	Camping	Operations	Remove Building	Wild Segment
Trailheads	Stream	Inferred Rock-fall Hazard Line	Lodging	Parking	100-year Floodplain	Scenic Segment



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# ALTERNATIVE 6: DIVERSIFIED VISITOR EXPERIENCES AND SELECTIVE RIVERBANK RESTORATION



## EAST YOSEMITE VALLEY: YOSEMITE LODGE AND CAMP 4

1. West of Yosemite Lodge
  - Parking: Redevelop disturbed area southwest of Yosemite Lodge to provide an additional 300 day-use parking spaces. This includes 15 spaces for tour bus parking. Parking redevelopment will incorporate best management practices to protect water quality.
  - RV Camping: Construct 20 RVs sites adjacent to proposed parking.
2. Yosemite Lodge
  - Lodging: Construct 4 new 3-story lodging structures with a total of 440 units to achieve pre-1997 flood number of guest rooms. Redesign the entire lodging facility to avoid the 100-year floodplain.
  - Tour Buses: Remove temporary housing complex at Highland Court and establish a tour bus drop-off area with three bus loading spaces.
  - Services and Facilities: Retain Yosemite Lodge Food Court and Mountain Room bar and dining service. Re-purpose convenience shop and nature shop. Relocate Yosemite Lodge maintenance. Remove Yosemite Lodge post office, swimming pool, bike rental, snack stand, employee housing (called Thousands Cabins), Highland Court employee temporary housing, and the NPS Volunteer Office.
  - Site Restoration: Remove four existing hotel buildings from the 100-year floodplain, decompact underlying soils, re-contour topography (using 1919 maps as a guide) and plant native vegetation (3.3 acres restored).
  - Yosemite Lodge Parking: Create gravel parking area for the redesigned Yosemite Lodge with space for 395 cars.
  - Yosemite Lodge Concessioner Housing: Remove housing at the "Thousands Cabins" and temporary housing at Highland Court. Replace with two new concessioner housing areas to accommodate 104 employees. Construct 78 employee parking spaces to serve new housing.
3. Yosemite Falls Intersection
  - Traffic Congestion: Construct a pedestrian underpass to alleviate conflicts between motorists and pedestrians and vehicles and associated traffic congestion at the intersection of Northside Drive and Yosemite Lodge Drive.
4. Residence 1
  - Residence 1: Relocate the historic structure, also know as the Superintendent's House, in its existing location to preserve the historic fabric while preparing the structure to withstand periodic flooding. The rehabilitation will follow the Secretary of Interior's Standards for the Treatment of Historic Properties and the Historic Structures Report. Ecologically restore associated informal trails in Cook's Meadow and address continuing use patterns to enhance black oak woodland and meadow habitat.

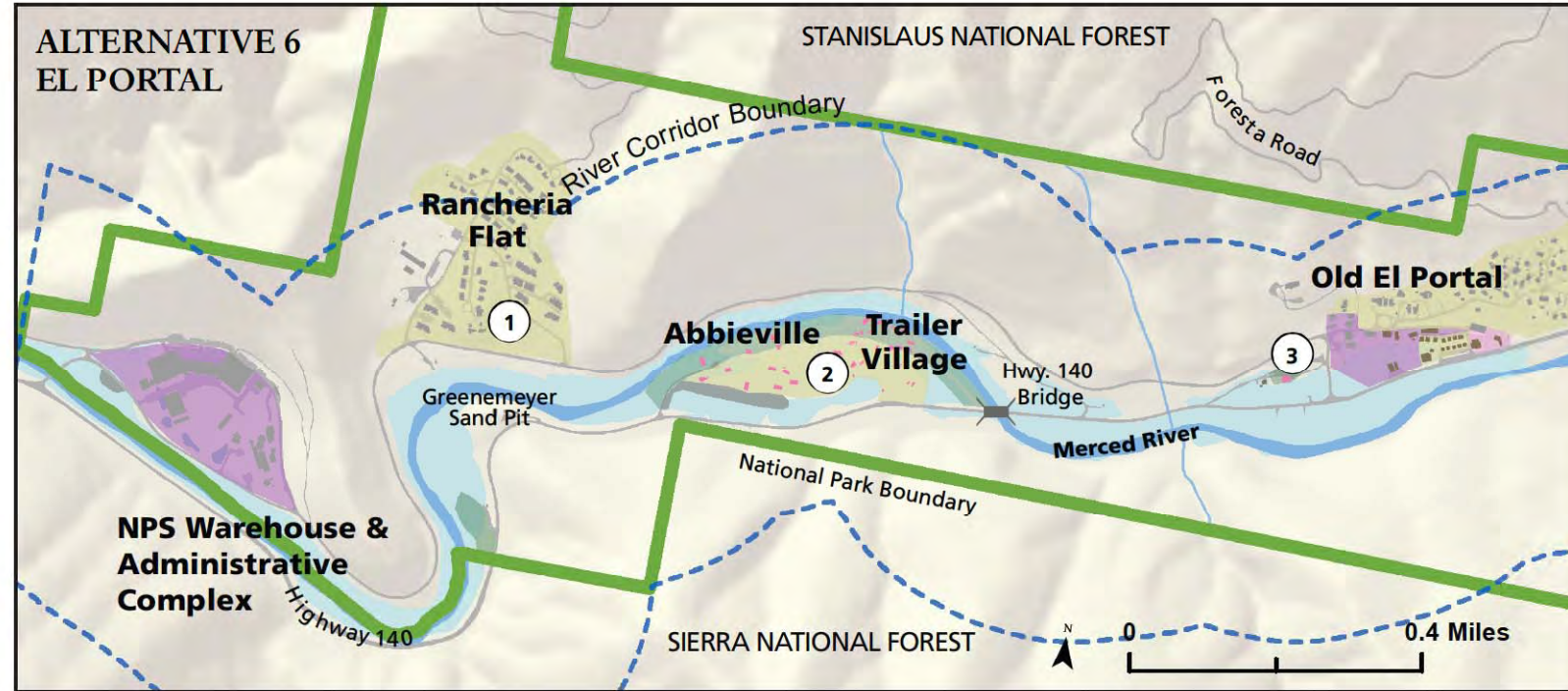
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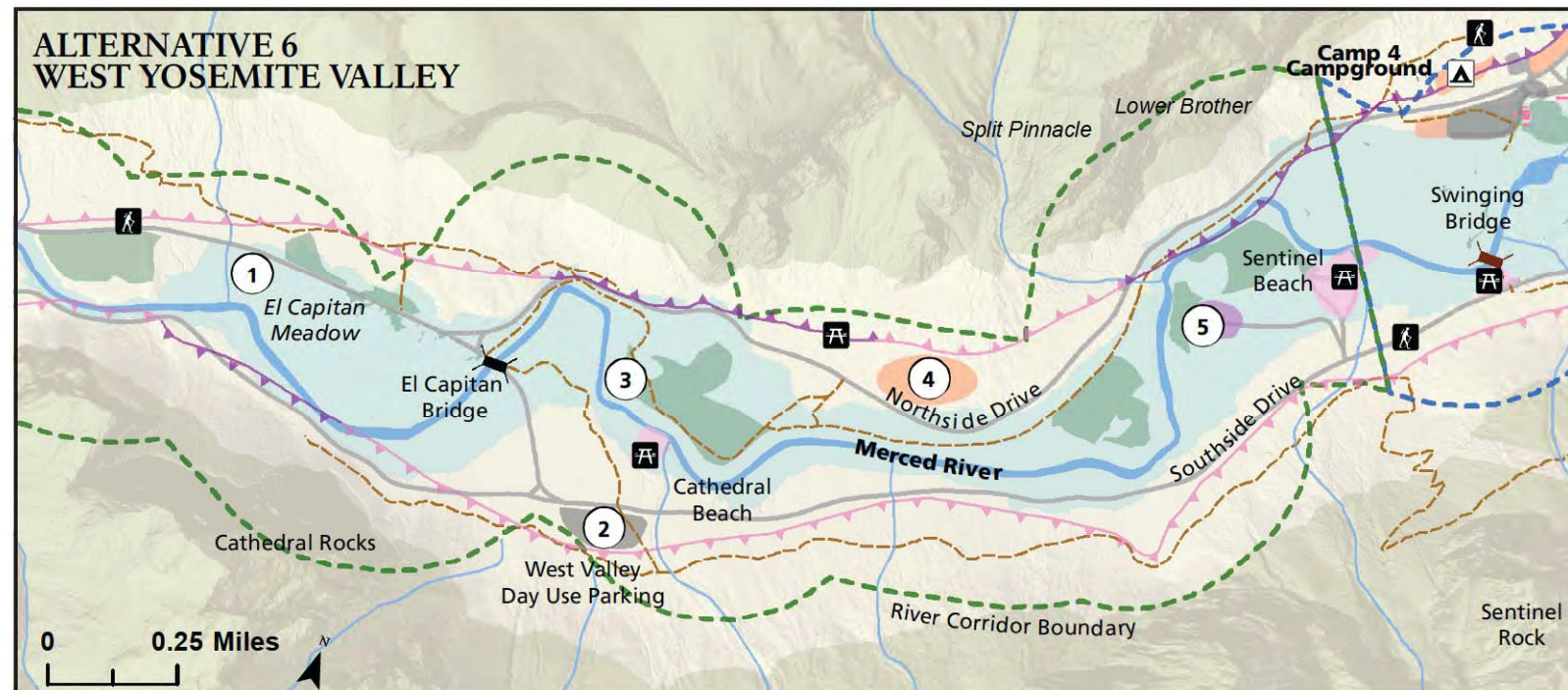


# ALTERNATIVE 6: DIVERSIFIED VISITOR EXPERIENCES AND SELECTIVE RIVERBANK RESTORATION



## EL PORTAL

- Rancheria Flat**
  - Employee Housing: To replace temporary housing that will be removed from Yosemite Valley, construct three dormitories, with 12 employees each, and eight dwelling units for additional employees for a total of 44 employee beds, away from sensitive resources.
- Abbieville and Trailer Court**
  - Abbieville and Trailer Village Housing: Construct high-density housing outside the 100-year floodplain for 258 employees. Remove or relocate 36 existing private residences.
  - El Portal Remote Visitor Parking: Construct a new visitor parking facility with 200 spaces. Transportation service will be provided by regional transit. Parking redevelopment will incorporate best management practices to protect water quality.
- El Portal Village Center**
  - Valley Oak Restoration: Restore the rare floodplain community of valley oaks in Old El Portal through implementation of best management practices. Create a valley oak recruitment area of 1 acre in Old El Portal in the vicinity of the current Odger's bulk fuel storage area, including the adjacent parking lots. Decompact soils, plant appropriate native understory plant species, and treat invasive plants. Prohibit new building construction within the oak recruitment area.
  - Odger's Fuel Storage Facility: Remove bulk fuel storage facility, all associated development, and non-native fill from the floodplain. Decompact soils, and plant appropriate native plant species, including valley oak. Relocate the fuel storage area outside the Merced River corridor or find an alternate source for emergency fuel supplies.



## WEST YOSEMITE VALLEY

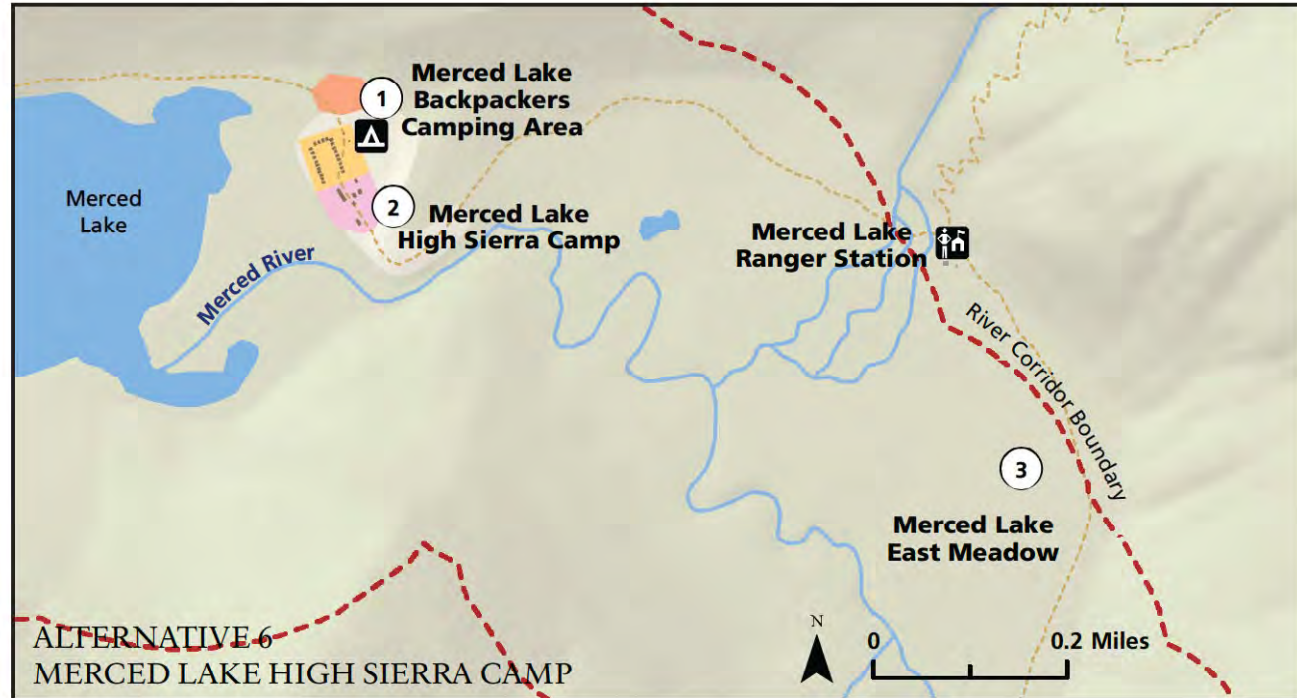
- El Capitan Meadow Area**
  - Restoration of Informal Trails: Restore all informal trails in meadow to natural conditions. Use restoration fencing to prohibit all foot traffic into meadow, including the southern perimeter and designate all meadow access using boardwalks and viewing platforms. Selectively remove mature conifers that block views of El Capitan from the roadside.
- West Valley Overflow Parking**
  - Day-Use Parking: Develop a West Valley Overflow Parking area on the south side of Southside Drive, at the intersection of El Capitan Crossover, with 250 parking spaces. Parking development will incorporate best management practices to protect water quality. Expand Yosemite Valley shuttle service to West Valley locations.
- Valley Loop Trail**
  - Re-Route: Move portions of the Valley Loop Trail out of sensitive areas; this includes the 780 feet of the trail through Bridalveil Meadow. Construct boardwalks through wet meadow habitat in Slaughterhouse Meadow.
- Eagle Creek Campground**
  - New Campground: Construct campground with 79 car and RV sites located east of El Capitan Picnic Area.
- Yellow Pine Campground**
  - Administrative Use Campground: Retain Yellow Pine's four group sites (serving up to 120 people) for administrative use.





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# ALTERNATIVE 6: DIVERSIFIED VISITOR EXPERIENCES AND SELECTIVE RIVERBANK RESTORATION

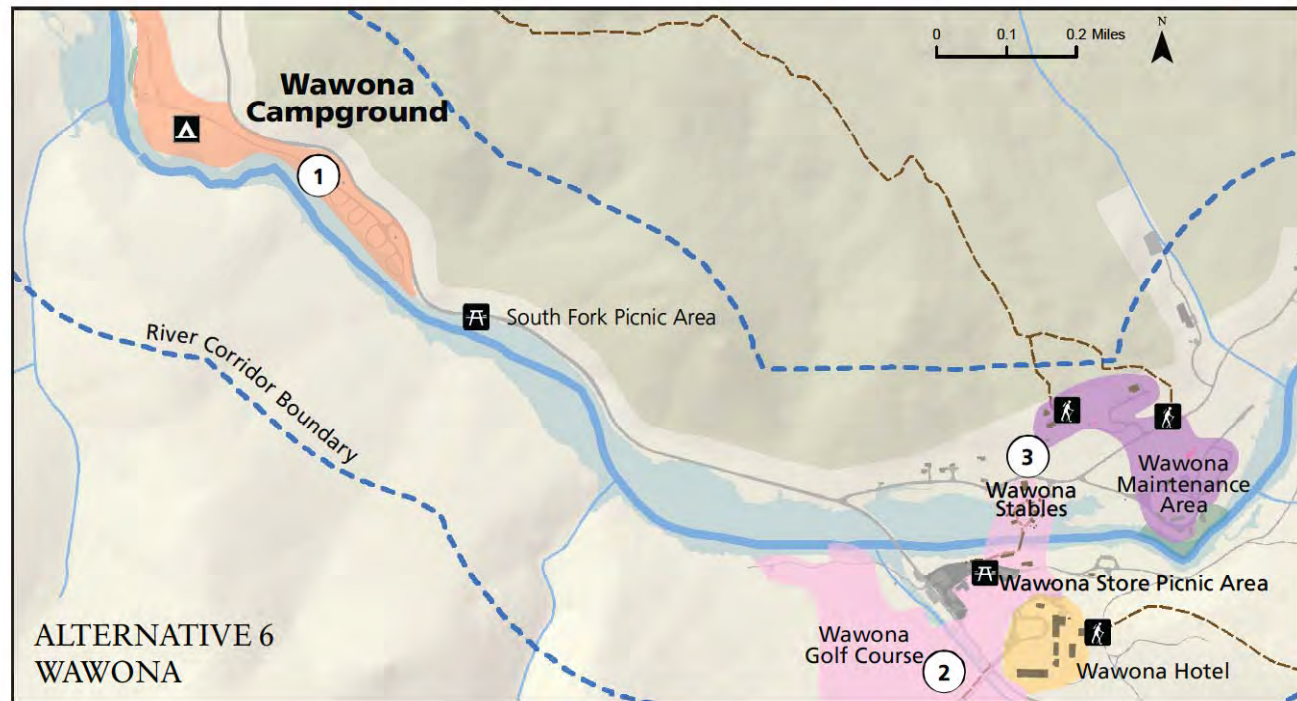


## MERCED LAKE HIGH SIERRA CAMP

1. Merced Lake Backpackers Camping Area: Retain the designated camping area. Replace flush toilets with composting toilets.
2. Merced Lake High Sierra Camp: Retain all 22 units (60 beds) at the existing lodging facility. Replace flush toilets with composting toilet.
3. Merced Lake East Meadow: Develop preliminary grazing capacities for the meadow. When the meadow recovers, allow administrative grazing at established capacities. Monitor annually for five years, adapting use levels as needed to protect the meadow.

## OTHER SEGMENT 1 CAMPING AREAS

- Little Yosemite Valley: Continue designated camping in this camping area. Retain infrastructure, such as composting toilets.
- Moraine Dome: Continue designated camping in this camping area.



## WAWONA

1. Wawona Campground: Retain 83 campsites, and one group site. Remove 13 sites that are located within 100 feet of the river or in culturally sensitive areas.
2. Wawona Golf Course and Golf Shop: Retain the existing nine-hole golf course and golf shop retail and food service.
3. Wawona Stables: Eliminate stable operation and commercial day rides. Relocate two stock-use campground sites from sensitive resource area to existing stables area.



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## Detailed Description of Alternative 6 by Segment

### *Segment 1: Wilderness above Nevada Fall (Wild Segment)*

#### **Actions to Protect and Enhance River Values**

In addition to the “Actions Common to Alternatives 2-6” (beginning on page 8-53), Alternative 6 would include the following action to protect and enhance river values:

##### *Biological Values*

- Establish preliminary grazing capacities for Merced Lake East Meadow; monitor and adapt as necessary.

##### *Recreational Values*

- Retain current density of use at Little Yosemite Valley and Merced Lake designated camping areas.

#### **User Capacity, Land Use and Facilities Management**

Alternative 6 would provide for similar kinds and amounts of use as exist today in this segment. The kinds of use would continue to focus on wilderness-oriented experiences characterized by self-reliance and opportunities for solitude. In addition to the “Actions Common to Alternatives 2-6” (page 8-77), Alternative 6 would include the following actions to manage user capacity, land use, and facilities:

##### *Visitor Activities and Services*

Overnight use in this segment would include visitors staying at the Merced Lake High Sierra Camp and visitors backpacking and staying overnight either at designated camping areas or dispersed throughout the wilderness.

Private boating would be allowed in this segment. Generally, use in this segment would consist of short floats using pack raft or other craft that can easily be carried into this remote area. Only 10 boats per day would be allowed, and a permit would be required. The boating permits would be administered by and linked to the overnight backcountry permits.

Up to two overnight commercial groups per wilderness zone would be allowed in Segment 1.

##### *Visitor Overnight Capacity*

The current wilderness zone capacities would be retained (Table 8-49). Manage to a capacity of 150 in the Little Yosemite Valley Zone using a zone quota or zone pass through system. Services would be managed as follows:

- Retain the Merced Lake High Sierra Camp at its current capacity (60 people per night); convert the flush toilets at the camp to composting toilets.
- Retain designated backpacker camping areas at Little Yosemite Valley, Moraine Dome, and Merced Lake; remove the flush toilets from the Merced Lake Backpackers camping area and replace with composting toilets.



**Table 8-49: Wilderness Zone Capacities for Alternative 6**

Wilderness Zones	Alt 6 Zonewide Capacity	Alt 6 Zone Capacity Specific to the River Corridor
Little Yosemite Valley Zone	150 people	<b>150 people</b>
Merced Lake Zone	50	<b>50</b>
Washburn Lake Zone	150	<b>100</b>
Mount Lyell Zone	50	<b>10</b>
Clark Range Zone	50	<b>10</b>
* <b>Capacity Numbers:</b> No reductions from Alternative 1 (No Action) to Alternative 6		

### *Visitor Day-use Parking Capacity*

Day use access to this segment is addressed under “Actions Common to Alternatives 2-6.”

### *Administrative Activities*

- Continue current administrative activities, which consist primarily of regular ranger patrols and backcountry utility work as well as occasional trail/restoration crews. These activities are seasonal and minimal in comparison to visitor use and would not affect overall user capacity.

## *Segment 2: Yosemite Valley (Recreational and Scenic Segments)*

### **Actions to Protect and Enhance River Values**

In addition to the “Actions Common to Alternatives 2-6” (beginning on page 8-53), Alternative 6 would include the following action to protect and enhance river values:

#### *Free Flow*

- Retain Stoneman Bridge; mitigate the hydrological effects of the bridge by placing large wood on the riverbanks to address scouring, adding brush layering, and increasing channel complexity between Clarks Bridge and Sentinel Bridge (as described in Chapter 5 and Appendix E).
- Retain the Ahwahnee and Sugar Pine Bridges; mitigate the hydrological effects of the bridges by placing large wood on the riverbanks to address scouring, adding brush layering, and increasing channel complexity between Clarks Bridge and Sentinel Bridge (as described in chapter 5 and Appendix E).
- Reduce the width of the cut-off channel upstream of Sugar Pine bridge through a combination of fill, constructed log jams, and bioengineered bank stabilization; If subsequent monitoring of riparian condition reveals insufficient improvement (i.e., CRAM rating remains below 0.71, see Chapter 5) within 10 years of the implementation of these actions, consider more aggressive management action, including the possible removal of the Sugar Pine Bridge.

#### *Water Quality*

- Reroute the pack stock trail from the Curry Village stable farther north, adjacent to the Happy Isles Loop Road.

#### *Biological Values*

Alternative 6 would remove existing campsites within 100 feet of the ordinary high-water mark:

- Remove all existing campsites and associated infrastructure within 100 feet of the ordinary high-water mark and restore natural floodplain and riparian habitat (12 acres).
  - **Backpackers Camp:** Remove 15 sites within 100 feet of the ordinary high-water mark. (Replace all these sites to the west of the current campground.)
  - **North Pines Campground:** Remove 14 campsites from within 100 feet of the ordinary high-water mark; restore native riparian vegetation
  - **Lower Pines Campground:** Remove 5 sites from within 100' feet of the ordinary high-water mark; restore native riparian vegetation.
  - **Upper Pines Campground:** Retain 238 campsites, 22 of which are in the 100-year floodplain.
- **Former Lower and Upper River Campgrounds:** Remove abandoned facilities within 150 feet of the ordinary high-water mark and restore 19.7 acres of natural floodplain topography and riparian/wetland habitat; reestablish overflow channels where possible. Fence and close the riparian zone at former Upper River Campground to protect the riverbank from trampling; direct visitors to access the river for boating and swimming by way of a path to the Housekeeping Camp eastern beach.
- **Yosemite Lodge:** Remove all existing buildings at Yosemite Lodge and restore natural floodplain conditions. (Replace lodging and associated facilities with new structures outside the floodplain). Construct enough parking to park the lodging units and restore the remaining area.
- **Former Pine and Oak Units:** Redevelop the disturbed footprint of the former Yosemite Lodge units and cabins (those that were damaged by the 1997 flood and subsequently removed). Retain one service road to the well house.
- **Yosemite Village:** Move the Yosemite Village Day-use Parking Area northward so that it is 150 feet back from the ordinary high-water mark of the Merced River and outside a designated 50-foot setback from Indian Creek; remove fill material and restore the riparian habitat adjacent to the river.
- **Housekeeping Camp:** Remove lodging and other facilities at Housekeeping Camp out of the ordinary high-water mark (remove 34 units); restore native riparian habitat (12.2 acres). Adjust the existing fencing along the riverbank to protect the restored riparian habitat. Direct visitor use and river access to the two resilient beach locations on the western edge of Housekeeping Camp and across the footbridge. Fence off the current eastern river access point located on a steep eroded bank, and actively restore the riverbank with brush layering.

Alternative 6 would remove or mitigate the effects of trails and roads through meadows:

- **Bridalveil Meadow:** Reroute the 780-foot segment of the Valley Loop Trail that currently crosses Bridalveil Meadow so that it is adjacent to Southside Drive.
- **Slaughterhouse Meadow:** Construct boardwalks through sensitive wet meadow habitat at Slaughterhouse Meadow.
- **El Capital Meadow:** Fence the northern and southern perimeters of the meadow to prohibit all foot traffic into the meadow, and designate all meadow access using boardwalks and viewing platforms. Selectively remove mature conifers that block views of El Capitan from the roadside to discourage foot traffic into the meadow.
- **Ahwahnee Meadow:** Retain Northside Drive and bike path in current configuration; add culverts to improve hydrologic connectivity through Ahwahnee Meadow. Install a boardwalk to traverse wet areas through Ahwahnee Meadow (350 feet long).

## ALTERNATIVES

- **Stoneman Meadow:** Retain Southside Drive through Stoneman Meadow as a necessary part of the traffic pattern under this alternative.

### *Cultural Values*

- Maintain all the collective sites representing the prominent historic patterns of development in Yosemite Valley in their current locations and in their current status.
- Rehabilitate Residence 1 per the Secretary of the Interior's Standards for the Treatment of Historic Properties (NPS 1995) in its existing location to preserve the historic fabric while preparing the structure to withstand periodic flooding.

### *Recreational Values*

- Restrict boating to 150 people per day for private vessels and 100 boats at one time for commercial vessels. This reduction would promote the dispersal of recreation opportunities along the river corridor.
- Mitigate traffic congestion in East Yosemite Valley through intentional traffic management as well as the addition of remote parking lots with bus and shuttle access to Yosemite Valley destinations.

## User Capacity, Land Use and Facilities Management

### *Visitor Activities and Services*

Alternative 6 would enhance opportunities for visitors to connect to the river through both infrastructure improvements and expansion of opportunities. It would include the following changes in visitor activities and services in addition to those common to Alternatives 2-6 (see page 8-77):

- Allow both private and commercial boating in this river segment.
  - Allow private boats in the section of river between the Clarks Bridge and Pohono Bridge, with put-ins and take-outs below Clarks Bridge on river right, below Stoneman Bridge on river left, at Sentinel Beach, and along the roadside below Pohono Bridge. Restrict private boating use to 150 trips per day through a permit system; monitor use to ensure protection of river values.
  - Allow commercial boating between Stoneman Bridge and Sentinel Beach, with staging at the existing rental area at Curry Village. Limit commercial trips to 100 boats at one time (approximately 250 trips per day). Monitor commercial use through the existing concession contract.
- Improve the Cathedral, Sentinel, and Swinging Bridge picnic areas.
- Provide a new picnic area (8 tables and 20 parking spaces) and designated river access for rafting in the Lower River area.
- Retain the Housekeeping Camp shower houses, restrooms, laundry, and grocery store.
- Continue to provide staging at the Concessioner Stable for temporary pack camp operation at Merced Lake High Sierra Camp; retain kennel service.
- Retain Curry Village raft rental.

### **Visitor Overnight Capacity: Camping**

Camping would be significantly increased, while ensuring that this activity occurred in appropriate locations, protective of river values. Campsites in Yosemite Valley would total 739 sites accommodating 4,626 people:

- **Backpackers Camp:** Retain 10 walk-in sites. Remove 15 sites within 100 feet of the ordinary high-water mark. Construct 16 new walk-in campsites west of Backpackers Camp.
- **Former Upper River Campground:** Construct a new campground with 30 walk-in sites and 2 group sites, north of the river and a minimum of 150 feet away from the ordinary high-water mark. Construct a new campground with 40 walk-in sites at Lower River, 150 feet away from the ordinary high-water mark.
- **North Pines Campground:** Retain 72 campsites. Remove 14 sites from within 100 feet of the ordinary high-water mark.
- **Upper Pines Campground:** Retain 238 campsites. Construct a new RV campground loop with 36 RV sites. Construct a new walk-in campground with 49 individual sites and 2 group sites.
- **Lower Pines Campground:** Retain 71 campsites. Remove 5 sites from within 100 feet of the ordinary high-water mark.
- **Yosemite Lodge:** Construct a new campground with 20 RV sites near the parking area west of Yosemite Lodge
- **Camp 4:** Retain 35 walk-in campsites and 35 parking spaces. Construct 35 additional campsites east of Camp 4; establish a new parking area (41 spaces) for the Camp 4 campground expansion In the disturbed footprint of the former service station near Camp 4.
- **Eagle Creek:** Construct a new campground with 79 drive-in sites, including RV sites.

### **Visitor Overnight Capacity: Lodging**

Lodging would be increased to 1,248 units accommodating 4,380 people per night. Common to Alternatives 2-6, the Ahwahnee would continue to provide 123 lodging rooms. The following additional lodging would be retained, removed, or constructed under Alternative 6:

- **Curry Village:** Retain 355 lodging units at Curry Village: 290 tents, 18 units at Stoneman House, 47 hard-sided cabin with bath units. Remove all existing cabins and associated structures at Boys Town. Construct 98 new lodging units suitable for year-round use (25 duplex buildings, two 4-plex buildings, and five two-story 8-plex buildings, all with private baths); construct a new guest check-in building and pedestrian pathway; provide 78 new parking spaces along the existing roadway and 20 new parking spaces along the eastern edge of the Curry Orchard parking area, all within the existing developed footprint. Provide 450 designated overnight parking spaces at Curry Orchard.
- **Housekeeping Camp:** Retain 232 units and associated facilities. Remove 34 units out of the ordinary high water mark defined by the Army Corps of Engineers. Restore approximately 1 acre of riparian habitat. Adjust the existing fencing along the riverbank to protect the restored riparian habitat.

Conceptual site drawings for lodging improvements at Boys Town under Alternative 6 have been completed to allow the analysis of impacts of this potential project. See "Conceptual Designs for Potential Project Implementation" at the end of the Alternative 2 discussion for site details and design drawings.

## ALTERNATIVES

- Yosemite Lodge: Remove all existing buildings, including 4 buildings in the 100-year floodplain). Construct new three- story-lodging structure(s with the pre-flood number of 440 units outside the 100-year floodplain.

### *Visitor Day-use Parking Capacity and Transit*

Alternative 6 would allow for increased maximum daily visitation in Yosemite Valley. The day parking, regional transit, and tour bus capacities would accommodate up to 9,449 day users at one time in Segment 2:

- Increase available day-use parking spaces (+261 spaces) for a total of 2,598 parking spaces accommodating a maximum of 6,781 people at one time.
- Accommodate an estimated 1,160 people at one time in circulation on Valley roads.
- Accommodate a maximum of 788 people at one time arriving to the Valley on regional transit.
- Retain tour bus parking at 15 spaces accommodating up to 720 people at one time.

Visitor circulation would be improved to reduce traffic congestion and to provide a better arrival experience for visitors. Major actions would include the following:

- Redesign day parking at Yosemite Village to provide 850 formal parking spaces and a new comfort station.
- Construct a parking lot with 300 designated day parking spaces and a new 3,000 square foot comfort station west of Yosemite Lodge; provide 15 bus loading/unloading spaces.
- Construct a new parking lot to accommodate overflow parking for 250 vehicles south of Southside Drive; expand Yosemite Valley shuttle service to West Valley.

Conceptual site drawings for the Yosemite Village Day-use Parking Area and the new parking lot west of Yosemite Lodge have been completed to allow the analysis of impacts of these potential projects. See "Conceptual Designs for Potential Project Implementation" at the end of the Alternative 6 discussion for site details and design drawings.

Day users would also be able to access the Valley by parking in the new El Portal remote parking area (200 parking spaces) and taking a shuttle to the Valley.

An East Valley day-use parking permit system would be implemented when conditions reached the point where day use visitation to the East Yosemite Valley from private vehicles exceeds the parking availability and formal traffic diversions at El Capitan Crossover are instituted for 14 days or more during the summer season for 2 consecutive years.

Regional transit service into Yosemite Valley during the peak summer season would be expanded to accommodate a maximum of 788 people at one time in Yosemite Valley.

- Highway 140 (Merced to Yosemite Valley): Maintain service at 12 runs per day. Add a stop at the El Portal remote day-use parking area.
- Highway 41 between Fresno and Yosemite Valley: implement new public transit service at 12 runs/day.
- Implement a dedicated shuttle to Badger Pass for transfer shuttle to Glacier Point.
- Highway 120 West (Groveland to Yosemite Valley): Reduce service to 8 runs per day (summer only).
- Highway 120 East (Mammoth Lakes to Yosemite Valley): Increase service to 2 runs per day (summer only)



Under all the action alternatives, including Alternative 6, shuttle bus service would be improved by increasing the frequency of the year-round East Valley service to 5 minute intervals during peak use. The Visitor Center Express shuttle service (summer only) would be improved by increasing the frequency to 7 minute intervals between buses. Shuttle service would be expanded as follows:

- Expand Valley Shuttle service to Bridalveil (summer only) with 30-minute interval between buses and stops at El Capitan picnic area, El Capitan Meadow, Bridalveil Fall straight, Cathedral Beach, Yellow Pine, and Four-mile/Swinging Bridge.

**TABLE 8-50: TRANSIT OPTIONS- ALTERNATIVE 6**

Regional Transit Options	
HWY 140 Merced/Mariposa to Yosemite Valley	12 runs per day Additional stop at the El Portal remote day-use parking area (year round)
HWY 41 Fresno/Oakhurst to Yosemite Valley	12 runs per day Dedicated shuttle to Badger Pass as collection point for shuttle to Glacier Point
HWY 120 West Groveland/Sonora to Yosemite Valley	8 runs per day (summer only)
HWY 120 East Inyo/Mono County (Mammoth Lakes) to Yosemite Valley	2 runs per day (summer only)
Yosemite Valley Shuttle Options	
East Yosemite Valley	5 minute peak interval between buses Year round except Visitor Center direct
Visitor Center Express Yosemite Valley Day-use Parking Area to Visitor Center	7 minute interval between buses (summer only)
El Capitan Crossover	15 minute interval between buses (summer only)
West Yosemite Valley	Expand Valley Shuttle service to Bridalveil (summer only) 30-minute interval between buses Stops at El Capitan picnic area, El Capitan Meadow, Bridalveil Fall straight, Cathedral Beach, Yellow Pine, and Four-mile/Swinging Bridge

**Administrative Activities**

Some administrative activities would be relocated:

- Relocate the Yosemite Lodge housekeeping and maintenance facilities to a location behind the Yosemite Lodge cafeteria.

**Employee Housing and Employee Parking**

Compared to existing conditions, 179 fewer concessioner employees would be housed in Yosemite Valley. The remaining housing for 972 concessioner employees would be provided as follows:

- Retain housing for 42 employees at the Ahwahnee Hotel.
- Provide housing for 436 employees at Curry Village.

## ALTERNATIVES

- Retain permanent housing in the Curry Village residential area (223 employees)
- Retain housing at Curry Village stable (49 beds).
- Construct 16 buildings housing 164 employees.
- Provide housing for 390 employees at Yosemite Village:
  - Retain permanent housing at Indian Creek, Lost Arrow, and Upper Tecoya (65 employees)
  - Retain Ahwahnee Row, Y Apartments, garage housing, and Hospital Row (43 employees)
  - Retain Tecoya Dorms (232 employees)
  - Construct new housing at Lost Arrow (50 employees)
- Provide housing for 104 employees at Yosemite Lodge:
  - Construct new housing for 104 employees at Yosemite Lodge (two structures with 26 double-occupancy units each)

Four group administrative campsites (up to 120 people) would be retained at the Yellow Pine Administrative Campground.

An additional 314 Valley employees would be housed in El Portal.

### ***Segment 3: Merced Gorge (Scenic Segment)***

#### **Actions to Protect and Enhance River Values**

All actions to protect and enhance river values in Segment 3 for Alternative 6 are included in the “Actions Common to Alternatives 2-6” (page 8-53).

#### **User Capacity, Land Use and Facilities Management**

This alternative would provide for similar kinds and amounts of use that exist today. The majority of actions for Alternative 6 in Segment 3 are discussed in the “Actions Common to Alternatives 2-6” (pages 8-77). Alternative actions that are not included in the Actions Common section are listed below.

#### ***Visitor Activities and Services***

Boating would not be allowed in this segment under Alternative 6 due to the safety concerns associated with accessing the river for search and rescue operations during high use periods. This section of river is steep and rocky, and boatable only by the most advanced paddlers.

#### ***Transit Options***

Public transit options along this segment would be expanded as described in the Yosemite Valley segment (see Segment 2 above). This river segment is considered a “pass through” segment and therefore it does not contain any stops for passengers to enter or depart from transportation services that travel along this corridor.

## ***Segment 4: El Portal (Scenic Segment)***

### **Actions to Protect and Enhance River Values**

All actions to protect and enhance river values in Segment 4 for Alternative 6 are addressed in “Actions Common to Alternatives 2-6” (see page 8-53).

### **User Capacity, Land Use and Facilities Management**

Alternative 6 would introduce additional visitor use to this segment in addition to expanding employee housing capacity.

#### ***Visitor Activities and Services***

Most visitor activities and services in Segment 4 are considered in “Actions Common to Alternatives 2-6” (page 8-77) Additional actions would include:

- Allow unrestricted private boater use in Segment 4. Expected use would be mostly rafts and kayaks. Boaters would be permitted below Yosemite View Lodge to beyond the Foresta Bridge, at which point boaters would exit the segment. Boaters would be able to use put-ins and take-outs below the hotel, at the store/gas station and the Red Bud launch site.

#### ***Visitor Overnight Use***

No visitor overnight accommodations on NPS lands are proposed in Alternative 6.

#### ***Visitor Day Use Capacity***

Visitor day-use parking would be expanded at El Portal under Alternative 6. A new remote visitor day-use parking area accommodating a maximum of 200 vehicles would be provided at the Abbeville site. This parking area would primarily be used for visitor access to Yosemite Valley. The use associated with this parking area is accounted for in the Valley daily visitation levels reported above.

The total available day-use parking capacity in this segment would be 414 spaces. 214 of these spaces are for visitors to El Portal and 200 spaces are for visitors to Yosemite Valley (or other Yosemite destinations).

#### ***Administrative Activities***

Administrative activities in Segment 4 are considered in “Actions Common to Alternatives 2-6” (page 8-53).

#### ***Employee Housing Capacity***

Employee housing would increase in El Portal under Alternative 6. Multi-cluster dormitories would be added to Abbeville with 258 beds. Rancheria would add new duplex units with a total of 8 beds and new dormitories with 36 beds. Duplex units would be added to El Portal Village Center with 12 beds. All new buildings would be high density and outside of the 100 year flood plain. These units would be added to accommodate for the temporary housing units removed from Segment 2.

#### ***Employee and Administrative Parking Capacity***

Most employee and administrative parking actions are discussed in “Actions Common to Alternatives 2-6” (page 8-53). Additionally, under Alternative 6, 44 parking spaces would be added with the Rancheria

housing expansion, 12 parking spaces would be added with the El Portal housing expansion and 258 parking spaces would be added for residents of the new Abbieville site.

### *Transit Options*

Public transit options along this segment's travel corridor are expanded under this alternative. Buses would also stop at the new day-use parking area at Abbieville. Bus service would be provided on a 30 minute interval during peak use season and run directly to Yosemite Valley. For a complete summary of the transit option along this corridor see the Segment 2 summary above.

## ***Segment 5: South Fork Merced River Above Wawona (Wild Segment)***

### **Actions to Protect and Enhance River Values**

There are no actions in Segment 5 in addition to what is proposed under "Actions Common to Alternatives 2-6" (page 8-53).

### **User Capacity, Land Use and Facilities Management**

Alternative 6 would provide for similar kinds and amounts of use that exist today in Segment 5. The majority of actions for Alternative 6 in Segment 5 are discussed in the "Actions Common to Alternatives 2-6: User Capacity, Land Use and Facilities Management", (page 8-77). Alternative actions that are not included in the Actions Common section are listed below.

### *Visitor Activities and Services*

Private boating would be allowed in this segment. Generally, use in this segment would consist of short floats using pack raft or other craft that can easily be carried into this remote area. Only 10 boats per day would be allowed, and a permit would be required. The boating permits would be administered by and linked to the overnight backcountry permits.

### *Visitor Day Use Capacity*

Day-use parking for the trailheads that lead to this segment is included in the Wawona area (see Segment 7, below). Other users may access this segment from trailheads that originate in the Sierra National Forest south of this segment, but this use is minimal. Otherwise, very little day use occurs along this segment.

### *Transit Options*

Specific transportation options for reaching Segment 5 trailheads are listed below under Segment 7.

## ***Segments 6 and 7: Wawona and Wawona Impoundment (Recreational Segments)***

### **Actions to Protect and Enhance River Values**

In addition to the "Actions Common to Alternatives 2-6" (see page 8-53), protection and enhancement of cultural values and water quality would be accomplished through the actions described below.

### ***Cultural Values/Water Quality***

- Wawona stock campground: Relocate stock campground (two sites) from culturally-sensitive area to the Wawona Stables area.
- Wawona Campground: Remove 13 sites that are either within the 100-year floodplain or in culturally sensitive areas.

### **User Capacity, Land Use and Facilities Management**

Overall, this alternative would provide for similar kinds and amounts of use that exist today in the Wawona area. The majority of actions for Alternative 2 in Segment 7 are discussed in the “Actions Common to Alternatives 2-6” (page 8-77). Alternative actions that are not included in the Actions Common section are listed below.

#### ***Visitor Activities and Services***

Most visitor activities and services in Segment 7 are considered in “Actions Common to Alternatives 2-6” (see page 8-53) Additional actions are listed below:

- Discontinue commercial day rides.

#### ***Visitor Overnight Use***

- Reduce the Wawona Campground capacity to 84 sites (including one group site) which would accommodate up to 528 people per night. The two campsites at the Wawona stock camp would be relocated to the Wawona stables and would accommodate 6 people per night each site (12 people per night total).
- Total overnight capacity for Wawona would be 787 people.

#### ***Transit Options***

Transit options would be expanded in Alternative 6. Regional bus service, similar to that provided on the Highway 140 corridor, would be introduced on Highway 41. A maximum of 12 runs per day would be made between Fresno and Yosemite Valley using 48-passenger buses. A maximum of 311 people at one time would arrive to Segment 7 by way of regional transit. Additionally, the Wawona area shuttle would continue, serving the key destinations within this segment along with the Mariposa Grove of Giant Sequoias. Finally, up to 2 concession operated runs per day would be made between Wawona and Yosemite Valley.

### ***Segment 8: South Fork Merced River Below Wawona (Wild Segment)***

#### **Actions to Protect and Enhance River Values**

There are no actions in Segment 8 in addition to what is proposed under “Actions Common to Alternatives 2-6” (page 8-53).

#### **User Capacity, Land Use and Facilities Management**

Alternative 6 would provide for similar kinds and amounts of use that exist today in Segment 8 and significant changes are not proposed. The majority of actions for Alternative 6 in Segment 8 are discussed in



the “Actions Common to Alternatives 2-6” (pages 8-77). Alternative actions that are not included in the Actions Common section are listed below.

### *Visitor Activities and Services*

Private boating would be allowed in this segment. Generally, use in this segment would consist of short floats using pack raft or other craft that can easily be carried into this remote area. Only ten boats per day would be allowed, and a permit would be required. The boating permits would be administered by and linked to the overnight backcountry permits.

### *Transit Options*

Transit services for access to this segment are described above under Segment 7.

## **Analysis of Facilities and Services**

Table 8-51 presents the park’s assessment of the particular facilities and services that would be needed to support public use and/or to protect river resources based on the types, levels, and locations of use proposed for Alternative 6. As an example, the goals of this alternative include diversified visitor experiences and selective riverbank restoration. This alternative prescribes restoration within 100 feet of the Merced River and would allow for some increase in peak visitor use levels. It provides the most visitor services and facilities, by having the most overnight accommodations, parking and visitor services, therefore making it necessary for expanding overnight accommodations at the Yosemite Lodge, providing additional camping at Upper and Lower River Campgrounds, and providing additional overflow parking for East Yosemite Valley near El Capitan Crossover as well as expanded parking at the Yosemite Lodge Area.

**TABLE 8-51: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 6**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 1: Wild</b>			
Merced Lake High Sierra Camp	Retained	<b>Yes:</b> This facility offers rustic accommodations to visitors traveling independently or as a part of the organized High Sierra Loop Trip offered by the concessioner in cooperation with the NPS. The number of camp beds allowed under this alternative are needed to support public use in a manner that is consistent with the types and amounts of visitor use that have been found to protect and enhance river values.	<b>No:</b> The High Sierra Camp is outside designated Wilderness; however it is surrounded by designated wilderness. Designated wilderness precludes the construction of new facilities such as this. Alternatives in Chapter 8 consider various means of addressing impacts to ORVs.
Merced Lake Backpackers Camping Area	Retained	<b>Yes:</b> This undeveloped campground is used by backpackers. Backpacking is a component of the recreational ORV in this segment. This campground is necessary to allow support overnight wilderness use. Designated camping protects resources in popular areas from radiating impacts by limiting camping to the designated area.	<b>No:</b> A designated campground reduces resource impacts from dispersed camping. Alternatives in Chapter 8 consider various mitigations for the existing campground.
Little Yosemite Valley Camping Area	Retained	<b>Yes:</b> This undeveloped campground is used by backpackers. Backpacking is a component of the recreational ORV in this segment. This campground is necessary to support overnight wilderness use. Designated camping protects resources in popular areas from radiating impacts by limiting camping to the designated area.	<b>No:</b> A designated campground reduces resource impacts from dispersed camping. Alternatives in Chapter 8 consider various mitigations for the existing campground.
Moraine Dome Camping Area	Retained	<b>Yes:</b> This undeveloped campground is used by backpackers. Backpacking is a component of the recreational ORV in this segment. This campground is necessary to support overnight wilderness use. Designated camping protects resources in popular areas from radiating impacts by limiting camping to the designated area.	<b>No:</b> A designated campground reduces resource impacts from dispersed camping. Alternatives in Chapter 8 consider various mitigations for the existing campground.
<b>Segment 2: Curry Village and Campgrounds</b>			
Upper Pines Campground	Reduced	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.
Lower Pines Campground	Reduced	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.
North Pines Campground	Reduced	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.
Backpackers Campground	Reduced and partially re-located	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience. In addition, this campground provides is critical for backpackers who need to start or end their wilderness trip in Yosemite Valley.	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.

**TABLE 8-51: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 6**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Curry Village and Campgrounds (cont.)</b>			
Valley Campground Reservation Center	Retained	<b>Yes:</b> The Valley Campground Reservation Center is an essential National Park Service point-of-contact for campers, and those who seek campsites, in Yosemite Valley. The Campground Reservation Center staff sells campsite reservations for all campsites in the park available for reservations. The Reservation Center is operated on a year-round basis.	<b>Yes.</b> The Campground Reservation could be moved from its existing location. However, it is important to the successful delivery of services provided from the reservation center that any alternative location be near the Valley campgrounds.
Housekeeping Camp Lodging Units	Reduced	<b>Yes:</b> Housekeeping Camp offers rustic overnight guest accommodations for visitors who do not or are unable to camp. The number of units allowed under this alternative are needed to support public use in a manner that is consistent with the types and amounts of visitor use that have been found to protect and enhance ORVs.	<b>No.</b> No alternative areas of sufficient size to accommodate this lodging facility (adjacent to the river, which is an integral part of the overnight experience )are available for development in Yosemite Valley
Housekeeping Camp Laundry	Retained	<b>Yes:</b> The public laundromat at Housekeeping Camp is a small facility that supports visitor use. The nearest public laundry facilities outside the park are located 50 miles from Yosemite Valley. Visitors spending multiple nights in the park frequently need to launder their clothing, and, in some cases, sleeping bags, blankets or other outdoor items.	<b>No.</b> This service is provided for Housekeeping Camp guests and is directly linked to the camp; relocating the service and providing a general laundry facility for park visitors is not necessary.
Housekeeping Camp Shower Houses and Restrooms	Retained	<b>Yes:</b> Public restrooms are needed in many areas throughout the river corridor to comply with public health regulations and meet the basic personal needs of visitors and employees. The public showers at Housekeeping Camp are provided for guest use as well as other patrons, including campers and hikers.	<b>No.</b> The Housekeeping Camp restrooms and shower houses are components of the overnight guest accommodations at this location. They are required to be located within or very near the overnight sleeping units.
Housekeeping Camp Grocery	Retained	<b>No:</b> This need for the grocery store is tied to the level of lodging units at Housekeeping Camp. With a reduction of lodging, the grocery store is not needed.	<b>Yes.</b> The merchandise offered at this location is offered elsewhere in Yosemite Valley.
Camp Curry Overnight Parking	Retained	<b>Yes:</b> Parking at Curry Village is needed to support the day and overnight visitors who use Curry Village.	<b>No.</b> Parking areas of in these locations are needed to support overnight guests at this location.
Curry Orchard Parking Area	Re-developed	<b>Yes:</b> Parking at Curry Village Orchard is needed to support day and overnight visitors who use Curry Village.	<b>No.</b> Parking areas of in these locations are needed to support overnight guests at this location.
Curry Village Lodging and Shower Houses	Expanded	<b>Yes:</b> Curry Village offers rustic and economy overnight guest accommodations consistent with the types and amounts of visitor use that have been found to be protect and enhance ORVs. This facility is needed to support public use by visitors who do not camp.	<b>No.</b> This lodging facility is part of a National Register Historic District. It is not feasible to relocate the complex, including shower and toilet facilities needed by guests in without-bath accommodations, to locations outside the river corridor.
Curry Village Raft Rental	Retained	<b>No:</b> This is not a vital visitor service under this alternative.	<b>No.</b> By its very nature, the raft rental facility should be located within the river corridor.
Concessioner Stables	Retained (but day rides eliminated)	<b>Yes:</b> The stable operation at Curry Village supports the High Sierra Camp operations. The location of the stables is within reach of each of the high sierra camps by one day's ride and trailering stock from El Portal or Wawona would be a substantial operational burden due to time and distance required to reach trailheads.	<b>No.</b> There are no other suitable locations for a stable operation, neither in proximity to other visitor services nor proximity to the Valley trail system used to access the Merced Lake High Sierra Camp.

**TABLE 8-51: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 6**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Curry Village and Campgrounds (cont.)</b>			
Concessioner Stables Employee Housing Area	Retained	<b>Yes:</b> This housing facility is necessary to accommodate a employees who provide visitor services that are consistent with the types and amounts of visitor use that have been found to protect and enhance ORVs.	<b>No.</b> There are no other suitable locations to move employee housing to in Yosemite Valley both in terms of size of these facilities and the need for them to be proximate to guest services to accommodate shift work schedules.
Northside Drive (Stoneman Bridge to Yosemite Village Day-use Parking Area)	Retained	<b>Yes:</b> This road is needed to support public use of the river corridor. It is a component of the primary transportation & circulation road system that connects all major visitor service nodes. It is also used for by NPS for law enforcement and fire protection	<b>No.</b> It is not feasible to relocate the existing roadway from its present location.
Southside Drive (through Stoneman Meadow)	Retained	<b>Yes:</b> This road is needed to support public use of the river corridor. It is a component of the primary transportation & circulation road system that connects all major visitor service nodes. It is also used for by NPS for law enforcement and fire protection	<b>No.</b> It is not feasible to relocate the existing roadway from its present location.
Sugar Pine Bridge	Retained	<b>No.</b> Under this alternative removal of this facility is consistent with land use restoration goals, and pedestrian and bicycle traffic would be re-routed north of river.	<b>No.</b> It is not feasible to relocate the existing roadway and bridges from their present location given the circulation system for Yosemite Valley.
Ahwahnee Bridge	Retained	<b>Yes:</b> This pedestrian, bicycle, and emergency vehicle bridge is needed to support public use of the river corridor. It allows safe crossing of the Merced River so that visitors can access points of interest in Yosemite Valley. Pedestrian and bicycle bridges also protect riparian habitat from destruction caused by random crossings throughout the river corridor. It is also used for by NPS for law enforcement and fire protection	<b>No.</b> It is not feasible to relocate the existing roadway and bridges from their present location given the circulation system for Yosemite Valley.
Stoneman Bridge	Retained	<b>Yes:</b> This pedestrian, bicycle, and emergency vehicle bridge is needed to support public use of the river corridor. It allows safe crossing of the Merced River so that visitors can access points of interest in Yosemite Valley. Pedestrian and bicycle bridges also protect riparian habitat from destruction caused by random crossings throughout the river corridor. It is also used for by NPS for law enforcement and fire protection	<b>No.</b> It is not feasible to relocate the existing roadway and bridges from their present location given the circulation system for Yosemite Valley.
Upper Pines RV and Walk-in Campground (New)	Constructed	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.
Former Upper River Walk-in Campground (New)	Constructed	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.

**TABLE 8-51: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 6**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Curry Village and Campgrounds (cont.)</b>			
Former Lower River Walk-in Campground (New)	Constructed	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.
Yosemite Lodge Campground (New)	Constructed	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.
Eagle Creek Campground (New)	Constructed	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience	<b>No.</b> No alternative areas of sufficient size or location (adjacent to the river, which is an integral part of the camping experience) could accommodate this campground in Yosemite Valley.
<b>Segment 2: Yosemite Village and Housekeeping Camp</b>			
Ahwahnee Row Employee Housing	Retained	<b>Yes:</b> This housing facility is necessary to accommodate a employees who provide visitor services that are consistent with the types and amounts of visitor use that have been found to protect and enhance river values.	<b>No.</b> There are no other suitable locations to move employee housing to in Yosemite Valley both in terms of size of these facilities and the need for them to be proximate to guest services to accommodate shift work schedules.
Lower Tecoya Employee Housing Area	Retained	<b>Yes:</b> This housing facility is necessary to accommodate a employees who provide visitor services that are consistent with the types and amounts of visitor use that have been found to protect and enhance river values.	<b>No.</b> There are no other suitable locations to move employee housing to in Yosemite Valley both in terms of size of these facilities and the need for them to be proximate to guest services to accommodate shift work schedules.
Lost Arrow Employee Housing Area	Removed and replaced with permanent housing	<b>Yes:</b> Housing facilities to accommodate a portion of the workforce necessary to provide visitor services consistent with the land use restoration and visitor experience goals of this alternative.	<b>No.</b> There are no other suitable locations to move employee housing to in Yosemite Valley both in terms of size of these facilities and the need for them to be proximate to guest services to accommodate shift work schedules.
Roundabout at Intersection of Northside Drive and Village Drive (at Yosemite Village Day-use Parking Area) (New)	Constructed	<b>Yes:</b> Planned components of the primary transportation & circulation road system that connects all major visitor service nodes.	<b>No.</b> No changes are proposed for the existing road system in Yosemite Valley. Improvements for this location are required to increase efficiency of transportation circulation.



**TABLE 8-51: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 6**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Yosemite Village and Housekeeping Camp (cont.)</b>			
Pedestrian Underpass at Northside Drive and Village Drive (at Yosemite Village Day-use Parking Area) (New)	Constructed	<b>Yes:</b> A pedestrian underpass is vital to reduce pedestrian and vehicle conflicts at this extremely busy intersection area. The pedestrian underpass would connect the majority of the day-use parking spaces with the main visitor services core area in Yosemite Village without requiring westbound traffic on Northside Drive to stop and allow pedestrians to cross the road.	<b>No.</b> No changes are proposed for the existing road system in Yosemite Valley. Improvements for this location are required to increase efficiency of transportation circulation.
Bank 3-way Roundabout (New)	Constructed	<b>Yes:</b> Planned components of the primary transportation and circulation road system that connects all major visitor center nodes	<b>No.</b> No changes are proposed for the existing road system in Yosemite Valley. Improvements for this location are required to increase efficiency of transportation circulation
Yosemite Village Day-use Parking Area	Re-developed and expanded	<b>Yes:</b> This facility will serve as the primary day-use parking lot for Yosemite Valley because it is proximate to numerous visitor services including the primary visitor center, museum, and the Valley shuttle. A day-use visitor parking area of this size is needed to support the level of public use that has been found to protect and enhance river values.	<b>No.</b> While some changes to the exact location of the parking lot and road system leading to the parking lot could be feasibly relocated, the parking lot could not be removed in its entirety unless a suitable replacement that would accommodate high volume visitor parking in Yosemite Valley is identified.
Residence 1 (Superintendent's House)	Retained	<b>Yes.</b> This historic structure is a component of the Historic Resources ORV and would be rehabilitated and used to support the visitor experience.	<b>No.</b> Under this alternative the facility must remain in its present location to remain a component of the Historic Resources ORV, given its siting and location contribute to the integrity of this historic property per its nomination to the National Register of Historic Places.
<b>Segment 2: Yosemite Lodge and Camp 4 Area</b>			
Yosemite Lodge Overnight Units	Removed and expanded infrastructure constructed	<b>Yes:</b> Yosemite Lodge offers mid-scale and economy overnight guest accommodations for visitors who do not or are unable to camp. The number of units allowed under this alternative are needed to support public use in a manner that is consistent with the types and amounts of visitor use that have been found to protect and enhance ORVs.	<b>No.</b> While some buildings within the Yosemite Lodge complex could be relocated to sites further north of the Merced River, however, it is not feasible to consider a wholesale relocation of the complex to an alternative location.
Yosemite Lodge Overnight Parking	Re-developed	<b>Yes:</b> Parking is needed to support visitors who stay at Yosemite Lodge. Parking is also needed for park partner organizations and NPS staff who use the Lodge's meeting and interpretive spaces (i.e., the Cliff Room, Gardner Terrace, and the outdoor amphitheater).	<b>No.</b> As long as visitor services are provided at Yosemite Lodge, it will be necessary to provide parking near the Lodge complex.
Yosemite Lodge Garden Terrace and Cliff Room	Retained	<b>Yes:</b> These areas are used for interpretive programs and for training courses, meetings, and special events. These facilities are vital to National Park Service and park partner operations.	<b>No.</b> The Garden Terrace and Cliff Rooms are within the existing buildings at the Yosemite Lodge complex. The activities taking place at these locations could be considered for relocation to alternative facilities; however, it is not feasible to consider removing the buildings in their entirety.

**TABLE 8-51: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 6**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: Yosemite Lodge and Camp 4 Area (cont.)</b>			
Yosemite Lodge Gift and Grocery (Convenience Shop)	Reduced	<b>Yes:</b> The facility provides visitors a limited range of merchandise including packaged and fresh groceries, sundries, and outdoor products frequently needed by campers and hikers.	<b>No.</b> The building currently housing the Yosemite Lodge Gift and Grocery Store is part of the Yosemite Lodge food service and retail structure and would be infeasible to relocate. However, the merchandise offered for sale from this facility could be relocated to other retail outlets in Yosemite Valley if sites outside the river corridor are identified.
Yosemite Lodge Mountain Room Bar & Food Service	Retained	<b>Yes:</b> Food services are necessary to support day visitors and those overnight visitors who are staying in lodging units without kitchenettes.	<b>No.</b> The building currently housing the Mountain Room Bar is part of the Yosemite Lodge food service structure and would be infeasible to relocate.
Yosemite Lodge Mountain Room Restaurant	Retained	<b>Yes:</b> Food services are necessary to support day visitors and those overnight visitors who are staying in lodging units without kitchenettes.	<b>No.</b> The building currently housing the Mountain Room restaurant is part of the Yosemite Lodge food service structure and would be infeasible to relocate. However, the merchandise offered for sale from this facility could be relocated to other retail outlets in Yosemite Valley if sites outside the river corridor are identified.
Yosemite Lodge Highland Court Employee Housing (Existing and New)	Replaced with permanent housing proximate to current location	<b>Yes:</b> This housing facility is necessary to house employees who provide visitor services at the Yosemite Lodge complex that are consistent with the types and amounts of visitor use that have been found to protect and enhance ORVs. Employee housing proximate to work site are vital given the demand for shift-workers and to reduce inter-Valley commuting.	<b>No.</b> The employees who are accommodated at this facility work at the Yosemite Lodge and need to be collocated for operational efficiencies.
Yosemite Lodge Employee Housing (Thousands Cabins) (Existing)	Removed and relocated (incorporated into permanent housing above)	<b>Yes:</b> This housing facility is necessary to house employees who provide visitor services at the Yosemite Lodge complex that are consistent with the types and amounts of visitor use that have been found to protect and enhance ORVs. Employee housing proximate to work site are vital given the demand for shift-workers and to reduce inter-Valley commuting.	<b>No.</b> The employees who are accommodated at this facility work at the Yosemite Lodge and need to be collocated for operational efficiencies.
Yosemite Lodge Day-use Parking (New)	Constructed	<b>Yes:</b> This facility will serve as a critical day-use parking lot for Yosemite Valley because substantial numbers of roadside parking spaces adjacent to meadows will be removed in the vicinity of the Yosemite Village Day-use Parking Area. This new parking area will serve as trailhead parking for the upper and lower Yosemite Falls trail, and overflow evening parking for Camp 4 Campground. It will also be used for the Wahhoga Cultural Center.	<b>No.</b> No alternative areas of sufficient size or location proximate to upper and lower Yosemite Falls trailhead, Wahhoga, Camp 4 and the Yosemite Lodge could accommodate this parking area.
Yosemite Falls Pedestrian Underpass (New)	Constructed	<b>Yes:</b> A pedestrian underpass is vital to reduce pedestrian and vehicle conflicts at this extremely busy intersection area. The pedestrian underpass would connect the pedestrians from the Yosemite Lodge Area to the Lower Yosemite Fall Area without requiring westbound traffic on Northside Drive to stop and allow pedestrians to cross the road.	<b>No.</b> No changes are proposed for the existing road system in Yosemite Valley. Improvements for this location are required to increase efficiency of transportation circulation.

**TABLE 8-51: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 6**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 2: West Yosemite Valley</b>			
West Valley Overflow Parking Area (New)	Constructed	<b>Yes:</b> This parking area will provide a vital queuing and staging area during peak use periods when congestion in the East Yosemite Valley reaches conditions whereby the National park Service would not permit more vehicles to add to the crowding. Visitors would have a choice to either use El Capitan Cross-over and visit other areas of the park, or wait until outbound traffic has reduced congestion in the East Yosemite Valley.	<b>No.</b> There are no other suitable locations (i.e., near the intersection of North- and Southside Drives with the El Capitan Crossover) that allow for the redirection of vehicle traffic entering east Yosemite Valley.
Yellow Pine Administrative	Retained	<b>Yes:</b> This administrative camping area is used by volunteers and researchers whose work is critical to meeting the NPS mission.	<b>No.</b> No alternative areas of sufficient size or location could accommodate this campground.
<b>Segment 4: El Portal</b>			
Rancheria Employee Housing Area (New)	Constructed	<b>Yes:</b> Housing facilities to accommodate a portion of the workforce necessary to provide visitor services.	<b>No.</b> In-fill employee housing should occur within existing employee housing areas
El Portal Remote Parking at Abbieville / Trailer Village (New)	Constructed	<b>Yes:</b> This parking area will provide a vital queuing and staging area during peak use periods when congestion in the East Yosemite Valley reaches conditions whereby the National park Service would not permit more vehicles to add to the crowding. Day-use visitors would be provided shuttle service to Yosemite Valley from this location.	<b>No.</b> There are no other suitable locations proximate with direct access to Highway 140 before entering Yosemite National Park boundary.
Abbieville / Trailer Village Employee Housing (New)	Constructed	<b>Yes:</b> Housing facilities to accommodate a portion of the workforce necessary to provide visitor services.	<b>No.</b> In-fill employee housing should occur within existing employee housing areas
<b>Segment 5 (Wild), Segments 6 &amp;7 (Recreational), Segment 8 (Wild)</b>			
Wawona Campground	Reduced	<b>Yes:</b> Camping is a component of the recreational ORV in this segment. Campgrounds are necessary to provide overnight opportunities that connect visitors with a direct outdoor experience.	<b>No.</b> This campground could not be relocated as no suitable alternative site exists in the Wawona proper adjacent to the river, which is an integral part of the camping experience.
Wawona Hotel Tennis Court	Retained	<b>Yes:</b> This visitor activity is a component of the Wawona Hotel NHL. Opportunities for this type of visitor recreation are unique in terms of setting attributes and the historic setting of the district.	<b>No.</b> The Wawona Hotel and its surrounding buildings, lawn, swimming tank, golf course are listed on the National Register of Historic Place. Their locations are integral to their historic significance that would be diminished by any relocation outside the river corridor.
Wawona Hotel Golf Course & Shop	Retained	<b>Yes:</b> This visitor activity is a component of the Wawona Hotel NHL. Opportunities for this type of visitor recreation are unique in terms of setting attributes and the historic setting of the district.	<b>No.</b> The Wawona Hotel and its surrounding buildings, lawn, swimming tank, golf course are listed on the National Register of Historic Place. Their locations are integral to their historic significance that would be diminished by any relocation outside the river corridor.

**TABLE 8-51: NECESSITY OF MAJOR PUBLIC-USE FACILITIES AND SERVICES- ALTERNATIVE 6**

Site Planning Area	Action	Justification: Is the Facility Needed for Public Use or Resource Protection?	Feasibility: If facility or services is necessary, is it feasible to relocate outside of the river corridor?
<b>Segment 5 (Wild), Segments 6 &amp;7 (Recreational), Segment 8 (Wild) (cont.)</b>			
Wawona Stables	Retained	<b>Yes:</b> The Wawona Stables offer visitors commercial equestrian day rides to points of interest in the Wawona area. This facility is necessary to support horseback riding, which is a type of use that has been found to be consistent with the protection and enhancement of river values.	<b>No.</b> The stable operates from a historic structure that could not be feasibly relocated.
Wawona Commercial Horseback Day Rides	Eliminated	<b>No:</b> Not considered a vital visitor service under this alternative.	<b>N/A:</b> This service will be eliminated.

## Conceptual Site Drawings

### *Boys Town*

In Alternative 6, the existing Boys Town cabins and facilities would be removed and replaced with 98 new lodging units suitable for year-round accommodations. This would consist of 25 duplex buildings, two 4-plex buildings, and five 2-story 8-plex buildings. A new 2,840 foot long pedestrian pathway, a guest check in building, 78 new parking spaces along the existing roadway, and 20 new parking spaces along the eastern edge of the Orchard Parking lot would also be constructed within the existing developed footprint. The Curry Orchard Day-use Parking Area would be formalized using best management practices to have a total of 430 parking spaces. New ground disturbance within the existing 8.4 acre footprint of Boys Town would include approximately 33,000 square feet for new buildings, 56,800 square feet of utility trenching, 14,200 square feet for pedestrian pathways, and 29,400 square feet of new parking for a total of 3 acres. Construction staging would require an area of approximately 1.4 acres and would likely take place within the existing Orchard Parking Area.

### *Yosemite Village Day-use Parking Area*

In Alternative 6, the existing 6-acre informal parking area would be moved 150 feet north from the high water mark of the river to facilitate riparian restoration goals and to prevent further resource damage. Restoration actions would remove non-native fill material, re-contour the topography, and plant native vegetation. The redesigned parking area would be formalized to provide a total of 850 parking spaces and a new comfort station. A pedestrian underpass and two roundabouts (one at the Village Drive/Northside Drive intersection and one at the Sentinel Drive/Northside Drive intersection) would be constructed in conjunction with improved pedestrian pathways which would address overall circulation at the site. The Concessioner General Office, Valley Garage, and Arts and Activities Center (former bank building) would be removed and the Village Sport Shop repurposed to a visitor contact station.

The area of disturbance for improvements at Camp 6 in Alternative 6 would cover approximately 27.5 acres and include 19 acres of clearing and grubbing, 1.2 acres for existing building removal, 4,000 square feet for the new comfort station, 5.4 acres of pavement removal, 2.6 acres of new roadway, 8.3 acres for new parking, 15,220 square feet of utility service trenching, 43,350 square feet for new pedestrian pathways, and 55,000 square feet for the pedestrian underpass. Construction staging would cover an area of approximately 2 acres.

### *Yosemite Lodge Parking Area*

In Alternative 6, the area west of Yosemite Lodge, currently used as parking for tour buses, transit buses, and overnight guests, would be re-developed to provide 300 day-use parking spaces, campsites for 20 RV's, parking for 15 buses, a new 3,000 square foot comfort station, and a re-located shuttle stop. The existing tour bus drop off area would be relocated to the Highland Court area. The wellness center, linen storage and laundry buildings would be removed. Ground disturbance over a 13.5 acre area would include 10.6 acres of clearing and grubbing, 55,850 square feet of existing building and pavement removal, 3,000 square feet for the new comfort station and shuttle stop, 17,300 square feet of utility service trenching, 3.6 acres for parking, and 5,000 square feet for pedestrian pathways. Construction staging would take place over a 2 acre area within the existing footprint. Existing vegetation would be retained to separate and screen parking bays while bioswales would serve to filter and treat storm water run-off.



### ***Yosemite Lodge Housing***

In Alternative 6, the temporary modular housing at Highland Court and the Thousand Cabins would be removed and replaced with two new buildings to house 104 concessioner employees. In addition, a new parking area would provide 78 employee parking spaces, parking for 3 shuttle buses, and 53 day-use parking spaces for the public. Ground disturbance for the two housing sites would cover a total of 7.4 acres and would include 45,500 square feet of preparation for the new buildings, 5,500 square feet of utility service trenching, and 1.8 acres for parking.

### ***El Portal Road from the Big Oak Flat Road to Pohono Bridge***

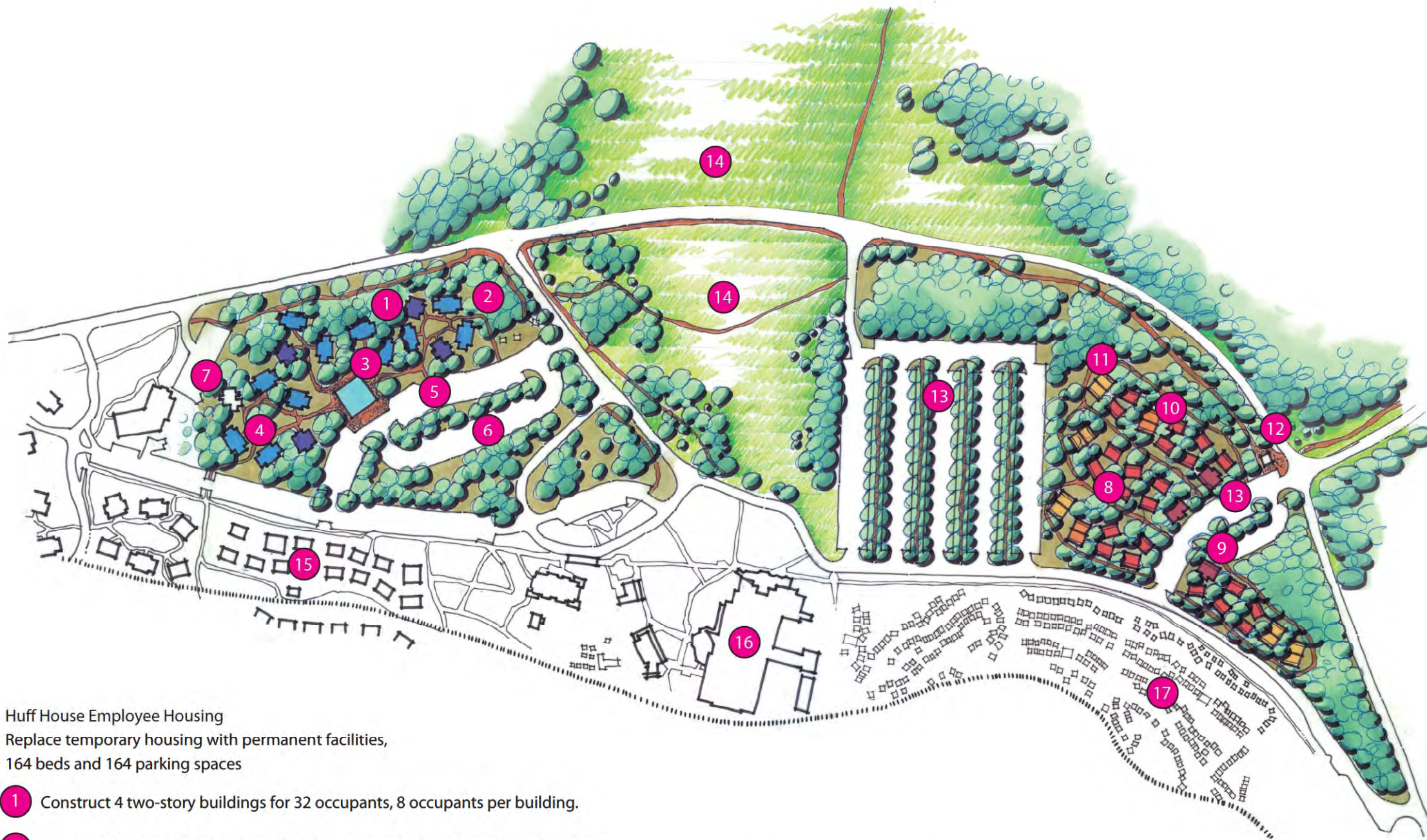
The 0.6 mile road segment of El Portal Road from the intersection of the Big Oak Flat Road to Pohono Bridge currently contains a number of non-delineated, dirt roadside pullouts. Five of the larger pullouts are located on the south side of the road immediately adjacent to the Merced River, while one is located on the north side of the road just west of the intersection with Northside Drive and Southside Drive. The use of these dirt pullouts and associated informal trails on the south side of the road is causing erosion and vegetation trampling of the riverbank in some locations. Common to all of the action alternatives, four of the pullouts on the south side of the road would be paved and formalized to provide parking for a limited number of vehicles. These pull-outs would be curbed to prevent further encroachment towards the river and would accommodate up to 20 total vehicles with the remaining roadside and riverbank soils would decompacted and restored to natural conditions. The largest pullout, located just east of the Big Oak Flat Road/El Portal Road intersection, would be removed and restored to natural conditions to avoid impacts to sensitive resources and to address safety concerns. The existing paved pullout on the north side of the road just west of the intersection with Northside/Southside Drive would also be formalized to accommodate 6 vehicles for a total parking capacity of 26 vehicles along this section of road. Curbing would be installed along the remaining south side road shoulder to prevent vehicles from creating additional informal pullouts, causing further resource damage. Of the 13 existing drainage culverts along this segment of the road, two would be removed and the remainder either retained or reconstructed in a manner that is consistent with their historic character and function.

### ***Concessioner General Office***

In Alternative 6, this office space would be replaced by reconfiguring the interior of the existing Concessioner Maintenance and Warehouse building located east of the NPS Government Utility Area. A 4,000 square foot addition to this building would also be constructed. The expansion of the building would require the elimination of 10 to 12 parking spaces that would be replaced nearby along Village Drive.

Additional parking spaces for vehicles associated with the existing and relocated maintenance and warehousing operations, administrative vehicles and private vehicles used by employees would be expanded near the facility to accommodate the increased occupancy of the remodeled worksite. Specific locations being considered for parking include formalizing approximately 17 spaces along Village Drive, 6 spaces to the northeast of the warehouse building, approximately 16 spaces along Boulder Lane, approximately 15 spaces along the north side of Tenaya Way and an additional 15 spaces north of the existing auditorium. Development of parking spaces behind the auditorium would require the removal of one existing employee residence.





**Huff House Employee Housing**  
 Replace temporary housing with permanent facilities,  
 164 beds and 164 parking spaces

- 1 Construct 4 two-story buildings for 32 occupants, 8 occupants per building.
- 2 Construct 11 two-story buildings for 132 occupants, 12 occupants per building.
- 3 Provide common recreational area, approximately 3,600 square feet.
- 4 Build plaza areas and walkways with site furnishings, accent paving, and enhanced landscaping.
- 5 Construct a shuttle bus stop.
- 6 Remove ice rink and bicycle rentals. Construct an employee parking facility with 164 spaces.
- 7 Retain historic residence for housing purposes.

**Boys Town Guest Lodging**  
 Replace tent cabins with 98 permanent guest cabins and 78 parking spaces

- 8 Construct 25 duplex buildings replicating historic cabins, or 50 units subtotal.
- 9 Construct 2 four-plex buildings, or 8 units subtotal
- 10 Construct 5 eight-plex buildings, or 40 units subtotal
- 11 Relocate Campground Reservation Center, provide 8 parking spaces.
- 12 Construct a roadway connecting Curry Village and East Valley Campgrounds with 78 parking spaces guests and 8 short-term parking spaces for Campground Reservation Center. 20 parking spaces will be reserved for guest use in Curry Orchard Parking Area.

**Curry Orchard Parking Area**

- 13 Improve parking area with 430 spaces and landscape buffers with trees and bioswales that will treat storm water run-off.

**Meadow Restoration Area**

- 14 Improve hydrology, remove invasive species, promote weed control and plant native species.

**Existing Curry Village Visitor Services**

- 15 Retain existing historic cabins and Stoneman Cottage (65 lodging units).
- 16 Retain existing Curry Pavilion.
- 17 Retain 290 tents.

\* These drawings are provided to demonstrate where facilities would be removed, relocated, or constructed according to actions more fully described by project alternatives. The drawings do not represent a final proposal. More detailed design and construction documents would be developed consistent with the general concepts presented here.



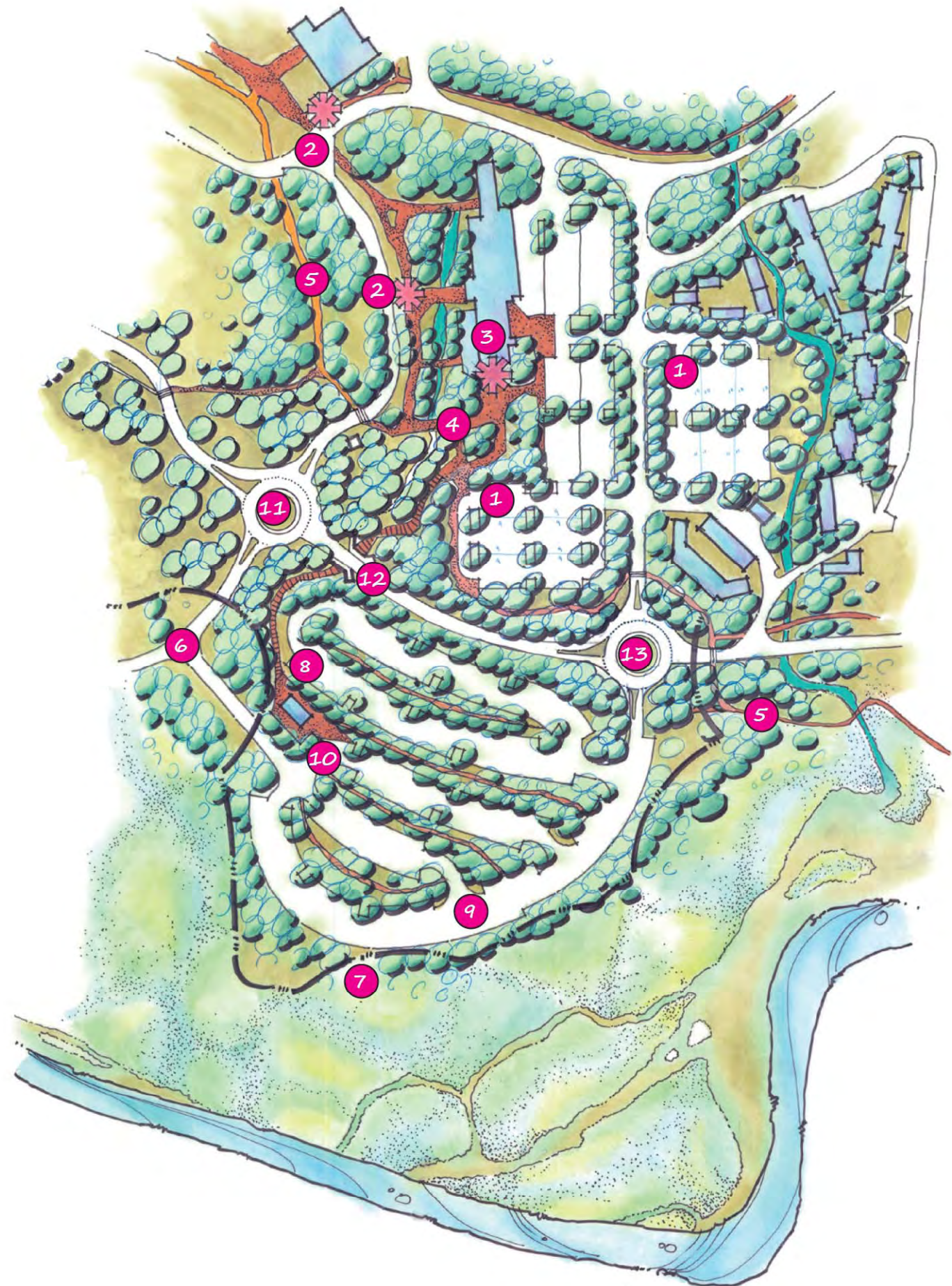
NORTH

**Alternatives 5 and 6**  
**Conceptual Site Drawing for**  
**Curry Village**  
 Yosemite National Park  
 United States Department of the Interior · National Park Service



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- 1 Eliminate Concession General Office and Garage located between the Village Store and Ahwahnee Meadow, providing more space for visitor parking.
- 2 Retain shuttle stops on Visitor Center Loop Drive.
- 3 Replace Village Sport Shop with visitor contact station.
- 4 Eliminate existing art activity center and improve pedestrian access.
- 5 Improve pedestrian connections and bike paths east and west of the day-use parking area.
- 6 Provide a two-way access driveway from Sentinel Drive as the primary entrance to the day-use parking area.
- 7 Redesign the day-use parking area to provide a 150-foot buffer from the river. Restore wetlands and meadow.
- 8 Create pedestrian pathways to lead visitors to the Yosemite Village mall. Construct a comfort station in a central location, connected to pedestrian walkways.
- 9 Provide 850 day-use parking spaces. Provide landscaped areas to retain large numbers of trees and screen parking bays and bioswales that will treat storm water run-off. Provide pedestrian pathways.
- 10 Relocate shuttle bus pick-up and drop-off area.
- 11 Construct a roundabout to alleviate traffic congestion at the intersection of Northside Drive and Sentinel Drive.
- 12 Construct a pedestrian underpass to eliminate conflict between automobiles and pedestrians on Northside Drive.
- 13 Construct a roundabout at the day-use parking area intersection with Village Drive and Northside Drive.



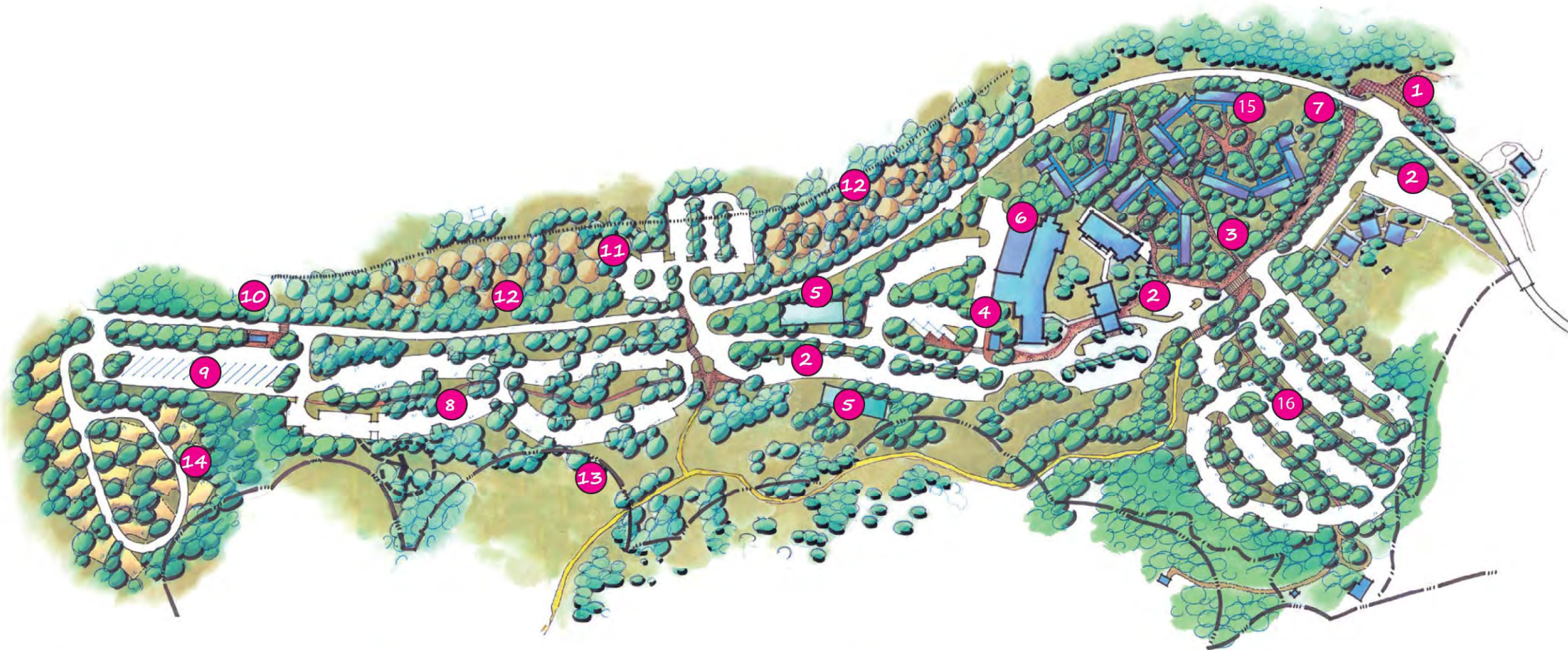
**Alternative 6**  
**Conceptual Site Drawing for**  
**Yosemite Village Day-use Parking Area**  
 Yosemite National Park  
 United States Department of the Interior • National Park Service

\*These drawings are provided to demonstrate where facilities would be removed, relocated, or constructed according to actions more fully described by project alternatives. The drawings do not represent a final proposal. More detailed design and construction documents would be developed consistent with the general concepts presented here.



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- 1 Re-align Yosemite Lodge intersection within the limits of existing developed areas.
- 2 Maintain parking for overnight guests.
- 3 Enhance pedestrian circulation system.
- 4 Construct tour bus loading and unloading area, with shelter.
- 5 Construct employee housing in 2 two-story buildings with 52 occupants per building and 39 employee parking spaces per building.
- 6 Relocate linen storage and laundry buildings from the 100-year floodplain to an addition to the food service building. Reconfigure truck loading and unloading area. Demolish and remove existing NPS volunteer office.

- 7 Reconstruct a section of the Yosemite Lodge entrance road as a pedestrian and bicycle promenade with a 5% slope to an underpass. Install accent paving, landscaping, wayfinding and site furnishings, and low-voltage site lighting consistent with design vocabulary for the Yosemite Falls trail.
- 8 Construct 300 visitor parking spaces at Yosemite Lodge Day-use Parking Area. Maintain existing vegetation as buffers to separate and screen parking bays and bioswales that will treat storm water run-off. Provide pedestrian pathways.
- 9 Construct 15 tour bus parking spaces.
- 10 Construct a shuttle bus stop with shelter and comfort station.

- 11 Construct 41 additional parking spaces at Camp 4.
- 12 Retain 35 existing walk-in campsites at Camp 4. Construct 35 additional walk-in sites opposite existing parking facility. Occupancy is limited to 6 campers per site. Standard walk-in campsite is 3,850 square feet (70-foot diameter), including 1,200 square feet of clearance with a 15-foot perimeter buffer.
- 13 Protect and enhance a 150-foot riparian buffer.
- 14 Construct an RV loop with 20 campsites.
- 15 Remove guest lodging buildings and construct a three-story lodging complex with a total number of 440 lodging units and an equivalent number of guest parking spaces. Organize high-density development area to maintain existing vegetation where possible

- 16 Construct parking area for 395 cars to augment existing parking areas and satisfy added lodging requirement. Maintain existing vegetation as buffers to separate and screen parking bays, and bioswales that will treat storm water run-off. Provide pedestrian pathways.

\* These drawings are provided to demonstrate where facilities would be removed, relocated, or constructed according to actions more fully described by project alternatives. The drawings do not represent a final proposal. More detailed design and construction documents would be developed consistent with the general concepts presented here.



NORTH

**Alternative 6**  
**Conceptual Site Drawing for**  
**Yosemite Lodge and Camp 4**  
 Yosemite National Park  
 United States Department of the Interior • National Park Service



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## THE ENVIRONMENTALLY PREFERRABLE ALTERNATIVE

### Legal Mandates

The Council on Environmental Quality (CEQ) regulations implementing NEPA (Code of Federal Regulations 40:1505.2) and the NPS NEPA guidelines require that “the alternative or alternatives which were considered to be environmentally preferable” be identified. Environmentally preferable is defined as “the alternative that would promote the national environmental policy as expressed in NEPA section 101. Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative that best protects, preserves, and enhances historic, cultural, and natural resources” (CEQ 1981).

Section 101 of NEPA states that:

It is the continuing responsibility of the Federal Government to . . .

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

### Conformance

Alternative 5 has been determined to be the alternative that has the greatest benefits to the biological and physical environment, while protecting, preserving, and enhancing historic, cultural, and natural resources. Alternative 5 would achieve a balance between population and resource use by maintaining current peak visitation levels without yet having to implement a day-use permit system. Additionally, Alternative 5 would restore essential riverbank areas within 100-foot buffer adjacent to Yosemite Valley campgrounds, including some of Upper and Lower River Campgrounds; and some acreage around Housekeeping Camp. This alternative would attain the widest range of beneficial uses of the environment by providing a diversity of recreational opportunities through an increase in the inventory of overnight accommodations, inventory of parking facilities, and paddling access to all segments (despite the elimination of commercial paddling).

The No Action Alternative (Alternative 1) would provide for diversity and variety of individual choice; however, it would not best fulfill any of the other requirements, particularly in Yosemite Valley, where increasing amounts of visitor use and foot traffic would continue to adversely affect ecologically sensitive meadow and riparian areas, archeological resources, scenic values, visitor experience, visitor safety, and park operations.

All of the action alternatives (Alternatives 2-6) would fulfill all of the above requirements through continuation of existing wilderness and resource management policies, ecological restoration of fragile meadow and riparian areas, protection of water quality, protection of archeological and historical resources, and conformance with existing requirements under Executive Order 13514 to improve energy efficiency, reduce consumption and waste, and conserve water use to improve sustainability of NPS operations and facilities. The alternatives would vary primarily in the extent of riparian restoration in Yosemite Valley; diversity of recreational opportunities affected by a range of user capacity and visitor use management, inventory and mixture of overnight accommodations, inventory and locations of parking facilities, and paddling restrictions.

Alternative 2 would have the most benefit to the biological and physical environment of the river due to the removal of three bridges and 6,664 linear feet of rip-rap. This alternative would ecologically restore the greatest number of acres through removal of roads, lodging and parking facilities, and infrastructure from meadows and other sensitive resources. Alternative 2 also would include extensive restoration of the 100-year floodplain adjacent to Valley campgrounds, including Upper and Lower River; complete removal of North Pines campground and stables and Housekeeping Camp; removal of Yosemite Lodge; removal of Tecoya housing areas. However, this alternative is the least protective of historic and cultural resources due to the removal of the three historic bridges and removal of historic lodging at Merced Lake High Sierra Camp, Housekeeping Camp, Curry Village, and Yosemite Lodge, and removal of the Wawona golf course. Finally, this alternative would result in the greatest reduction of the diversity of individual choice because it would reduce the inventory and mixture of overnight accommodations; implement the most restrictions on visitor use through a permit system required at the entrance stations; and result in the most restrictions to paddling.

Alternative 3 would have significant benefit to the biological and physical environment due to removal of three bridges and 6,135 linear feet of rip-rap. This alternative would include extensive restoration within 150-foot buffer adjacent to Valley campgrounds, removal of Yosemite Lodge units in the 100-year floodplain, removal and/or re-aligning roads through meadows, and major restoration of the Curry Orchard Parking Lot. As Alternative 2, this alternative would also remove the three historic bridges and Wawona golf course, and reduce historic lodging at Merced Lake High Sierra Camp, Housekeeping Camp, Curry Village, and Yosemite Lodge, though not to the extent proposed in Alternative 2. Alternative 3 would result in a moderate reduction in diversity of individual choice due to a reduction in overnight accommodations, day-use permit system, and minor paddling restrictions.

Alternative 4 would have moderate benefit to the biological and physical environment due to the removal of two bridges and 6,135 linear feet of rip-rap. This alternative would restore fewer acres than Alternatives 2 and 3, include partial restoration of Yosemite Valley meadows, and ecological restoration within a 150-foot buffer in Valley campgrounds. Alternative 4 would be slightly more protective of historic and cultural resources than Alternatives 2 and 3 because Stoneman Bridge would be retained, as well as all units at Yosemite Lodge. Alternative 4 would attain a wider range in beneficial uses over Alternatives 2 and 3 through the replacement of the Merced Lake High Sierra Camp with a temporary pack camp, a major increase in camping opportunities, a minor reduction in lodging from current levels, and fewer agency restrictions regarding paddling and day-use access.

Alternative 6 would provide outstanding, diverse recreational opportunities in the river corridor and would retain significant historic resources in all river segments. However, it would have only minor benefit to the biological and physical environment due to having the fewest number of acres restored and the fewest linear feet of rip-rap removed.

In comparison, Alternative 5 would strike a balance between maintaining the historic setting of the river corridor, maintaining a diversity of recreational opportunities, and allowing for extensive natural resource management throughout the river corridor to restore natural ecosystem function to the extent possible.

## **ACTIONS CONSIDERED BUT DISMISSED FROM FURTHER ANALYSIS**

Federal agencies are required to rigorously explore and objectively evaluate all reasonable actions and to briefly discuss the reasons for eliminating any alternatives that were not developed in detail (40 CFR 1502.14). As described in “Purpose and Need” (Chapter 2), public and internal scoping and planning sought to understand and consider input from the public, NPS staff, subject-matter experts, culturally associated American Indian tribes and groups, and other federal, state, and local agencies as part of an extensive planning process for the *Merced River Plan/DEIS*.

As a reminder, Chapter 2 describes actions brought forth during the planning process that the NPS considered but dismissed. The NPS removed actions from consideration if they were:

- Outside the scope of the plan.
- Already decided by law, regulation, or other higher-level decision.
- Not relevant to the decision to be made.
- Missing a valid cause and effect relationship.
- Associated with small effects relative to the decision to be made.
- Conjectural and not supported by scientific or factual evidence.
- Unreasonable or infeasible because they would be cost prohibitive, violate law or policy, or contribute to other resource concerns or hazards.
- Inconsistent with the facilities and services analysis criteria (see Chapter 7)

Additionally, the following actions were considered but dismissed from the range of alternatives in the *Merced River Plan/DEIS*:

**The NPS should reintroduce historical fire regimes as part of an ecological restoration and fuels management approach while balancing fire management with public safety, air quality, and visual experience values.**

*Rationale for Dismissal:* Fire management issues are addressed under the 2009 Yosemite Fire Management Plan and under annual workplans.

**The NPS should restore the Merced River corridor to conditions as existed prior to Euro-American settlement by removing nearly all commercial services and lodging, visitor facilities, limiting private vehicles, and conducting extensive restoration projects.**

*Rationale for Dismissal:* This action is inconsistent with the NPS’ Organic Act to provide for visitors’ experiences of the natural and cultural resources.

**When using a quarter-mile boundary throughout the river corridor, the NPS should keep a “scenic” classification in Wawona and East Yosemite Valley.**

*Rationale for Dismissal:* The boundaries and classifications of the Merced Wild and Scenic River have been presented and refined throughout the legal and planning history for the Wild and Scenic River. The classification of a river segment provides a general framework for the type and intensity of land management activities that may take place in the future (IWSRCC, 2002). To provide for visitors’ experiences as guided by the 1916 NPS’ Organic Act, a recreational classification in Wawona and East Yosemite Valley is appropriate and justified.

**The NPS should include the entire Yosemite Valley within the MRP boundaries.**

*Rationale for Dismissal:* The Wild and Scenic Rivers Act allows up to a maximum average of 320 acres per linear mile of river (equivalent to one-quarter mile on each side of the river) to be included within the boundaries of a Wild and Scenic River corridor. The project study area, however, of this plan includes all of Yosemite Valley within 1.5 miles of the Merced River’s ordinary high-water mark. This project study area ensures that NEPA and NHPA analysis will examine the impacts and effects to natural, cultural and socioeconomic resources throughout Yosemite Valley.

**The NPS should increase development in Wilderness areas.**

*Rationale for Dismissal:* The Merced River Plan is not considering an expansion of services and facilities in the entire river corridor. Furthermore, addition of permanent structures and development would violate the Wilderness Act of 1964 (with very limited exceptions where essential for administering an area as Wilderness).

**The NPS should re-align the river and allow a smaller channel of the river to continue to flow under Sugar Pine and Ahwahnee bridges.**

*Rationale for Dismissal:* Re-aligning a river is counter to restoring the free flow of a river. Also, the engineering of a river is a fundamental violation of the Wild and Scenic Rivers Act (with very limited exceptions where essential for administering an area as Wilderness).

**The NPS should restore all Yosemite Valley campsites that existed prior to the 1997 flood and/or are determined consistent with the General Management Plan (GMP).**

*Rationale for Dismissal:* The level of camping contemplated in the GMP proposed camping in locations that are ecologically sensitive, and the GMP was approved prior to designation of the Merced River as Wild and Scenic in 1987, therefore, it did not contemplate river values. Some campsites that existed prior to the 1997 flood, such as at Upper and Lower River Campgrounds, were sited on or adjacent to sensitive resources now considered river values. In response to public comment, the range of alternatives commit to providing a maximum number of campsites while protecting and enhancing river values. As required by WSRA, the Merced River Plan must provide for the ecological restoration of the river corridor. The NPS has determined that this protection requires the removal of existing campsites within a 100-foot riparian buffer between the ordinary high-water mark and the nearest campsite. In addition, due to the hydrologic processes ORV, new campsite development must incorporate a 150-foot riparian between the ordinary high-water mark and campsites located near the river.

**The NPS should have the Wilderness Stewardship Plan address the High Sierra camps.**

*Rationale for Dismissal:* The NPS must address how the High Sierra camps and all other major public use facilities in the river corridor affect river values.

**The NPS should eliminate private vehicles and tour buses from Yosemite Valley (as stated as a goal in the General Management Plan).**

*Rationale for Dismissal:* Although the removal of private vehicles in Yosemite Valley was a goal of the 1980 General Management Plan, the Merced River Plan/ DEIS will amend the GMP. This action would not meet the purpose and need of this plan. Existing transportation networks will not support this option, and construction of new transportation networks would be infeasible from a cost perspective to only allow access by public transit. In addition, the range of alternatives includes actions that reduce crowding and do not require the elimination of private vehicles. Finally, existing modes of travel provide for a diversity of visitor experiences that are integral to developing direct connections with the river.

**The NPS should widen Northside Drive and Southside Drive to improve traffic flow.**

*Rationale for Dismissal:* This action contradicts the purpose and need of a Wild and Scenic River Comprehensive Management Plan because it is not possible to widen road corridors in Yosemite Valley without impacting ORVs including meadow and riparian communities, and sensitive cultural resources.

**The NPS should limit tour bus access in Yosemite Valley because tour buses contribute to congestion, parking shortages, and road safety.**

*Rationale for Dismissal:* The NPS will continue supporting increased use of alternative forms of transportation. In addition, the NPS will only consider an East Yosemite Valley day-use parking permit system for private vehicles and tour buses when conditions become “unacceptable.” Thresholds for acceptable conditions are defined and monitored using scientific standards.

**The NPS should use pedestrian overpasses to alleviate pedestrian-vehicle conflicts at major crosswalks.**

*Rationale for Dismissal:* The NPS recognizes the need to separate pedestrians from vehicles in these congested areas. Construction of pedestrian overpasses that provide adequate accessibility for all visitors would require infrastructure that would be disproportionate to the landscape, and, therefore, would infringe on the scenic landscapes in these areas. The NPS has chosen pedestrian underpasses to remediate this pedestrian-vehicle conflict without affecting the scenic nature of Yosemite Valley.

**The NPS should re-introduce native fish to areas where they naturally occurred.**

*Rationale for Dismissal:* Although some Wild and Scenic River fisheries are considered outstandingly remarkable, this has not been the case of the Merced River fisheries within Yosemite. Native fish are found only in the lower elevations of the Merced River up to the vicinity of El Portal. Historically, the majority of waterbodies in Yosemite have been naturally fishless prior to fish stocking, which occurred in the area from 1877 to 1990. The native strain of rainbow trout in the Merced River corridor was lost long ago through hybridization with other introduced trout strains. The existing strain of rainbow trout acts as an ecological surrogate for the native strain. Restoration of the native strain would require detection of a relict population of native fish and eradication of the existing rainbow strain and introduced brown trout. The NPS considers native trout restoration infeasible on the Merced River due to the difficulty of eradication of the brown trout and existing rainbow trout. In addition, some fish have the ability to swim from El Portal to Yosemite



Valley, the non-native fish present in El Portal would likely recolonize upstream, causing additional stress and hybridization with a re-introduced population of native rainbow trout. Because native fish are not an ORV of the Merced River, this action was dismissed.

**The NPS should relocate all visitor services and employee housing from Yosemite Valley to El Portal.**

*Rationale for Dismissal:* Services are needed to support the level of visitation where that visitation occurs, primarily Yosemite Valley. Supporting the needs of millions of visitors requires a large workforce. Shuttling the entire employee population in and out of Yosemite Valley over multiple shifts throughout the course of the day would further compound traffic congestion currently experienced by visitors and significantly increase the carbon footprint associated with visitors and employees. Currently, Yosemite's park management has moved a substantial number of employees out of Yosemite Valley and out of El Portal. Further adjustments are infeasible and impractical at this point from a park operation's standpoint.

**The NPS should provide a visitation level higher than what Alternative 6 offers.**

*Rationale for Dismissal:* The National Park Service has considered a range of alternatives that provide lower and higher user capacities and related visitor use levels than exist today. Alternative 6 represents the highest use levels considered in this range. Capacities and use levels higher than those proposed in this alternative were considered but dismissed for the following reasons:

- Higher use levels would require significant expansion of infrastructure and development, which is not feasible while protecting river values and working within the constraints of Yosemite Valley's natural environment. Yosemite Valley, where the majority of use occurs in the Merced River corridor, is a long, narrow canyon. Significant physical site constraints exist limiting the expansion of infrastructure and developments that would be needed to accommodate higher use levels. Between rockfall and related hazard zones and floodplains and the locations of river values, no land area remains to expand developments beyond those proposed in Alternative 6.
- Infrastructure that would be required to accommodate higher use levels include widening roadways and intersections, retaining roadside parking in areas adjacent to meadows, expanding existing parking areas into sensitive resource areas or closer to the river, developing new parking areas and or camping areas in location that have not been previously disturbed. However, other alternatives to expanded parking include a multi-level parking garage that would not be congruent with retaining the natural scenic qualities of Yosemite Valley and would be cost prohibitive.
- Visitor use levels beyond those considered in alternative six would create additional crowding and congestion such as long queues at entrance stations, increased travel times through the park, and difficulties locating open parking, all of which would negatively affect the visitor experience.

## **COST COMPARISONS FOR THE MERCED WILD AND SCENIC RIVER COMPREHENSIVE MANAGEMENT PLAN**

The costs of implementing the MRP are defined for each alternative by the management actions that are included within the plan. Table 8-52 summarizes those costs that do not vary across the action alternatives and thus are considered common to all. Table 8-53 summarizes those costs that vary by alternative. These costs include natural resource protection and site improvements that would occur within the river corridor. Total project costs are summarized in Table 8-54.

**TABLE 8-52: PROJECT COSTS COMMON TO ALTERNATIVES 2-6**

Project Component	Common to All
<b>Yosemite Valley</b>	
Yosemite Valley Maintenance Area	\$9,833,708
Concessioner General Office Relocation	\$5,043,300
Bridalveil Fall	\$755,152
<b>El Portal</b>	
El Portal housing additions	\$5,973,381
<b>Wawona</b>	
Swinging Bridge Picnic Area	\$668,359
Wawona Maintenance Area	\$13,001,235
Wawona Town Center	\$1,811,354
<b>Miscellaneous Site-Specific Actions*</b>	
Costs Common to Alternatives 2-6	\$6,606,193

**TABLE 8-53: ALTERNATIVE PROJECT COSTS**

Project Component	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
<b>Yosemite Valley</b>						
Upper Pines Campground	\$0	\$590,359	\$3,555,559	\$7,529,202	\$7,529,202	\$7,529,202
Concessioner Stables	\$0	\$292,916	\$87,875	\$3,837,283	\$0	\$0
North Pines Campground	\$0	\$1,137,238	\$470,402	\$470,402	\$204,555	\$204,555
Lower Pines Campground	\$0	\$306,329	\$363,372	\$363,372	\$480,466	\$480,466
Curry Village Lodging and Employee Housing	\$0	\$45,005,402	\$30,520,312	\$32,526,590	\$46,294,562	\$48,327,763
Bridge Removals	\$0	\$3,950,898	\$3,950,898	\$2,637,067	\$1,520,682	\$0
Housekeeping Camp	\$0	\$1,767,149	\$1,767,149	\$622,807	\$419,802	\$245,445
Upper & Lower River Campgrounds	\$0	\$0	\$0	\$5,995,990	\$2,518,316	\$5,995,990
Yosemite Village Day-use Parking Area	\$0	\$8,311,720	\$7,763,719	\$7,918,376	\$10,019,466	\$11,844,989
Lost Arrow Employee Housing	\$0	\$811,650	\$811,650	\$7,711,355	\$7,711,355	\$7,711,355
Yosemite Lodge and Camp 4	\$0	\$17,460,290	\$24,156,475	\$28,617,726	\$27,641,055	\$100,779,542
West Valley Overflow Parking Area	\$0	\$0	\$0	\$0	\$1,216,099	\$2,040,209
El Capitan Meadow	\$0	\$0	\$0	\$926,478	\$926,478	\$926,478
Eagle Creek Campground (New)	\$0	\$0	\$0	\$0	\$4,401,403	\$6,668,792
<b>El Portal</b>						
Rancheria housing area	\$0	\$8,381,837	\$9,396,417	\$15,264,905	\$13,540,040	\$14,763,465
Abbieville-Trailer Court	\$0	\$52,794,663	\$2,249,936	\$2,249,936	\$2,249,936	\$55,531,245
<b>Wawona</b>						
Wawona Campground	\$0	\$1,963,465	\$1,881,298	\$1,881,298	\$1,651,233	\$1,651,233
<b>Miscellaneous Site-Specific Actions*</b>						
Unique to the alternative	\$0	\$8,165,000	\$7,830,000	\$2,580,000	\$2,150,000	\$1,575,000

\*These costs include removal of rip-rap (or riverbank lining); removal of informal trails, installation of engineered log jams, brush layering and willow plantings to address riverbank erosion; and other like actions.

**TABLE 8-54: TOTAL PROJECT COSTS**

	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
<b>Total**</b>	<b>\$0</b>	<b>\$262,752,657</b>	<b>\$186,971,954</b>	<b>\$222,514,383</b>	<b>\$235,125,897</b>	<b>\$418,457,354</b>

\*\*TOTAL INCLUDES net construction costs +35% TO ACCOUNT FOR COSTS ASSOCIATED WITH FOLLOW ON COMPLIANCE, SITE MONITORING AND CONTRACTING.

In total, the range of alternatives is priced from \$186 Million to \$418 Million when measured in current-year values. The mean (or average) cost of the range of alternatives is \$265 Million, while the median (or middle) value is \$235 Million. The preferred alternative would cost \$235 Million, approximately 90 percent of the mean cost of the entire range of alternatives.

## Anticipated Total Project Costs

Natural resource protection cost estimates were developed by NPS vegetation and ecological restoration biologists who have knowledge and expertise in undertaking work of this nature. These estimates presume use of existing park staff, base-funded positions, seasonal workers, consultants and volunteers to complete restoration work. Labor and material costs associated with actions common to all action alternatives include management actions that would remove rip-rap (or riverbank lining); remove abandoned infrastructure, such as bridge footings, plumbing or drainage structures; remove informal trails; loosen compacted soils; re-align trails to less-sensitive areas, harden trails in other locations; install engineered log jams, brush layering and willow plantings to address riverbank erosion; remove a limited number of problem campsites; remove asphalt and concrete; provide access to the river in certain locations; restore wetlands and portions of the flood plain; and remove obsolete buildings.

Specific resource restoration projects are also proposed across the range of alternatives, and are unique to one or more of the alternatives. Examples of these projects include proposed actions to remove certain roadways and bridges in Alternatives 2 and 3; construct boardwalks in meadows; restore the flood plain to different levels, such as the 10-year versus 100-year elevation; remove varying amounts of infrastructure from the flood plain; and install of varying numbers of engineered log jams.

Site redevelopment or improvement of existing facilities and a limited amount of new development is proposed for the purpose of protecting river values and supporting ongoing visitor use and enjoyment. Specific sites and projects are presented by rows in Table 8-52 and Table 8-53 and are described in more detail by project alternatives. Alternatives generally propose such actions as adding walk-in camp sites in several locations (Upper Pines, Upper and Lower River and Camp 4 campgrounds); replacing tents with permanent lodging units at Curry Village; replacing temporary employee housing with permanent structures in Curry Village, Yosemite Lodge, and El Portal; removing units from Housekeeping Camp; improving parking areas at Yosemite Village Day Use Parking Area, Yosemite Lodge, and in Wawona and El Portal; and proposing one new parking facility known as the West Valley Day Use Area.

Project alternative cost comparisons for Alternatives 2, 3, 4, 5 and 6 were generated by a senior cost estimating technical specialist and civil engineer from the Denver Service Center, one of only two agency employees who work full time in this capacity service-wide. Estimates are based upon management actions described in project alternatives and accompanying conceptual site plans. The cost estimating technician identified individual components of each project described by each of the alternatives, such as building descriptions and proposed uses, square footage, proposed demolition or adaptive re-use of structures, site preparations and site improvements (transit connections, required roadways, parking areas, pedestrian walkways and landscaping) and landscape enhancements for parking areas.

Cost estimates consider market prices for raw materials (sand, gravel and stone), building materials (lumber, construction paper, roofing material), windows and doors, heat, ventilation and air conditioning systems, plumbing and electrical fixtures, asphalt and other forms of concrete, etc. Specific costs were tabulated according to the characteristics of development proposed.

After calculating direct construction and development costs (or direct costs), estimates were adjusted according to a number of factors that are unique to the cost of working in Yosemite National Park. These factors include design fees and preparation of construction documents, cost of living for the region, remoteness, prevailing wage rates, state and local taxes to be paid by the contractor, commuting and lodging costs, special compliance requirements, contractor overhead, expectations for profit, bonds and permits, contracting method adjustments and rates of inflation. These factors are expressed as simple percentages known as mark-ups or add-ons resulting in net costs per unit. Costs were further adjusted to include project management costs that will otherwise accrue to the NPS, such as contracting and oversight functions, additional compliance, long-term monitoring, *et cetera*.

The full cost estimates amount to approximately 680 pages of analysis provided through detailed spreadsheets. Because of the volume and detail contained in the cost estimator's report, it is not feasible to reproduce the information within the river plan, but this information remains available for reference as part of the administrative record.

Class C cost estimates represent a broad overview of anticipated project costs. These estimates are intended to provide a realistic understanding of the full costs of project implementation, to help decision makers choose a preferred alternative and to establish long-term budget goals. Following the anticipated approval of the Merced River plan, as project descriptions are refined and design and construction documents prepared, Class B and Class A estimates will be completed in greater detail, with more accuracy and precision.

## **Operational (or non-Facility) Costs**

In order to protect and enhance river values and manage visitor use from year to year, implementation of the alternatives will require time and effort by staff resources, volunteers or contractors. These costs may increase or decrease depending on which alternative is selected. Management actions would require more or less operational maintenance, traffic and parking management, law enforcement and other ongoing duties of NPS and concessioner personnel. Park staff will be responsible for monitoring specific indicators and standards that are linked river values and related natural and cultural resources.

Approximate costs associated with operational costs are summarized in Table 8-55. Although specific operational costs are identified, each activity relates to existing monitoring programs or regular park management activities that are already conducted with existing park staff. The size of the park staff fluctuates seasonally, but the overall number of full-time employees varies from 800 in winter to approximately 1,000 in late spring and summer. Given flexibility in staffing and the size of the park's annual operating budget, operational costs are less significant than site-specific costs but are noteworthy for the purpose of comparing alternatives.

**TABLE 8-55: ADDITIONAL OPERATIONAL (NON-FACILITY) COSTS**

Project Component	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Alt 6
Cultural resources monitoring *	\$0	\$115,000	\$115,000	\$465,000	\$465,000	\$465,000
Facilities management and maintenance †	\$0	\$269,110	\$315,701	\$828,313	\$800,079	\$1,138,465
River value monitoring program †	\$0	\$300,000	\$300,000	\$300,000	\$300,000	\$300,000
Traffic and parking management †	\$0	-\$69,300	-\$77,700	-\$39,900	-\$10,500	\$8,400
Wildlife management †	\$0	\$0	\$0	\$110,000	\$65,000	\$150,000
* One-time cost	\$0	\$115,000	\$115,000	\$465,000	\$465,000	\$465,000
† Annual recurring costs	\$0	\$499,810	\$538,001	\$1,198,413	\$1,154,579	\$1,596,865

Cost figures presented here or elsewhere in the plan are intended to provide a general estimate of the relative costs of implementing the project alternatives. NPS and industry cost estimating guidelines were used to develop costs in 2012 dollars to a reliable and accurate extent, but estimates should not be used for budgeting purposes. Specific costs will be determined in subsequent, more detailed planning and design exercises, and will consider the design of facilities, identification of detailed resource protection needs, and changing visitor use expectations and constraints on user capacity. Actual costs to the NPS will vary depending on if and when the actions are implemented, and on contributions by partners and volunteers.

The implementation of this plan, regardless of which alternative is selected, will depend on future NPS funding levels and service-wide priorities, and on partnership funds, time, and effort. The approval of this plan does not guarantee that project funding or staffing are forthcoming. Full implementation of this plan is anticipated over a period of 15 to 20 years.

## COMPARISON OF USER CAPACITIES AND ALTERNATIVES ACTIONS

The following pages present summaries of alternatives as follows:

**TABLE 8-56: SUMMARY OF ALTERNATIVE CAPACITIES**

**TABLE 8-57: VISITOR DAY USE CAPACITIES (PEOPLE)**

**TABLE 8-58: MERCED WILD AND SCENIC RIVER PLAN ALTERNATIVE SUMMARY COMPARISON TABLE**



TABLE 8-56: SUMMARY OF ALTERNATIVE CAPACITIES

<b>ADEIS MRP USER CAPACITY SUMMARY</b>													
<b>User Capacities by Use Type and Location</b>		<b>Alt 1 (No Action)</b>		<b>Alt 2</b>		<b>Alt 3</b>		<b>Alt 4</b>		<b>Alt 5</b>		<b>Alt 6</b>	
	<b>Unit Type</b>	<b>Units</b>	<b>People</b>	<b>Units</b>	<b>People</b>	<b>Units</b>	<b>People</b>	<b>Units</b>	<b>People</b>	<b>Units</b>	<b>People</b>	<b>Units</b>	<b>People</b>
<b>Wilderness Above Nevada Fall</b>													
Visitor Overnight Use	Zone Capacities & Beds	380	380	195	195	260	260	270	270	362	362	380	380
Visitor Day Use	Day Hikers	350	350	350	350	350	350	350	350	350	350	350	350
Employee Housing	Employee Beds	15	15	5	5	10	10	10	10	15	15	15	15
Administrative Day	People on Day Patrols	5	5	5	5	5	5	5	5	5	5	5	5
<b>Yosemite Valley</b>													
Visitor Overnight Use	Rooms & Campsites	1,500	6,564	1,006	4,758	1,098	5,027	1,524	7,224	1,693	7,729	1,987	9,006
Visitor Day Use*	Parking Spaces & Buses	-	8,272	-	6,819	-	6,289	-	7,554	-	8,954	-	9,449
Employee Housing	Employee Beds	1,315	1,315	658	658	1,086	1,086	1,087	1,087	1,136	1,136	1,136	1,136
Administrative Day	Parking Spaces	166	332	166	332	166	332	166	332	166	332	166	332
<b>Gorge</b>													
Visitor Overnight Use	Rooms & Campsites	-	-	-	-	-	-	-	-	-	-	-	-
Visitor Day Use	Parking Spaces	180	869	180	869	180	869	180	869	180	869	180	869
Employee Housing	Employee Beds	9	9	9	9	9	9	9	9	9	9	9	9
Administrative Day	Parking Spaces	2	4	2	4	2	4	2	4	2	4	2	4
<b>El Portal</b>													
Visitor Overnight Use	Rooms & Campsites	-	-	-	-	-	-	-	-	-	-	-	-
Visitor Day Use	Parking Spaces	214	740	214	740	214	740	214	740	214	740	214	740
Employee Housing	Employee Beds	192	192	618	618	223	223	300	300	288	288	506	506
Administrative Day	Parking Spaces	610	1,220	610	1,220	610	1,220	610	1,220	610	1,220	610	1,220
<b>South Fork Above Wawona</b>													
Visitor Overnight Use	Zone Capacities	20	20	20	20	20	20	20	20	20	20	20	20
Visitor Day Use	Day Hikers	6	6	6	6	6	6	6	6	6	6	6	6
Employee Housing	Employee Beds	-	-	-	-	-	-	-	-	-	-	-	-
Administrative Day	Day Patrols	1	1	1	1	1	1	1	1	1	1	1	1
<b>Wawona</b>													
Visitor Overnight Use	Rooms & Campsites	203	865	171	673	176	703	176	703	190	787	190	787
Visitor Day Use*	Parking Spaces & Buses	-	1,295	-	1,321	-	1,321	-	1,399	-	1,606	-	1,606
Employee Housing	Employee Beds	121	121	121	121	121	121	121	121	121	121	121	121
Administrative Day	Parking Spaces	30	60	30	60	30	60	30	60	30	60	30	60
<b>South Fork Below Wawona</b>													
Visitor Overnight Use	Overnight Hikers	3	3	3	3	3	3	3	3	3	3	3	3
Visitor Day Use	Day Hikers	3	3	3	3	3	3	3	3	3	3	3	3
Employee Housing	Employee Beds	-	-	-	-	-	-	-	-	-	-	-	-
Administrative Day	Day Patrols	1	1	1	1	1	1	1	1	1	1	1	1

\*Day use capacities in these segments factors in visitors arriving by private vehicles, regional transit and commercial tour buses. See breakdown by transportation mode in Table 8-57

**TABLE 8-57: VISITOR DAY USE CAPACITIES (PEOPLE)**

<b>Visitor Day Use Capacities (People)</b>	<b>ALT 1</b>	<b>ALT 2</b>	<b>ALT 3</b>	<b>ALT 4</b>	<b>ALT 5</b>	<b>ALT 6</b>
<b>Wilderness above Nevada Fall</b>						
MAX hikers thru corridor to Half Dome	300	300	300	300	300	300
MAX hikers per day to corridor	50	50	50	50	50	50
<b>ABOVE NEVADA FALL TOTAL</b>	<b>350</b>	<b>350</b>	<b>350</b>	<b>350</b>	<b>350</b>	<b>350</b>
<b>Yosemite Valley</b>						
PAOT from parking areas	7,260	5,858	5,328	6,497	7,549	7,941
PAOT from regional transit	293	241	241	337	684	788
PAOT from tour buses	720	720	720	720	720	720
<b>VALLEY TOTAL</b>	<b>8,272</b>	<b>6,819</b>	<b>6,289</b>	<b>7,554</b>	<b>8,954</b>	<b>9,449</b>
<b>Gorge</b>						
PAOT from parking areas	869	869	869	869	869	869
<b>El Portal</b>						
PAOT from parking areas	740	740	740	740	740	740
<b>South Fork above Wawona</b>						
MAX hikers per day to corridor	6	6	6	6	6	6
<b>Wawona</b>						
PAOT from parking areas	911	911	911	911	911	911
PAOT from regional transit	0	26	26	104	311	311
PAOT from tour buses	384	384	384	384	384	384
<b>WAWONA TOTAL</b>	<b>1,295</b>	<b>1,321</b>	<b>1,321</b>	<b>1,399</b>	<b>1,606</b>	<b>1,606</b>
<b>South Fork below Wawona</b>						
MAX hikers per day to corridor	3	3	3	3	3	3

	Alternative 1 (No Action)	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
<b>Ecological Restoration</b>						
Total restoration acreage	0 acres	347 acres	302 acres	223 acres	203 acres	170 acres
Riprap	15,589 linear feet (existing)	6,664 linear feet removed	6,135 linear feet removed	6,135 linear feet removed	6,135 linear feet removed	6,048 linear feet removed
Free-flowing Condition (Bridges)	0 bridges removed	Remove 3 bridges: Ahwahnee, Sugar Pine, and Stoneman	Remove 3 bridges: Ahwahnee, Sugar Pine, and Stoneman	Remove 2 bridges: Ahwahnee, and Sugar Pine	Remove 1 bridge: Sugar Pine	0 bridges removed. Use design and engineering solutions.
Meadow Connectivity (Roads)	No re-routing of roads	<ul style="list-style-type: none"> <li>Remove Southside Drive along Stoneman Meadow</li> <li>Remove Northside Drive along Ahwahnee Meadow</li> </ul>	<ul style="list-style-type: none"> <li>Remove Southside Drive along Stoneman Meadow</li> <li>Remove Northside Drive along Ahwahnee Meadow</li> </ul>	<ul style="list-style-type: none"> <li>Remove Southside Drive along Stoneman Meadow</li> </ul>	Roads remain. Design and engineering solutions applied.	Roads remain. Design and engineering solutions applied.
<b>Camping (Existing)</b>						
Backpackers	25 walk-in sites	0 walk-in sites (-25 sites but partially relocated)	0 walk-in sites (-25 sites but partially relocated)	0 walk-in sites (-25 sites but partially relocated)	10 walk-in sites (-15 sites that are relocated)	10 walk-in sites (-15 sites that are relocated)
Camp 4	35 walk-in sites	35 walk-in sites	35 walk-in sites	35 walk-in sites	35 walk-in sites	35 walk-in sites
Lower Pines	76 sites	44 sites (-32 sites)	61 sites (-15 sites)	61 sites (-15 sites)	71 sites (-5 sites)	71 sites (-5 sites)
North Pines	86 sites	0 sites (ecologically restored)	52 sites (-34 sites)	52 sites (-34 sites)	72 sites (-14 sites)	72 sites (-14 sites)
Upper Pines	240 sites	216 sites (-22 sites)	238 sites (-2 sites)	238 sites (-2 sites)	238 sites (-2 sites)	238 sites (-2 sites)
Yellow Pine Administrative	4 group administrative sites	0 sites (-4 group sites)	4 group administrative sites	4 group administrative sites	4 group administrative sites	4 group administrative sites
Wawona Campground and Wawona Stock Camp	99 sites (includes 1 group site and 2 stock sites)	67 sites (-32 sites) (2 stock sites relocated to Wawona Stables)	72 sites (-27 sites) (2 stock sites relocated to Wawona Stables)	72 sites (-27 sites) (2 stock sites relocated to Wawona Stables)	86 sites (-13 sites) (2 stock sites relocated to Maintenance Yard)	86 sites (-13 sites) (2 stock sites relocated to Wawona Stables)
<b>Total Existing Camping Sites</b>	<b>565 sites</b>	<b>362 sites</b>	<b>462 sites</b>	<b>462 sites</b>	<b>516 sites</b>	<b>516 sites</b>
<b>Campground Development (New)</b>						
West of Backpackers Walk-in	0 sites	16 walk-in sites	16 walk-in sites	16 walk-in sites	16 walk-in sites	16 walk-in sites
East of Camp 4 Walk-in	0 sites	35 walk-in sites	35 walk-in sites	35 walk-in sites	35 walk-in sites	35 walk-in sites
Upper Pines RV-Loop	0 sites	0 sites	36 RV sites	36 RV sites	36 RV sites	36 RV sites
Upper Pines Walk-In	0 sites	0 sites	0 sites	51 sites (49 walk-in sites, 2 group sites)	51 sites (49 walk-in sites and 2 group sites)	51 sites (49 walk-in sites and 2 group sites)
Former Upper River Walk-In	0 sites	0 sites (ecologically restored)	0 (ecologically restored)	32 sites (30 walk-in sites, 2 group sites)	30 walk-in sites	32 sites (30 walk-in sites and 2 group sites)
Former Lower River Walk-In	0 sites	0 sites (ecologically restored)	0 (ecologically restored)	40 walk-in sites	0 sites	40 walk-in sites
Concessioner Stables in Yosemite Valley (re-purposed as drive-in camping)	0 sites	0 sites	0 sites	41 drive-in car sites	0 sites	0 sites
Boys Town Walk-In	0 sites	0 sites	0 sites	40 walk-in sites	0 sites	0 sites
Eagle Creek (drive-in car and RV)	0 sites	0 sites	0 sites	0 sites	42 sites (40 drive-in car and 2 group sites)	79 drive-in car and RV sites
Yosemite Lodge Walk-In (re-purposed as camping)	0 sites	104 sites (100 walk-in and 4 group sites)	0 sites	0 sites	0 sites	0 sites
West of Lodge RV Sites	0 sites	0 sites	0 sites	20 RV sites	0 sites	20 RV sites
Abbieville / Trailer Court	0 sites	4 group administrative sites	0 sites	0 sites	0 sites	0 sites
<b>Total New Camping Sites Total</b>	<b>0 sites</b>	<b>159 sites</b>	<b>87 sites</b>	<b>311 sites</b>	<b>210 sites</b>	<b>309 sites</b>
<b>Total Camping Sites Corridorwide</b>	<b>565 sites</b>	<b>521 sites</b>	<b>549 sites</b>	<b>773 sites</b>	<b>726 sites</b>	<b>825 sites</b>
<b>Wilderness Camping</b>						
Merced Lake Backpackers Camping Area; Little Yosemite Valley Camping Area; and Moraine Dome Camping Area	All three designated camping areas remain.	All three designated camping areas are discontinued. Area converted to dispersed camping.	All three designated camping areas are discontinued. Area converted to dispersed camping.	Continue designated camping areas at all three sites. (Note: Little Yosemite Valley Camping Area reduced. Merced Lake Backpackers Camping Area expanded.)	Continue designated camping areas at all three sites.	Continue designated camping areas at all three sites.

	Alternative 1 (No Action)	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
<b>Lodging</b>						
Curry Village Lodging Units	400 units (per Settlement Agreement, 103 guest lodging units can not be included in No Action)	433 lodging units at Curry Village, consisting of 143 hard-sided units and 290 tents.	355 lodging units at Curry Village, 65 hard-sided units and 290 tents. Boys Town would be ecologically restored.	355 units at Curry Village, consisting of 65 hard-sided units and 290 tents. Convert Boys Town to a 40-site campground.	453 units at Curry Village, consisting of 163 hard-sided units and 290 tents.	453 lodging units at Curry Village, consisting of 163 hard-sided units and 290 tents.
Yosemite Lodge	245 rooms	0 rooms (-245 rooms with area re-purposed as day lodge and camping)	143 rooms (-102 rooms comprised in 4 buildings removed from 100-year floodplain)	245 rooms	245 rooms	440 rooms (construct multiple 3-story lodging structures outside the 100-year floodplain).
Housekeeping Camp	266 units	0 units (-266 units: Convert to river access and picnicking, and ecologically restore 100-year floodplain)	0 units (-266 units: Convert to river access and picnicking, and ecologically restore 100-year floodplain)	100 units (-166 units: Removed from ordinary high-water mark)	232 units (-34 units: Removed from bed and banks)	232 units (-34 units: Removed from bed and banks)
Ahwahnee Hotel	123 rooms	123 rooms	123 rooms	123 rooms	123 rooms	123 rooms
Wawona Hotel	104 rooms	104 rooms	104 rooms	104 rooms	104 rooms	104 rooms
Merced Lake High Sierra Camp	22 units (60 beds)	0 units (lodging facility closed and re-purposed as camping)	15 people (lodging converted to temporary pack camp)	0 units (lodging facility removed and ecologically restored)	11 units (-18 beds)	22 units (60 beds)
<b>Lodging Totals (units)</b>	<b>1,160 units</b>	<b>660 units</b>	<b>725 units</b>	<b>927 units</b>	<b>1,168 units</b>	<b>1,374 units</b>
<b>Transportation</b>						
Curry Orchard Parking Area	424 spaces	420 spaces	300 spaces	300 spaces	430 spaces	430 spaces
Yosemite Village Day-use Parking Area	754 spaces	550 spaces (parking moved north)	550 spaces (parking moved north)	750 spaces (parking moved north)	850 spaces (parking moved north)	850 spaces (parking moved north)
Yosemite Lodge: Converted to Day Lodge	0 spaces	250 spaces	0 spaces	0 spaces	0 spaces	0 spaces
Yosemite Lodge Parking Area	0 spaces	150 spaces	150 spaces	150 spaces	300 spaces	300 spaces
West Valley Overflow Parking Area	No	No	No	No	100 spaces	250 spaces
Total Yosemite Valley Day-Use Parking	2,337 spaces (0% change)	1,800 spaces (-23% change)	1,597 spaces (-31% change)	2,045 spaces (-13% change)	2,448 spaces (+5% change)	2,598 spaces (+11% change)
El Portal Remote Visitor Parking	No	No	No	200 spaces	200 spaces	200 spaces
Roundabouts / Traffic Circles	No	No	No	No	<ul style="list-style-type: none"> <li>Traffic Circle: Northside Drive and Village Drive (at Yosemite Village Day-use Parking Area)</li> </ul>	<ul style="list-style-type: none"> <li>Roundabout: Northside Drive and Village Drive (at Yosemite Village Day-use Parking Area)</li> <li>Roundabout: Northside Drive and Sentinel Drive (at Bank 3-Way)</li> </ul>
Pedestrian Underpasses	No	No	No	<ul style="list-style-type: none"> <li>Yosemite Falls Underpass</li> </ul>	<ul style="list-style-type: none"> <li>Yosemite Falls Underpass</li> </ul>	<ul style="list-style-type: none"> <li>Yosemite Village Day-use Parking Area Underpass</li> <li>Yosemite Falls Underpass</li> </ul>
<b>Concession Housing</b>						
Concession Employee Beds (in Yosemite Valley)	1,151 employees	494 employees	922 employees	923 employees	972 employees	972 employees
Temporary Housing Units Removed (all occurring within Yosemite Valley)	- 0 beds	- 519 beds	- 489 beds	- 469 beds	- 439 beds	- 439 beds
Permanent Replacement Housing (in Yosemite Valley)	+ 0 beds	+ 164 beds	+ 268 beds	+ 318 beds	+ 318 beds	+ 318 beds
Permanent Replacement Housing (in El Portal)	+ 0 beds	+ 426 beds	+ 31 beds	+ 108 beds	+ 96 beds	+ 314 beds
<b>East Valley Visitation and Parking</b>						
Daily Visitation to East Yosemite Valley (Day and Overnight)	20,900 visitors	13,900 visitors	13,200 visitors	17,000 visitors	19,900 visitors	21,800 visitors
Total Parking (day, overnight, and administrative use) in East Yosemite Valley	5,200 spaces	4,000 spaces	4,300 spaces	4,800 spaces	5,300 spaces	5,900 spaces
<b>Cost Estimates</b>						
Total Project Costs	\$0 (if no actions taken)	\$262,752,657	\$186,971,954	\$222,514,383	\$235,125,897	\$418,457,354

# COMPREHENSIVE RIVER VALUE ANALYSIS

## INTRODUCTION

Section 10(a) of the Wild and Scenic Rivers Act (WSRA) requires managers to “protect and enhance the values which caused [the river] to be included in [the wild and scenic rivers] system.” The 1982 Secretaries’ Guidelines for River Areas (USDI and USDA 1982) indicate that the nondegradation and enhancement standard for the outstandingly remarkable values (ORVs) of a wild and scenic river is initiated at time of designation. Consistent with section 10(a) of WSRA, Alternatives 2 – 6 give primary emphasis to protecting the river’s “esthetic, scenic, historic, archeological and scientific [biological, geologic, and hydrologic] features” by proposing actions that would address the management concerns identified for these values.

While the actions proposed in this plan are designed to improve the condition of individual river values, this section examines the collective impact of all actions to ensure that the consequences of actions to protect one resource do not have unintended impacts to others. The combination of actions included in each alternative to protect a specific river value (described in Chapter 5) coupled with actions related to land use and facilities, and the user capacity management program are evaluated here for their overall net effect on each river value. These effects are compared with the measures of adverse effect and degradation provided in Chapter 5 as a checkpoint for the conclusion that all alternatives will protect and enhance all river values and meet the intent of WSRA.

## ALTERNATIVE 2

### River Value- Free-flowing Condition (All Segments)

A free-flowing river, or section of a river, moves in a natural condition without impoundment, diversion, straightening, riprapping, or other modification of the waterway. The current free-flowing condition of the Merced River is fully protected and enhanced on a segmentwide basis. Riprap revetment, abandoned infrastructure within the bed and banks of the river, and bridges that constrict the flow of the river may produce localized effects on free-flowing condition of the river. Alternatives 2-6 would enact a comprehensive suite of actions to enhance the free-flowing condition of the river by removing 3,400 linear feet of riprap and removing abandoned and unnecessary infrastructure from the river channel and its floodplain. Infrastructure that would be removed includes former sewage treatment facilities, sewer and water lines, and former bridge abutments. Alternative 2 would remove an additional 964 linear feet of riprap beyond that proposed for removal under Alternatives 2-6.

Alternative 2 also proposes removal of the Stoneman, Ahwahnee, and Sugar Pine bridges, which produce hydraulic constrictions that lead to accelerated erosion and prevent natural channel migration during high-water events. The removal of the three bridges would help achieve the robust ecological restoration principles that guide Alternative 2.

There are no new facilities proposed under Alternative 2 that would affect the free-flowing condition of the river. A number of proposed facility actions would enhance the connectivity of the river and its floodplain



(see Hydrological/Geological ORVs). For example, Alternative 2 would relocate the Yosemite Village Day-use Parking Area north, outside the 10-year floodplain, and the Odger's fuel storage area in El Portal would be moved out of the 500-year floodplain.

To protect the river's free flowing condition in the future, the NPS would require all proposed projects involving construction within the bed or banks of the Merced River or its tributaries to undergo an analysis in accordance with Section 7 of the WSRA. Through this process, the NPS would ensure that water resources projects within the designated river corridor would not lead to "direct or adverse effects" on free flow, and that projects on tributaries to the river do not "invade or unreasonably diminish" the river's free flowing condition.

**Conclusion:** The free-flowing condition of the Merced River is fully protected and enhanced on a segmentwide basis. This alternative includes localized management considerations such as intermittent riverbank riprap, and bridges that constrict river flows. Alternative 2 proposes a comprehensive suite of actions to enhance the free-flowing condition of the river by removing riprap, removing unnecessary infrastructure in the river channel, and removing three bridges that produce pronounced hydraulic constrictions at high water flows. There are no new facilities proposed under Alternative 2 that would affect the free-flowing condition of the river within the river channel, and a number of proposed facility actions would enhance the connectivity of the river and its floodplain (see Hydrological/ Geological ORVs). The NPS would require all proposed projects within the bed or banks of the Merced River or its tributaries to undergo an analysis in accordance with Section 7 of the WSRA to ensure that water resources projects would not lead to "direct or adverse effects" on free flow, and that projects on tributaries to the river do not "invade or unreasonably diminish" the river's free flowing condition. The actions proposed under Alternative 2 ensure that there are no direct or adverse effects on the free-flowing condition of the Merced River.

## River Value- Water Quality (All Segments)

The water quality of the Merced River is extremely high, and the current water quality of the river is fully protected and enhanced on a segmentwide basis. Intermittent local instances of contamination may occur in connection with surface water runoff from parking areas, recreational vehicle dump stations in proximity to the river, and accelerated erosion with potential sediment loading in the river during high water flows. Alternatives 2-6 would apply mitigation measures to ensure that surface water runoff associated with parking areas protects the water quality of the Merced River and meets regulations. The Upper Pines and Wawona recreational vehicle dump stations would be moved away from the river, and the Odger's bulk fuel storage area in El Portal would be moved out of the 500-year floodplain. In addition, Alternative 2 would relocate the Yosemite Village Day-use Parking Area outside the 10-year floodplain. All campsites and infrastructure currently within 100-feet of the river would be removed. The pack trail from Curry Village stables to Happy Isles would be re-routed farther away from the river. These actions would result in less erosion along the riverbank, reduce use in sensitive areas, direct use to resilient areas, and mitigate potential sources of pollutants.

Large-scale ecological restoration actions would take place along the riverbank and floodplain of the Merced River. These actions would enhance water quality, particularly the actions that re-establish

riverbank vegetation and reduce erosion potential. Ecological restoration actions are described in more detail in the discussion of the biological ORVs below and in Appendix E.

There are no new facilities proposed under Alternative 2 that would affect the water quality of the river. To maintain excellent water quality, the NPS would monitor water quality indicators that are tied to human activity (e.g., nutrient levels), and take specific actions should specific trigger points be reached.

**TABLE 8-59: CORRIDOR-WIDE ACTIONS AND THEIR IMPLICATIONS FOR WATER QUALITY**

Location	Action in Alternative 2	Effects to Water Quality
<b>Segment 2</b>		
North, Lower and Upper Pines Campgrounds and Backpackers Campgrounds	Campsites within the 100-year floodplain would be removed. Designated river access and put in areas established at resilient areas, discourage access to sensitive areas. Upper Pines dump station relocated away from the river.	These changes would result in less erosion along the riverbank; water quality would be enhanced segmentwide.
New campsites at Backpacker's, Camp 4, and Yosemite Lodge	New campsites constructed at Yosemite Lodge, Backpackers, and Camp 4 out of the 150 foot riparian buffer.	Change would not result in additional water quality effects on a segmentwide level.
Yosemite Village Day-Use Parking Area	Move the unimproved parking lot out of the 10-year floodplain and restore the riparian habitat adjacent to the river.	Change would result in less erosion and storm water run-off from the parking area; water quality would be enhanced locally.
Pack Trail from Concessioner Stables to Happy Isles	Remove the Concessioner stable and the pack trail from the stable to Happy Isles; restore to natural conditions	Change would result in less erosion from the stock trail. Water quality would be enhanced locally.
Housekeeping Camp Lodging	Remove all 266 lodging units and associated facilities out of the 100-year floodplain; restore the floodplain to natural conditions.	Fencing and designated river access points would also direct use to resilient areas. Water quality would be enhanced locally.
<b>Segment 4</b>		
NPS Maintenance and Administrative Complex	Existing parking area formalized and paved using best management practices	Change would result in less erosion and storm water concerns in the parking area; water quality would be enhanced locally.
Odger's Bulk Fuel Storage	(Common to All) Remove Odger's bulk fuel storage facility and restore the rare floodplain community of valley oaks. Create a valley oak recruitment area of 2.5 acre in the vicinity of the current Odger's bulk fuel storage area, including the adjacent parking lots.	Removal of bulk fuel storage from the 500-year floodplain would further protect water quality segmentwide.
<b>Segment 7</b>		
Wawona Campground	Replace current septic system with waste water collection system connected to the waste water treatment plant. RV dump site relocated away from the river.	Change would result in less potential for storm water concerns in the campground; water quality would be enhanced locally.
Wawona Picnicking	Delineate boundaries of two formal picnic areas with formal river access points.	Change would result in less erosion along; water quality would be enhanced locally.

**Conclusion.** Under Alternative 2, water quality in all segments of the Merced River corridor would continue to be absent of adverse effects and degradation, and the potential for localized instances of contamination would be strongly reduced. Water quality would therefore continue to be protected on a corridor-wide basis. Alternative 2 would address localized water quality issues by moving the Upper Pines and Wawona recreational vehicle dump stations away from the river, moving the Odger's bulk fuel storage

area outside of the 500-yr floodplain, and applying mitigation measures to ensure surface water runoff associated with parking areas meets requirements. Large-scale riverbank restoration actions would decrease the potential for accelerated riverbank erosion and sediment loading during high water events. To ensure that existing high water quality conditions are maintained, the NPS would monitor water quality indicators that are tied to human activity (e.g., nutrient levels), and take specific actions should specific trigger points be reached.

## **Segment 1 – Merced River above Nevada Fall (Wild Segment)**

### ***Biological ORV-1 – High-elevation Meadows and Riparian Habitat***

The Merced River sustains numerous small meadows and riparian habitat with high biological integrity. Primary actions to protect and improve Biological ORV-1 include removal of informal trails that incise meadow habitat, trails in wet and/or sensitive vegetation, and trails that fragment meadow habitat, including trails in the Triple Peak Fork meadow, wetlands near Echo Valley and Merced Lake shore, mineral springs between Merced Lake and Washburn Lake, and other areas as necessary. Removal of social trails that bisect the meadows would improve conditions in this segment because soil compactions and habitat fragmentation would be reduced. Grazing would be permanently removed from Merced Lake East Meadow and pack stock would be required to pack-in pellet feed to address localized effects from grazing, roll-pits, manure, and trampled soils. Grazing would continue in other meadows in this segment.

This alternative would remove all facilities at the High Sierra Camp and the area would be ecologically restored, converting the area to designated wilderness. Designated camping areas in Little Yosemite Valley, Moraine Dome, and the Merced Lake Backpackers Camping Area would be converted to dispersed camping. Seasonal and weekend restrictions for commercial groups in the Mount Lyell, Merced Lake, and Little Yosemite Valley zones would be managed as indicated in Chapter 8. These changes would reduce use levels near the riverbank and result in some improvement to riparian conditions in the immediate vicinity of these camping areas. Facilities that would remain in this segment of the river include Merced Lake Ranger Station, Little Yosemite Valley trail crew and ranger camp, trails and footbridges. The baseline condition assessment for the Biological ORV in this segment indicates that these facilities are not adversely affecting the Biological ORV.

As described in Chapter 5, to ensure this ORV is protected and enhanced through time, the NPS would monitor three indicators to assess the condition of the ORV: meadow bare soil, meadow fragmentation due to the proliferation of informal trails, and streambank stability. The NPS would establish a baseline for all three indicators using site-specific monitoring protocols by 2013. Regular monitoring would also reveal whether assumptions about human behaviors and actions taken to correct past actions are sustaining conditions above the management standard. If conditions have reached trigger points; the NPS would implement specific response actions (as described in Chapter 5)

**TABLE 8-60: SEGMENT 1 ACTIONS AND IMPLICATIONS FOR BIOLOGICAL ORV-1**

Location	Action in Alternative 2	Effects to ORV-1
<b>Location</b>		
Meadow Trails	Remove informal trails that incise meadow habitat.	Change reduces effects to wet and sensitive meadows and results in localized enhancement to ORV-1.
Merced Lake High Sierra Camp	Remove all facilities at the High Sierra Camp and ecologically restore the area.	Changes reduce uses near riverbank which would result in localized enhancement of ORV 1 through reduction in erosion and trampling of riparian resources.
<b>Visitor Use Management Action</b>		
Private boating would be allowed in this segment	Boating would consist of short floats using pack raft or other craft that can easily be carried. Private use would be unlimited in this segment; however, boaters completing overnight trips would be subject to wilderness permit restrictions.	Limited numbers would protect riparian habitat from trampling and bank erosion that could result with unlimited access. Changes would not affect high-elevation meadow and riparian habitat, this ORV would continue to be protected on a segmentwide level.
Wilderness zone capacity	Zone capacities for Merced Lake, Washburn Lake, Mount Lyell, and Clark Range zones would remain the same across all the alternatives. Manage to a reduced capacity of 25 in the Little Yosemite Valley Wilderness Zone.	Current zone capacities are designed to protect wilderness character including natural conditions such as riverbanks and meadows. Reduced capacity in LYV would result in localized enhancement of riparian habitat and thus this ORV.
Facilities retained	Merced Lake Ranger Station, Little Yosemite Valley trail crew and ranger camp	These facilities and associated administrative uses and maintenance do not affect riparian habitat or meadows.

to avoid or minimize adverse effects. The meadow monitoring programs for the biological ORV would monitor meadow fragmentation to ensure that use levels from hikers, backpackers and stock users do not result in meadow fragmentation or bare ground in excess of the management standards prescribed to protect and enhance meadows.

**Conclusion.** Under Alternative 2, the biological ORV in Segment 1 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. All actions would further enhance riverbanks and meadows at specific locations. Removal of social trails, grazing in Merced Lake East Meadow, conversion of the designated camping areas to dispersed camping, and reduced use would improve meadow conditions in this segment and thereby enhance the biological ORV. The wild segment of the Merced River corridor above Nevada Fall would show little evidence of human activity and remain largely free of structures. Facilities that would remain in this segment of the river include Merced Lake Ranger Station, Little Yosemite Valley trail crew and ranger camp, trails and footbridges. The baseline condition assessment for the Biological ORV in this segment indicates that these facilities are not adversely affecting the Biological ORV.

***Geological/Hydrological ORV-4 – Glacially-carved Canyon in the Upper Merced River Canyon***

As discussed in Chapter 5, there are no management considerations with respect to the U-shaped, glacially carved canyon above Nevada Fall. This ORV is currently protected and enhanced segmentwide within the meaning of the Wild and Scenic Rivers Act. Alternative 2 does not propose any actions that would change

the condition of this ORV over time. Further, the U-shaped, glacially carved attributes of this ORV would not be affected by the types and levels of use authorized under this alternative, which are all directed toward wilderness oriented recreation. The NPS would nevertheless monitor the condition of this ORV to ensure that its condition does not decline.

***Scenic ORV-15 – Scenic Views in Wilderness***

Visitors to this Wilderness segment experience scenic views of serene montane lakes, pristine meadows, slickrock cascades, and High Sierra peaks. Management considerations associated with the condition of the scenic river above Nevada Fall include contributions of regional air pollution (primary factors contributing to this condition are outside of NPS jurisdiction), visual intrusions of temporary and permanent structures, and crowding in and near wilderness campgrounds. There are few “visual intrusions” noted at the High Sierra Camp and other designated camping areas. However, these effects are local in nature and do not affect the ORV on a segment wide basis. The NPS would ensure that designated camping areas are maintained in a clean and tidy condition. Under Alternative 2, the High Sierra Camp would be removed and replaced with dispersed camping. This change would return scenic views to be keeping with the native landscape. These measures would locally enhance the scenic ORV. Other visitor use management actions under Alternative 2 would reduce crowding, thus additionally enhancing this ORV on a segmentwide basis.

**TABLE 8-61: SEGMENT 1 ACTIONS AND IMPLICATIONS FOR SCENIC ORV-15**

Location	Action in Alternative 2	Effects to ORV-15
Merced Lake High Sierra Camp	Remove all facilities at the High Sierra Camp and ecologically restore the area.	Change would locally enhance ORV because the reduced infrastructure that remains would better blend in to the natural environment.
Merced Lake Backpackers Camping Area	Transfer to dispersed camping area.	Element currently does not cause adverse effects or degradation to ORV on a segment wide basis, thus ORV would continue to be locally protected in this area.
Facilities retained	Merced Lake Ranger Station, Little Yosemite Valley trail crew and ranger camp	These facilities and associated administrative uses and maintenance do not result in segmentwide adverse effects to scenic values. The ORV will continue to be protected on a segmentwide level.

The ORV is determined to be in the protected state, as defined by an absence of adverse effects and degradation, although intermittent air quality concerns are present. Because of the ambient nature of air quality, it cannot be managed exclusively for the river corridor. Facilities that would remain in this segment of the river include Merced Lake Ranger Station, Little Yosemite Valley trail crew and ranger camp, trails and footbridges. The baseline condition assessment for the scenic ORV in this segment indicates that these facilities are not adversely affecting the scenic ORV.

**Conclusion.** Under Alternative 2, the scenic ORV in Segment 1 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. All actions would further enhance scenic values in this segment. Removal of the Merced Lake High Sierra Camp, conversion of the designated camping areas to dispersed camping, and ecological restoration of meadows and riparian areas would improve scenic conditions in this segment and thereby enhance the scenic ORV. The wild segment of



the Merced River corridor above Nevada Fall would show little evidence of human activity and remain largely free of structures.

### ***Recreational ORV-19 – Wilderness Recreation above Nevada Fall***

Visitors to federally designated Wilderness in Segment 1 would engage in a variety of river related activities in an iconic High Sierra landscape, where opportunities for primitive and unconfined recreation, self-reliance, and solitude shape the Wilderness experience. The current condition of this ORV is at or above the management standard at the segment level. Localized management concerns in this segment relate to crowding at Little Yosemite Valley and Moraine Dome backpackers campgrounds, high use levels at the Merced Lake Backpackers Camping Area, and high encounter rates along the trails that connect these areas. Crowding and high use levels affect the Wilderness experience, which is an integral part of the recreational ORV in this segment.

Alternative 2 would remove the Merced Lake High Sierra Camp, remove permanent infrastructure, converting the area to designated Wilderness. The capacity of the Little Yosemite Valley Wilderness Zone would be reduced to 25, and the footprint of the camping area would be reduced accordingly. Designated camping areas in Moraine Dome and the Merced Lake Backpackers Camping Area would be converted to dispersed camping. This would give backpackers an opportunity to camp outside of close proximity to other backpackers. Actions in Alternative 2 would apply additional seasonal and weekend restrictions for commercial groups in the Mount Lyell, Merced Lake, and Little Yosemite Valley zones. These changes would reduce use crowding, high use levels, and increase opportunities for solitude in this Wilderness segment.

Facilities that would remain in this segment of the river include the Merced Lake Ranger Station, Little Yosemite Valley trail crew and ranger camp, trails and footbridges. These facilities do not have an adverse effect on the Wilderness experience integral to this Recreational ORV.

NPS would monitor visitor encounter rates to ensure that they are not exceeding established standards. Should specific trigger points be reached, the NPS would be required to implement a series of specific actions to reduce visitor levels to an acceptable level. These actions increase in severity as the current condition ORV condition moves away from the management standard to ensure proper course correction and re-establishment of the management standard. These trigger points were selected to inform managers in advance of any adverse effects or degradation to this ORV.

**Conclusion:** Under Alternative 2, the recreational ORV in Segment 1 of the Merced River corridor would be protected on a segmentwide basis and continue to be absent of adverse effects and degradation on a segmentwide level. Although actions under Alternative 2 would decrease the availability for visitors to pack in to wilderness (on horses or mules) conversion of backpackers campgrounds to dispersed camping, reductions in the zone capacity for Little Yosemite Valley, and removal of the Merced Lake High Sierra Camp would address management considerations by reducing crowding, high use levels, and increasing opportunities for solitude.

**TABLE 8-62: SEGMENT 1 ACTIONS AND IMPLICATION FOR RECREATION ORV-19**

Location	Action in Alternative 3	Effects to ORV-19
<b>Location</b>		
Merced Lake High Sierra Camp	Remove the Merced Lake High Sierra Camp, remove permanent infrastructure, convert the area to designated Wilderness.	The undeveloped and primitive recreation elements of wilderness character are enhanced on a segmentwide level by removal of this facility.
Little Yosemite Valley, Moraine Dome, and the Merced Lake Backpackers Camping Areas	Designated camping areas would be converted to dispersed camping.	The solitude and primitive elements of wilderness character would be enhanced due to the opportunity to camp out of sight and sound of other campers.
Segmentwide River Access	Swimming and water play allowed. No permits required for private boating. No commercial boating	Permitted use and commercial limits would not substantively change current recreational use or recreational values in the segment. Recreational values would continue to be protected segmentwide.
<b>Visitor Use Management Action</b>		
Private boating	Boating would consist of short floats using pack raft or other craft that can easily be carried. Private use would be unlimited in this segment; however, boaters completing overnight trips would be subject to wilderness permit restrictions.	Permitted use would not substantively change current recreational use or recreational values in the segment. Recreational values would continue to be protected segmentwide.
Wilderness zone capacity	Zone capacities for Merced Lake, Washburn Lake, Mount Lyell, and Clark Range zones would remain the same across all the alternatives. Manage to a reduced capacity of 25 in the Little Yosemite Valley Wilderness Zone	Zone capacities are designed to protect recreational setting attributes and recreational experience quality. Reduced capacity in LYV would result in localized enhancement of recreational values in the wilderness.

## Segment 2 – Yosemite Valley (Recreational and Scenic Segments)

### *Biological ORV-2 – Mid-elevation Meadows and Riparian Habitat*

The meadows and riparian communities of Yosemite Valley comprise one of the largest mid-elevation meadow-riparian complexes in the Sierra Nevada. Actions to protect and enhance Biological ORV-2 under Alternative 2 include:

- Removal of informal trails in meadows where they fragment meadow habitat or cross through sensitive, wet vegetation communities. Overall, restore twelve miles of informal trails throughout Yosemite Valley;
- Use boardwalks or hardened surfaces to allow access to sensitive areas;
- Delineation and re-routing of trails through upland areas and along meadow perimeters;
- De-compacting trampled soils and consolidate multiple parallel trails;
- Re-directing visitor use to more stable and resilient river access points such as sandbars, and designate formal river access sites. Establishing fencing and signage to protect sensitive areas; install boardwalks where appropriate, and actively revegetate where needed;

- Remove all campsites and infrastructure within the 100-year floodplain and restore natural floodplain and riparian habitat;
- Restoration of the mosaic of meadow, riparian deciduous vegetation, black oak, and open mixed conifer forest at specific locations in Yosemite Valley. Management actions could include re-vegetation, prescribed fire, mechanical removal of conifers, and infrastructure re-design. Alternative 2 would include 347 acres of ecological restoration.
- Day use parking capacity is expanded and formalized. A total of 1,800 visitor parking spaces would be provided in the Valley accommodating a maximum of 5,858 people at one time to Segment 2. Managing access and other proactive restoration measures would protect Biological ORVs by during periods of high use.
- A series of actions to improve and relocate parking (described further below and in Chapter 8) would protect Biological ORVs by removing these uses from the river corridor and managing access in the corridor.

This recreational river segment would remain readily accessible by road and will continue to have appropriate development along the shorelines (a comprehensive list of facilities in Segment 2 is included in table 7-1). Under this alternative, all roads, buildings, campgrounds, trails, utilities and infrastructure, and other facilities in this segment with current local effects on the biological ORV would be removed, reduced, or relocated, including Yosemite Lodge. Facilities that would remain in this segment of the river have no direct impact on the biological river value as indicated in the baseline condition assessment. Effects to the free-flowing condition of the river as a result of the bridges that would remain under this alternative would be mitigated through constructed log jams.

The NPS would monitor three indicators to assess the condition of ORV 2: meadow fragmentation resulting from informal trails, the status of riparian habitat, and riparian bird abundance. As described in Chapter 5, adverse effects and degradation are not present. Actions are proposed to address management considerations pertaining to meadow connectivity, informal trailing, and fragmentation.

The NPS is beginning to monitor the third indicator in this segment, riparian bird abundance. The first status assessments would take place in 2013, after one year of monitoring. The next assessment requires information from two out of three years.

To ensure the biological ORV in Segment 2 is protected and enhanced through time, the NPS would continue to monitor the condition of the ORV to provide early warning of conditions that require management action before effects occur. Regular monitoring would also reveal whether conditions have reached trigger points; and, if so, the NPS would implement specific response actions (as described in Chapter 5) to avoid or minimize adverse effects.

**TABLE 8-63: SEGMENT 2 ACTIONS AND IMPLICATIONS FOR BIOLOGICAL ORV-2**

Location	Action in Alternative 2	Effects to ORV-2
Segmentwide Restoration	(Common to all) Restoration includes restoration of meadow habitat, removal of informal trails, riparian restoration and establishment of designated river access points, and use of boardwalks and hardened surfaces.	Actions would enhance the biological ORV segmentwide.
<b>Curry Village and Campgrounds</b>		
North, Lower and Upper Pines Campgrounds and Backpackers Campgrounds	All campsites within the 100-year floodplain would be removed. Designated put in areas established.	These changes would result in less erosion along the riverbank because designated access points to resilient areas are identified for visitors, and sensitive areas would be discouraged; the biological ORV would be enhanced segmentwide.
Stoneman Meadow and Curry Orchard parking lot	Removal of 1,335 feet of Southside Drive and re-alignment of road through Boys Town area. The Orchard Parking Lot would be re-designed. Remove apple trees and landscape with native vegetation. Extend the meadow boardwalk through wet areas to Curry Village (up to 275').	These changes would promote water flow and improve meadow health thereby enhancing the biological ORV locally.
New campsites at Yosemite Lodge, Backpacker's, and Camp 4	New campsites constructed at Yosemite Lodge, Backpackers, and Camp 4 out of the 100 year floodplain.	Actions would protect riparian areas from direct impacts related to the increase in visitor activity in these areas. Fencing and designated river access points would also direct use to resilient areas. Monitoring would proactively assess the effectiveness of these actions and established triggers to ensure that future protective measures are implemented in a timely manner. Change would result in protection of biological ORV in this segment.
Ahwahnee, Sugar Pine and Stoneman Bridges	Remove the Ahwahnee, Sugar Pine and Stoneman Bridges, and the associated berms and restore to natural conditions. Reroute the multiple use trail to the north bank of the river. Reroute utilities under Ahwahnee Bridge.	Change would reduce channel widening, erosion, and scouring thereby enhancing local riparian communities.
<b>Yosemite Village and Housekeeping Camp</b>		
Housekeeping Camp Lodging	Remove all 266 lodging units. Convert Housekeeping Camp to a day use river access point and picnic area.	These changes would reduce effects to riparian corridor and enhance ORV components locally due to restoration. In addition access would be directed to resilient sandy beaches.
Ahwahnee Row and Tecoya Dorms Concessioner Employee Housing	Remove housing and development, recontour topography, decompact soils, and restore stream hydrologic function.	These changes would remove infrastructure from the 100-year floodplain and former meadow and wetland areas thereby locally enhancing the ORV.
Northside Drive (Stoneman Bridge to Yosemite Village Day use Parking Area)	Remove 900' of road and relocate the bike path to the south.	These changes would improve meadow/river connectivity.

Table 8-63: Segment 2 Actions and Implications for Biological ORV-2 (continued)

Location	Action in Alternative 2	Effects to ORV-2
<b>Yosemite Village and Housekeeping Camp (cont.)</b>		
Sentinel Drive Roadside Parking	Remove roadside parking along Sentinel Drive and restore to natural conditions.	These changes would remove uses from the riverbank thus reducing erosion and trampling effects in riparian corridor and enhancing ORV components locally.
<b>Yosemite Lodge and Camp 4</b>		
Superintendent’s House (Residence 1)	Remove and relocate to the NPS housing area.	Relocation of this facility outside of the river corridor may reduce informal trailing in the adjacent meadow thereby enhancing the ORV locally.

**Conclusion:** Under Alternative 2, the biological ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. All actions would further enhance riverbanks and meadows. Removal or relocation of select campsites and infrastructure and reduced use would improve meadow conditions in this segment and thereby enhance the biological ORV. The recreational segment of the Merced River corridor in East Yosemite Valley would remain readily accessible by road and will have appropriate development along the shorelines. The scenic portion of Segment 2 in West Yosemite Valley would remain free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

***Geological/Hydrological ORV-5 – The “Giant Staircase”***

The NPS has no immediate management considerations with respect to the Giant Staircase characteristic of the geology of Yosemite Valley above Happy Isles as this geologic ORV is determined to be absent of adverse effects and degradation. Because there are no considerations regarding the condition of this ORV, no actions other than continued protection is necessary. It is unlikely that this ORV would be affected by human intervention in the future. Therefore, the NPS would not monitor the condition of this ORV as part of the *Merced River Plan/DEIS*.

***Geological/Hydrological ORV-6 – Rare, Mid-elevation Alluvial River***

As described in Chapter 5, the NPS selected the status of riparian habitat as the indicator to specifically assess the effectiveness of actions designed to protect this and other ORVs. This ORV integrates geologic/hydrologic processes and the condition of aquatic, riparian, and floodplain communities.

The following actions are included to specifically protect and enhance free-flowing conditions and the biological ORV in Segment 2, but would also address the protection and enhancement of the Geologic/Hydrologic ORV in Segment 2:

- Large wood, constructed log jams, and brush layering would be used in the vicinity of bridges to decrease bed scouring and streambank instability, river widening, river constrictions, and low channel complexity. Riprap would be removed where possible and replaced with native riparian vegetation, using bioengineering techniques. In the event that such actions do not improve conditions, bridge redesign or removal could be reconsidered.



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- Under Alternative 2 the free-flowing condition of the river would be enhanced by removing the Ahwahnee, Sugar Pine, and Stoneman Bridges. Mitigation measures would be employed during removal and the long-term recovery of the removal areas is expected. Restoring free-flowing conditions would enhance riparian communities associated with ORV-6.
- Removing abandoned underground infrastructure, along the river corridor would be part of a comprehensive strategy to correct altered surface and subsurface hydrology.
- Remove riprap where riverbanks do not need stabilization to allow for channel migration. Replace riprap with bioengineered riverbanks, integrating native riparian vegetation, where riverbank stabilization is necessary for protection of critical infrastructure.
- Remove all campsites and infrastructure within the 100-year floodplain and restore natural floodplain and riparian habitat.
- Major restoration of the 100-year floodplain and restoration of the dynamic 10-year floodplain in East Yosemite Valley.

**TABLE 8-64: SEGMENT 2 ACTIONS AND IMPLICATIONS FOR GEOLOGICAL/HYDROLOGICAL ORV-6**

Location	Action in Alternative 2	Effects to ORV-6
<b>Yosemite Village and Housekeeping Camp</b>		
Yosemite Village Day Use Parking Area/Village Center Parking Area	Move the Yosemite Village Day Use Parking Area day-use parking area northward 150 feet away from the river to facilitate restoration goals. Formalize parking area with a total of 550 parking places.	These changes would reduce effects to the riparian corridor and enhance ORV components locally as use would be relocated away from areas critical to hydrologic function.
Ahwahnee Row and Tecoya Dorms Concessioner Employee Housing	Remove housing and development out of the 100-year floodplain, recontour topography, decompact soils, and restore stream hydrologic function.	These changes would remove infrastructure from the 100-year floodplain and former meadow and wetland areas thereby enhancing the floodplain and geologic/hydrologic processes locally.
Housekeeping Camp Lodging	Remove all 266 lodging units. Convert Housekeeping Camp to a day use river access point and picnic area.	These changes would reduce effects to riparian corridor and enhance ORV components locally. In addition access would be directed to resilient sandy beaches.
<b>Yosemite Lodge and Camp 4</b>		
Yosemite Lodge Parking Area	West of Yosemite Lodge re-developed to provide additional 150 day use parking spaces.	Implementation of mitigation measures would protect the floodplain from erosion and other disturbance during construction.
Yosemite Lodge Visitor Facilities	Remove all of the lodging units (-245 units). Repurpose the area outside the 100-year floodplain for Day Lodge and Parking. Restore the 100-year floodplain.	Lodging is outside the 100-year floodplain and is not causing adverse effects
Yosemite Lodge Concessioner Employee Housing	Remove old and temporary housing at Highland Court and the Thousands Cabins. Construct two new concessioner housing areas housing 104 employees. Construct 78 employee parking spaces.	Lodging is outside the 100-year floodplain and is not causing adverse effects

To ensure this ORV is protected and enhanced through time, the NPS would monitor the condition of the ORV using the status of riparian habitat as an indicator, and take specific actions should conditions reach trigger points.

**Conclusion:** Under Alternative 2, the geologic/hydrologic ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. All actions would enhance the 10 and/or 100-year floodplains. Actions to protect and enhance free-flowing conditions as well as meadows and riparian complexes in Segment 2 would result in additional enhancement of the geologic/hydrologic ORV. The recreational segment of the Merced River corridor in East Yosemite Valley would remain readily accessible by road and will have appropriate development along the shorelines. The scenic portion of Segment 2 in West Yosemite Valley would remain free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

### ***Cultural ORV-8 – Yosemite Valley American Indian Ethnographic Resources***

As described in Chapter 5, Yosemite Valley American Indian ethnographic resources include relatively contiguous and interrelated places that are inextricably and traditionally linked to the history, cultural identity, beliefs, and behaviors of contemporary and traditionally-associated American Indian tribes and groups. Management considerations related to ethnographic resources involve park operations, crowding, and visitor use. Actions included in the Merced River Plan/DEIS include:

- Document the Yosemite Valley Traditional Cultural Property, consisting of traditional use areas, spiritual places and historic villages and complete National Register evaluation and interpretive summary.
- Continue coordination between traditionally associated American Indian tribes, groups, and traditional practitioners (through the Park American Indian Liaison) with law enforcement, fire management, interpretation, invasive species, ecological restoration, and facilities management programs.
- Continue to provide operational guidelines for material staging areas, parking, etc. to protect ethnographic resources.
- Ensure access for traditionally-associated American Indians for participation in annually scheduled traditional cultural events. In addition, tribal access for the personal conduct of ongoing traditional cultural practices would be assured through the Yosemite tribal fee waiver pass program.
- Reduce and formalize day-use parking capacity. Manage access in Segment 2 to protect traditionally-used plant populations in the river corridor during periods of high use.
- A series of actions to improve and relocate parking (described further below and in Chapter 8) would protect Cultural ORVs by removing these uses from the proximity of several cultural resources.

Threats to traditionally-used plant populations include invasive species such as Himalayan Blackberry (*Rubus armeniacus*), drainage and hydrology impacts to meadows, and erosion and revetments that affect riparian vegetation. The *Merced River Plan/DEIS* would address these considerations through the following actions:

- The ecological restoration actions associated with this planning effort implemented in concert with the existing invasive plant management program would address impacts to some traditionally-used plant populations in some locations.

ALTERNATIVES

- Restoration actions to protect riparian areas, meadows, and hydrological resources would further contribute to the protection and enhancement of the traditional-use plant communities included in this ORV.
- Introduction of seedlings to affected stands of black oaks and protection as necessary to ensure that ratios of adults to saplings is at least 0.65.
- Primary actions to manage major vista points under Scenic ORV-16 include mechanical thinning or removal of conifer trees. This action would be coordinated to ensure that the ORV – 8 trigger point for the ratio of sapling to adult trees is not exceeded.

**TABLE 8-65: SEGMENT 2 ACTIONS AND IMPLICATIONS FOR CULTURAL ORV-8**

Location	Action in Alternative 2	Effects to ORV-8
<b>Curry Village and Campgrounds</b>		
Traditional Cultural Property Documentation	Document the Yosemite Valley Traditional Cultural Property, consisting of traditional use areas, spiritual places and historic villages and complete National Register evaluation and interpretive summary	Documentation, mapping, and evaluation would provide the detail necessary to protect and enhance the ORV segmentwide.
Visitation	13,900 people per day	This level of visitation would improve privacy for traditional cultural practices thereby enhancing the ORV segmentwide. Access to annually-scheduled traditional cultural events and personal conduct of traditional cultural practices would be assured thereby continuing protection of the ORV segmentwide.
Upper Pines, Backpacker's, Concessioner Stables, Camp 4, and Upper and Lower River Campgrounds	All campsites within 100 feet of the river would be removed. New campsites constructed at Upper Pines, Backpacker's, Concessioner Stables, Camp 4, and Upper and Lower River Campgrounds. Designated put in areas established.	These changes would result in less erosion along the riverbank because designated access points to resilient areas are identified for visitors, and sensitive areas would be restored and access would be discouraged. Traditional uses in riparian areas would thereby be enhanced segmentwide.
Curry Village Lodging	Lodging would include 433 units, (143 hard-sided units and 290 tents).	Lodging is outside the 100 year floodplain and is not causing adverse effects or degradation to ORV-6 on a segmentwide basis. The ORV would continue to be protected segmentwide.
<b>Yosemite Village and Housekeeping Camp</b>		
Housekeeping Camp Lodging	Remove 266 lodging units, out of the observed ordinary high water mark.	These changes would reduce effects to riparian corridor and locally enhance ORV components locally due to restoration. In addition access would be directed to resilient sandy beaches.
The Ahwahnee Pool and Tennis Courts	Remove the pool and tennis courts. Tennis courts are located in a sensitive cultural area	Removal of the tennis courts would allow for recruitment of desirable black oaks in this area thereby enhancing the ORV locally.

Table 8-65: Segment 2 Actions and Implications for Cultural ORV-8 (continued)

Location	Action in Alternative 2	Effects to ORV-8
<b>Yosemite Lodge and Camp 4</b>		
Yosemite Lodge Parking Area	West of Yosemite Lodge re-developed to provide additional 150 day use parking spaces.	Implementation of best management practices would protect the floodplain from erosion and other disturbance. Traditional uses in riparian areas would thereby be enhanced locally.
Yosemite Lodge Visitor Facilities	Removing the existing 245 units.	Restoration in this area may improve conditions for traditional use plants thereby enhancing the ORV locally.
Former Bridalveil Sewer Plant	Remove the buried structure.	Removal of the abandoned infrastructure and native plant revegetation will allow for recruitment of desirable black oaks in this area thereby enhancing the ORV locally.
Yellow Pine Administrative Campground	Remove 4 group administrative use sites (up to 120 people).	Restoration would reduce effects to riparian corridor traditional use plants. Yellow Pines is used for overflow camping during annual traditional cultural events. Removal of this campground and restoration of the site would continue to protect the ORV segmentwide.
Superintendent’s House (Residence 1)	Remove and relocate to the NPS housing area.	Relocation of this facility outside of the river corridor will allow for recruitment of desirable black oaks in this area thereby enhancing the ORV locally.

Facilities that would remain in this segment of the river have no direct impact on the ethnographic component of the cultural ORV as indicated in the baseline condition assessment.

The Merced River Plan/DEIS proposes a variety of actions to address specific considerations including continued coordination between traditionally associated American Indian tribes, groups, and traditional practitioners and the NPS; continued access for traditionally associated American Indians for participation in annually scheduled traditional cultural events; and ecological restoration actions to protect and enhance traditionally used plant populations. To prevent future impacts, the NPS would monitor the condition of the ORV, and take specific actions should additional trigger points be exceeded.

**Conclusion:** Under Alternative 2, the ethnographic component of the cultural ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. Actions to protect and enhance floodplains, meadows and riparian complexes in Segment 2 would result in additional enhancement of the traditionally-used plant resources of the ethnographic component of the cultural ORV on local and segmentwide levels. Actions that would remove infrastructure and restore black oak woodlands would also enhance a critical component of this ORV. Reduction in maximum people per day in Yosemite Valley, and management of user capacity and visitor use would not limit access to traditional practitioners because measures would be in place to ensure access to annually-scheduled events as well as individual access for ongoing traditional cultural practices. Furthermore, the overall reduction in visitation under Alternative 2 would reduce the effects of crowding and enhance privacy for traditional cultural practices.

***Cultural ORV-9 – Yosemite Valley Archeological District***

The Yosemite Valley Archeological District is a linked landscape that contains dense concentrations of resources that represent thousands of years of human settlement along this segment of the Merced River. Heavily-used formal trails and informal trails, as well as illegal campfires, graffiti, and trampling stock trail use, parking and informal rock climbing can all affect ORVs in this area. Archeological resource protection would be achieved through actions in this plan to manage visitor use levels, divert foot traffic around sites, removing informal trails, and formalizing river and meadow access locations, mitigating ecological restoration practices by using noninvasive techniques wherever possible. Many of the actions related to ecological restoration in Segment 2, such as delineating roadside parking, would also help protect archeological sites by diverting foot traffic away from sites and into less sensitive areas. Actions to enhance the recreational ORV in Segment 2 would manage recreational users both in terms of flow and location of users at any one time. A reduction in people and vehicles at one time in Yosemite Valley could also reduce visitor use-related effects on archeological resources.

Site-specific treatment actions would be developed through site management plans, where necessary, to avoid resource loss through park actions (such as development, repair, and maintenance of facilities and underground utilities to support visitor use or natural forces).

Management considerations for this ORV also involve continuing to survey and monitor archeological resources as well as update required documentation.

Under Alternative 2 the free-flowing condition of the river would be enhanced by removing the Ahwahnee, Sugar Pine, and Stoneman Bridges. Mitigation measures would be utilized to reduce localized impacts and ensure that this action would not cause adverse effects or degradation to ORV-9 on a segmentwide basis. All ground disturbances associated with ecological restoration actions; removal of buildings and infrastructure; re-routing of roads; and, parking lot and campground construction under this alternative would be subject to park standard operating procedures, subject matter expert review, and monitoring (as needed) to ensure that archeological resources are protected. Facilities that would remain in this segment of the river have no direct impact on the archeological component of the cultural ORV as indicated in the baseline condition assessment.

The NPS would delineate bike paths, roads, and other infrastructure away from sensitive cultural and ethnographic resource areas; remove graffiti at rock art and other sensitive features, conduct public education to discourage climbing, and remove climbing hardware from sensitive features. To prevent these considerations, or others, from redeveloping, the NPS would monitor the condition of the ORV, and take specific actions should conditions exceed specific trigger points.

**TABLE 8-66: SEGMENT 2 ACTIONS AND THEIR IMPLICATIONS FOR CULTURAL ORV-9**

Location	Action in Alternative 2	Impact on ORV-9
<b>Curry Village and Campgrounds</b>		
North, Lower and Upper Pines, and Backpackers Campgrounds	All campsites within 100-year floodplain would be removed. Upper Campsite in culturally sensitive area.	Design, follow-on compliance, and mitigation measures would avoid or mitigate effects to sensitive archeological



		resources. Actions would continue to protect the ORV segmentwide.
Concessioner Stables	Ecologically restore the Curry Village Stables area; eliminate commercial day rides. Remove associated housing (25 beds).	Mitigation measures would protect cultural resources during facility removal. Actions would continue to protect the ORV segmentwide.
Curry Village Lodging	Lodging would include 433 units, (143 hard-sided units and 290 tents).	Mitigation measures would protect cultural resources during facility removal. Actions would continue to protect the ORV segmentwide.
<b>Yosemite Village and Housekeeping Camp</b>		
The Ahwahnee Pool and Tennis Courts	Remove the pool and tennis courts. Tennis courts are located in a sensitive cultural area	Mitigation measures would protect cultural resources during facility removal and would locally protect the ORV. Actions would continue to protect the ORV segmentwide.
The Ahwahnee Parking Lot	Redesign and formalize the existing parking lot; providing for proper drainage. Construct new 50 parking space lot east of the current parking.	Mitigation measures would protect cultural resources during facility removal. Actions would continue to protect the ORV segmentwide.
Yosemite Village Day-use Parking Area	The Concessioner General Offices, Garage, and the Bank Building are removed. Move the Camp 6 day-use parking area northward 150 feet away from the river to facilitate restoration goals. Formalize parking area with a total of 550 parking places.	Mitigation measures would protect cultural resources during facility removal. Actions would continue to protect the ORV segmentwide.
Housekeeping Camp Lodging	Remove all 266 lodging units. Convert Housekeeping Camp to a day use river access point and picnic area.	Mitigation measures would protect cultural resources during facility removal. Actions would continue to protect the ORV segmentwide.
Yosemite Village Concessioner Employee Housing	Temporary housing at Huff House and Boys Town is removed. Remove housing units (7 buildings, 64 beds) in rock fall hazard zone. Construct 16 buildings, housing 164 employees using the same dormitory prototype. Temporary housing at Lost Arrow is removed, replaced with 50 bed permanent housing facility.	Design, follow-on compliance, and mitigation measures would avoid or mitigate effects to sensitive archeological resources. Actions would continue to protect the ORV segmentwide.
Sentinel Drive Roadside Parking	Remove roadside parking along Sentinel Dr. and restore to natural conditions.	Mitigation measures would avoid or mitigate effects to sensitive archeological resources. Actions would continue to protect the ORV segmentwide.

**TABLE 8-66: SEGMENT 2 ACTIONS AND THEIR IMPLICATIONS FOR CULTURAL ORV-9 (CONTINUED)**

Location	Action in Alternative 2	Impact on ORV-9
<b>Yosemite Lodge and Camp 4</b>		
West of Yosemite Lodge New Parking	West of Yosemite Lodge re-developed to provide additional 150 day use parking spaces.	Mitigation measures would avoid or mitigate effects to sensitive archeological resources. Actions would continue to protect the ORV segmentwide.
Yosemite Lodge Visitor Facilities	Remove all of the lodging units (-245 units). Repurpose the area outside the 100-year floodplain for Day Lodge and Parking. Restore the 100-year floodplain.	Mitigation measures would avoid or mitigate effects to sensitive archeological resources. Actions would continue to protect the ORV segmentwide.
Yosemite Lodge Concessioner Employee Housing	Remove old and temporary housing at Highland Court and the Thousands Cabins. Construct two new concessioner housing areas housing 104 employees. Construct 78 employee parking spaces.	Change would not affect contributing element of the Archeological District due to location and level of use. Mitigation measures would protect cultural resources during facility removal and construction. Actions would continue to protect the ORV segmentwide.
Yellow Pine, Camp 4, Yosemite Lodge, and West Valley Campgrounds.	Remove camping and restore the 100-year floodplain to natural conditions. Camp 4 expanded eastward to provide 35 additional walk-in sites. Retain 35 walk-in campsites at Camp 4. Remove campground and restore administrative use sites in Yellow Pine (in culturally sensitive area) to natural conditions.	Mitigation measures would protect cultural resources during facility removal. Actions would continue to protect the ORV segmentwide.
Superintendent's House (Residence 1)	Remove and relocate to the NPS housing area.	Mitigation measures would protect cultural resources during facility relocation. Actions would continue to protect the ORV segmentwide.
Northside Drive (Stoneman Bridge to Yosemite Village Day-use Parking Area)	Remove 900' of road and relocate the bike path to the south, to improve the meadow/river connectivity. Restore meadow contours and native vegetation.	Mitigation measures would avoid or mitigate effects to sensitive archeological resources. Actions would continue to protect the ORV segmentwide.

**Conclusion:** Under Alternative 2, the archeological component of the cultural ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. Localized visitor-use-related impacts to archeological resources would be addressed through various enhancement actions. All ground disturbances associated with ecological restoration actions; removal of buildings and infrastructure; re-routing of roads; and, parking lot and campground construction under this alternative would be subject to park standard operating procedures, subject matter expert review, and monitoring (as needed) to ensure that archeological resources are protected. Reduction in maximum people per day in Yosemite Valley, and management of user capacity and visitor use would reduce the potential for visitor use impacts.

### *Cultural ORV-10- Yosemite Valley Historic Resources*

As described in Chapter 5, the Yosemite Valley Historic Resources represent a linked landscape of river-related or river-dependent, rare, unique or exemplary buildings and structures that bear witness to the historical significance of the river system. Protective actions to address management concerns related to the Yosemite Valley Historic Resources ORV-10 include:

- Follow the recommendations from the Ahwahnee Historic Structures Report (1997) and the Ahwahnee Cultural Landscape Report (2010) when redesigning the Ahwahnee Parking Lot to bring the Ahwahnee stone gate house and the Ahwahnee Parking Lot to “good” condition.
- Develop a Historic Structures Report for the LeConte Memorial Lodge NHL to determine the rehabilitation needs to bring the building to “good” condition.
- Rehabilitate the Superintendent’s House (Residence 1) per the Historic Structure Report (Lingo 2012) to bring the building to “good” condition. This rehabilitation of the building will occur under all action alternatives, regardless of whether the building is relocated.

Under Alternative 2 the free-flowing condition of the river would be protected by removing the Ahwahnee, Sugar Pine, and Stoneman Bridges. Relocation of the Superintendent’s House (Residence 1) is proposed under Alternative 2 to address the 1982 Guidelines for the Wild and Scenic Rivers Act that requires managing agencies to consider relocation of major public use facilities outside of the river corridor. These three bridges and the Superintendent’s House (Residence 1) are components of the Yosemite Valley Historic Resources component of the cultural ORV in Segment 2. The NPS would document and interpret any building or structure threatened with removal or relocation. In this manner, while the individual tangible element or elements may be lost or moved, a record of their existence and historical significance would still be available to the public.

To address management considerations, the *Merced River Plan/DEIS* proposes continuing the active program of maintenance for historic buildings and structures; employing existing design guidelines to ensure that new development or redevelopment complements the ORV and the Yosemite Valley Historic District; and periodically assessing and updating professional documentation for the historic resources.

Ecological and scenic value restoration actions in Segment 2 would enhance the cultural landscape which contributes to the historic setting of the resources that comprise the ORV-10. There are no construction actions associated with Alternative 2 that would affect the spatial organization of the historic resource collective, though changes in the circulation patterns as a result of re-routing roads at the Yosemite Village day-use parking area and at Stoneman Meadow would affect circulation patterns that are associated with this ORV. These effects would be localized and would not affect the condition of the ORV on a segmentwide level.

**Conclusion.** Under Alternative 2, the historic resources component of the cultural ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. Removal of three bridges and the relocation of the Superintendent’s House (Residence 1) would result in localized effects that would be mitigated through documentation and interpretation. Once removed or relocated, these resources would no longer be considered part of the

**TABLE 8-67: SEGMENT 2 ACTIONS AND THEIR IMPLICATIONS FOR CULTURAL ORV-10**

Location	Action in Alternative 2	Effects to ORV-10
<b>Curry Village and Campgrounds</b>		
Stoneman Bridge	Remove bridge and restore to natural conditions, make Southside Drive two-way, and redesign Sentinel intersection.	The action would remove 2 contributors to the Yosemite Valley Historic Resource ORV resulting in localized effects. Mitigation measures include documenting and interpreting the resource. The loss of these two bridges would not result in a segmentwide adverse effect of the collective of resources.
Stoneman Meadow and Curry Orchard parking lot	Restore Stoneman Meadow including removal of 1,335 feet of Southside Drive and re-alignment of road through Boys Town area. Extend the meadow boardwalk through wet areas to Curry Village (up to 275').	Change would affect circulation patterns locally. Change is not likely to affect buildings and structures included in the Yosemite Valley Historic Resources ORV collective.
<b>Yosemite Village and Housekeeping Camp</b>		
The Ahwahnee Pool and Tennis Courts	Remove the pool and tennis courts. Tennis courts are located in a sensitive cultural area	Mitigation measures would protect cultural resources during facility removal. Change would not affect contributing element of the Yosemite Valley Historic Resources ORV collective.
Yosemite Village Day-Use Parking Area	Remove Concessioner General Offices, Concessioner Garage, and the Bank Building are removed. Re-align the intersection at Northside Drive and Village Drive. Add a three-way intersection at Sentinel Drive and the entrance to the parking area. Provide on-grade pedestrian crossings.	The removal of historic and non-historic properties and re-alignment/re-establishment of the intersections would affect circulation patterns locally. Change is not likely to affect buildings and structures included in the Yosemite Valley Historic Resources ORV collective.
Sugar Pine and Ahwahnee Bridges	Remove both bridges and the connecting berm.	The action would remove 2 contributors to the Yosemite Valley Historic Resource ORV resulting in localized effects. Mitigation measures include documenting and interpreting the resource. The loss of these two bridges would not result in a segmentwide adverse effect of the collective of resources.
Superintendent's House (Residence 1)	Relocate outside the river corridor to the NPS housing area. Rehabilitate historic structure in new location.	The action would remove a contributor to the Yosemite Valley Historic Resource ORV resulting in localized effects. Mitigation measures include documenting and interpreting the resource. The loss of this resource would not result in a segmentwide adverse effect of the collective of resources.
Bridalveil Falls Trail	Redesign trails, boardwalks, and viewing at the base of the falls to improve wayfinding and pedestrian circulation. Restore informal trails. Improve ADA compliance of pedestrian walkways and restrooms.	The action would affect trails that are connected by the historic footbridges which are components of the Yosemite Valley Historic Resources ORV. Mitigation measures and Section 106 review would ensure the protection of the historic resources and the redesign could result in enhancement of the ORV locally.

ORV collective. All disturbances to circulation and spatial organization associated with ecological restoration actions; removal of buildings and infrastructure; re-routing of roads; and, parking lot and campground construction under this alternative would be subject to park standard operating procedures, subject matter expert review, and documentation (as needed) to ensure that historic resources are protected.

### ***Scenic ORV-16 – Iconic Scenic Views in Yosemite Valley***

Visitors to Yosemite Valley experience scenic views of some of the world’s most iconic scenery, with the river and meadows forming a placid foreground to towering cliffs and waterfalls. Actions intended to manage natural resources may include the use of prescribed fire or controlled burns to thin forests that are encroaching on meadows; cutting trees, tree branches or other vegetation by mechanical means; and the application of herbicides to control invasive species. Related actions intended to protect the Recreation ORV would limit the number of visitors to lessen visitor density and congestion at attraction sites and make improvements to the transportation system that would reduce automobile congestion. Air quality can affect visitors’ ability to experience scenic values in Segment 2. The NPS would cooperate with regional authorities to reduce airborne contaminants caused by combustion, including carbon dioxide emissions, smoke caused by fire, particulate matter generated by construction, and to improve air quality conditions.

In consideration of Wild and Scenic River Act requirements that the NPS consider the presence of existing structures, major facilities and services provided for visitor use, the NPS would eliminate several structures and facilities in Segment 2 under this alternative. Under Alternative 2 actions would remove many structures at the Yosemite Lodge, and the Ahwahnee pool and tennis court. Removal of these structures could enhance scenic resources from specific locations. Ecological restoration actions in Segment 2 would enhance the meadow and riparian communities which contribute to the scenic values in Yosemite Valley. This recreational river segment would remain readily accessible by road and will continue to have appropriate development along the shorelines (a comprehensive list of facilities in Segment 2 is included in table 7-1). Facilities that would remain in this segment of the river have no direct impact on the scenic river value as indicated in the baseline condition assessment. Changes to parking and vehicle traffic in Yosemite Valley to enhance Recreational ORV- 20 particularly the removal of roadside parking along Sentinel Drive and restoration to natural conditions would enhance Scenic ORV-16.

The NPS would monitor the condition of the scenic ORV-16 by removal of conifers encroaching on meadows and vista points, taking action to maintain viewsheds.

**Conclusion:** Under Alternative 2, the scenic ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. Tree thinning and ecological restoration actions would improve natural scenic conditions. Removal of buildings at Housekeeping Camp, Yosemite Lodge, the Concessioner Garage, the Concessioner General Offices, and the Concessioner Stables would reduce intrusions on scenic resources. All parking lot and campground construction under this alternative would be subject to park standard operating procedures and subject matter expert review to ensure that scenic resources are protected.

**TABLE 8-68: SEGMENT 2 ACTIONS AND THEIR IMPLICATIONS FOR SCENIC ORV-16**

Location	Action in Alternative 2	Effects to ORV-16
<b>Curry Village and Campgrounds</b>		
Select Scenic vista Points	Selectively thin conifers and other trees and shrubs that encroach on selected scenic vista points. Remove unnecessary facilities and ensure that all future development satisfies objectives that provide low contrast ratings.	Changes would enhance the scenic values on a segmentwide level.
Concessioner Stables	Ecologically restore the Curry Village Stables area; eliminate commercial day rides. Remove associated housing (25 beds).	Currently not causing effects on scenic resources. Restoration would improve viewsheds thereby enhancing scenic values locally.
Curry Village Lodging	Lodging would include 433 units, (143 hard-sided units and 290 tents).	Changes to Lodge would be in keeping with current facility and given the location of the facility would not interfere with iconic scenery. The ORV would continue to be protected locally.
Ahwahnee, Sugar Pine, and Stoneman Bridges	Remove the Ahwahnee, Sugar Pine, and Stoneman Bridges.	Given the location of the bridges, removal would not interfere with iconic scenery. The ORV would continue to be protected locally.
<b>Yosemite Village and Housekeeping Camp</b>		
The Ahwahnee Pool and Tennis Courts	Remove the pool and tennis courts	Given the location of the facility, changes to facilities would not interfere with iconic scenery. The ORV would continue to be protected locally.
The Ahwahnee Parking Lot	Redesign and formalize the existing parking lot; providing for proper drainage. Construct new 50 parking space lot east of the current parking.	Given the location of the facility, changes to facilities would not interfere with iconic scenery. The ORV would continue to be protected locally.
Yosemite Village Day Use Parking Area/Village Center Parking Area	The Concessioner General Offices, Concessioner Garage, and the Bank Building are removed. Move the Yosemite Village Day Use Parking Area day-use parking area northward 150 feet away from the river to facilitate restoration goals. Formalize parking area with a total of 550 parking places.	Removal of buildings would enhance viewsheds locally.
Housekeeping Camp Lodging	Remove all 266 lodging units. Convert Housekeeping Camp to a day use river access point and picnic area.	Removal of Housekeeping units near the river will enhance viewsheds locally.
Yosemite Village Concessioner Employee Housing	Temporary housing at Huff House and Boys Town is removed. Remove housing units (7 buildings, 64 beds) in rock fall hazard zone. Construct 16 buildings, housing 164 employees using the same dormitory prototype. Temporary housing at Lost Arrow is removed, replaced with 50 bed permanent housing facility.	Mitigation measures would avoid or mitigate effects to iconic scenic vistas. Actions would continue to protect the ORV locally.
<b>Yosemite Lodge and Camp 4</b>		
Yosemite Lodge Visitor Facilities	Remove all of the lodging units (-245 units). Repurpose the area outside the 100-year floodplain for Day Lodge and Parking and walk-in Camping. Restore the 100-year floodplain.	Currently not interfering with scenic resources. Viewsheds would be enhanced locally through the removal of these buildings.
Yosemite Lodge Concessioner Employee Housing	Remove old and temporary housing at Highland Court and the Thousands Cabins.	The ORV would continue to be protected locally.



## ***Recreational ORV-20 – River-related Recreation in Yosemite Valley***

Visitors to Yosemite Valley enjoy a wide variety of river-related recreational activities in the Valley's extraordinary setting along the Merced River. Throughout the Yosemite Valley segment, the river has provided the setting for recreational experiences such as fishing, floating, and sightseeing. Transportation is considered an important part of the visitor experience in Yosemite Valley because it is the means of access to recreational opportunities in Yosemite Valley. Management considerations address the amount of vehicle traffic and the number of people at one time in Yosemite Valley at the peak times of day during the park's busy summer season.

All restoration actions to protect and enhance biological, cultural, geologic/hydrologic, and scenic ORVs would further enhance visitors' connections to the river and its values, which are essential to the recreational ORV in this segment. A reduction in day-use, camping, and lodging opportunities would reduce access to these recreational experiences, but would not cause adverse effects or degradation to ORV-20 on a segmentwide basis. The removal of Yosemite Lodge and Housekeeping Camp would eliminate two distinct types of overnight accommodations in Yosemite Valley, but overnight lodging would not be eliminated segmentwide, nor would an essential aspect of the recreational ORV be affected. There are also actions proposed in Alternative 2 that would improve picnicking, and wayfinding. Finally, while commercial boating is eliminated and private boating is limited to 25 trips per day in Segment 2, this alternative reduces crowding and increases the stretches of the river on which private boating and paddling is allowed, thereby enhancing key aspects of this recreational experience.

Chapter 6 provides a more detailed description of the day-visitor capacity management strategies that directly measure aspects of the Recreation ORV and outlines specific actions. These actions include:

- Utilize parking and traffic management staff to improve parking efficiency and traffic flow in Yosemite Valley and other locations where needed.
- Institute a transportation fee at entrance stations (for peak-use season).
- Divert vehicles to other destinations outside of Yosemite Valley when parking in the Valley fills.
- When all parking fills to capacity, day visitors would be diverted at checkpoints throughout the park and at entrance stations.
- East Valley day-use parking permits would be issued by advanced reservation and on a first-come-first-serve basis.

NPS would use the Highway Capacity Manual Pedestrian Level of Service (discussed further in Chapter 5) for evaluating the capacity and quality of service of transportation facilities, including walkways, multi-use paths, and similar pedestrian facilities. NPS would also monitor parking rates and vehicles at one time to ensure that they are not exceeding the management standard. Should specific trigger points be reached, the NPS would implement a series of specific actions to improve parking to an acceptable level. Similarly, should visitor densities begin to approach specific triggers; NPS would take steps to keep such densities within the management standard.

**Conclusion.** Under Alternative 2, the recreation ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. The reduction in camping

and lodging opportunities, as well as reduction in visitation particularly during the peak season will significantly reduce crowding thereby enhancing the recreational ORV. All restoration actions would enhance opportunities to connect with the river and its values. The reduction in commercial services would affect opportunities for particular types of recreational activities, but would not affect the essential components of the recreation ORV on a segmentwide basis.

**TABLE 8-69: SEGMENT 2 ACTIONS AND THEIR IMPLICATIONS FOR RECREATIONAL ORV-20**

Location	Action in Alternative 2	Effects to ORV-20
Segmentwide visitation	13,900 visitors per day	This reduction in visitation would reduce crowding and congestion thereby enhancing the recreation ORV on a segmentwide level.
Concessioner Stables	Ecologically restore the Curry Village Stables area; eliminate commercial day rides. Remove associated housing (25 beds).	Changes would reduce opportunities for one type of recreational activity, but would not substantially alter components of the river recreation experience. The ORV would continue to be protected on a segmentwide level.
Curry Village Lodging	Lodging would include 433 units, (143 hard-sided units and 290 tents).	Changes to Lodge would increase access to overnight accommodations. Lodge itself is not part of the ORV-20 but does facilitate access to ORV-20 for certain visitors. The ORV would continue to be protected on a segmentwide level.
Lower Rivers Nature Walk	Create an interpretive (nature) walk through Lower Rivers that emphasizes river-related natural processes, the park’s ecological restoration work and what visitors can do to protect the river.	Change would improve interpretation of the river and its values, and would enhance the recreation ORV in this segment.
<b>Yosemite Village and Housekeeping Camp</b>		
The Ahwahnee Pool and Tennis Courts	(Common to All) Remove the pool and tennis courts	Removal of facilities would reduce opportunities for one type of recreation activities, but would not substantially alter components of the river recreation experience.
Segment wide River Access	Swimming and water play allowed in all segments except 6, impoundment. No commercial boating. Boating allowed on all segments except 6, impoundment. Private use limited to 25 trips per day in Segment 2 between the Pines Campgrounds and Sentinel Beach.	Change would eliminate commercial boating and would limit the number of private boating. However, this change does not affect components of the recreational ORV. This reduction in boats enhances dispersed recreation along the river corridor thereby enhancing the ORV segmentwide.
Housekeeping Camp Lodging	Remove all 266 lodging units. Convert Housekeeping Camp to a day use river access point and picnic area.	Changes to Lodge would reduce access to overnight accommodations and would eliminate one type of recreation activity. The ORV would continue to be protected on a segmentwide level.
Bridalveil Falls Trail	Redesign trails, boardwalks, and viewing at the base of the falls to improve wayfinding and pedestrian circulation. Restore informal trails. Improve ADA compliance of pedestrian walkways and restrooms.	Change would improve circulation and wayfinding thus enhancing ORV-20 locally.

**TABLE 8-69: SEGMENT 2 ACTIONS AND THEIR IMPLICATIONS FOR RECREATIONAL ORV-20 (CONTINUED)**

Location	Action in Alternative 2	Effects toORV-20
<b>Yosemite Lodge and Camp 4</b>		
Yosemite Lodge Visitor Facilities	Remove all of the lodging units (-245 units). Repurpose the area outside the 100-year floodplain for Day Lodge and Parking. Restore the 100-year floodplain.	Removal of lodging would have local affect, but would not substantially alter components of the river recreation experience. Changes to Lodge would decrease access to overnight accommodations. Lodge itself is not part of the ORV-20 but does facilitate access to ORV-20 for certain visitors. The ORV would continue to be protected on a segmentwide level.
Yellow Pine, Camp 4, Yosemite Lodge, and West Valley Campgrounds.	Remove camping and restore the 100-year floodplain to natural conditions. Camp 4 expanded eastward to provide 35 additional walk-in sites. Retain 35 walk-in campsites at Camp 4. Restore Yellow Pines site and restore group administrative use sites to natural conditions.	Reduction in the number of campsites limits access to these recreational experiences, but camping opportunities would continue and change would not substantially alter components of the river recreation experience. The ORV would continue to be protected on a segmentwide level.
Recreational Experience Quality	Reduction in available day-use parking, and implementation of an East Yosemite Valley Day-use Parking Permit system	Reduction in the number of parking spaces limits access to these recreational experiences, but personal vehicle parking opportunities would continue and change would not substantially alter components of the river recreation experience. This will enhance the recreational experience of segment 2 by reducing crowding and congestion. The ORV would be enhanced on a segmentwide level.

### Segment 3 – The Merced Gorge (Scenic Segment)

#### *Scenic ORV-17 – Scenic View in the Merced River Gorge*

The Merced River drops 2,000 feet over 14 miles; a continuous cascade under spectacular Sierra granite outcrops and domes. There are no existing management considerations with respect to the Scenic ORV in the Merced River Gorge. Although there are some localized visual intrusions from essential facilities such as visitor parking areas, restrooms, the Arch Rock entrance station and the El Portal Road, these facilities are consistent with the scenic classification of this river segment. As explained in Chapter 5, this ORV is currently protected and enhanced.

This alternative does not propose any new development or landscape changes within the river corridor aside from improvements to existing roadside pullouts and drainage. These changes would not degrade or adversely impact the scenic ORV on a segmentwide basis. Although private vehicles and overall visitation during peak periods will be managed for East Yosemite Valley only, it is probable that visitation and visitors at one time in Segment 3 will also witness a reduction under this alternative. This reduction in visitation and visitors at one time may reduce vehicles per viewshed, thereby enhancing the scenic ORV. Monitoring associated with this ORV would ensure that the attributes that comprise this ORV remain within the accepted management class rating.

Alternative 2 would accommodate the same kinds and amounts of use that exist today in Segment 3. The types and levels of use in Segment 3 under this alternative would remain largely unchanged. Actions considered under Alternative 2 would cause no adverse effects or degradation to ORVs on a segmentwide basis.

Conclusion. Under Alternative 2, this scenic river segment would show little evidence of human activity and remain largely free of structures. The scenic ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. The reduction in camping and lodging opportunities, as well as reduction in visitation particularly during the peak season in Yosemite Valley will significantly reduce the number of vehicles per viewshed in this segment. All restoration actions would further enhance scenic characteristics in this segment.

## **Segment 4 – El Portal (Recreational Segment)**

### ***Geological/Hydrological ORV-7 – The Boulder Bar in El Portal***

Natural processes would continue to shape the landscape and the geologic ORV. The NPS has not identified any management considerations with respect to the El Portal boulder bar. Land use and facility actions proposed in this alternative would not affect this ORV. Because there are no considerations regarding the condition of this ORV, no actions other than continued protection are necessary. Moreover, the types and levels of visitor and administrative use (e.g., housing, maintenance operations, office space, passive recreation) allowed under this alternative would not affect this ORV. Therefore, the NPS would not monitor the condition of this ORV as part of the *Merced River Plan/DEIS*.

**Conclusion:** Under Alternative 2, the geologic values of this recreational river segment would continue to be absent of adverse effects and degradation on a segmentwide level. There are no actions that would affect the boulder bar in El Portal, and there are no ongoing concerns or considerations associated with this resource.

### ***Cultural ORV-11 – The El Portal Archeological District***

The El Portal Archeological District contains dense concentrations of resources that represent thousands of years of occupation and evidence of continuous, far-reaching traffic and trade. This segment includes some of the oldest deposits in the region. Four sites are known to have experienced particularly severe damage, most notably a large ancient village and cemetery.

To address management considerations pertinent to this river value, the NPS would undertake the following actions:

- Protective measures would ensure that exceptional sites would be protected from unmitigated effects that could lead to adverse effects or degradation on a segmentwide level. A plan of action for addressing the abandoned infrastructure on sites would be developed in consultation with traditionally-associated American Indian tribes and groups. Any solution(s) developed would also include a recommended approach for deterring visitor use within the sites.

- Informal trails, non-essential roads, and abandoned infrastructure would be removed to protect and enhance the archeological resources contributing to the ORV in Segment 4.
- Remove informal trails and non-essential roads.

There are no existing instances of adverse effect or degradation to this ORV. As discussed above, management considerations are present associated with abandoned infrastructure that remains on an exceptional site containing diverse components and extremely sensitive cultural materials that are highly valued by traditionally associated American Indians. Management considerations are also associated with non-essential roads and trails that impact archeological sites. In recognition of the high cultural significance of these sites, this alternative requires the park to develop plans to remove abandoned infrastructure and non-essential roads. Restoration actions to establish a 2.5 acre recruitment area for Valley Oaks would further protect adjacent archeological resources. Construction of employee housing in Old El Portal, Abbeville, and Rancheria would be designed to avoid or mitigate threats and disturbances to archeological sites. Monitoring and protective measures would ensure that new use patterns associated with the new housing would not affect contributing elements of the El Portal Archeological District.

**TABLE 8-70: SEGMENT 4 ACTIONS AND THEIR IMPLICATIONS FOR CULTURAL ORV-11**

Location	Action in Alternative 2	Effects to ORV-11
<b>El Portal</b>		
Abbeville, Old El Portal, and Rancheria Flat Concessioner Employee Housing	New employee housing in Abbeville (405 beds), Old El Portal (12 beds), and Rancheria Flat (9 beds).	Exact location for housing would avoid sensitive resources. Mitigation measures would protect cultural resources during construction. Ongoing monitoring and protective measures would ensure that use patterns associated with new housing would not affect contributing elements of the Archeological District. The ORV would continue to be protected segmentwide.
Abbeville Trailer Park Area	No new parking spaces added at the Abbeville/Trailer Park area.	Mitigation measures would protect cultural resources during facility removal and ecological restoration. Change would continue to protect archeological resources locally.
Odger's Bulk Fuel Storage	(Common to All) Remove Odger's bulk fuel storage facility and restore the rare floodplain community of valley oaks. Create a valley oak recruitment area of 2.5 acre in the vicinity of the current Odger's bulk fuel storage area, including the adjacent parking lots.	Mitigation measures would protect cultural resources during facility removal and ecological restoration. Change would continue to protect archeological resources locally.

**Conclusion.** Under Alternative 2, the archeological resources in this recreational river segment would continue to be absent of adverse effects and degradation on a segmentwide level. Removal of abandoned infrastructure, informal trails and non-essential gravel roads would enhance protection of archeological resources. Valley Oak restoration actions would protect adjacent archeological resources from further ground disturbance, Construction of new employee housing would be designed to avoid or mitigate effects to the El Portal Archeological District. New or altered visitor use patterns associated with the new housing development would be monitored and protective actions would occur if effects triggered responses.

## Segment 5 – South Fork Merced River Above Wawona (Wild Segment)

### *Biological ORV-1 – High-elevation Meadows and Riparian Habitat*

The Merced River sustains numerous small meadows and riparian habitat with high biological integrity. Restoration actions to remove informal trails and charcoal rings to protect cultural resources proposed under this alternative would not affect high-elevation meadows. The NPS proposes no major facility or visitor use actions for Segment 5 under Alternative 2. The biological ORV in this wild river segment would continue to be absent of adverse effects and degradation on a segmentwide level.

### *Cultural ORV-12 – Regionally rare archeological features representing indigenous settlement including archeological sites with rock ring features*

Three regionally rare prehistoric archeological sites are located along this segment of the South Fork of the Merced Wild and Scenic River corridor. The sites contain unique stacked rock ring constructions and rock alignments. Two sites also contain pine timber remains within the ring interiors or incorporated into the stacked rock courses. Rock constructions are considered fragile and highly subject to human alteration from camping and campfire building disturbances. Two of the South Fork sites are adjacent to formal NPS trails, increasing the likelihood of disturbance. The vicinity of the sites has not been systematically surveyed, and it is possible that additional rock ring sites may be present along the South Fork. Should additional rock ring sites be discovered in the monitoring process, they would also become a part of the South Fork ORV. To remedy these considerations, NPS would:

- Complete documentation of the features. Restrict Wilderness camping in the area of the rock rings (camping allowed past particular marker). Remove informal trails and charcoal rings.
- Increase education and outreach to Wilderness travelers.

**Conclusion.** Under Alternative 2, the archeological resources in this wild river segment would continue to be absent of adverse effects and degradation on a segmentwide level. There are no specific actions to manage user capacity, land use, and/or facilities under Alternative 2 within Segment 5 beyond those designed to protect and enhance ORV-12 that would impact components of Cultural ORV-12. Monitoring activities described in Chapters 5 and 8 would continue to protect and enhance Cultural ORV-12 to ensure there are no adverse effects or degradation to ORV-12 on a segmentwide basis.

### *Scenic ORV 18 – Scenic Wilderness Views along the South Fork Merced River*

The South Fork Merced River passes through a vast area of natural scenic beauty. The NPS has no immediate management considerations with respect to the Scenic Wilderness Views along the South Fork Merced River as this scenic ORV is determined to be absent of adverse effects and degradation. No new development or landscape changes are proposed within the river corridor. Because there are no considerations regarding the condition of this ORV, no actions other than continued protection is necessary. It is unlikely that this ORV would be affected by human intervention in the future.

**Conclusion.** Under Alternative 2, the scenic resources in this wild river segment would continue to be absent of adverse effects and degradation on a segmentwide level. The scenic ORV for Segment 5 is



determined to be absent of adverse effects, degradation, management concerns, and management considerations. The NPS would not monitor the condition of this ORV.

## Segment 7 – Wawona (Recreational Segment)

### *Biological ORV-3 – The Sierra sweet bay (Myrica hartwegii)*

As described in Chapter 5, the NPS would monitor the condition of this ORV through time using Sierra Sweet Bay Population Decline as its indicator. The health of this ORV would be determined by comparing populations located near Wawona Campground (an area that is likely to be disturbed by humans) with more remote populations that are less likely to receive such disturbance. This population of Sierra sweet bay is in good condition, with no management considerations present. Management action to enhance the population is not required at this time.

**TABLE 8-71: SEGMENT 7 ACTIONS AND THEIR IMPLICATIONS FOR BIOLOGICAL ORV-3**

Facility	Action in Alternative 2	Effects toORV-3
<b>Wawona</b>		
Wawona Campground	Retains 67 sites and one group site. Remove 32 sites that are either within the 100-year floodplain or in culturally sensitive areas.	Action would improve the condition of the ORV by reducing the potential effects on this species associated with campground visitation. The ORV would continue to be protected locally.

To ensure that this biological ORV is protected and enhanced through time, the NPS would monitor the condition of the Sierra sweet bay population to ensure early warning of conditions that require management action before impacts occur.

Conclusion. Under Alternative 2, the Sierra Sweet Bay in this recreational river segment would continue to be absent of adverse effects and degradation on a segmentwide level. Reduction in camping and visitor activity in the vicinity of Wawona Campground would enhance this resource.

### *Cultural ORV-13 – Wawona Archeological District*

The Wawona Archeological District encompasses numerous clusters of resources spanning thousands of years of occupation, including evidence of continuous, far-reaching traffic and trade. This district spans segments 5, 6, 7, and 8. Accordingly, the condition of this historic property is assessed at the property-level, rather than the segmentwide level. Segment 7 includes the remains of the U.S. Army Cavalry Camp A. E. Wood documenting the unique Yosemite legacy of the African-American buffalo soldiers and the strategic placement of their camp near the Merced River. There are several management considerations for this ORV: the Wawona Archeological District is subject to site-specific impacts from park operations, visitor use, artifact collection, vandalism, and ecological processes. The following actions would help to address these issues:

- Increase monitoring frequency at affected sites.

- At the district-wide level, revise the existing National Register nomination to reflect changes since its original writing, for example, incorporating newly discovered resources and documenting impacts.
- The Wawona Campground capacity would be reduced to 67 sites (including one group site). 32 sites are removed because they are either within the 100-year floodplain or in culturally sensitive areas.
- Remove informal trails and fire rings to prevent continuing disturbance.
- Develop site management plans as needed for sites with complex uses. Remove shoulder and off-road parking. Limit facility and concessionaire off -road vehicle travel/parking on hotel grounds
- Consider need for archeological site treatment measures to address impacts to shallow deposits of artifacts and features.

**TABLE 8-72: SEGMENT 7 ACTIONS AND THEIR IMPLICATIONS FOR CULTURAL ORV-13**

Facility and Land Use	Action in Alternative 2	Effects to ORV-13
<b>Wawona</b>		
Wawona Campground Septic System	Remove septic system, and connect to the sewer system. Build a lift station above the campground to connect to the existing water treatment plant.	Mitigation measures would protect cultural resources during facility construction. The ORV would be protected locally.
Wawona RV dump site	Relocate the dump site to an appropriate location away from the river.	Mitigation measures would protect cultural resources during facility removal and construction. The ORV would be protected locally.
Wawona Store	Replace the existing public restroom facilities with larger restrooms to accommodate visitor use levels. Improve picnic area, redesign bus stop.	Mitigation measures would protect cultural resources during facility construction. The ORV would be protected locally.
Wawona Swinging Bridge	Provide access to Swinging Bridge with access on the south side of the river, delineate trail, restrooms, waste disposal and parking.	Mitigation measures would protect cultural resources during facility construction. Restrooms and waste disposal will reduce threats and disturbances to adjacent archeological resources. The ORV would be protected locally.

The NPS would delineate trails, roads, and other infrastructure away from sensitive cultural and ethnographic resource areas; conduct public education to discourage disturbance to sensitive features. To prevent these considerations, or others, from redeveloping, the NPS would monitor the condition of the ORV, and take specific actions should conditions exceed specific trigger points.

***Cultural ORV-14 – Wawona Historic Resources***

The Wawona Historic Resources ORV includes one of the few covered bridges in the region and the National Historic Landmark Wawona Hotel complex. The Wawona Hotel complex is the largest existing Victorian hotel complex within the boundaries of a national park, and one of the few remaining in the United States with this high level of integrity. The Wawona Covered Bridge is in good condition, and there are no current management considerations associated with it, however the bridge requires maintenance to keep the historic structure in good condition in the face of adverse weather and visitor use.

The Wawona Hotel complex continues to serve its original purpose as a guest lodging facility. Management considerations related to the hotel complex involve concessioner operations, the need for regular and routine preservation maintenance, and periodic rehabilitation to ensure visitor safety.

- Regular and routine preservation maintenance, conducted in accordance with the Secretary of the Interior’s Standards, would ensure that this upkeep protects the historic character of the buildings
- Periodic rehabilitation would involve subject-matter specialists in planning, design and implementation to ensure actions do not compromise the historical integrity of the complex
- Concessioner operations would ensure that any operational modifications or updates are appropriate and in keeping with the historic character of the complex.

To prevent future impacts, the NPS would monitor the condition of the bridge, and take specific actions should conditions exceed trigger points. Trigger points are selected to inform managers well in advance of adverse effects or degradation on the Wawona Covered Bridge. Management considerations for the Wawona Hotel complex include the need for regular and routine preservation maintenance, periodic rehabilitation, and ongoing operations that serve its continuing function as a historic lodging facility. To address these management considerations, the NPS would ensure that these activities would conform to the Secretary of the Interior’s Standards for Treatment of Historic Properties.

**TABLE 8-73: SEGMENT 7 ACTIONS AND THEIR IMPLICATIONS FOR WAWONA HISTORIC RESOURCES ORV-14**

Facility	Action in Alternative 2	Effects to ORV-14
<b>Wawona</b>		
Wawona Hotel	Retain 104 lodging units at the Wawona Hotel. Retain hotel restaurant and swimming pool. Wawona golf course and shop would be removed to accommodate ecological restoration, though the spray field would remain. The Wawona Hotel Tennis Court would also be removed under this alternative.	The action would retain contributors to the Wawona Historic Resource. The golf course and golf shop are not components of the ORV and their removal would not affect the condition of the Wawona Historic Resource river value. The ORV would continue to be protected locally.

## Segment 8 – South Fork Merced River below Wawona (Wild Segment)

### *Biological ORV-3 — The Sierra sweet bay (Myrica hartwegii)*

As described in Chapter 5, the NPS would monitor the condition of this ORV through time using Sierra Sweet Bay Population Decline as its indicator. The health of this ORV in Segment 8 is in good condition, with no management considerations present. Management action to enhance the population is not required at this time.

### *Cultural ORV 13— Wawona Archeological District*

The Wawona Archeological District encompasses numerous clusters of resources spanning thousands of years of occupation, including evidence of continuous, far-reaching traffic and trade. This ORV in Segment 8 is in good condition, with no management considerations present. Management actions are not required at this time.

### ***Scenic ORV-18 – Scenic Wilderness Views along the South Fork Merced River***

The South Fork Merced River passes through a vast area of natural scenic beauty. The NPS has no immediate management considerations with respect to the Scenic Wilderness Views along the South Fork Merced River as this scenic ORV is determined to be absent of adverse effects and degradation. No new development or landscape changes are proposed within the river corridor. Because there are no considerations regarding the condition of this ORV, no actions other than continued protection is necessary. It is unlikely that this ORV would be affected by human intervention in the future.

The scenic ORV for Segment 8 is determined to be absent of adverse effects, degradation, management concerns, and management considerations. The NPS would not monitor the condition of this ORV.

## **ALTERNATIVE 3**

### **River Value – Free-flowing Condition in all Segments**

A free-flowing river, or section of a river, moves in a natural condition without impoundment, diversion, straightening, riprapping, or other modification of the waterway. The current free-flowing condition of the Merced River is fully protected and enhanced on a segmentwide basis. Riprap revetment, abandoned infrastructure within the bed and banks of the river, and bridges that constrict the flow of the river may produce localized effects on free-flowing condition of the river. Alternatives 2-6 would enact a comprehensive suite of actions to enhance the free-flowing condition of the river by removing 3,400 linear feet of riprap, and removing abandoned and unnecessary infrastructure from the river channel and its floodplain. Infrastructure that would be removed includes former sewage treatment facilities, sewer and water lines, and former bridge abutments. In addition, Alternative 3 would remove an additional 435 feet of riprap from riverbank areas, beyond that proposed for removal under Alternatives 2-6.

Alternative 3 also proposes removal of Stoneman, Ahwahnee, and Sugar Pine bridges, which produce hydraulic constrictions that lead to accelerated erosion and prevent natural channel migration during high-water events. The removal of the three bridges would help achieve the robust ecological restoration principles that guide Alternative 3.

There are no new facilities proposed under Alternative 3 that would affect the free-flowing condition of the river. A number of proposed facility actions would enhance the connectivity of the river and its floodplain (see Hydrological/Geological ORVs). For example, the Yosemite Village Day-use Parking Area would be relocated north outside the 10-year floodplain.

To protect the river's free flowing condition, the NPS would require all projects involving construction within the bed or banks of the Merced River or its tributaries to undergo an analysis in accordance with Section 7 of the WSRA. Through this process, the NPS would ensure that water resources projects within the designated river corridor would not lead to "direct or adverse effects" on free flow, and that projects on tributaries to the river do not "invade or unreasonably diminish" the river's free flowing condition.

**Conclusion:** The current free-flowing condition of the Merced River is fully protected and enhanced on a segmentwide basis, although localized considerations such as intermittent riverbank and bridges that constrict the flow of the river are present. Alternative 3 proposes a comprehensive suite of actions to enhance the free-flowing condition of the river by removing riprap, removing unnecessary infrastructure in the river channel, and removing three bridges that produce pronounced hydraulic constrictions at high water flows. There are no new facilities proposed under Alternative 3 that would affect the free-flowing condition of the river within the river channel, and a number of proposed facility actions would enhance the connectivity of the river and its floodplain (see Hydrological/ Geological ORVs). The NPS would require all proposed projects within the bed or banks of the Merced River or its tributaries to undergo an analysis in accordance with Section 7 of the WSRA to ensure that water resources projects would not lead to “direct or adverse effects” on free flow, and that projects on tributaries to the river do not “invade or unreasonably diminish” the river’s free flowing condition. The actions proposed under Alternative 3 ensure that there are no direct or adverse effects on free-flowing condition of the Merced River.

### River Value- Water Quality (All Segments)

The water quality of the Merced River is extremely high, and the current water quality of the river is fully protected and enhanced on a segmentwide basis. Intermittent local instances of contamination may occur in connection with surface water runoff from parking areas, recreational vehicle dump stations in proximity to the river, and accelerated erosion with potential sediment loading in the river during high water flows. Alternatives 2-6 would apply mitigation measures to ensure that surface water runoff associated with parking areas protects the water quality of the Merced River and meets regulations. The Upper Pines and Wawona recreational vehicle dump stations would be moved away from the river, and the Odger’s bulk fuel storage area in El Portal would be moved out of the 500-year floodplain. In addition, Alternative 3 would relocate the Yosemite Village Day-use Parking Area outside the 10-year floodplain. All campsites and infrastructure currently within 100-feet of the river would be removed. The pack trail from Curry Village stables to Happy Isles would be re-routed farther away from the river. These actions would reduce result in less erosion along the riverbank, reduce use in sensitive areas, direct use to resilient areas, and mitigate potential sources of pollutants.

Large-scale ecological restoration actions would take place along the riverbank and floodplain of the Merced River. These actions would enhance water quality, particularly the actions that re-establish riverbank vegetation and reduce erosion potential. Ecological restoration actions are described in more detail in the discussion of the biological ORVs below and in Appendix E.

There are no new facilities proposed under Alternative 3 that would affect the water quality of the river. To maintain excellent water quality, the NPS would monitor water quality indicators that are tied to human activity (e.g., nutrient levels), and take specific actions should specific trigger points be reached.

**Conclusion:** Under Alternative 3, water quality in all segments of the Merced River corridor would continue to be absent of adverse effects and degradation, and the potential for localized instances of contamination would be strongly reduced. Alternative 3 would address localized water quality issues by

**TABLE 8-74: CORRIDOR-WIDE ACTIONS AND THEIR IMPLICATIONS FOR WATER QUALITY**

Location	Action in Alternative 3	Effects to Water Quality
<b>Segment 2</b>		
North, Lower and Upper Pines Campgrounds and Backpackers Campgrounds	Campsites within the 100-year floodplain would be removed. Designated river access and put in areas established at resilient areas, discourage access to sensitive areas. Upper Pines dump station relocated away from the river.	These changes would result in less erosion along the riverbank; water quality would be enhanced segmentwide.
New campsites at Upper Pines, Backpacker's, and Camp 4.	New campsites constructed at Upper Pines, Backpackers, and Camp 4 out of the 150 foot riparian buffer.	Change would not result in additional water quality effects on a segmentwide level.
Yosemite Village Day-Use Parking Area	Move the unimproved parking lot out of the 10-year floodplain and restore the riparian habitat adjacent to the river.	Change would result in less erosion and storm water run-off from the parking area; water quality would be enhanced locally.
Pack Trail from Concessioner Stables to Happy Isles	Continue to provide staging at the Concessioner Stable for temporary pack camp operations; reduce the stable size.	Change would result in less erosion from the stock trail. Water quality would be enhanced locally.
Housekeeping Camp Lodging	Remove all 266 lodging units and associated facilities out of the 100-year floodplain; restore the floodplain to natural conditions.	Fencing and designated river access points would also direct use to resilient areas. Water quality would be enhanced locally.
<b>Segment 4</b>		
NPS Maintenance and Administrative Complex	Existing parking area formalized and paved using best management practices	Change would result in less erosion and storm water concerns in the parking area; water quality would be enhanced locally.
Odger's Bulk Fuel Storage	(Common to All) Remove Odger's bulk fuel storage facility and restore the rare floodplain community of valley oaks. Create a valley oak recruitment area of 2.5 acre in the vicinity of the current Odger's bulk fuel storage area, including the adjacent parking lots.	Removal of bulk fuel storage from the 500-year floodplain would further protect water quality segmentwide.
<b>Segment 7</b>		
Wawona Campground	Replace current septic system with waste water collection system connected to the waste water treatment plant. RV dump site relocated away from the river.	Change would result in less potential for storm water concerns in the campground; water quality would be enhanced locally.
Wawona Picnicking	Delineate boundaries of two formal picnic areas with formal river access points.	Change would result in less erosion along; water quality would be enhanced locally.

moving the Upper Pines and Wawona recreational vehicle dump stations away from the river, moving the Odger's bulk fuel storage area outside of the 500-yr floodplain, and applying mitigation measures to ensure surface water runoff associated with parking areas meets requirements. Large-scale riverbank restoration actions would decrease the potential for accelerated riverbank erosion and sediment loading during high water events. To ensure that existing high water quality conditions are maintained, the NPS would monitor water quality indicators that are tied to human activity (e.g., nutrient levels), and take specific actions should specific trigger points be reached.



## Segment 1 – Merced River above Nevada Fall (Wild Segment)

### *Biological ORV-1 – High-elevation Meadows and Riparian Habitat*

The Merced River sustains numerous small meadows and riparian habitat with high biological integrity in Wilderness segments of the river corridor. Primary actions to protect and improve Biological ORV 1 include removal of informal trails in wet and sensitive habitats, and removal of trails that fragment or incise meadow habitat. This includes trails in Triple Peak Fork meadow, wetlands near Echo Valley and Merced Lake shore, mineral springs between Merced Lake and Washburn Lake, and other areas as necessary. Removal of informal trails would reduce soil compaction and habitat fragmentation. Grazing capacities would be established, monitored, and adapted as necessary to reduce soil compaction and habitat fragmentation, and enhance meadow health.

Alternative 3 would convert the Merced Lake High Sierra Camp to a temporary pack camp with a maximum of 15 people per night and remove permanent infrastructure in the area, converting the area to designated Wilderness. Designated camping areas in Little Yosemite Valley, Moraine Dome, and the Merced Lake Backpackers Camping Area would be converted to dispersed camping. Seasonal and weekend restrictions for commercial groups in the Mount Lyell, Merced Lake, and Little Yosemite Valley zones would be applied. These changes would reduce concentrated use near the riverbank and improve

**TABLE 8-75: SEGMENT 1 ACTIONS AND IMPLICATION FOR BIOLOGICAL ORV-1**

Location	Action in Alternative 3	Effects to ORV-1
<b>Location</b>		
Meadow Trails	Remove informal trails that incise meadow habitat.	Change reduces effects to wet and sensitive meadows and results in localized enhancement to ORV-1.
Merced Lake High Sierra Camp	Convert to a temporary pack camp with a maximum of 15 people per night and remove permanent infrastructure in the area.	Changes reduce uses near riverbank which would result in localized enhancement of ORV 1 through reduction in erosion and trampling of riparian resources.
<b>Visitor Use Management Action</b>		
Private boating would be allowed in this segment	Boating would consist of short floats using pack raft or other craft that can easily be carried. Private use would be unlimited in this segment; however, boaters completing overnight trips would be subject to wilderness permit restrictions.	Limited numbers would protect riparian habitat from trampling and bank erosion that could result with unlimited access. Changes would not affect high-elevation meadow and riparian habitat, this ORV would continue to be protected on a segmentwide level.
Wilderness zone capacity	Zone capacities for Merced Lake, Washburn Lake, Mount Lyell, and Clark Range zones would remain the same across all the alternatives. Manage to a reduced capacity of 75 in the Little Yosemite Valley Wilderness Zone	Current zone capacities are designed to protect wilderness character including natural conditions such as riverbanks and meadows. Reduced capacity in LYV would result in localized enhancement of riparian habitat and thus this ORV.
Facilities retained	Merced Lake Ranger Station, Little Yosemite Valley trail crew and ranger camp	These facilities and associated administrative uses and maintenance do not affect riparian habitat or meadows.

riparian conditions in the immediate vicinity of these camping areas. Facilities that would remain in this segment of the river include the Merced Lake Ranger Station, Little Yosemite Valley trail crew and ranger camp, trails and footbridges. The baseline condition assessment for the Biological ORV in this segment indicates that these facilities are not adversely affecting the Biological ORV.

The NPS would monitor three indicators to assess the condition of this ORV: meadow bare soil, meadow fragmentation due to the proliferation of informal trails, and streambank stability. The NPS would establish a baseline for all three indicators using site-specific monitoring protocols by 2013. Regular monitoring would also assess whether assumptions about human behaviors and actions taken to correct past impacts are sustaining conditions above the management standard. The meadow monitoring programs for the biological ORV would monitor meadow fragmentation to ensure that use levels from hikers, backpackers and stock users do not result in meadow fragmentation or bare ground in excess of the management standards prescribed to protect and enhance meadows. If conditions reach trigger points, the NPS would implement specific response actions (as described in Chapter 5) to ensure this ORV is protected and enhanced through time.

**Conclusion:** Under Alternative 3, the biological ORV in Segment 1 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. The removal of inappropriate informal trails in meadows and establishment of grazing capacities would enhance meadow conditions. The conversion of the High Sierra Camp to a temporary pack camp with a maximum of 15 people per night, and conversion of designated camping areas to dispersed camping, would reduce concentrated use along riverbanks and reduce trampling in riparian habitat. There are no new facilities proposed under Alternative 3 that would affect meadow and riparian habitat. These actions proposed under Alternative 3 would protect and enhance Biological ORV-1 and segmentwide would achieve the robust ecological restoration principles that guide Alternative 3.

### ***Geological/Hydrological ORV-4 – Glacially-carved Canyon in the Upper Merced River Canyon***

As discussed in Chapter 5, there are no management considerations with respect to the U-shaped, glacially carved canyon above Nevada Fall. This ORV is currently protected and enhanced within the meaning of the Wild and Scenic Rivers Act. Alternative 3 does not propose any actions that would change the condition of this ORV over time. Further, the U-shaped, glacially carved attributes of this ORV would not be affected by the types and levels of use authorized under this alternative, which are all directed toward wilderness oriented recreation. The NPS would nevertheless monitor the condition of this ORV to ensure that its condition does not decline.

### ***Scenic ORV-15 – Scenic Views in Wilderness***

Visitors to this Wilderness segment experience scenic views of serene montane lakes, pristine meadows, slickrock cascades, and High Sierra peaks. Management considerations associated with the condition of the scenic river above Nevada Fall include contributions of regional air pollution (primary factors contributing to this condition are outside of NPS jurisdiction), visual intrusions of temporary and permanent structures, and crowding in and near wilderness campgrounds. There are few “visual intrusions” noted beyond the High Sierra Camp and other designated camping areas. However, these effects are local in nature and do not

degrade the ORV on a segment wide basis. The NPS would ensure that the Merced Lake High Sierra Camp and designated camping areas are maintained in a clean and tidy condition. Under Alternative 3, the High Sierra Camp would be converted to a temporary pack camp with a maximum of 15 people per night. This change would return scenic views to be keeping with the native landscape. These measures would locally enhance the scenic ORV. Other visitor use management actions under Alternative 3 would reduce crowding, thus additionally enhancing this ORV on a segmentwide basis.

As described in the Baseline Condition Report, the ORV is determined to be in the protected state, as defined by an absence of adverse effects and degradation, although intermittent air quality concerns are present. Because of the ambient nature of air quality, it cannot be managed exclusively for the river corridor. Facilities that would remain in this segment of the river include the Merced Lake Ranger Station, Little Yosemite Valley trail crew and ranger camp, trails and footbridges. The baseline condition assessment for the scenic ORV in this segment indicates that these facilities are not adversely affecting the scenic ORV.

**TABLE 8-76: SEGMENT 1 ACTIONS AND IMPLICATION FOR SCENIC ORV-15**

Location	Action in Alternative 3	Effects toORV-15
Merced Lake High Sierra Camp	Convert the Merced Lake High Sierra Camp to a temporary pack camp with a maximum of 15 people per night. Remove permanent infrastructure, converting the area to designated Wilderness.	Change would locally enhance ORV because the reduced infrastructure that remains would better blend in to the natural environment.
Merced Lake Backpackers Camping Area and Little Yosemite Valley Camping Area	Converted to dispersed camping area.	Element currently does not cause adverse effects or degradation to ORV on a segment wide basis, thus ORV would continue to be locally protected in this area.
Facilities retained	Merced Lake Ranger Station, Little Yosemite Valley trail crew and ranger camp	These facilities and associated administrative uses and maintenance do not result in segmentwide adverse effects to scenic values. The ORV will continue to be protected on a segmentwide level.

**Conclusion:** Under Alternative 3, the scenic ORV in Segment 1 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. All actions would further enhance scenic values in this segment. Conversion of the Merced Lake High Sierra Camp to a smaller temporary pack camp would address scenic considerations in this segment, which focus on the High Sierra Camp and thereby enhance the scenic ORV. The wild segment of the Merced River corridor above Nevada Fall would show little evidence of human activity and remain largely free of structures.

***Recreational ORV-19 – Wilderness Recreation above Nevada Fall***

Visitors to federally designated Wilderness in Segment 1 would engage in a variety of river related activities in an iconic High Sierra landscape, where opportunities for primitive and unconfined recreation, self-reliance, and solitude shape the Wilderness experience. The current condition of this ORV is at or above the management standard at the segment level. Localized management concerns in this segment relate to crowding at Little Yosemite Valley and Moraine Dome backpackers campgrounds, high use levels at the Merced Lake Backpackers Camping Area, and high encounter rates along the trails that connect these areas. Crowding and high use levels affect the Wilderness experience, which is an integral part of the recreational ORV in this segment.

This alternative would convert the Merced Lake High Sierra Camp to a temporary pack camp with a maximum of 15 people per night and remove permanent infrastructure, converting the area to designated Wilderness. The capacity of the Little Yosemite Valley Wilderness Zone would be reduced to 75, and the footprint of the camping area would be reduced accordingly. Designated camping areas in Moraine Dome and the Merced Lake Backpackers Camping Area would be converted to dispersed camping. This would give backpackers an opportunity to camp outside of close proximity to other backpackers. Actions in Alternative 3 would apply additional seasonal and weekend restrictions for commercial groups in the Mount Lyell, Merced Lake, and Little Yosemite Valley zones. These changes would reduce use crowding, high use levels, and increase opportunities for solitude in this Wilderness segment.

**TABLE 8-77: SEGMENT 1 ACTIONS AND IMPLICATIONS FOR RECREATION ORV-19**

	Action in Alternative 3	Effects to ORV-19
<b>Location</b>		
Merced Lake High Sierra Camp	Convert the Merced Lake High Sierra Camp to a temporary pack camp with a maximum of 15 people per night. Remove permanent infrastructure, converting the area to designated Wilderness.	The undeveloped and primitive elements of wilderness character are enhanced on a segmentwide level by this camp reduction.
Little Yosemite Valley, Moraine Dome, and the Merced Lake Backpackers Camping Areas	Designated camping areas would be converted to dispersed camping.	The solitude and primitive elements of wilderness character would be enhanced due to the opportunity to camp out of sight and sound of other campers.
Segmentwide River Access	Swimming and water play allowed. No permits required for private boating. No commercial boating	Permitted use and commercial limits would not substantively change current recreational use or recreational values in the segment. Recreational values would continue to be protected segmentwide.
<b>Visitor Use Management Action</b>		
Private boating	Boating would consist of short floats using pack raft or other craft that can easily be carried Private use would be unlimited in this segment; however, boaters completing overnight trips would be subject to wilderness permit restrictions.	Permitted use would not substantively change current recreational use or recreational values in the segment. Recreational values would continue to be protected segmentwide.
Wilderness zone capacity	Zone capacities for Merced Lake, Washburn Lake, Mount Lyell, and Clark Range zones would remain the same across all the alternatives. Manage to a reduced capacity of 75 in the Little Yosemite Valley Wilderness Zone	Zone capacities are designed to protect recreational setting attributes and recreational experience quality. Reduced capacity in LYV would result in localized enhancement of recreational values in the wilderness.

Facilities that would remain in this segment of the river include the Merced Lake Ranger Station, Little Yosemite Valley trail crew and ranger camp, trails and footbridges. These facilities do not have an adverse effect on the Wilderness experience integral to this Recreational ORV.

NPS would monitor visitor encounter rates to ensure that they are not exceeding established standards. Should specific trigger points be reached, the NPS would be required to implement a series of specific actions to reduce visitor levels to an acceptable level. These actions increase in severity as the current condition ORV condition moves away from the management standard to ensure proper course correction and re-establishment of the management standard. These trigger points were selected to inform managers in advance of any adverse effects or degradation to this ORV.

**Conclusion:** Under Alternative 3, the recreational ORV in Segment 1 of the Merced River corridor would be protected on a segmentwide basis and continue to be absent of adverse effects and degradation on a segmentwide level. Although actions under Alternative 3 would decrease the availability for visitors to pack in to wilderness (on horses or mules) conversion of backpackers campgrounds to dispersed camping, reductions in the zone capacity for Little Yosemite Valley, and conversion of the Merced Lake High Sierra Camp to a smaller temporary pack camp would address management considerations by reducing crowding, high use levels, and increasing opportunities for solitude.

## Segment 2 – Yosemite Valley (Recreational and Scenic Segments)

### *Biological ORV-2 – Mid-elevation Meadows and Riparian Habitat*

The meadows and riparian communities of Yosemite Valley comprise one of the largest mid-elevation meadow-riparian complexes in the Sierra Nevada. Actions to protect and enhance Biological ORV-2 under Alternative 3 include:

- Removal of informal trails in meadows where they fragment meadow habitat or cross through sensitive, wet vegetation communities. Overall, restore six miles of informal trails throughout Yosemite Valley;
- Use boardwalks or hardened surfaces to allow access to sensitive areas;
- Delineation of trails through upland areas and along meadow perimeters;
- De-compacting trampled soils and consolidate multiple parallel trails;
- Re-directing visitor use to more stable and resilient river access points such as sandbars, and designate formal river access sites. Establishing fencing and signage to protect sensitive areas; install boardwalks where appropriate, and actively revegetate where needed;
- Relocate or remove all campsites within the 100-year floodplain;
- Restoration of the mosaic of meadow, riparian deciduous vegetation, black oak, and open mixed conifer forest at specific locations in Yosemite Valley. Management actions could include re-vegetation, prescribed fire, mechanical removal of conifers, and infrastructure re-design. Alternative 3 would include 302 acres ecological restoration.
- Day use parking capacity is expanded and formalized. A total of 1,597 visitor parking spaces would be provided in the Valley accommodating a maximum of 5,328 people at one time to Segment 2. Managing access and other proactive restoration measures would protect Biological ORVs by during periods of high use.
- A series of actions to improve and relocate parking (described further below and in Chapter 8) would protect Biological ORVs by removing these uses from the river corridor and managing access in the corridor.

This recreational river segment would remain readily accessible by road and will continue to have appropriate development along the shorelines (a comprehensive list of facilities in Segment 2 is included in table 7-1). Under this alternative, all roads, buildings, campgrounds, trails, utilities and infrastructure, and other facilities in this segment with current local effects on the biological ORV would be removed, reduced, or relocated, including portions of Yosemite Lodge. Facilities that would remain in this segment of the river, including the Ahwahnee Hotel have no direct impact on the

**TABLE 8-78: SEGMENT 2 ACTIONS AND IMPLICATIONS FOR BIOLOGICAL ORV-2**

Location	Action in Alternative 3	Effects to ORV-2
Segmentwide Restoration	Restoration includes restoration of meadow habitat, removal of informal trails, riparian restoration and establishment of designated river access points, and use of boardwalks and hardened surfaces.	Actions would enhance the biological ORV segmentwide.
<b>Curry Village and Campgrounds</b>		
North, Lower and Upper Pines Campgrounds and Backpackers Campgrounds	All campsites within the 100-year floodplain would be removed. Designated put in areas established.	These changes would result in less erosion along the riverbank because designated access points to resilient areas are identified for visitors, and sensitive areas would be discouraged; the biological ORV would be enhanced segmentwide.
New campsites at Upper Pines, Backpackers, and Camp 4.	New campsites constructed at Upper Pines, Backpackers, and Camp 4 out of the 100 year floodplain.	Actions would protect riparian areas from direct impacts related to the increase in visitor activity in these areas. Fencing and designated river access points would also direct use to resilient areas. Monitoring would proactively assess the effectiveness of these actions and established triggers to ensure that future protective measures are implemented in a timely manner. Change would result in protection of biological ORV in this segment.
Stoneman Meadow and Curry Orchard parking lot	Removal of 1,335 feet of Southside Drive and re-alignment of road through Boys Town area. The Orchard Parking Lot would be re-designed. Remove apple trees and landscape with native vegetation. Extend the meadow boardwalk through wet areas to Curry Village (up to 275').	These changes would promote water flow and improve meadow health thereby enhancing the biological ORV locally.
Ahwahnee, Sugar Pine and Stoneman Bridges	Remove the Ahwahnee, Sugar Pine and Stoneman Bridges, and the associated berms and restore to natural conditions. Reroute the multiple use trail to the north bank of the river. Reroute utilities under Ahwahnee Bridge.	Change would reduce channel widening, erosion, and scouring thereby enhancing local riparian communities.
<b>Yosemite Village and Housekeeping Camp</b>		
Yosemite Village Day Use Parking Area/Village Center Parking Area/	Move the Yosemite Village Day Use Parking Area out of the 100-year floodplain to facilitate restoration goals. Formalize parking area with a total of 550 parking places.	These changes would reduce effects to riparian corridor and enhance ORV components as use would be relocated away from areas critical to river or meadow function. The ORV would be enhanced locally.
Housekeeping Camp Lodging	Remove all 266 lodging units. Convert Housekeeping Camp to a day use river access point and picnic area.	These changes would reduce effects to riparian corridor and enhance ORV components due to restoration. In addition access would be directed to resilient sandy beaches.
Ahwahnee Row and Tecoya Dorms Concessioner Housing	Retain housing. Create 50-foot setback from Indian Creek – ecologically restore the riparian habitat and protect by restoration fencing.	These changes would remove uses from the riverbank thus reducing erosion and trampling impacts in riparian corridor and enhancing ORV components locally.



**TABLE 8-78: SEGMENT 2 ACTIONS AND IMPLICATIONS FOR BIOLOGICAL ORV-2 (CONTINUED)**

Location	Action in Alternative 3	Effects to ORV-2
<b>Yosemite Village and Housekeeping Camp (cont.)</b>		
Northside Drive (Stoneman Bridge to Yosemite Village Day use Parking Area)	Remove 900' of road and relocate the bike path to the south.	These changes would improve meadow/river connectivity thereby enhancing the ORV locally.
Sentinel Drive Roadside Parking	Remove roadside parking along Sentinel Drive and restore to natural conditions.	These changes would remove uses from the riverbank thus reducing erosion and trampling effects in riparian corridor and enhancing ORV components.
<b>Yosemite Lodge and Camp 4</b>		
Superintendent's House (Residence 1)	Remove and relocate to the NPS housing area.	Relocation of this facility outside of the river corridor may reduce informal trailing in the adjacent meadow thereby enhancing the ORV locally.

biological river value as indicated in the baseline condition assessment. Effects to the free-flowing condition of the river as a result of the bridges that would remain under this alternative would be mitigated through constructed log jams.

Some associated facilities are proposed for relocation as described below.

The NPS would monitor three indicators to assess the condition of ORV 2: meadow fragmentation resulting from informal trails, the status of riparian habitat, and riparian bird abundance. As described in Chapter 5, adverse effects and degradation are not present in relation to the meadow fragmentation indicator. Management concerns in meadows are present; however, actions to address informal trailing impacts and fragmentation would be taken at all meadows where these concerns have been documented. Initial surveys of the riparian status indicator in 2010 indicate that degradation is not present, but management concerns are also present in the riparian corridor.

The NPS is beginning to monitor the third indicator in this segment, riparian bird abundance. The first status assessments would take place in 2013, after one year of monitoring. The next assessment requires information from two out of three years.

To ensure Biological ORV-2 is protected by this plan and protected and enhanced through time, the NPS would continue to monitor the condition of the ORV to provide early warning of conditions that require management action before impacts occur. Regular monitoring would also reveal whether conditions have reached trigger points; and, if so, the NPS would implement specific response actions (as described in Chapter 5) to avoid or minimize adverse effects.

**Conclusion:** Under Alternative 3, the biological ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. All actions would further enhance riverbanks and meadows. Removal or relocation of select campsites and infrastructure and reduced use would improve meadow conditions in this segment and thereby enhance the biological ORV. The recreational segment of the Merced River corridor in East Yosemite Valley would remain readily accessible by road and will have appropriate development along the shorelines. The scenic portion of Segment 2 in West

Yosemite Valley would remain free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

### ***Geological/Hydrological ORV-5 – The “Giant Staircase”***

The NPS has no immediate management considerations with respect to the Giant Staircase characteristic of the geology of Yosemite Valley above Happy Isles as this geologic ORV is determined to be absent of adverse effects and degradation. Because there are no considerations regarding the condition of this ORV, no actions other than continued protection is necessary. It is unlikely that this ORV would be affected by human intervention in the future. Therefore, the NPS would not monitor the condition of this ORV as part of the *Merced River Plan/DEIS*.

### ***Geological/Hydrological ORV-6 – Rare, Mid-elevation Alluvial River***

As described in Chapter 5, the NPS selected the status of riparian habitat as the indicator to specifically assess the effectiveness of actions designed to protect this and other ORVs. This ORV integrates geologic/hydrologic processes and the condition of aquatic, riparian, and floodplain communities.

The following actions are included to specifically protect and enhance free-flowing conditions and the biological ORV in Segment 2, but would also address the protection and enhancement of the Geologic/Hydrologic ORV in Segment 2:

- Large wood, constructed log jams, and brush layering would be used in the vicinity of bridges to decrease bed scouring and streambank instability, river widening, river constrictions, and low channel complexity. Riprap would be removed where possible and replaced with native riparian vegetation, using bioengineering techniques. In the event that such actions do not improve conditions, bridge redesign or removal could be reconsidered.
- Under Alternative 3 the free-flowing condition of the river would be enhanced by removing the Ahwahnee, Sugar Pine, and Stoneman Bridges. Mitigation measures would be employed during removal and the long-term recovery of the removal areas is expected. Restoring free-flowing conditions would enhance riparian communities associated with ORV-6.
- Removing abandoned underground infrastructure, along the river corridor would be part of a comprehensive strategy to correct altered surface and subsurface hydrology.
- Remove riprap where riverbanks do not need stabilization to allow for channel migration. Replace riprap with bioengineered riverbanks, integrating native riparian vegetation, where riverbank stabilization is necessary for protection of critical infrastructure.
- Remove all campsites and infrastructure within the 100-year floodplain and restore natural floodplain and riparian habitat.
- Major restoration of the 100-year floodplain and restoration of the dynamic 10-year floodplain in East Yosemite Valley.

To ensure this ORV is protected and enhanced through time, the NPS would monitor the condition of the ORV using the status of riparian habitat as an indicator, and take specific actions should conditions reach trigger points.

**TABLE 8-79: SEGMENT 2 ACTIONS AND IMPLICATIONS FOR GEOLOGICAL/HYDROLOGICAL ORV-6**

Location	Action in Alternative 3	Effects to ORV-6
<b>Curry Village and Campgrounds</b>		
Upper Pines, Camp 4 and Backpackers Campgrounds	<i>Upper Pines</i> : New RV campground loop with 36 sites <i>Camp 4</i> : 35 new walk-in sites east of existing Camp 4 <i>Backpackers</i> : 16 new walk-in sites west of existing Backpackers	These changes would result in less erosion along the riverbank because designated access points to resilient areas are identified for visitors, and sensitive areas would be restored and access would not be permitted.
Curry Village Lodging	Lodging would include 355 units, (65 hard-sided units and 290 tents).	Lodging is outside the 100 year floodplain and is not causing adverse effects or degradation to ORV-6 on a segmentwide basis.
<b>Yosemite Village and Housekeeping Camp</b>		
Yosemite Village Day Use Parking Area/Village Center Parking Area	Move the Yosemite Village Day Use Parking Area day-use parking area northward 150 feet away from the river to facilitate restoration goals. Formalize parking area with a total of 550 parking places.	These changes would reduce effects to riparian corridor and locally enhance ORV components as use would be relocated away from areas critical to hydrologic function.
Ahwahnee Row and Tecoya Dorms Concessioner Employee Housing	Remove housing and development out of the 100-year floodplain, recontour topography, decompact soils, and restore stream hydrologic function.	Changes would result in reduction of residential activities in riparian areas; biological ORV would be enhanced locally.
Housekeeping Camp Lodging	Remove all 266 lodging units. Convert Housekeeping Camp to a day use river access point and picnic area.	These changes would reduce effects to riparian corridor and enhance ORV components due to restoration. In addition access would be directed to resilient sandy beaches.
<b>Yosemite Lodge and Camp 4</b>		
Yosemite Lodge Parking Area	West of Yosemite Lodge re-developed to provide additional 550 day use parking spaces.	Implementation of mitigation measures would protect the floodplain from erosion and other disturbance during construction.
Yosemite Lodge Visitor Facilities	Remove 102 lodging units. Restore the 100-year floodplain.	Lodging is outside the 100-year floodplain and is not causing adverse effects
El Capitan Crossover	Facility retained. This roadway segment is a key connector between Northside and Southside Drives and serves as a exit point at west end of Yosemite Valley.	Bridge protects riparian habitat from destruction caused by random crossings throughout the river corridor
Northside Drive (Stoneman Bridge to Yosemite Village Day Use Parking Area)	Remove 900' of road and relocate the bike path to the south, to improve the meadow/river connectivity. Restore meadow contours and native vegetation.	Removes facility that currently has a localized effect on the ORV. Restoration enhances the ORV in this area.

**Conclusion:** Under Alternative 2, the geologic/hydrologic ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. All actions would enhance the 10 and/or 100-year floodplains and this ORV. Actions to protect and enhance free-flowing conditions as well as meadows and riparian complexes in Segment 2 would result in additional enhancement of the geologic/hydrologic ORV. The recreational segment of the Merced River corridor in East Yosemite Valley would remain readily accessible by road and will have appropriate development along the shorelines. The scenic portion of Segment 2 in West Yosemite Valley would remain free of

impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

### *Cultural ORV-8 – Yosemite Valley American Indian Ethnographic Resources*

As described in Chapter 5, Yosemite Valley American Indian ethnographic resources include relatively contiguous and interrelated places that are inextricably and traditionally linked to the history, cultural identity, beliefs, and behaviors of contemporary and traditionally-associated American Indian tribes and groups. Management considerations related to ethnographic resources involve park operations, crowding, and visitor use. Actions included in the Merced River Plan/DEIS include:

- Continue coordination between traditionally associated American Indian tribes, groups, and traditional practitioners (through the Park American Indian Liaison) with law enforcement, fire management, interpretation, invasive species, ecological restoration, and facilities management programs;
- Continue to provide operational guidelines for material staging areas, parking, etc. to protect ethnographic resources;
- Ensure access for traditionally-associated American Indians for participation in annually scheduled traditional cultural events. In addition, tribal access for the personal conduct of ongoing traditional cultural practices would be assured through the Yosemite tribal fee waiver pass program.
- Reduce and formalize day-use parking capacity Manage access in Segment 2 to protect traditionally-used plant populations in the river corridor during periods of high use.
- A series of actions to improve and relocate parking (described further below and in Chapter 8) would protect Cultural ORVs by removing these uses from the proximity of several cultural resources.

Threats to traditionally-used plant populations include invasive species such as Himalayan Blackberry (*Rubus armeniacus*), drainage and hydrology impacts to meadows, and erosion and revegetations that affect riparian vegetation. The *Merced River Plan/DEIS* would address these considerations through the following actions:

- The ecological restoration actions associated with this planning effort implemented in concert with the existing invasive plant management program would address impacts to some traditionally-used plant populations in some locations.
- Restoration actions to protect riparian areas, meadows, and hydrological resources would further contribute to the protection and enhancement of the traditional-use plant communities included in this ORV.
- Introduction of seedlings to affected stands of black oaks and protection as necessary to ensure that ratios of adults to saplings is at least 0.65.
- Primary actions to manage major vista points under Scenic ORV-16 include mechanical thinning or removal of conifer trees. This action would be coordinated to ensure that the ORV-8 trigger point for the ratio of sapling to adult trees is not exceeded.

**TABLE 8-80: SEGMENT 2 ACTIONS AND IMPLICATIONS FOR CULTURAL ORV-8**

Location	Action in Alternative 3	Effects to ORV-8
<b>Curry Village and Campgrounds</b>		
Traditional Cultural Property Documentation	Document the Yosemite Valley Traditional Cultural Property, consisting of traditional use areas, spiritual places and historic villages and complete National Register evaluation and interpretive summary	Documentation, mapping, and evaluation would provide the detail necessary to protect and enhance the ORV segmentwide.
Visitation	13,200 people per day	This level of visitation may continue to result in a lack of privacy for traditional cultural practices in particular locations seasonally. Access to annually-scheduled traditional cultural events and personal conduct of traditional cultural practices would be assured thereby continuing protection of the ORV segmentwide.
Upper Pines, Backpacker's, and Camp 4 Campgrounds	All campsites within 100 feet of the river would be removed. New campsites constructed at Upper Pines, Backpacker's, and Camp 4. Designated put in areas for boating established.	These changes would result in less erosion along the riverbank because designated access points to resilient areas are identified for visitors, and sensitive areas would be restored and access would be discouraged. The ORV would be enhanced segmentwide.
Curry Village Lodging	Lodging would include 355 units, (65 hard-sided units and 290 tents).	Lodging is outside the 100 year floodplain and is not causing adverse effects or degradation to ORV-6 on a segmentwide basis.
<b>Yosemite Village and Housekeeping Camp</b>		
Housekeeping Camp Lodging	Remove 266 lodging units, out of the observed ordinary high water mark.	These changes would reduce effects to riparian corridor and locally enhance ORV components due to restoration. In addition access would be directed to resilient sandy beaches.
<b>Yosemite Lodge and Camp 4</b>		
Yosemite Lodge Parking Area	West of Yosemite Lodge re-developed to provide additional 150 day use parking spaces.	Mitigation measures would protect vegetation and traditional use plants locally. Increased use in this area would be monitored to ensure protection of ethnographic resources. Additional parking near Wahhoga would increase access to traditional uses at this location. The ORV would continue to be protected locally.
Yosemite Lodge Parking	25 additional spaces added at Yosemite Lodge due to redesign, improving parking efficiency near Northside Drive.	Implementation of best management practices would protect the floodplain from erosion and other disturbance. Additional parking near Wahhoga would increase access to traditional uses at this location. The ORV would continue to be protected locally.
Yosemite Lodge Visitor Facilities	Removing 102 units.	Lodging is outside the 100 year floodplain and is not affecting the ethnographic resources. Reduced visitor use near Wahhoga would increase privacy for traditional uses at this location. The ORV would continue to be protected locally.

**TABLE 8-80: SEGMENT 2 ACTIONS AND IMPLICATIONS FOR CULTURAL ORV-8 (CONTINUED)**

Location	Action in Alternative 3	Effects to ORV-8
<b>Yosemite Lodge and Camp 4 (cont.)</b>		
Yosemite Lodge Concessioner Employee Housing	Remove old and temporary housing at Highland Court and the Thousands Cabins. Construct two new concessioner housing areas housing 104 employees. Construct 78 employee parking spaces.	Lodging is outside is not affecting ethnographic resources. The ORV would continue to be protected locally.
Former Bridalveil Sewer Plant	Remove the buried structure.	Removal of the abandoned infrastructure and native plant revegetation will allow for recruitment of desirable black oaks in this area. The ORV would continue to be enhanced locally.
Yellow Pine Administrative Campground	Retain 4 group administrative use sites (up to 120 people).	Yellow Pines is used for overflow camping during annual traditional cultural events. Retention of this campground continues to protect the ORV segmentwide.
Superintendent's House (Residence 1)	Remove and relocate to the NPS housing area.	Relocation of this facility outside of the river corridor may reduce informal trailing in the river corridor. Restoration will allow for recruitment of desirable black oaks in this area. The ORV would be enhanced locally.

Facilities that would remain in this segment of the river have no direct impact on the ethnographic component of the cultural ORV as indicated in the baseline condition assessment.

The Merced *River Plan/DEIS* proposes a variety of actions to address specific considerations including continued coordination between traditionally associated American Indian tribes, groups, and traditional practitioners and the NPS; continued access for traditionally associated American Indians for participation in annually scheduled traditional cultural events; and ecological restoration actions to protect and enhance traditionally used plant populations. To prevent future impacts, the NPS would monitor the condition of the ORV, and take specific actions should additional trigger points be exceeded.

**Conclusion:** Under Alternative 3, the ethnographic component of the cultural ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. Actions to protect and enhance floodplains, meadows and riparian complexes in Segment 2 would result in additional enhancement of the traditionally-used plant resources of the ethnographic component of the cultural ORV. Actions that would remove infrastructure and restore black oak woodlands would also enhance a critical component of this ORV. Reduction in maximum people per day in Yosemite Valley, and management of user capacity and visitor use would not limit access to traditional practitioners because measures would be in place to ensure access to annually-scheduled events as well as individual access for ongoing traditional cultural practices. Furthermore, the overall reduction in visitation under Alternative 3 would reduce the effects of crowding and enhance privacy for traditional cultural practices.

***Cultural ORV-9 – Yosemite Valley Archeological District***

The Yosemite Valley Archeological District is a linked landscape that contains dense concentrations of resources that represent thousands of years of human settlement along this segment of the Merced River. Heavily-used formal trails and informal trails, as well as illegal campfires, graffiti, and trampling stock trail



use, parking and informal rock climbing can all affect ORVs in this area. Archeological resource protection would be achieved through actions in this plan to manage visitor use levels, divert foot traffic around sites, removing informal trails, and formalizing river and meadow access locations, mitigating ecological restoration practices by using noninvasive techniques wherever possible. Many of the actions related to ecological restoration in Segment 2, such as delineating roadside parking, would also help protect archeological sites by diverting foot traffic away from sites and into less sensitive areas. Actions to enhance the recreational ORV in Segment 2 would manage recreational users both in terms of flow and location of users at any one time. A reduction in people and vehicles at one time in Yosemite Valley could also reduce visitor use-related effects on archeological resources.

Site-specific treatment actions would be developed through site management plans, where necessary, to avoid resource loss through park actions (such as development, repair, and maintenance of facilities and underground utilities to support visitor use or natural forces).

Management considerations for this ORV also involve continuing to survey and monitor archeological resources as well as update required documentation.

Under Alternative 3 the free-flowing condition of the river would be enhanced by removing the Ahwahnee, Sugar Pine, and Stoneman Bridges. Mitigation measures would be utilized to reduce localized impacts and ensure that this action would not cause adverse effects or degradation to ORV-9 on a segmentwide basis. All ground disturbances associated with ecological restoration actions; removal of buildings and infrastructure; re-routing of roads; and, parking lot and campground construction under this alternative would be subject to park standard operating procedures, subject matter expert review, and monitoring (as needed) to ensure that archeological resources are protected. Facilities that would remain in this segment of the river have no direct impact on the archeological component of the cultural ORV as indicated in the baseline condition assessment.

The NPS would delineate bike paths, roads, and other infrastructure away from sensitive cultural and ethnographic resource areas; remove graffiti at rock art and other sensitive features, conduct public education to discourage climbing, and remove climbing hardware from sensitive features. To prevent these considerations, or others, from redeveloping, the NPS would monitor the condition of the ORV, and take specific actions should conditions exceed specific trigger points.

**Conclusion:** Under Alternative 3, the archeological component of the cultural ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. Localized visitor-use-related impacts to archeological resources would be addressed through various enhancement actions. All ground disturbances associated with ecological restoration actions; removal of buildings and infrastructure; re-routing of roads; and, parking lot and campground construction under this alternative would be subject to park standard operating procedures, subject matter expert review, and monitoring (as needed) to ensure that archeological resources are protected. Reduction in maximum people per day in Yosemite Valley, and management of user capacity and visitor use would reduce the potential for visitor use impacts.

**TABLE 8-81: SEGMENT 2 ACTIONS AND THEIR IMPLICATIONS FOR CULTURAL ORV-9**

Location	Action in Alternative 3	Impact on ORV-9
<b>Curry Village and Campgrounds</b>		
North, Lower and Upper Pines, and Backpackers Campgrounds	All campsites within 100-year floodplain would be removed. Upper Pines Campsite in culturally sensitive area.	Design, follow-on compliance, and mitigation measures would avoid or mitigate effects to sensitive archeological resources. Actions would continue to protect the ORV segmentwide.
Concessioner Stables	Concessioner Stable for temporary pack camp operation at Merced Lake High Sierra Camp; reduce the stable size	Mitigation measures would protect cultural resources during facility removal. Change would not affect contributing element of the Archeological District.
Curry Village Lodging	Lodging would include 355 units, (65 hard-sided units and 290 tents).	Mitigation measures would protect cultural resources during facility removal. Change would not affect contributing element of the Archeological District.
<b>Yosemite Village and Housekeeping Camp</b>		
The Ahwahnee Pool and Tennis Courts	Remove the pool and tennis courts. Tennis courts are located in a sensitive cultural area	Mitigation measures would protect cultural resources during facility removal and would locally protect the ORV. Change would not affect contributing element of the Archeological District.
The Ahwahnee Parking Lot	Redesign and formalize the existing parking lot; providing for proper drainage. Construct new 50 parking space lot east of the current parking.	Mitigation measures would protect cultural resources during facility removal. Change would not affect contributing element of the Archeological District.
Yosemite Village Day-use Parking Area	The Concessioner General Offices, Garage, and the Bank Building are removed. Move the Yosemite Village Day-use parking area northward 150 feet away from the river to facilitate restoration goals. Formalize parking area with a total of 550 parking places.	Mitigation measures would protect cultural resources during facility removal. Change would not affect contributing element of the Archeological District.
Housekeeping Camp Lodging	Remove all 266 lodging units. Convert Housekeeping Camp to a day use river access point and picnic area.	Mitigation measures would protect cultural resources during facility removal. Change would not affect contributing element of the Archeological District.
Yosemite Village Concessioner Employee Housing	Temporary housing at Huff House and Boys Town is removed. Remove housing units (7 buildings, 64 beds) in rock fall hazard zone. Construct 16 buildings, housing 164 employees using the same dormitory prototype. Temporary housing at Lost Arrow is removed, replaced with 50 bed permanent housing facility.	Design, follow-on compliance, and mitigation measures would avoid or mitigate effects to sensitive archeological resources. Actions would continue to protect the ORV segmentwide.
Sentinel Drive Roadside Parking	Remove roadside parking along Sentinel Dr. and restore to natural conditions.	Mitigation measures would avoid or mitigate effects to sensitive archeological resources. Actions would continue to protect the ORV segmentwide.
<b>Yosemite Lodge and Camp 4</b>		
West of Yosemite Lodge New Parking	West of Yosemite Lodge re-developed to provide additional 150 day use parking spaces.	Mitigation measures would avoid or mitigate effects to sensitive archeological resources. Actions would continue to protect the ORV segmentwide.

**TABLE 8-81: SEGMENT 2 ACTIONS AND THEIR IMPLICATIONS FOR CULTURAL ORV-9 (CONTINUED)**

Location	Action in Alternative 3	Impact on ORV-9
<b>Yosemite Lodge and Camp 4 (cont.)</b>		
Yosemite Lodge Visitor Facilities	Remove all of the lodging units (-245 units). Repurpose the area outside the 100-year floodplain for Day Lodge and Parking. Restore the 100-year floodplain.	Mitigation measures would avoid or mitigate effects to sensitive archeological resources. Actions would continue to protect the ORV segmentwide.
Yosemite Lodge Concessioner Employee Housing	Remove old and temporary housing at Highland Court and the Thousands Cabins. Construct two new concessioner housing areas housing 104 employees. Construct 78 employee parking spaces.	Change would not affect contributing element of the Archeological District due to location and level of use.
Yellow Pine, Camp 4, Yosemite Lodge, and West Valley Campgrounds.	Remove camping and restore the 100-year floodplain to natural conditions. Camp 4 expanded eastward to provide 35 additional walk-in sites. Retain 35 walk-in campsites at Camp 4. Retain campground and administrative use sites in Yellow Pine.	Mitigation measures would protect cultural resources during facility removal. Change would not affect contributing element of the Archeological District.
Superintendent’s House (Residence 1)	Remove and relocate to the NPS housing area.	Mitigation measures would protect cultural resources during facility relocation. Change would not affect contributing element of the Archeological District.
Northside Drive (Stoneman Bridge to Yosemite Village Day-use Parking Area)	Remove 900' of road and relocate the bike path to the south, to improve the meadow/river connectivity. Restore meadow contours and native vegetation.	Mitigation measures would avoid or mitigate effects to sensitive archeological resources. Actions would continue to protect the ORV segmentwide.

***Cultural ORV-10 – Yosemite Valley Historic Resources***

As described in Chapter 5, the Yosemite Valley Historic Resources represent a linked landscape of river-related or river-dependent, rare, unique or exemplary buildings and structures that bear witness to the historical significance of the river system. Protective actions to address management concerns related to the Yosemite Valley Historic Resources ORV-10 include:

- Follow the recommendations from the Ahwahnee Historic Structures Report (1997) and the Ahwahnee Cultural Landscape Report (2010) when redesigning the Ahwahnee Parking Lot to bring the Ahwahnee stone gate house and the Ahwahnee Parking Lot to “good” condition.
- Develop a Historic Structures Report for the LeConte Memorial Lodge NHL to determine the rehabilitation needs to bring the building to “good” condition.
- Rehabilitate the Superintendent’s House (Residence 1) per the Historic Structure Report (Lingo 2012) to bring the building to “good” condition. This rehabilitation of the building will occur under all action alternatives, regardless of whether the building is relocated.

Under Alternative 3 the free-flowing condition of the river would be protected by removing the Ahwahnee, Sugar Pine, and Stoneman Bridges. Relocation of the Superintendent’s House (Residence 1) is proposed under Alternative 3 to address the 1982 Guidelines for the Wild and Scenic Rivers Act that requires managing agencies to consider relocation of major public use facilities outside

**TABLE 8-82: SEGMENT 2 ACTIONS AND THEIR IMPLICATIONS FOR CULTURAL ORV-10**

Location	Action in Alternative 3	Effects toORV-10
<b>Curry Village and Campgrounds</b>		
Stoneman Bridge	Remove bridge and restore to natural conditions, make Southside Drive two-way, and redesign Sentinel intersection.	The action would remove 2 contributors to the Yosemite Valley Historic Resource ORV resulting in localized effects. Mitigation measures include documenting and interpreting the resource. The loss of these two bridges would not result in a segmentwide adverse effect of the collective of resources.
Stoneman Meadow and Curry Orchard parking lot	Restore Stoneman Meadow including removal of 1,335 feet of Southside Drive and re-alignment of road through Boys Town area. Extend the meadow boardwalk through wet areas to Curry Village (up to 275').	Change would affect circulation patterns locally. Change is not likely to affect buildings and structures included in the Yosemite Valley Historic Resources ORV collective.
<b>Yosemite Village and Housekeeping Camp</b>		
The Ahwahnee Pool and Tennis Courts	Remove the pool and tennis courts. Tennis courts are located in a sensitive cultural area	Mitigation measures would protect cultural resources during facility removal. Change would not affect contributing element of the Yosemite Valley Historic Resources ORV collective.
Yosemite Village Day-Use Parking Area	Remove Concessioner General Offices, Concessioner Garage, and the Bank Building are removed. Re-align the intersection at Northside Drive and Village Drive. Add a three-way intersection at Sentinel Drive and the entrance to the parking area. Provide on-grade pedestrian crossings.	The removal of historic and non-historic properties and re-alignment/re-establishment of the intersections would affect circulation patterns locally. Change is not likely to affect buildings and structures included in the Yosemite Valley Historic Resources ORV collective.
Sugar Pine and Ahwahnee Bridges	Remove both bridges and the connecting berm.	The action would remove 2 contributors to the Yosemite Valley Historic Resource ORV resulting in localized effects. Mitigation measures include documenting and interpreting the resource. The loss of these two bridges would not result in a segmentwide adverse effect of the collective of resources.
Superintendent’s House (Residence 1)	Relocate outside the river corridor to the NPS housing area. Rehabilitate historic structure in new location.	The action would remove a contributor to the Yosemite Valley Historic Resource ORV resulting in localized effects. Mitigation measures include documenting and interpreting the resource. The loss of this resource would not result in a segmentwide adverse effect of the collective of resources.
Bridalveil Falls Trail	Redesign trails, boardwalks, and viewing at the base of the falls to improve wayfinding and pedestrian circulation. Restore informal trails. Improve ADA compliance of pedestrian walkways and restrooms.	The action would affect trails that are connected by the historic footbridges which are components of the Yosemite Valley Historic Resources ORV. Mitigation measures and Section 106 review would ensure the protection of the historic resources and the redesign could result in enhancement of the ORV locally.

of the river corridor. These three bridges and the Superintendent’s House (Residence 1) are components of the Yosemite Valley Historic Resources component of the cultural ORV in Segment 2. The NPS would document and interpret any building or structure threatened with removal or relocation. In this manner, while the individual tangible element or elements may be lost or moved, a record of their existence and historical significance would still be available to the public.

To address management considerations, the *Merced River Plan/DEIS* proposes continuing the active program of maintenance for historic buildings and structures; employing existing design guidelines to ensure that new development or redevelopment complements the ORV and the Yosemite Valley Historic District; and periodically assessing and updating professional documentation for the historic resources.

Ecological and scenic value restoration actions in Segment 2 would enhance the cultural landscape which contributes to the historic setting of the resources that comprise the ORV-10. There are no construction actions associated with Alternative 3 that would affect the spatial organization of the historic resource collective, though changes in the circulation patterns as a result of re-routing roads at the Yosemite Village day-use parking area and at Stoneman Meadow would affect circulation patterns that are associated with this ORV. These effects would be localized and would not affect the condition of the ORV on a segmentwide level.

**Conclusion:** Under Alternative 3, the historic resources component of the cultural ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. Removal of three bridges and the relocation of the Superintendent's House (Residence 1) would result in localized effects that would be mitigated through documentation and interpretation. Once removed or relocated, these resources would no longer be considered part of the ORV collective. All disturbances to circulation and spatial organization associated with ecological restoration actions; removal of buildings and infrastructure; re-routing of roads; and, parking lot and campground construction under this alternative would be subject to park standard operating procedures, subject matter expert review, and documentation (as needed) to ensure that historic resources are protected.

### ***Scenic ORV-16 – Iconic Scenic Views in Yosemite Valley***

Visitors to Yosemite Valley experience scenic views of some of the world's most iconic scenery, with the river and meadows forming a placid foreground to towering cliffs and waterfalls. Actions intended to manage natural resources may include the use of prescribed fire or controlled burns to thin forests that are encroaching on meadows; cutting trees, tree branches or other vegetation by mechanical means; and the application of herbicides to control invasive species. Related actions intended to protect the Recreation ORV would limit the number of visitors to lessen visitor density and congestion at attraction sites and make improvements to the transportation system that would reduce automobile congestion. Air quality can affect visitors' ability to experience scenic values in Segment 2. The NPS would cooperate with regional authorities to reduce airborne contaminants caused by combustion, including carbon dioxide emissions, smoke caused by fire, particulate matter generated by construction, and to improve air quality conditions.

**TABLE 8-83: SEGMENT 2 ACTIONS AND THEIR IMPLICATIONS FOR SCENIC ORV-16**

Location	Action in Alternative 3	Effects to ORV-16
<b>Curry Village and Campgrounds</b>		
Select Scenic vista Points	Selectively thin conifers and other trees and shrubs that encroach on selected scenic vista points. Remove unnecessary facilities and ensure that all future development satisfies objectives that provide low contrast ratings.	Changes would enhance the scenic values on a segmentwide level.
Concessioner Stables	Reduce the Curry Village Stables area; eliminate commercial day rides. Remove associated housing (25 beds).	Currently not causing effects on scenic resources. Restoration would improve viewsheds.
Curry Village Lodging	Lodging would include 355 units, (65 hard-sided units and 290 tents).	Changes to Lodge would be in keeping with current facility and given the location of the facility would not interfere with iconic scenery.
Ahwahnee, Sugar Pine, and Stoneman Bridges	Remove the Ahwahnee, Sugar Pine, and Stoneman Bridges.	Given the location of the bridges, removal would not interfere with iconic scenery.
<b>Yosemite Village and Housekeeping Camp</b>		
The Ahwahnee Pool and Tennis Courts	Remove the pool and tennis courts	Given the location of the facility, changes to facilities would not interfere with iconic scenery
The Ahwahnee Parking Lot	Redesign and formalize the existing parking lot; providing for proper drainage. Construct new 50 parking space lot east of the current parking.	Given the location of the facility, changes to facilities would not interfere with iconic scenery
Yosemite Village Day Use Parking Area/Village Center Parking Area	The Concessioner General Offices, Concessioner Garage, and the Bank Building are removed. Move the Yosemite Village Day Use Parking Area day-use parking area northward 150 feet away from the river to facilitate restoration goals. Formalize parking area with a total of 550 parking places.	Removal of buildings would enhance viewsheds locally.
Housekeeping Camp Lodging	Remove all 266 lodging units. Convert Housekeeping Camp to a day use river access point and picnic area.	Removal of Housekeeping units near the river will enhance viewsheds locally.
Yosemite Village Concessioner Employee Housing	Temporary housing at Huff House and Boys Town is removed. Remove housing units (7 buildings, 64 beds) in rock fall hazard zone. Construct 16 buildings, housing 164 employees using the same dormitory prototype. Temporary housing at Lost Arrow is removed, replaced with 50 bed permanent housing facility.	Mitigation measures would avoid or mitigate effects to iconic scenic vistas. Actions would continue to protect the ORV locally.
<b>Yosemite Lodge and Camp 4</b>		
Yosemite Lodge Visitor Facilities	Remove of 102 lodging units (143 remain). Repurpose the area outside the 100-year floodplain for Day Lodge and Parking. Restore the 100-year floodplain.	Currently not interfering with scenic resources. Viewsheds would be enhanced through the removal of these buildings.

In consideration of Wild and Scenic River Act requirements that the NPS consider the presence of existing structures, major facilities and services provided for visitor use, the NPS would eliminate several structures and facilities in Segment 2 under this alternative. Under Alternative 3 actions would remove many structures at the Yosemite Lodge, and the Ahwahnee pool and tennis court. Removal of these structures could enhance scenic resources from specific locations. Ecological restoration actions in Segment 2 would



enhance the meadow and riparian communities which contribute to the scenic values in Yosemite Valley. This recreational river segment would remain readily accessible by road and will continue to have appropriate development along the shorelines (a comprehensive list of facilities in Segment 2 is included in table 7-1). Facilities that would remain in this segment of the river have no direct impact on the scenic river value as indicated in the baseline condition assessment. Changes to parking and vehicle traffic in Yosemite Valley to enhance Recreational ORV- 20 particularly the removal of roadside parking along Sentinel Drive and restoration to natural conditions would enhance Scenic ORV-16.

**Conclusion:** Under Alternative 3, the scenic ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. Tree thinning and ecological restoration actions would improve natural scenic conditions. Removal of buildings at Housekeeping Camp, Yosemite Lodge, the Concessioner Garage, the Concessioner General Offices, and the Concessioner Stables would reduce intrusions on scenic resources. All parking lot and campground construction under this alternative would be subject to park standard operating procedures and subject matter expert review to ensure that scenic resources are protected.

### ***Recreational ORV-20 – River-related Recreation in Yosemite Valley***

Visitors to Yosemite Valley enjoy a wide variety of river-related recreational activities in the Valley's extraordinary setting along the Merced River. Throughout the Yosemite Valley segment, the river has provided the setting for recreational experiences such as fishing, floating, and sightseeing. Transportation is considered an important part of the visitor experience in Yosemite Valley because it is the means of access to recreational opportunities in Yosemite Valley. Management considerations address the amount of vehicle traffic and the number of people at one time in Yosemite Valley at the peak times of day during the park's busy summer season.

All restoration actions to protect and enhance biological, cultural, geologic/hydrologic, and scenic ORVs would further enhance visitors' connections to the river and its values, which are essential to the recreational ORV in this segment. A reduction in day-use, camping, and lodging opportunities would reduce access to these recreational experiences, but would not cause adverse effects or degradation to ORV-20 on a segmentwide basis. The removal of Yosemite Lodge and Housekeeping Camp would eliminate two distinct types of overnight accommodations in Yosemite Valley, but overnight lodging would not be eliminated segmentwide, nor would an essential aspect of the recreational ORV be affected. There are also actions proposed in Alternative 3 that would improve picnicking, and wayfinding. Finally, while commercial boating is eliminated and private boating is limited to 50 trips per day in Segment 2, this alternative reduces crowding and increases the stretches of the river on which private boating and paddling is allowed, thereby enhancing key aspects of this recreational experience.

**TABLE 8-84: SEGMENT 2 ACTIONS AND THEIR IMPLICATIONS FOR RECREATIONAL ORV-20**

Location	Action in Alternative 3	Effects to ORV-20
Segmentwide visitation	13,200 visitors per day	This reduction in visitation would reduce crowding and congestion thereby enhancing the recreation ORV on a segmentwide level.
Concessioner Stables	Reduce the Curry Village Stables area; eliminate commercial day rides.	Changes would reduce opportunities for one type of recreational activity, but would not substantially alter components of the river recreation experience.
Curry Village Lodging	Lodging would include 355 units, (65 hard-sided units and 290 tents).	Changes to Lodge would reduce access to overnight accommodations. Lodge itself is not part of the ORV-20 but does facilitate access to ORV-20 for certain visitors. This use would remain.
Lower Rivers Nature Walk	Create an interpretive (nature) walk through Lower Rivers that emphasizes river-related natural processes, the park's ecological restoration work and what visitors can do to protect the river.	Change would improve interpretation of the river and its values, and would enhance the recreation ORV in this segment.
<b>Yosemite Village and Housekeeping Camp</b>		
The Ahwahnee Pool and Tennis Courts	Remove the pool and tennis courts	Removal of facilities would reduce opportunities for one type of recreation activities, but would not substantially alter components of the river recreation experience.
Segment wide River Access	Swimming and water play allowed in all segments except 6, impoundment. No commercial boating. Boating allowed on all segments except 6, impoundment. Private use limited to 50 trips per day in Segment 2 between the Pines Campgrounds and Sentinel Beach.	Change would eliminate commercial boating and would limit the number of private boating. However, this change does not affect components of the recreational ORV. This reduction in boats enhances dispersed recreation along the river corridor.
Housekeeping Camp Lodging	Remove all 266 lodging units. Convert Housekeeping Camp to a day use river access point and picnic area.	Removal of units would have local affect, but would not substantially alter components of the river recreation experience.
Bridalveil Falls Trail	Redesign trails, boardwalks, and viewing at the base of the falls to improve wayfinding and pedestrian circulation. Restore informal trails. Improve ADA compliance of pedestrian walkways and restrooms.	Change would cause improve circulation and wayfinding thus enhancing ORV-20.
<b>Yosemite Lodge And Camp 4</b>		
Yosemite Lodge Visitor Facilities	Remove 102 lodging units (143 units remain). Repurpose the area outside the 100-year floodplain for Day Lodge and Parking. Restore the 100-year floodplain.	Removal of lodging would have local affect, but would not substantially alter components of the river recreation experience.
Yellow Pine, Camp 4, Yosemite Lodge, and West Valley Campgrounds.	Remove camping and restore the 100-year floodplain to natural conditions. Camp 4 expanded eastward to provide 35 additional walk-in sites. Retain 35 walk-in campsites at Camp 4.	Reduction in the number of campsites limits access to these recreational experiences, but camping opportunities would continue and not substantially alter components of the river recreation experience.
Recreational Experience Quality	Reduction in available day-use parking, and implementation of an East Yosemite Valley Day-use Parking Permit system	This will enhance the recreational experience of segment 2 by reducing crowding at key attraction sites as well as access to these areas (along roadways, in parking lots, etc).

Chapter 6 provides a more detailed description of the day-visitor capacity management strategies that directly measure aspects of the Recreation ORV and outlines specific actions. These actions include:

- Utilize parking and traffic management staff to improve parking efficiency and traffic flow in Yosemite Valley and other locations where needed.
- Institute a transportation fee at entrance stations (for peak-use season).
- Divert vehicles to other destinations outside of Yosemite Valley when parking in the Valley fills.
- When all parking fills to capacity, day visitors would be diverted at checkpoints throughout the park and at entrance stations.
- East Valley day-use parking permits would be issued by advanced reservation and on a first-come-first-serve basis.

NPS would use the Highway Capacity Manual Pedestrian Level of Service (discussed further in Chapter 5) for evaluating the capacity and quality of service of transportation facilities, including walkways, multi-use paths, and similar pedestrian facilities. NPS would also monitor parking rates and vehicles at one time to ensure that they are not exceeding the management standard. Should specific trigger points be reached, the NPS would implement a series of specific actions to improve parking to an acceptable level. Similarly, should visitor densities begin to approach specific triggers; NPS would take steps to keep such densities within the management standard.

**Conclusion:** Under Alternative 3, the recreation ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. The reduction in camping and lodging opportunities, as well as reduction in visitation particularly during the peak season will significantly reduce crowding thereby enhancing the recreational ORV. All restoration actions would enhance opportunities to connect with the river and its values. The reduction in commercial services would affect opportunities for particular types of recreational activities, but would not affect the essential components of the recreation ORV on a segmentwide basis.

### Segment 3 – The Merced Gorge (Scenic Segment)

#### *Scenic ORV-17 – Scenic View in the Merced River Gorge*

The Merced River drops 2,000 feet over 14 miles; a continuous cascade under spectacular Sierra granite outcrops and domes. There are no existing management considerations with respect to the Scenic ORV in the Merced River Gorge. Although there are some localized visual intrusions from essential facilities such as visitor parking areas, restrooms, the Arch Rock entrance station and the El Portal Road, these facilities are consistent with the scenic classification of this river segment. As explained in Chapter 5, this ORV is currently protected and enhanced.

This alternative does not propose any new development or landscape changes within the river corridor aside from improvements to existing roadside pullouts and drainage. These changes would not degrade or adversely impact the scenic ORV on a segmentwide basis. Although private vehicles and overall visitation during peak periods will be managed for East Yosemite Valley only, it is probable that visitation and visitors

at one time in Segment 3 will also witness a reduction under this alternative. This reduction in visitation and visitors at one time may reduce vehicles per viewshed, thereby enhancing the scenic ORV. Monitoring associated with this ORV would ensure that the attributes that comprise this ORV remain within the accepted management class rating.

Alternative 3 would accommodate the same kinds and amounts of use that exist today in Segment 3. The types and levels of use in Segment 3 under this alternative would remain largely unchanged. Actions considered under Alternative 3 would cause no adverse effects or degradation to ORVs on a segmentwide basis.

**Conclusion.** Under Alternative 3, this scenic river segment would show little evidence of human activity and remain largely free of structures. The scenic ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. The reduction in camping and lodging opportunities, as well as reduction in visitation particularly during the peak season in Yosemite Valley will significantly reduce the number of vehicles per viewshed in this segment. All restoration actions would further enhance scenic characteristics in this segment.

## **Segment 4 – El Portal (Recreational Segment)**

### ***Geological/Hydrological ORV-7 – The Boulder Bar in El Portal***

Natural processes would continue to shape the landscape and the geologic ORV. The NPS has not identified any management considerations with respect to the El Portal boulder bar. Land use and facility actions proposed in this alternative would not affect this ORV. Because there are no considerations regarding the condition of this ORV, no actions other than continued protection are necessary. Moreover, the types and levels of visitor and administrative use (e.g., housing, maintenance operations, office space, passive recreation) allowed under this alternative would not affect this ORV. Therefore, the NPS would not monitor the condition of this ORV as part of the *Merced River Plan/DEIS*.

**Conclusion.** Under Alternative 3, the geologic values of this recreational river segment would continue to be absent of adverse effects and degradation on a segmentwide level. There are no actions that would affect the boulder bar in El Portal, and there are no ongoing concerns or considerations associated with this resource.

### ***Cultural ORV-11 – The El Portal Archeological District***

The El Portal Archeological District contains dense concentrations of resources that represent thousands of years of occupation and evidence of continuous, far-reaching traffic and trade. This segment includes some of the oldest deposits in the region. Four sites are known to have experienced particularly severe damage, most notably a large ancient village and cemetery.

To address management considerations pertinent to this river value, the NPS would undertake the following actions:

- Protective measures would ensure that exceptional sites would be protected from unmitigated effects that could lead to adverse effects or degradation on a segmentwide level. A plan of action for addressing the abandoned infrastructure on sites would be developed in consultation with traditionally-associated American Indian tribes and groups. Any solution(s) developed would also include a recommended approach for deterring visitor use within the sites.
- Informal trails, non-essential roads, and abandoned infrastructure would be removed to protect and enhance the archeological resources contributing to the ORV in Segment 4.
- Remove informal trails and non-essential roads.

There are no existing instances of adverse effect or degradation to this ORV. As discussed above, management considerations are present associated with abandoned infrastructure that remains on an exceptional site containing diverse components and extremely sensitive cultural materials that are highly valued by traditionally associated American Indians. Management considerations are also associated with non-essential roads and trails that impact archeological sites. In recognition of the high cultural significance of these sites, this alternative requires the park to develop plans to remove abandoned infrastructure and non-essential roads. Restoration actions to establish a 2.5 acre recruitment area for Valley Oaks would further protect adjacent archeological resources. Construction of employee housing in Old El Portal, Abbieville, and Rancheria would be designed to avoid or mitigate threats and disturbances to archeological sites. Monitoring and protective measures would ensure that new use patterns associated with the new housing would not affect contributing elements of the El Portal Archeological District.

**TABLE 8-85: SEGMENT 4 ACTIONS AND THEIR IMPLICATIONS FOR CULTURAL ORV-11**

Facility	Action in Alternative 3	Effects to ORV-11
<b>El Portal</b>		
Old El Portal, and Rancheria Flat Concessioner Employee Housing	New employee housing in Old El Portal (12 beds), and Rancheria Flat (19 beds).	Design, follow-on compliance, and mitigation measures would avoid and/or mitigate adverse effects to sensitive archeological resources. The El Portal Archeological District would continue to be protected at a segmentwide level.
Abbieville Trailer Park Area	No new parking spaces added at the Abbieville/Trailer Park area.	Design, follow-on compliance, and mitigation measures would avoid and/or mitigate adverse effects to sensitive archeological resources. The El Portal Archeological District would continue to be protected at a segmentwide level.
Odger's Bulk Fuel Storage	(Common to All) Remove Odger's bulk fuel storage facility and restore the rare floodplain community of valley oaks. Create a valley oak recruitment area of 2.5 acre in the vicinity of the current Odger's bulk fuel storage area, including the adjacent parking lots.	Mitigation measures would protect cultural resources during facility removal and ecological restoration. Change would continue to protect archeological resources locally.

**Conclusion:** Under Alternative 3, the archeological resources in this recreational river segment would continue to be absent of adverse effects and degradation on a segmentwide level. Removal of abandoned infrastructure, informal trails and non-essential gravel roads would enhance protection of archeological resources. Valley Oak restoration actions would protect adjacent archeological resources from further ground disturbance, Construction of new employee housing would be designed to avoid or mitigate effects

to the El Portal Archeological District. New or altered visitor use patterns associated with the new housing development would be monitored and protective actions would occur if effects triggered responses.

## **Segment 5 – South Fork Merced River Above Wawona (Wild Segment)**

### ***Biological ORV-1 – High-elevation Meadows and Riparian Habitat***

The Merced River sustains numerous small meadows and riparian habitat with high biological integrity. Restoration actions to remove informal trails and charcoal rings to protect cultural resources proposed under this alternative would not affect high-elevation meadows. The NPS proposes no major facility or visitor use actions for Segment 5 under Alternative 3. The biological ORV in this wild river segment would continue to be absent of adverse effects and degradation on a segmentwide level.

### ***Cultural ORV-12 – Regionally rare archeological features representing indigenous settlement including archeological sites with rock ring features***

Three regionally rare prehistoric archeological sites are located along this segment of the South Fork of the Merced Wild and Scenic River corridor. The sites contain unique stacked rock ring constructions and rock alignments. Two sites also contain pine timber remains within the ring interiors or incorporated into the stacked rock courses. Rock constructions are considered fragile and highly subject to human alteration from camping and campfire building disturbances. Two of the South Fork sites are adjacent to formal NPS trails, increasing the likelihood of disturbance. The vicinity of the sites has not been systematically surveyed, and it is possible that additional rock ring sites may be present along the South Fork. Should additional rock ring sites be discovered in the monitoring process, they would also become a part of the South Fork ORV. To remedy these considerations, NPS would:

- Complete documentation of the features. Restrict Wilderness camping in the area of the rock rings (camping allowed past particular marker). Remove informal trails and charcoal rings.
- Increase education and outreach to Wilderness travelers.

**Conclusion.** Under Alternative 3, the archeological resources in this wild river segment would continue to be absent of adverse effects and degradation on a segmentwide level. There are no specific actions to manage user capacity, land use, and/or facilities under Alternative 3 within Segment 5 beyond those designed to protect and enhance ORV-12 that would impact components of Cultural ORV-12. Monitoring activities described in Chapters 5 and 8 would continue to protect and enhance Cultural ORV-12 to ensure there are no adverse effects or degradation to ORV-12 on a segmentwide basis.

### ***Scenic ORV 18 – Scenic Wilderness Views along the South Fork Merced River***

The South Fork Merced River passes through a vast area of natural scenic beauty. The NPS has no immediate management considerations with respect to the Scenic Wilderness Views along the South Fork Merced River as this scenic ORV is determined to be absent of adverse effects and degradation. No new development or landscape changes are proposed within the river corridor. Because there are no



considerations regarding the condition of this ORV, no actions other than continued protection is necessary. It is unlikely that this ORV would be affected by human intervention in the future.

**Conclusion.** Under Alternative 3, the scenic resources in this wild river segment would continue to be absent of adverse effects and degradation on a segmentwide level. The scenic ORV for Segment 5 is determined to be absent of adverse effects, degradation, management concerns, and management considerations. The NPS would not monitor the condition of this ORV.

## Segment 7 – Wawona (Recreational Segment)

### *Biological ORV-3 – The Sierra sweet bay (Myrica hartwegii)*

As described in Chapter 5, the NPS would monitor the condition of this ORV through time using Sierra Sweet Bay Population Decline as its indicator. The health of this ORV would be determined by comparing populations located near Wawona Campground (an area that is likely to be disturbed by humans) with more remote populations that are less likely to receive such disturbance. This population of Sierra sweet bay is in good condition, with no management considerations present. Management action to enhance the population is not required at this time.

**TABLE 8-86: SEGMENT 7 ACTIONS AND THEIR IMPLICATIONS FOR BIOLOGICAL ORV-3**

Facility	Action in Alternative 3	Effects to ORV-3
<b>Wawona</b>		
Wawona Campground	Retains 72 sites. Remove 27 sites that are either within the 100-year floodplain or in culturally sensitive areas.	Action would improve the condition of the ORV by reducing the potential effects on this species associated with campground visitation.

To ensure that this biological ORV is protected and enhanced through time, the NPS would monitor the condition of the Sierra sweet bay population to ensure early warning of conditions that require management action before impacts occur.

**Conclusion.** Under Alternative 3, the Sierra Sweet Bay in this recreational river segment would continue to be absent of adverse effects and degradation on a segmentwide level. Reduction in camping and visitor activity in the vicinity of Wawona Campground would enhance this resource.

### *Cultural ORV-13 – Wawona Archeological District*

The Wawona Archeological District encompasses numerous clusters of resources spanning thousands of years of occupation, including evidence of continuous, far-reaching traffic and trade. This district spans segments 5, 6, 7, and 8. Accordingly, the condition of this historic property is assessed at the property-level, rather than the segmentwide level. Segment 7 includes the remains of the U.S. Army Cavalry Camp A. E. Wood documenting the unique Yosemite legacy of the African-American buffalo soldiers and the strategic placement of their camp near the Merced River. There are several management considerations for this ORV: the Wawona Archeological District is subject to site-specific impacts from park operations, visitor

use, artifact collection, vandalism, and ecological processes. The following actions would help to address these issues:

- Increase monitoring frequency at affected sites.
- At the district-wide level, revise the existing National Register nomination to reflect changes since its original writing, for example, incorporating newly discovered resources and documenting impacts.
- The Wawona Campground capacity would be reduced to 67 sites (including one group site). 32 sites are removed because they are either within the 100-year floodplain or in culturally sensitive areas.
- Remove informal trails and fire rings to prevent continuing disturbance.
- Develop site management plans as needed for sites with complex uses. Remove shoulder and off-road parking. Limit facility and concessionaire off -road vehicle travel/parking on hotel grounds
- Consider need for archeological site treatment measures to address impacts to shallow deposits of artifacts and features.

**TABLE 8-87: SEGMENT 7 ACTIONS AND THEIR IMPLICATIONS FOR CULTURAL ORV-13**

Facility and Land Use	Action in Alternative 3	Effects to ORV-13
<b>Wawona</b>		
Wawona Campground Septic System	Remove septic system, and connect to the sewer system. Build a lift station above the campground to connect to the existing water treatment plant.	Mitigation measures would protect cultural resources during facility construction.
Wawona RV dump site	Relocate the dump site to an appropriate location away from the river.	Mitigation measures would protect cultural resources during facility removal and construction.
Wawona Store	Replace the existing public restroom facilities with larger restrooms to accommodate visitor use levels. Improve picnic area, redesign bus stop.	Mitigation measures would protect cultural resources during facility construction.
Wawona Swinging Bridge	Provide access to Swinging Bridge with access on the south side of the river, delineate trail, restrooms, waste disposal and parking.	Mitigation measures would protect cultural resources during facility construction. Restrooms and waste disposal will reduce threats and disturbances to adjacent archeological resources.

The NPS would delineate trails, roads, and other infrastructure away from sensitive cultural and ethnographic resource areas; conduct public education to discourage disturbance to sensitive features. To prevent these considerations, or others, from redeveloping, the NPS would monitor the condition of the ORV, and take specific actions should conditions exceed specific trigger points.

***Cultural ORV-14 – Wawona Historic Resources***

The Wawona Historic Resources ORV includes one of the few covered bridges in the region and the National Historic Landmark Wawona Hotel complex. The Wawona Hotel complex is the largest existing Victorian hotel complex within the boundaries of a national park, and one of the few remaining in the

United States with this high level of integrity. The Wawona Covered Bridge is in good condition, and there are no current management considerations associated with it, however the bridge requires maintenance to keep the historic structure in good condition in the face of adverse weather and visitor use.

The Wawona Hotel complex continues to serve its original purpose as a guest lodging facility. Management considerations related to the hotel complex involve concessioner operations, the need for regular and routine preservation maintenance, and periodic rehabilitation to ensure visitor safety.

- Regular and routine preservation maintenance, conducted in accordance with the Secretary of the Interior’s Standards, would ensure that this upkeep protects the historic character of the buildings
- Periodic rehabilitation would involve subject-matter specialists in planning, design and implementation to ensure actions do not compromise the historical integrity of the complex
- Concessioner operations would ensure that any operational modifications or updates are appropriate and in keeping with the historic character of the complex.

**TABLE 8-88: SEGMENT 7 ACTIONS AND THEIR IMPLICATIONS FOR WAWONA HISTORIC RESOURCES ORV-14**

Facility	Action in Alternative 3	Effects to ORV-14
<b>Wawona</b>		
Wawona Hotel	Retain 104 lodging units at the Wawona Hotel. Retain hotel restaurant and swimming pool. Wawona golf course and shop would be removed to accommodate ecological restoration, though the spray field would remain. The Wawona Hotel Tennis Court would also be removed under this alternative.	The action would retain contributors to the Wawona Historic Resource. The golf course and tennis courts are not components of the ORV and their removal would not affect the condition of the Wawona Historic Resource river value. The ORV would continue to be protected locally.

To prevent future impacts, the NPS would monitor the condition of the bridge, and take specific actions should conditions exceed trigger points. Trigger points are selected to inform managers well in advance of adverse effects or degradation on the Wawona Covered Bridge. Management considerations for the Wawona Hotel complex include the need for regular and routine preservation maintenance, periodic rehabilitation, and ongoing operations that serve its continuing function as a historic lodging facility. To address these management considerations, the NPS would ensure that these activities would conform to the Secretary of the Interior’s Standards for Treatment of Historic Properties.

## Segment 8 – South Fork Merced River below Wawona (Wild Segment)

### *Biological ORV-3 — The Sierra sweet bay (Myrica hartwegii)*

As described in Chapter 5, the NPS would monitor the condition of this ORV through time using Sierra Sweet Bay Population Decline as its indicator. The health of this ORV in Segment 8 is in good condition, with no management considerations present. Management action to enhance the population is not required at this time.

### ***Cultural ORV 13— Wawona Archeological District***

The Wawona Archeological District encompasses numerous clusters of resources spanning thousands of years of occupation, including evidence of continuous, far-reaching traffic and trade. This ORV in Segment 8 is in good condition, with no management considerations present. Management actions are not required at this time.

### ***Scenic ORV-18 – Scenic Wilderness Views along the South Fork Merced River***

The South Fork Merced River passes through a vast area of natural scenic beauty. The NPS has no immediate management considerations with respect to the Scenic Wilderness Views along the South Fork Merced River as this scenic ORV is determined to be absent of adverse effects and degradation. No new development or landscape changes are proposed within the river corridor. Because there are no considerations regarding the condition of this ORV, no actions other than continued protection is necessary. It is unlikely that this ORV would be affected by human intervention in the future.

The scenic ORV for Segment 8 is determined to be absent of adverse effects, degradation, management concerns, and management considerations. The NPS would not monitor the condition of this ORV.

## **ALTERNATIVE 4**

### **River Value – Free-flowing Condition in All Segments**

A free-flowing river, or section of a river, moves in a natural condition without impoundment, diversion, straightening, riprapping, or other modification of the waterway. The current free-flowing condition of the Merced River is fully protected and enhanced on a segmentwide basis. Riprap revetment, abandoned infrastructure within the bed and banks of the river, and bridges that constrict the flow of the river may produce localized effects on free-flowing condition of the river. Alternatives 2-6 would enact a comprehensive suite of actions to enhance the free-flowing condition of the river by removing 3,400 linear feet of riprap, and removing abandoned and unnecessary infrastructure from the river channel and its floodplain. Infrastructure that would be removed includes former sewage treatment facilities, sewer and water lines, and former bridge abutments. In addition, Alternative 4 would remove 435 linear feet of riprap from riverbank areas, beyond that proposed for removal under Alternatives 2-6.

Alternative 4 also proposes removal the Stoneman and Ahwahnee bridges, as these features constrict flows during high-water events, accelerate riverbank and channel erosion, and prevent natural channel migration. Although Sugar Pine Bridge would remain under Alternative 4, the hydrological effects of the bridge would be mitigated with strategic placement of large wood on riverbanks, constructed log jams in the river channel, and the use of brush layering and other techniques to establish riverside vegetation and decrease erosion.

There are no new facilities proposed under Alternative 4 that would affect the free-flowing condition of the river. A number of proposed facility actions would enhance the connectivity of the river and its floodplain

(see Hydrological/Geological ORVs). For example, the Yosemite Village Day-use Parking Area would be relocated 150 feet away from the river.

To protect the river's free flowing condition in the future, the NPS would require all proposed projects involving construction within the bed or banks of the Merced River or its tributaries to undergo an analysis in accordance with Section 7 of the WSRA. Through this process, the NPS would ensure that water resources projects within the designated river corridor would not lead to "direct or adverse effects" on free flow, and that projects on tributaries to the river do not "invade or unreasonably diminish" the river's free flowing condition.

**Conclusion:** The current free-flowing condition of the Merced River is fully protected and enhanced on a segmentwide basis, although localized considerations such as intermittent riprap and bridges that constrict the flow of the river are present. Alternative 4 proposes a comprehensive suite of actions to enhance the free-flowing condition of the river by removing riprap, removing unnecessary infrastructure in the river channel, and removing two bridges that produce pronounced hydraulic constrictions at high water flows. There are no new facilities proposed under Alternative 4 that would affect the free-flowing condition of the river within the river channel, and a number of proposed facility actions would enhance the connectivity of the river and its floodplain (see Hydrological/ Geological ORVs). The NPS would require all proposed projects within the bed or banks of the Merced River or its tributaries to undergo an analysis in accordance with Section 7 of the WSRA to ensure that water resources projects would not lead to "direct or adverse effects" on free flow, and that projects on tributaries to the river do not "invade or unreasonably diminish" the river's free flowing condition. The actions proposed under Alternative 4 ensure that there are no direct or adverse effects on free-flowing condition of the Merced River.

## River Value – Water Quality in All Segments

The water quality of the Merced River is extremely high, and the current water quality of the river is fully protected and enhanced on a segmentwide basis. Intermittent local instances of contamination may occur in connection with surface water runoff from parking areas, recreational vehicle dump stations in proximity to the river, and accelerated erosion with potential sediment loading in the river during high water flows. Alternatives 2-6 would apply mitigation measures to ensure that surface water runoff associated with parking areas protects the water quality of the Merced River and meets regulations. The Upper Pines and Wawona recreational vehicle dump stations would be moved away from the river, and the Odger's bulk fuel storage area in El Portal would be moved out of the 100-year floodplain. In addition, Alternative 4 would relocate the Yosemite Village Day-use Parking Area 150-feet away from the river. All campsites and infrastructure currently within 100-feet of the river would be removed. The pack trail from Curry Village stables to Happy Isles would be re-routed farther away from the river. These actions would reduce result in less erosion along the riverbank, reduce use in sensitive areas, direct use to resilient areas, and mitigate potential sources of pollutants.

**TABLE 8-89: CORRIDOR-WIDE ACTIONS AND THEIR IMPLICATIONS FOR WATER QUALITY**

Location	Action in Alternative 4	Effects to Water Quality
<b>Segment 2</b>		
North, Lower and Upper Pines Campgrounds and Backpackers Campgrounds	Campsites within the 100-year floodplain would be removed. Designated river access and put in areas established at resilient areas, discourage access to sensitive areas. Upper Pines dump station relocated away from the river.	These changes would result in less erosion along the riverbank; water quality would be enhanced segmentwide.
New campsites at Upper Pines, Backpacker's, Concessioner Stables, Camp 4, West of Lodge, and Upper and Lower River Campgrounds	New campsites constructed at Upper Pines, Upper River, Lower River, Backpackers, Concessioner Stables, West of Lodge and Camp 4 out of the 150 foot riparian buffer.	Change would not result in additional water quality effects on a segmentwide level.
Yosemite Village Day-Use Parking Area	Move the unimproved parking lot out of the 10-year floodplain and restore the riparian habitat adjacent to the river.	Change would result in less erosion and storm water run-off from the parking area; water quality would be enhanced locally.
Pack Trail from Concessioner Stables to Happy Isles	Remove pack trail and Concessioner Stables and convert to a campground with 41 sites.	Change would result in less erosion from the stock trail. Water quality would be enhanced locally.
Housekeeping Camp Lodging	Retain 100 lodging units, and remove 166 lodging units (83 duplex lodging units, 4 restrooms, store and office) out of the observed ordinary high water mark.	Fencing and designated river access points would also direct use to resilient areas. Water quality would be enhanced locally.
<b>Segment 4</b>		
NPS Maintenance and Administrative Complex	Existing parking area formalized and paved using best management practices	Change would result in less erosion and storm water concerns in the parking area; water quality would be enhanced locally.
Odger's Bulk Fuel Storage	(Common to All) Remove Odger's bulk fuel storage facility and restore the rare floodplain community of valley oaks. Create a valley oak recruitment area of 2.5 acre in the vicinity of the current Odger's bulk fuel storage area, including the adjacent parking lots.	Removal of bulk fuel storage from the 500-year floodplain would further protect water quality segmentwide.
<b>Segment 7</b>		
Wawona Campground	Replace current septic system with waste water collection system connected to the waste water treatment plant. RV dump site relocated away from the river.	Change would result in less potential for storm water concerns in the campground; water quality would be enhanced locally.
Wawona Picnicking	Delineate boundaries of two formal picnic areas with formal river access points.	Change would result in less erosion along; water quality would be enhanced locally.

Ecological restoration actions would take place along the riverbank and floodplain of the Merced River. These actions would enhance water quality, particularly the actions that re-establish riverbank vegetation and reduce erosion potential. Ecological restoration actions are described in more detail in the discussion of the biological ORVs below and in Appendix E.

There are no new facilities proposed under Alternative 4 that would threaten the water quality of the river. In areas of new development or high-density use, sensitive riverbanks would be fenced to eliminate trampling. Trampling can lead to vegetation loss and exposed soil, leading to accelerated sediment



deposition in the river. To maintain excellent water quality, the NPS would monitor water quality indicators that are tied to human activity (e.g., nutrient levels), and take specific actions should specific trigger points be reached.

**Conclusion:** Under Alternative 4, water quality in all segments of the Merced River corridor within Yosemite Valley would continue to be absent of adverse effects and degradation, and the potential for localized instances of contamination would be strongly reduced. Alternative 4 would address localized issues by moving the Upper Pines and Wawona recreational vehicle dump stations away from the river, moving the Odger's bulk fuel storage area outside of the 500-yr floodplain, and applying mitigation measures to ensure surface water runoff associated with parking areas meets requirements. Ecological restoration actions would decrease the potential for accelerated riverbank erosion and sediment loading during high water events. To ensure that existing high water quality conditions are maintained, the NPS would monitor water quality indicators that are tied to human activity (e.g., nutrient levels), and take specific actions should specific trigger points be reached.

## **Segment 1 – Merced River Above Nevada Fall (Wild Segment)**

### ***Biological ORV-1 – High-elevation Meadows and Riparian Habitat***

The Merced River sustains numerous small meadows and riparian habitat with high biological integrity. Primary actions to protect and improve Biological ORV 1 include removal of informal trails that incise meadow habitat, trails in wet and/or sensitive vegetation, and trails that fragment meadow habitat, including trails in the Triple Peak Fork meadow, wetlands near Echo Valley and Merced Lake shore, mineral springs between Merced Lake and Washburn Lake, and other areas as necessary. Removal of social trails that bisect the meadows would improve conditions in this segment because soil compactions and habitat fragmentation would be reduced. Preliminary grazing capacities would be established, monitored, and adapted as necessary which would also reduce soil compaction and habitat fragmentation, thus further enhancing meadow health.

Facilities that would remain in this segment of the river include designated camping areas in Little Yosemite Valley, Moraine Dome, and the Merced Lake Backpackers Camping Area (including associated trails and footbridges). As described in Chapter 5, these facilities are not adversely impacting the Biological ORV. This alternative would remove all facilities at the High Sierra Camp and the area would be ecologically restored. Seasonal and weekend restrictions for commercial groups in the Mount Lyell, Merced Lake, and Little Yosemite Valley zones would be applied as indicated. These changes would reduce use levels near the riverbank and result in improvement to riparian conditions in the immediate vicinity of these camping areas.

As described in Chapter 5, to ensure this ORV is protected and enhanced through time, the NPS would monitor three indicators to assess the condition of the ORV: meadow bare soil, meadow fragmentation due to the proliferation of informal trails, and streambank stability. The NPS would establish a baseline for all three indicators using site-specific monitoring protocols by 2013. Regular monitoring would also reveal whether assumptions about human behaviors and actions taken to correct past actions are sustaining conditions above the management standard. If conditions have reached trigger points; the NPS would implement specific response actions (as described in Chapter 5) to avoid or minimize adverse effects. The

meadow monitoring programs for the biological ORV would monitor meadow fragmentation to ensure that use levels from hikers, backpackers and stock users do not result in meadow fragmentation or bare ground in excess of the management standards prescribed to protect and enhance meadows.

**TABLE 8-90: SEGMENT 1 ACTIONS AND IMPLICATIONS FOR BIOLOGICAL ORV-1**

Location	Action in Alternative 4	Effects toORV-1
Meadow trails	Remove informal trails that incise meadow habitat.	Change reduces effects to wet and sensitive meadows and results in localized enhancement to ORV-1.
Merced Lake High Sierra Camp	Remove all facilities at the High Sierra Camp and ecologically restore the area.	Changes reduce uses near riverbank which would enhance riparian conditions through reduction in erosion and trampling.
Private boating would be allowed in this segment	Boating would consist of short floats using pack raft or other craft that can easily be carried. Put-ins and take-outs would be undesignated and dispersed. Only five boats per day allowed - permit would be required.	Limited numbers would protect riparian habitat from trampling and bank erosion that could result with unlimited access.
Wilderness zone capacity	Zone capacities for Merced Lake, Washburn Lake, Mount Lyell, and Clark Range zones would remain the same across all the alternatives. Manage to a reduced capacity of 100 in the Little Yosemite Valley Wilderness Zone	Zone capacities are designed to protect wilderness character including natural conditions such as riverbanks and meadows. Reduced capacity in LYV would result in localized enhancement of riparian habitat.

**Conclusion:** Under Alternative 4, the biological ORV in Segment 1 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. All actions would further enhance riverbanks and meadows. Removal of social trails, changes to grazing in Merced Lake East Meadow, and reduced use would improve meadow conditions in this segment and thereby enhance the biological ORV. The wild segment of the Merced River corridor above Nevada Fall would show little evidence of human activity and remain largely free of structures. Facilities that would remain in this segment of the river include Merced Lake Ranger Station, Little Yosemite Valley trail crew and ranger camp, trails and footbridges. The baseline condition assessment for the Biological ORV in this segment indicates that these facilities are not adversely affecting the Biological ORV.

***Geological/Hydrological ORV-4 – Glacially-carved Canyon in the Upper Merced River Canyon***

As discussed in Chapter 5, there are no management considerations with respect to the U-shaped, glacially carved canyon above Nevada Fall. This ORV is currently protected and enhanced within the meaning of the Wild and Scenic Rivers Act. Alternative 4 does not propose any actions that would change the condition of this ORV over time. Further, the U-shaped, glacially carved attributes of this ORV would not be affected by the types and levels of use authorized under this alternative, which are all directed toward wilderness oriented recreation. The NPS would nevertheless monitor the condition of this ORV to ensure that its condition does not decline.

**Scenic ORV-15 – Scenic Views in Wilderness**

Visitors to this Wilderness segment experience scenic views of serene montane lakes, pristine meadows, slickrock cascades, and High Sierra peaks. Management considerations associated with the condition of the scenic river above Nevada Fall include contributions of regional air pollution (primary factors contributing to this condition are outside of NPS jurisdiction), visual intrusions of temporary and permanent structures, and crowding in and near wilderness campgrounds. There are few “visual intrusions” noted beyond the High Sierra Camp and other designated camping areas. However, these effects are local in nature and do not degrade the ORV on a segment wide basis. The NPS would ensure that designated camping areas are maintained in a clean and tidy condition. Under Alternative 4, the High Sierra Camp would be removed and replaced with dispersed camping. This change would return scenic views to be keeping with the native landscape. These measures would locally enhance the scenic ORV. Other visitor use management actions under Alternative 4 would reduce crowding, thus additionally enhancing this ORV on a segmentwide basis.

The ORV is determined to be in the protected state, as defined by an absence of adverse effects and degradation, although intermittent air quality concerns are present. Because of the ambient nature of air quality, it cannot be managed exclusively for the river corridor. Facilities that would remain in this segment of the river include the Merced Lake Ranger Station, Little Yosemite Valley trail crew and ranger camp, trails and footbridges. The baseline condition assessment for the scenic ORV in this segment indicates that these facilities are not adversely affecting the scenic ORV.

**TABLE 8-91: SEGMENT 1 ACTIONS AND IMPLICATION FOR SCENIC ORV-15**

Location	Action in Alternative 4	Effects to ORV-15
Merced Lake High Sierra Camp	Remove all facilities at the High Sierra Camp and ecologically restore the area.	Change would enhance ORV because the removed infrastructure would allow for restoration to the natural environment.
Little Yosemite Valley Backpackers Camping Area	Decrease the designated camping area and retain composting toilet.	Reduction in designated camping area would enhance scenic values locally in this segment.
Facilities retained	Merced Lake Ranger Station, Little Yosemite Valley trail crew and ranger camp	These facilities and associated administrative uses and maintenance do not result in segmentwide adverse effects to scenic values. The ORV will continue to be protected on a segmentwide level.

**Conclusion.** Under Alternative 4, the scenic ORV in Segment 1 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. All actions would further enhance scenic values in this segment. Removal of the Merced Lake High Sierra Camp, conversion of the designated camping areas to dispersed camping, and ecological restoration of meadows and riparian areas would improve scenic conditions in this segment and thereby enhance the scenic ORV. The wild segment of the Merced River corridor above Nevada Fall would show little evidence of human activity and remain largely free of structures.

**Recreational ORV-19 – Wilderness Recreation above Nevada Fall**

Visitors to federally designated Wilderness in Segment 1 would engage in a variety of river related activities in an iconic High Sierra landscape, where opportunities for primitive and unconfined recreation, self-

reliance, and solitude shape the Wilderness experience. The current condition of this ORV is at or above the management standard at the segment level. Localized management concerns in this segment relate to crowding at Little Yosemite Valley and Moraine Dome backpackers campgrounds, high use levels at the Merced Lake Backpackers Camping Area, and high encounter rates along the trails that connect these areas. Crowding and high use levels affect the Wilderness experience, which is an integral part of the recreational ORV in this segment.

This alternative would remove all facilities at the High Sierra Camp and ecologically restore the area. The capacity of the Little Yosemite Valley Wilderness Zone would be reduced to 100, and the footprint of the camping area would be reduced accordingly. Actions in Alternative 4 would apply additional seasonal and weekend restrictions for commercial groups in the Mount Lyell, Merced Lake, and Little Yosemite Valley zones. These changes would reduce use crowding, high use levels, and increase opportunities for solitude in this Wilderness segment.

Facilities that would remain in this segment of the river include the Merced Lake Ranger Station, Little Yosemite Valley trail crew and ranger camp, trails and footbridges. These facilities do not have an adverse effect on the Wilderness experience integral to this Recreational ORV.

**TABLE 8-92: SEGMENT 1 ACTIONS AND IMPLICATIONS FOR RECREATION ORV-19**

Location	Action in Alternative 4	Effects to ORV-19
Merced Lake High Sierra Camp	Remove all facilities at the High Sierra Camp and ecologically restore the area.	The undeveloped and primitive elements of wilderness character are enhanced on a segmentwide level.
Little Yosemite Valley, Moraine Dome, and the Merced Lake Backpackers Camping Areas	Retain as designated camping. Replace flush toilets with composting toilet at the Merced Lake Backpackers Camping Area.	The solitude and primitive elements of wilderness character would be enhanced locally at Little Yosemite Valley and Merced Lake Backpacker’s designated camping areas due to the reduction in crowding and opportunity to camp out of sight and sound of other campers.
Segmentwide River Access	Swimming and water play allowed. Permits required for private boating. Commercial boating by commercial use authorization.	Permitted use and commercial limits would not substantively change current recreational use or recreational values in the segment. Recreational values would continue to be protected.
<b>Visitor Use Management Action</b>		
Private boating would be allowed in this segment	Boating would consist of short floats using pack raft or other craft that can easily be carried. Put-ins and take-outs would be undesignated and dispersed. Private use limited to 10 boats per day with backcountry permit on Segment 1. Permit would be required.	Permitted use would not substantively change current recreational use or recreational values in the segment. Recreational values would continue to be protected.
Wilderness zone capacity	Zone capacities for Merced Lake, Washburn Lake, Mount Lyell, and Clark Range zones would remain the same across all the alternatives. Manage to a reduced capacity of 100 in the Little Yosemite Valley Wilderness Zone	Zone capacities are designed to protect recreational setting attributes and recreational experience quality. Reduced capacity in LYV would result in localized enhancement of recreational values in Wilderness.

NPS would monitor visitor encounter rates to ensure that they are not exceeding established standards. Should specific trigger points be reached, the NPS would be required to implement a series of specific actions to reduce visitor levels to an acceptable level. These actions increase in severity as the current condition ORV condition moves away from the management standard to ensure proper course correction and re-establishment of the management standard. These trigger points were selected to inform managers in advance of any adverse effects or degradation to this ORV.

**Conclusion:** Under Alternative 4, the recreational ORV in Segment 1 of the Merced River corridor would be protected on a segmentwide basis and continue to be absent of adverse effects and degradation on a segmentwide level. Reductions in the zone capacity for Little Yosemite Valley, and removal of the Merced Lake High Sierra Camp would address management considerations by reducing crowding, high use levels, and increasing opportunities for solitude.

## Segment 2 – Yosemite Valley (Recreational and Scenic Segments)

### *Biological ORV-2 – Mid-elevation Meadows and Riparian Habitat*

The meadows and riparian communities of Yosemite Valley comprise one of the largest mid-elevation meadow-riparian complexes in the Sierra Nevada. Actions to protect and enhance Biological ORV-2 under Alternative 4 include:

- Removal of informal trails in meadows where they fragment meadow habitat or cross through sensitive, wet vegetation communities. Overall, restore six miles of informal trails throughout Yosemite Valley;
- Use boardwalks or hardened surfaces to allow access to sensitive areas;
- Delineation of trails through upland areas and along meadow perimeters;
- De-compacting trampled soils and consolidate multiple parallel trails;
- Re-directing visitor use to more stable and resilient river access points such as sandbars, and designate formal river access sites. Establishing fencing and signage to protect sensitive areas; install boardwalks where appropriate, and actively revegetate where needed;
- Relocate or remove all campsites within the 100-year floodplain and restore natural floodplain and riparian habitat;
- Restoration of the mosaic of meadow, riparian deciduous vegetation, black oak, and open mixed conifer forest at specific locations in Yosemite Valley. Management actions could include re-vegetation, prescribed fire, mechanical removal of conifers, and infrastructure re-design. Alternative 4 would include 223 acres ecological restoration.
- Installation of constructed log jams in the river channel between Clark’s Bridge and Sentinel Bridge to remediate river widening and improve channel complexity would also contribute to improving riparian health.
- Day use parking capacity is expanded and formalized. A total of 2,045 visitor parking spaces would be provided in the Valley accommodating a maximum of 6,497 people at one time to Segment 2. Managing access and other proactive restoration measures would protect Biological ORVs by during periods of high use.

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- A series of actions to improve and relocate parking (described further below and in Chapter 8) would protect Biological ORVs by removing these uses from the river corridor and managing access in the corridor.

This recreational river segment would remain readily accessible by road and will continue to have appropriate development along the shorelines (a comprehensive list of facilities in Segment 2 is included in table 7-1). Under this alternative, all roads, buildings, campgrounds, trails, utilities and infrastructure, and other facilities in this segment with current local effects on the biological ORV would be removed, reduced, or relocated, including portions of Yosemite Lodge. Facilities that would remain in this segment of the river, including the Ahwahnee Hotel have no direct impact on the biological river value as indicated in the baseline condition assessment. Effects to the free-flowing condition of the river as a result of the bridges that would remain under this alternative would be mitigated through constructed log jams.

**TABLE 8-93: SEGMENT 2 ACTIONS AND IMPLICATIONS FOR BIOLOGICAL ORV-2**

Location	Action in Alternative 4	Effects toORV-2
Segmentwide Restoration	(Common to all) Restoration includes restoration of meadow habitat, removal of informal trails, riparian restoration and establishment of designated river access points, and use of boardwalks and hardened surfaces.	Actions would enhance the biological ORV segmentwide.
<b>Curry Village and Campgrounds</b>		
North, Lower and Upper Pines Campgrounds and Backpackers Campgrounds	All campsites within 150 feet of the river would be removed. Designated raft put-in areas established.	These changes would result in less erosion along the riverbank because designated access points to resilient areas are identified for visitors, and sensitive areas would be restored and access would be discouraged; the biological ORV would be enhanced segmentwide
Stoneman Meadow and Curry Orchard parking lot	Restore Stoneman Meadow including removal of 1,335 feet of Southside Drive and realignment of road through Boys Town area. The Orchard Parking Lot would be re-designed. Remove apple trees and landscape with native vegetation. Extend the meadow boardwalk through wet areas to Curry Village (up to 275').	These restoration actions would promote water flow and improve meadow health thereby enhancing the biological ORV locally.
New campsites at Upper Pines, Backpacker's, Concessioner Stables, Camp 4, West of Lodge, Boystown, and Upper and Lower River Campgrounds	New campsites constructed at Upper Pines, Upper River, Lower River, Backpackers, Camp 4, West of Lodge, Boystown, and Concessioner Stables out of the 150 foot riparian buffer.  Lower River: Designate river access at Housekeeping Camp eastern beach.	Actions would protect riparian areas from direct impacts related to the increase in visitor activity in these areas. Fencing and designated river access points would also direct use to resilient areas. Monitoring would proactively assess the effectiveness of these actions and established triggers to ensure that future protective measures are implemented in a timely manner. Change would result in protection of biological ORV in this segment.
Ahwahnee and Sugar Pine Bridges	Remove the Ahwahnee and Sugar Pine Bridges, and the associated berm and restore to natural conditions. Reroute the multiple use trail to the north bank of the river. Reroute utilities under Ahwahnee Bridge.	Change would reduce channel widening, erosion, and scouring thereby enhancing local riparian communities.



<b>Yosemite Village and Housekeeping Camp</b>		
Housekeeping Camp Lodging	Retain 100 lodging units, and remove 166 lodging units (83 duplex lodging units, 4 restrooms, store and office) out of the observed ordinary high water mark.	These changes would reduce effects to riparian corridor and enhance ORV components due to restoration. In addition access would be directed to resilient sandy beaches.
Sentinel Drive Roadside Parking	Remove roadside parking along Sentinel Drive and restore to natural conditions.	These changes would remove uses from the riverbank thus reducing erosion and trampling impacts in riparian corridor and enhancing ORV components.
Ahwahnee Row and Tacoma Dorms Concessioner Housing	Housing and development between Village Store and Ahwahnee Meadow remain. Create a buffer zone for Indian Creek by pulling parking and residential yard use back 50 feet. Restore native riparian vegetation and protect with restoration fencing.	Changes would result in reduction of residential activities in riparian areas; biological ORV would be enhanced locally.
<b>Yosemite Lodge and Camp 4</b>		
Superintendent's House (Residence 1)	Remove and relocate to the NPS housing area.	Relocation of this facility outside of the river corridor may reduce informal trailing in the adjacent meadow thereby enhancing the ORV locally.
Northside Drive (Stoneman Bridge to Yosemite Village Day Use Parking Area	Facility retained. A component of the primary transportation & circulation road system that connects all major visitor service nodes. Hydrologic connectivity improved by increasing culverts.	Has a localized affect on the ORV as road bisects meadow but is consistent with recreational designation and not causing adverse effects or degradation to ORV-2 on a segmentwide basis.

The NPS would monitor three indicators to assess the condition of ORV 2: meadow fragmentation resulting from informal trails, the status of riparian habitat, and riparian bird abundance. As described in Chapter 5, adverse effects and degradation are not present in relation to the meadow fragmentation indicator. Management concerns in meadows are present; however, actions to address informal trailing impacts and fragmentation would be taken at all meadows where these concerns have been documented. Initial surveys of the riparian status indicator in 2010 indicate that degradation is not present, but management concerns are also present in the riparian corridor.

The NPS is beginning to monitor the third indicator in this segment, riparian bird abundance. The first status assessments would take place in 2013, after one year of monitoring. The next assessment requires information from two out of three years.

To ensure Biological ORV-2 is protected by this plan and protected and enhanced through time, the NPS would continue to monitor the condition of the ORV to provide early warning of conditions that require management action before impacts occur. Regular monitoring would also reveal whether conditions have reached trigger points; and, if so, the NPS would implement specific response actions (as described in Chapter 5) to avoid or minimize adverse effects.

**Conclusion:** Under Alternative 4, the biological ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. All actions would further enhance riverbanks and meadows. Removal or relocation of select campsites and infrastructure and reduced use would improve meadow conditions in this segment and thereby enhance the biological ORV. The recreational segment of the Merced River corridor in East Yosemite Valley would remain readily accessible by

road and will have appropriate development along the shorelines. The scenic portion of Segment 2 in West Yosemite Valley would remain free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

### ***Geological/Hydrological ORV-5 – The “Giant Staircase”***

The NPS has no immediate management considerations with respect to the Giant Staircase characteristic of the geology of Yosemite Valley above Happy Isles as this geologic ORV is determined to be absent of adverse effects and degradation. Because there are no considerations regarding the condition of this ORV, no actions other than continued protection is necessary. It is unlikely that this ORV would be affected by human intervention in the future. Therefore, the NPS would not monitor the condition of this ORV as part of the *Merced River Plan/DEIS*.

### ***Geological/Hydrological ORV-6- Rare, Mid-elevation Alluvial River***

As described in Chapter 5, the NPS selected the status of riparian habitat as the indicator to specifically assess the effectiveness of actions designed to protect this and other ORV. This ORV integrates geologic/hydrologic processes and the condition of aquatic, riparian, and floodplain communities.

The following actions are included to specifically protect and enhance Free-flowing Conditions and Biological ORV-2, but would also address the protection and enhancement of ORV - 6.

- Large wood, constructed log jams, and brush layering would be used in the vicinity of bridges to decrease bed scouring and streambank instability. Riprap would be removed where possible and replaced with native riparian vegetation, using bioengineering techniques. In the event that such actions do not improve conditions, bridge redesign or removal could be reconsidered.
- Under Alternative 4 the free-flowing condition of the river would be enhanced by removing the Ahwahnee and Stoneman Bridges. Mitigation measures would be employed during removal and the long-term recovery of the removal area is expected. Restoring free-flowing conditions would enhance riparian communities associated with ORV-6.
- Removing abandoned underground infrastructure, along the river corridor would be part of a comprehensive strategy to correct altered surface and subsurface hydrology.
- Remove riprap where riverbanks do not need stabilization to allow for channel migration. Replace riprap with bioengineered riverbanks, integrating native riparian vegetation, where riverbank stabilization is necessary for protection of critical infrastructure.

To ensure this ORV is protected and enhanced through time, the NPS would monitor the condition of the ORV using the status of riparian habitat as an indicator, and take specific actions should conditions reach trigger points.

**Conclusion.** Under Alternative 4, the geologic/hydrologic ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. All actions would enhance the 10 and/or 100-year floodplains and this ORV. Actions to protect and enhance free-flowing conditions as well as meadows and riparian complexes in Segment 2 would result in additional enhancement of the geologic/hydrologic ORV. The recreational segment of the Merced River corridor in

East Yosemite Valley would remain readily accessible by road and will have appropriate development along the shorelines. The scenic portion of Segment 2 in West Yosemite Valley would remain free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

**TABLE 8-94: SEGMENT 2 ACTIONS AND IMPLICATIONS FOR GEOLOGICAL/HYDROLOGICAL ORV-6**

Location	Action in Alternative 4	Effects to ORV-6
<b>Curry Village and Campgrounds</b>		
North, Lower and Upper Pines Campgrounds and Backpackers Campgrounds	All campsites within 150 feet of the river would be removed. Designated raft put-in areas established.	These changes would result in less erosion along the riverbank because designated access points to resilient areas are identified for visitors, and sensitive areas would be restored and access would be discouraged; the biological ORV would be enhanced segmentwide
Curry Village Lodging	Lodging would include 355 units, (65 hard-sided units and 290 tents).	Lodging is outside the 100 year floodplain and is not causing adverse effects or degradation to ORV-6 on a segmentwide basis.
<b>Yosemite Village and Housekeeping Camp</b>		
Yosemite Village Day Use Parking Area/Village Center Parking Area	Move the Yosemite Village Day Use Parking Area day-use parking area northward 150 feet away from the river to facilitate restoration goals. Formalize parking area with a total of 550 parking places.	These changes would reduce effects to riparian corridor and locally enhance ORV components as use would be relocated away from areas critical to hydrologic function.
Ahwahnee Row and Tecoya Dorms Concessioner Employee Housing	Remove housing and development out of the 100-year floodplain, recontour topography, decompact soils, and restore stream hydrologic function.	Changes would result in reduction of residential activities in riparian areas; biological ORV would be enhanced locally.
Housekeeping Camp Lodging	Remove 166 lodging units.	These changes would reduce effects to riparian corridor and enhance ORV components due to restoration. In addition access would be directed to resilient sandy beaches.
<b>Yosemite Lodge and Camp 4</b>		
Yosemite Lodge Parking Area	West of Yosemite Lodge re-developed to provide additional 550 day use parking spaces.	Implementation of mitigation measures would protect the floodplain from erosion and other disturbance during construction.
Yosemite Lodge Visitor Facilities	No changes in this facility.	Lodging is outside the 100-year floodplain and is not causing adverse effects
El Capitan Crossover	Facility retained. This roadway segment is a key connector between Northside and Southside Drives and serves as a exit point at west end of Yosemite Valley.	Bridge protects riparian habitat from destruction caused by random crossings throughout the river corridor
Northside Drive (Stoneman Bridge to Yosemite Village Day Use Parking Area)	Remove portion of road and relocate the bike path to the south, to improve the meadow/river connectivity. Restore meadow contours and native vegetation.	Removes facility that currently has a localized affect on the ORV. Restoration enhances the ORV in this area.

### *Cultural ORV-8 – Yosemite Valley American Indian Ethnographic Resources*

As described in Chapter 5, Yosemite Valley American Indian ethnographic resources include relatively contiguous and interrelated places that are inextricably and traditionally linked to the history, cultural identity, beliefs, and behaviors of contemporary and traditionally-associated American Indian tribes and groups. Management considerations related to ethnographic resources involve park operations, crowding, and visitor use. Actions included in the Merced River Plan/DEIS include:

- Continue coordination between traditionally associated American Indian tribes, groups, and traditional practitioners (through the Park American Indian Liaison) with law enforcement, fire management, interpretation, invasive species, ecological restoration, and facilities management programs;
- Continue to provide operational guidelines for material staging areas, parking, etc. to protect ethnographic resources;
- Ensure access for traditionally-associated American Indians for participation in annually scheduled traditional cultural events. In addition, tribal access for the personal conduct of ongoing traditional cultural practices would be assured through the Yosemite tribal fee waiver pass program.
- Reduce and formalize day-use parking capacity Manage access in Segment 2 to protect traditionally-used plant populations in the river corridor during periods of high use.
- A series of actions to improve and relocate parking (described further below and in Chapter 8) would protect Cultural ORVs by removing these uses from the proximity of several cultural resources.

Threats to traditionally-used plant populations include invasive species such as Himalayan Blackberry (*Rubus armeniacus*), drainage and hydrology impacts to meadows, and erosion and revetments that affect riparian vegetation. The *Merced River Plan/DEIS* would address these considerations through the following actions:

- The ecological restoration actions associated with this planning effort implemented in concert with the existing invasive plant management program would address impacts to some traditionally-used plant populations in some locations.
- Restoration actions to protect riparian areas, meadows, and hydrological resources would further contribute to the protection and enhancement of the traditional-use plant communities included in this ORV.
- Introduction of seedlings to affected stands of black oaks and protection as necessary to ensure that ratios of adults to saplings is at least 0.65.
- Primary actions to manage major vista points under Scenic ORV-16 include mechanical thinning or removal of conifer trees. This action would be coordinated to ensure that the ORV-8 trigger point for the ratio of sapling to adult trees is not exceeded.

Facilities that would remain in this segment of the river have no direct impact on the ethnographic component of the cultural ORV as indicated in the baseline condition assessment.

**TABLE 8-95: SEGMENT 2 ACTIONS AND IMPLICATIONS FOR CULTURAL ORV-8**

Location	Action in Alternative 4	Effects to ORV-8
Visitation	17,000 people per day	This reduced level of visitation may improve privacy for traditional cultural practices in specific locations seasonally. Access to annually-scheduled traditional cultural events and personal conduct of traditional cultural practices would be assured thereby continuing protection of the ORV segmentwide.
<b>Curry Village and Campgrounds</b>		
Traditional Cultural Property Documentation	Document the Yosemite Valley Traditional Cultural Property, consisting of traditional use areas, spiritual places and historic villages and complete National Register evaluation and interpretive summary.	Documentation, mapping, and evaluation would provide the detail necessary to protect and enhance the ORV segmentwide.
Upper Pines, Backpacker's, Concessioner Stables, Boystown, Camp 4, and Upper and Lower River Campgrounds	All campsites within 150 feet of the river would be removed. New campsites constructed at Upper Pines, Backpacker's, Concessioner Stables, Boystown, Camp 4, and Upper and Lower River Campgrounds. Designated put in areas established for boating.	These changes would result in less erosion along the riverbank because designated access points to resilient areas are identified for visitors, and sensitive areas would be restored and access would be discouraged.
Curry Village Lodging	Lodging would include 355 units, (65 hard-sided units and 290 tents).	Lodging is outside the 100 year floodplain and is not causing adverse effects or degradation to ORV-6 on a segmentwide basis.
<b>Yosemite Village and Housekeeping Camp</b>		
Housekeeping Camp Lodging	Retain 100 lodging units, and remove 166 lodging units (83 duplex lodging units, 4 restrooms, store and office) out of the observed ordinary high water mark.	These changes would reduce effects to riparian corridor and locally enhance ORV components due to restoration. In addition access would be directed to resilient sandy beaches.
<b>Yosemite Lodge and Camp 4</b>		
Yosemite Lodge Parking Area	West of Yosemite Lodge re-developed to provide additional 150 day use parking spaces.	Implementation of best management practices would protect the floodplain from erosion and other disturbance.
Yosemite Lodge Parking	25 additional spaces added at Yosemite Lodge due to redesign, improving parking efficiency near Northside Drive.	Implementation of best management practices would protect the floodplain from erosion and other disturbance.
Yosemite Lodge Visitor Facilities	Retain the existing 245 units.	Lodging is outside the 100 year floodplain and is not affecting the geologic and hydrologic processes.
Yosemite Lodge Concessioner Employee Housing	Remove old and temporary housing at Highland Court and the Thousands Cabins. Construct two new concessioner housing areas housing 104 employees. Construct 78 employee parking spaces.	Lodging is outside the 100 year floodplain and is not affecting the geologic and hydrologic processes.
Former Bridalveil Sewer Plant	Remove the buried structure.	Removal of the abandoned infrastructure and native plant revegetation will allow for recruitment of desirable black oaks in this area.
Yellow Pine Administrative Campground	Retain 4 group administrative use sites (up to 120 people).	Campground is within floodplain but would undergo restoration and is not impacting areas critical to river function.
Superintendent's House (Residence 1)	Remove and relocate to the NPS housing area.	Relocation of this facility outside of the river corridor may reduce informal trailing in the river corridor. Restoration will allow for recruitment of desirable black oaks in this area. The ORV would be enhanced locally.

The Merced River Plan/DEIS proposes a variety of actions to address specific considerations including continued coordination between traditionally associated American Indian tribes, groups, and traditional practitioners and the NPS; continued access for traditionally associated American Indians for participation in annually scheduled traditional cultural events; and ecological restoration actions to protect and enhance traditionally used plant populations. To prevent future impacts, the NPS would monitor the condition of the ORV, and take specific actions should additional trigger points be exceeded.

**Conclusion.** Under Alternative 4, the ethnographic component of the cultural ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. Actions to protect and enhance floodplains, meadows and riparian complexes in Segment 2 would result in additional enhancement of the traditionally-used plant resources of the ethnographic component of the cultural ORV. Actions that would remove infrastructure and restore black oak woodlands would also enhance a critical component of this ORV. Reduction in maximum people per day in Yosemite Valley, and management of user capacity and visitor use would not limit access to traditional practitioners because measures would be in place to ensure access to annually-scheduled events as well as individual access for ongoing traditional cultural practices. Furthermore, the overall reduction in visitation under Alternative 4 would reduce the effects of crowding and enhance privacy for traditional cultural practices.

### ***Cultural ORV-9 – Yosemite Valley Archeological District***

The Yosemite Valley Archeological District is a linked landscape that contains dense concentrations of resources that represent thousands of years of human settlement along this segment of the Merced River. Heavily-used formal trails and informal trails, as well as illegal campfires, graffiti, and trampling stock trail use, parking and informal rock climbing can all affect ORVs in this area. Archeological resource protection would be achieved through actions in this plan to manage visitor use levels, divert foot traffic around sites, removing informal trails, and formalizing river and meadow access locations, mitigating ecological restoration practices by using noninvasive techniques wherever possible. Many of the actions related to ecological restoration in Segment 2, such as delineating roadside parking, would also help protect archeological sites by diverting foot traffic away from sites and into less sensitive areas. Actions to enhance the recreational ORV in Segment 2 would manage recreational users both in terms of flow and location of users at any one time. A reduction in people and vehicles at one time in Yosemite Valley could also reduce visitor use-related effects on archeological resources.

Site-specific treatment actions would be developed through site management plans, where necessary, to avoid resource loss through park actions (such as development, repair, and maintenance of facilities and underground utilities to support visitor use or natural forces).

Management considerations for this ORV also involve continuing to survey and monitor archeological resources as well as update required documentation.

Under Alternative 4 the free-flowing condition of the river would be enhanced by removing the Ahwahnee and Sugar Pine Bridges. Mitigation measures would be utilized to reduce localized impacts and ensure that this action would not cause adverse effects or degradation to ORV-9 on a segmentwide



**TABLE 8-96: SEGMENT 2 ACTIONS AND THEIR IMPLICATIONS FOR CULTURAL ORV-9**

Location	Action in Alternative 4	Impact on ORV-9
<b>Curry Village and Campgrounds</b>		
Upper and Lower River Campgrounds, North, Lower and Upper Pines, and Backpackers Campgrounds	All campsites within 100-year floodplain would be removed. Upper Campsite in culturally sensitive area.	Design, follow-on compliance, and mitigation measures would avoid or mitigate effects to sensitive archeological resources. Actions would continue to protect the ORV segmentwide.
Concessioner Stables	Remove the Concessioner Stable and the pack trail from the stable to Happy Isles; restore to natural conditions.	Mitigation measures would protect cultural resources during facility removal. Change would not affect contributing element of the Archeological District.
Curry Village Lodging	Lodging would include 355 units, (65 hard-sided units and 290 tents).	Mitigation measures would protect cultural resources during facility removal. Change would not affect contributing element of the Archeological District.
<b>Yosemite Village and Housekeeping Camp</b>		
The Ahwahnee Pool and Tennis Courts	Remove the pool and tennis courts. Tennis courts are located in a sensitive cultural area	Mitigation measures would protect cultural resources during facility removal and would locally protect the ORV. Change would not affect contributing element of the Archeological District.
The Ahwahnee Parking Lot	Redesign and formalize the existing parking lot; providing for proper drainage. Construct new 50 parking space lot east of the current parking.	Mitigation measures would protect cultural resources during facility removal. Change would not affect contributing element of the Archeological District.
Yosemite Village Day-use Parking Area	The Concessioner General Offices, Garage, and the Bank Building are removed. Move the Camp 6 day-use parking area northward 150 feet away from the river to facilitate restoration goals. Formalize parking area with a total of 850 parking places.	Mitigation measures would protect cultural resources during facility removal. Change would not affect contributing element of the Archeological District.
Housekeeping Camp Lodging	Remove 166 lodging units. Restore floodplain area.	Mitigation measures would protect cultural resources during facility removal. Change would not affect contributing element of the Archeological District.
Yosemite Village Concessioner Employee Housing	Temporary housing at Huff House and Boys Town is removed. Remove housing units (7 buildings, 64 beds) in rock fall hazard zone. Construct 16 buildings, housing 164 employees using the same dormitory prototype. Temporary housing at Lost Arrow is removed, replaced with 50 bed permanent housing facility.	Design, follow-on compliance, and mitigation measures would avoid or mitigate effects to sensitive archeological resources. Actions would continue to protect the ORV segmentwide.
Sentinel Drive Roadside Parking	Remove roadside parking along Sentinel Dr. and restore to natural conditions.	Mitigation measures would avoid or mitigate effects to sensitive archeological resources. Actions would continue to protect the ORV segmentwide.

**TABLE 8-96: SEGMENT 2 ACTIONS AND THEIR IMPLICATIONS FOR CULTURAL ORV-9 (CONTINUED)**

Location	Action in Alternative 4	Impact on ORV-9
<b>Yosemite Lodge and Camp 4</b>		
West of Yosemite Lodge New Parking	West of Yosemite Lodge re-developed to provide additional 150 day use parking spaces.	Mitigation measures would avoid or mitigate effects to sensitive archeological resources. Actions would continue to protect the ORV segmentwide.
Yosemite Lodge Visitor Facilities	Retain existing lodging units (245 units).	Mitigation measures would avoid or mitigate effects to sensitive archeological resources. Actions would continue to protect the ORV segmentwide.
Yosemite Lodge Concessioner Employee Housing	Remove old and temporary housing at Highland Court and the Thousands Cabins. Construct two new concessioner housing areas housing 104 employees. Construct 78 employee parking spaces.	Change would not affect contributing element of the Archeological District due to location and level of use.
Yellow Pine, Camp 4, Yosemite Lodge, and West Valley Campgrounds.	Remove camping and restore the 100-year floodplain to natural conditions. Camp 4 expanded eastward to provide 35 additional walk-in sites. Retain 35 walk-in campsites at Camp 4. Retain campground and administrative use sites in Yellow Pine.	Mitigation measures would protect cultural resources during facility removal. Change would not affect contributing element of the Archeological District.
Superintendent's House (Residence 1)	Remove and relocate to the NPS housing area.	Mitigation measures would protect cultural resources during facility relocation. Change would not affect contributing element of the Archeological District.
Northside Drive (Stoneman Bridge to Yosemite Village Day-use Parking Area)	Remove 900' of road and relocate the bike path to the south, to improve the meadow/river connectivity. Restore meadow contours and native vegetation.	Mitigation measures would avoid or mitigate effects to sensitive archeological resources. Actions would continue to protect the ORV segmentwide.

basis. All ground disturbances associated with ecological restoration actions; removal of buildings and infrastructure; re-routing of roads; and, parking lot and campground construction under this alternative would be subject to park standard operating procedures, subject matter expert review, and monitoring (as needed) to ensure that archeological resources are protected. Facilities that would remain in this segment of the river have no direct impact on the archeological component of the cultural ORV as indicated in the baseline condition assessment.

The NPS would delineate bike paths, roads, and other infrastructure away from sensitive cultural and ethnographic resource areas; remove graffiti at rock art and other sensitive features, conduct public education to discourage climbing, and remove climbing hardware from sensitive features. To prevent these considerations, or others, from redeveloping, the NPS would monitor the condition of the ORV, and take specific actions should conditions exceed specific trigger points.

**Conclusion:** Under Alternative 4, the archeological component of the cultural ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. Localized visitor-use-related impacts to archeological resources would be addressed through various enhancement actions. All ground disturbances associated with ecological restoration actions; removal of buildings and infrastructure; re-routing of roads; and, parking lot and campground construction under this alternative would be subject to park standard operating procedures, subject matter expert review, and monitoring (as needed) to ensure that archeological resources are protected. Reduction in maximum people

per day in Yosemite Valley, and management of user capacity and visitor use would reduce the potential for visitor use impacts.

### ***Cultural ORV-10 – Yosemite Valley Historic Resources***

As described in Chapter 5, the Yosemite Valley Historic Resources represent a linked landscape of river-related or river-dependent, rare, unique or exemplary buildings and structures that bear witness to the historical significance of the river system. Protective actions to address management concerns related to the Yosemite Valley Historic Resources ORV-10 include:

- Follow the recommendations from the Ahwahnee Historic Structures Report (1997) and the Ahwahnee Cultural Landscape Report (2010) when redesigning the Ahwahnee Parking Lot to bring the Ahwahnee stone gate house and the Ahwahnee Parking Lot to “good” condition.
- Develop a Historic Structures Report for the LeConte Memorial Lodge NHL to determine the rehabilitation needs to bring the building to “good” condition.
- Rehabilitate the Superintendent’s House (Residence 1) per the Historic Structure Report (Lingo 2012) to bring the building to “good” condition. This rehabilitation of the building will occur under all action alternatives, regardless of whether the building is relocated.

Under Alternative 4 the free-flowing condition of the river would be protected by removing the Ahwahnee and Sugar Pine Bridges. Relocation of the Superintendent’s House (Residence 1) is proposed under Alternative 4 to address the 1982 Guidelines for the Wild and Scenic Rivers Act that requires managing agencies to consider relocation of major public use facilities outside of the river corridor. These three bridges and the Superintendent’s House (Residence 1) are components of the Yosemite Valley Historic Resources component of the cultural ORV in Segment 2. The NPS would document and interpret any building or structure threatened with removal or relocation. In this manner, while the individual tangible element or elements may be lost or moved, a record of their existence and historical significance would still be available to the public.

To address management considerations, the *Merced River Plan/DEIS* proposes continuing the active program of maintenance for historic buildings and structures; employing existing design guidelines to ensure that new development or redevelopment complements the ORV and the Yosemite Valley Historic District; and periodically assessing and updating professional documentation for the historic resources.

Ecological and scenic value restoration actions in Segment 2 would enhance the cultural landscape which contributes to the historic setting of the resources that comprise the ORV-10. There are no construction actions associated with Alternative 4 that would affect the spatial organization of the

**TABLE 8-97: SEGMENT 2 ACTIONS AND THEIR IMPLICATIONS FOR CULTURAL ORV-10**

Location	Action in Alternative 4	Effects toORV-10
<b>Curry Village and Campgrounds</b>		
Stoneman Meadow and Curry Orchard parking lot	Restore Stoneman Meadow including removal of 1,335 feet of Southside Drive and re-alignment of road through Boys Town area. Extend the meadow boardwalk through wet areas to Curry Village (up to 275').	Change would affect circulation patterns locally. Change is not likely to affect buildings and structures included in the Yosemite Valley Historic Resources ORV collective.
<b>Yosemite Village and Housekeeping Camp</b>		
The Ahwahnee Pool and Tennis Courts	Remove the pool and tennis courts. Tennis courts are located in a sensitive cultural area	Mitigation measures would protect cultural resources during facility removal. Change would not affect contributing element of the Yosemite Valley Historic Resources ORV collective.
Ahwahnee Parking Lot	Follow the recommendations from the Ahwahnee Historic Structures Report (1997) and the Ahwahnee Cultural Landscape Report (2010) when redesigning the Ahwahnee Parking Lot to bring the Ahwahnee stone gate house and the Ahwahnee Parking Lot to "good" condition.	Redesign of the Ahwahnee Parking Lot would rehabilitate contributors to the cultural ORV thereby enhancing the Yosemite Valley Historic Resources ORV locally and segmentwide.
Yosemite Village Day-Use Parking Area	Remove Concessioner General Offices, Concessioner Garage, and the Bank Building are removed. Re-align the intersection at Northside Drive and Village Drive. Add a three-way intersection at Sentinel Drive and the entrance to the parking area. Provide on-grade pedestrian crossings.	The removal of historic and non-historic properties and re-alignment/re-establishment of the intersections would affect circulation patterns locally. Change is not likely to affect buildings and structures included in the Yosemite Valley Historic Resources ORV collective.
Sugar Pine and Ahwahnee Bridges	Remove both bridges and the connecting berm.	The action would remove 2 contributors to the Yosemite Valley Historic Resource ORV resulting in localized effects. Mitigation measures include documenting and interpreting the resource. The loss of these two bridges would not result in a segmentwide adverse effect of the collective of resources.
Superintendent's House (Residence 1)	Relocate outside the river corridor to the NPS housing area. Rehabilitate historic structure in new location.	The action would remove a contributor to the Yosemite Valley Historic Resource ORV resulting in localized effects. Mitigation measures include documenting and interpreting the resource. The loss of this resource would not result in a segmentwide adverse effect of the collective of resources.
Bridalveil Falls Trail	Redesign trails, boardwalks, and viewing at the base of the falls to improve wayfinding and pedestrian circulation. Restore informal trails. Improve ADA compliance of pedestrian walkways and restrooms.	The action would affect trails that are connected by the historic footbridges which are components of the Yosemite Valley Historic Resources ORV. Mitigation measures and Section 106 review would ensure the protection of the historic resources and the redesign could result in enhancement of the ORV locally.

historic resource collective, though changes in the circulation patterns as a result of re-routing roads at the Yosemite Village day-use parking area and at Stoneman Meadow would affect circulation patterns that are associated with this ORV. These effects would be localized and would not affect the condition of the ORV on a segmentwide level.

**Conclusion:** Under Alternative 4, the historic resources component of the cultural ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. Removal of three bridges and the relocation of the Superintendent’s House (Residence 1) would result in localized effects that would be mitigated through documentation and interpretation. Once removed or relocated, these resources would no longer be considered part of the ORV collective. All disturbances to circulation and spatial organization associated with ecological restoration actions; removal of buildings and infrastructure; re-routing of roads; and, parking lot and campground construction under this alternative would be subject to park standard operating procedures, subject matter expert review, and documentation (as needed) to ensure that historic resources are protected.

### ***Scenic ORV-16 – Iconic Scenic Views in Yosemite Valley***

Visitors to Yosemite Valley experience scenic views of some of the world’s most iconic scenery, with the river and meadows forming a placid foreground to towering cliffs and waterfalls. Actions intended to manage natural resources may include the use of prescribed fire or controlled burns to thin forests that are encroaching on meadows; cutting trees, tree branches or other vegetation by mechanical means; and the application of herbicides to control invasive species. Related actions intended to protect the Recreation ORV would limit the number of visitors to lessen visitor density and congestion at attraction sites and make improvements to the transportation system that would reduce automobile congestion. Air quality can affect visitors’ ability to experience scenic values in Segment 2. The NPS would cooperate with regional authorities to reduce airborne contaminants caused by combustion, including carbon dioxide emissions, smoke caused by fire, particulate matter generated by construction, and to improve air quality conditions.

In consideration of Wild and Scenic River Act requirements that the NPS consider the presence of existing structures, major facilities and services provided for visitor use, the NPS would eliminate several structures and facilities in Segment 2 under this alternative. Under Alternative 4 actions would remove many structures at the Ahwahnee pool and tennis court. Removal of these structures could enhance scenic resources from specific locations. Ecological restoration actions in Segment 2 would enhance the meadow and riparian communities which contribute to the scenic values in Yosemite Valley. This recreational river segment would remain readily accessible by road and will continue to have appropriate development along the shorelines (a comprehensive list of facilities in Segment 2 is included in table 7-1). Facilities that would remain in this segment of the river have no direct impact on the scenic river value as indicated in the baseline condition assessment. Changes to parking and vehicle traffic in Yosemite Valley to enhance Recreational ORV- 20 particularly the removal of roadside parking along Sentinel Drive and restoration to natural conditions would enhance Scenic ORV-16.

**TABLE 8-98: SEGMENT 2 ACTIONS AND THEIR IMPLICATIONS FOR SCENIC ORV-16**

Location	Action in Alternative 4	Effects to ORV-16
<b>System-Wide</b>		
Selected Scenic Vista Points	Selectively thin conifers and other trees and shrubs that encroach on selected scenic vista points. Remove unnecessary facilities and ensure that all future development satisfies objectives that provide low contrast ratings.	Changes would enhance the scenic values on a segmentwide level.
<b>Curry Village and Campgrounds</b>		
Yosemite Valley Campgrounds	All campsites within 150 feet of the river removed. New campsites installed at Upper Pines, Backpacker's, Boystown, Concessioner Stables, Camp 4, West of Lodge, and Upper and Lower River Campgrounds	Changes to campgrounds would not interfere with iconic scenery. Removal of campgrounds near the river will enhance viewsheds segmentwide.
<b>Yosemite Village and Housekeeping Camp</b>		
Yosemite Village Day-Use Parking Area/Village Center Parking Area	The Concessioner General Offices, Concessioner Garage, and the Bank Building are removed. Move the Yosemite Village Day Use Parking Area day-use parking area northward 150 feet away from the river to facilitate restoration goals. Formalize parking area with a total of 750 parking places.	Removal of buildings would enhance viewsheds locally.
Housekeeping Camp Lodging	Retain 100 lodging units, and remove 166 lodging units (83 duplex lodging units, 4 restrooms, store and office) out of the observed ordinary high water mark.	Removal of Housekeeping units near the river will enhance viewsheds locally.
Yosemite Village Concessioner Employee Housing	Temporary housing at Huff House and Boys Town is removed. Remove housing units (7 buildings, 64 beds) in rock fall hazard zone. Construct 16 buildings, housing 164 employees using the same dormitory prototype. Temporary housing at Lost Arrow is removed, replaced with 50 bed permanent housing facility.	Facilities are out of major viewsheds and changes would not interfere with iconic scenery.

**Conclusion:** Under Alternative 4, the scenic ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. Tree thinning and ecological restoration actions would improve natural scenic conditions. Removal of buildings at Housekeeping Camp, Yosemite Lodge, the Concessioner Garage, the Concessioner General Offices, and the Concessioner Stables would reduce intrusions on scenic resources. All parking lot and campground construction under this alternative would be subject to park standard operating procedures and subject matter expert review to ensure that scenic resources are protected.

### ***Recreational ORV-20– River-related Recreation in Yosemite Valley***

Visitors to Yosemite Valley enjoy a wide variety of river-related recreational activities in the Valley's extraordinary setting along the Merced River. Throughout the Yosemite Valley segment, the river has provided the setting for recreational experiences such as fishing, floating, and sightseeing. Transportation is considered an important part of the visitor experience in Yosemite Valley because it is the means of access to recreational opportunities in Yosemite Valley. Management considerations address the amount of



vehicle traffic and the number of people at one time in Yosemite Valley at the peak times of day during the park's busy summer season.

All restoration actions to protect and enhance biological, cultural, geologic/hydrologic, and scenic ORVs would further enhance visitors' connections to the river and its values, which are essential to the recreational ORV in this segment. A reduction in day-use, camping, and lodging opportunities would reduce access to these recreational experiences, but would not cause adverse effects or degradation to ORV-20 on a segmentwide basis. The reduction of Housekeeping Camp would change the picture of overnight accommodations in Yosemite Valley, but overnight lodging would not be eliminated segmentwide, nor would an essential aspect of the recreational ORV be affected. There are also actions proposed in Alternative 4 that would improve picnicking, and wayfinding. Finally, commercial boating is limited to 75 boats at one time and private boating is limited to 100 trips per day in Segment 2, in this alternative which reduces crowding and increases the stretches of the river on which private boating and paddling is allowed, thereby enhancing key aspects of this recreational experience.

Chapter 6 provides a more detailed description of the day-visitor capacity management strategies that directly measure aspects of the Recreation ORV and outlines specific actions. These actions include:

- Utilize parking and traffic management staff to improve parking efficiency and traffic flow in Yosemite Valley and other locations where needed.
- Institute a transportation fee at entrance stations (for peak-use season).
- Divert vehicles to other destinations outside of Yosemite Valley when parking in the Valley fills.
- When all parking fills to capacity, day visitors would be diverted at checkpoints throughout the park and at entrance stations.
- East Valley day-use parking permits would be issued by advanced reservation and on a first-come-first-serve basis.

NPS would use the Highway Capacity Manual Pedestrian Level of Service (discussed further in Chapter 5) for evaluating the capacity and quality of service of transportation facilities, including walkways, multi-use paths, and similar pedestrian facilities. NPS would also monitor parking rates and vehicles at one time to ensure that they are not exceeding the management standard. Should specific trigger points be reached, the NPS would implement a series of specific actions to improve parking to an acceptable level. Similarly, should visitor densities begin to approach specific triggers; NPS would take steps to keep such densities within the management standard.

**Conclusion:** Under Alternative 4, the recreation ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. The reduction in camping and lodging opportunities, as well as reduction in visitation particularly during the peak season will significantly reduce crowding thereby enhancing the recreational ORV. All restoration actions would enhance opportunities to connect with the river and its values. The reduction in commercial services would affect opportunities for particular types of recreational activities, but would not affect the essential components of the recreation ORV on a segmentwide basis.

**TABLE 8-99: SEGMENT 2 ACTIONS AND THEIR IMPLICATIONS FOR RECREATIONAL ORV-20**

Location	Action in Alternative 4	Effects to ORV-20
Segmentwide visitation	17,000 visitors per day	This reduction in visitation would reduce crowding and congestion thereby enhancing the recreation ORV on a segmentwide level.
Concessioner Stables	Redeveloped as a campground with 41 sites.	Changes would reduce opportunities for one type of recreational activity, but would not substantially alter components of the river recreation experience.
Curry Village Lodging	Lodging would include 355 units, (65 hard-sided units and 290 tents).	Changes to Lodge would reduce access to overnight accommodations. Lodge itself is not part of the ORV-20 but does facilitate access to ORV-20 for certain visitors. This use would remain.
Lower Rivers Nature Walk	Create an interpretive (nature) walk through Lower Rivers that emphasizes river-related natural processes, the park's ecological restoration work and what visitors can do to protect the river.	Change would improve interpretation of the river and its values, and would enhance the recreation ORV in this segment.
<b>Yosemite Village and Housekeeping Camp</b>		
The Ahwahnee Pool and Tennis Courts	Remove the pool and tennis courts	Removal of facilities would reduce opportunities for one type of recreation activities, but would not substantially alter components of the river recreation experience.
Segment wide River Access	Swimming and water play allowed in all segments except 6, impoundment. No commercial boating. Boating allowed on all segments except 6, impoundment. Private use limited to 100 trips per day/commercial to 75 boats at one time in Segment 2 between the Pines Campgrounds and Sentinel Beach.	Change would limit commercial boating and would limit the number of private boating. However, this change does not affect components of the recreational ORV. This reduction in boats enhances dispersed recreation along the river corridor.
Housekeeping Camp Lodging	Retain Housekeeping Camp in current configuration.	Changes similar to current conditions and would not substantially alter components of the river recreation experience.
Bridalveil Falls Trail	Redesign trails, boardwalks, and viewing at the base of the falls to improve wayfinding and pedestrian circulation. Restore informal trails. Improve ADA compliance of pedestrian walkways and restrooms.	Change would cause improve circulation and wayfinding thus enhancing ORV-20.
<b>Yosemite Lodge and Camp 4</b>		
Yosemite Lodge Visitor Facilities	Remove 34 lodging units (232 units remain).	Removal of lodging would have local affect, but would not substantially alter components of the river recreation experience.
Yellow Pine, Camp 4, Yosemite Lodge, and West Valley Campgrounds.	Remove camping and restore the 100-year floodplain to natural conditions. Camp 4 expanded eastward to provide 35 additional walk-in sites. Retain 35 walk-in campsites at Camp 4. Restore Yellow Pines site and restore group administrative use sites to natural conditions.	Reduction in the number of campsites limits access to these recreational experiences, but camping opportunities would continue and not substantially alter components of the river recreation experience.
Recreational Experience Quality	Reduction in available day-use parking, and implementation of an East Yosemite Valley Day-use Parking Permit system	This will enhance the recreational experience of segment 2 by reducing crowding at key attraction sites as well as access to these areas (along roadways, in parking lots, etc).

## Segment 3 – The Merced Gorge (Scenic Segment)

### *Scenic ORV-17 – Scenic View in the Merced River Gorge*

The Merced River drops 2,000 feet over 14 miles; a continuous cascade under spectacular Sierra granite outcrops and domes. There are no existing management considerations with respect to the Scenic ORV in the Merced River Gorge. Although there are some localized visual intrusions from essential facilities such as visitor parking areas, restrooms, the Arch Rock entrance station and the El Portal Road, these facilities are consistent with the scenic classification of this river segment. As explained in Chapter 5, this ORV is currently protected and enhanced.

This alternative does not propose any new development or landscape changes within the river corridor aside from improvements to existing roadside pullouts and drainage. These changes would not degrade or adversely impact the scenic ORV on a segmentwide basis. Although private vehicles and overall visitation during peak periods will be managed for East Yosemite Valley only, it is probable that visitation and visitors at one time in Segment 3 will also witness a reduction under this alternative. This reduction in visitation and visitors at one time may reduce vehicles per viewshed, thereby enhancing the scenic ORV. Monitoring associated with this ORV would ensure that the attributes that comprise this ORV remain within the accepted management class rating.

Alternative 4 would accommodate the same kinds and amounts of use that exist today in Segment 3. The types and levels of use in Segment 3 under this alternative would remain largely unchanged. Actions considered under Alternative 4 would cause no adverse effects or degradation to ORVs on a segmentwide basis.

**Conclusion.** Under Alternative 4, this scenic river segment would show little evidence of human activity and remain largely free of structures. The scenic ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. The reduction in camping and lodging opportunities, as well as reduction in visitation particularly during the peak season in Yosemite Valley will significantly reduce the number of vehicles per viewshed in this segment. All restoration actions would further enhance scenic characteristics in this segment.

## Segment 4 – El Portal (Recreational Segment)

### *Geological/Hydrological ORV-7 – The Boulder Bar in El Portal*

Natural processes would continue to shape the landscape and the geologic ORV. The NPS has not identified any management considerations with respect to the El Portal boulder bar. Land use and facility actions proposed in this alternative would not affect this ORV. Because there are no considerations regarding the condition of this ORV, no actions other than continued protection are necessary. Moreover, the types and levels of visitor and administrative use (e.g., housing, maintenance operations, office space, passive recreation) allowed under this alternative would not affect this ORV. Therefore, the NPS would not monitor the condition of this ORV as part of the *Merced River Plan/DEIS*.

**Conclusion.** Under Alternative 4, the geologic values of this recreational river segment would continue to be absent of adverse effects and degradation on a segmentwide level. There are no actions that would affect the boulder bar in El Portal, and there are no ongoing concerns or considerations associated with this resource.

### ***Cultural ORV-11 – The El Portal Archeological District***

The El Portal Archeological District contains dense concentrations of resources that represent thousands of years of occupation and evidence of continuous, far-reaching traffic and trade. This segment includes some of the oldest deposits in the region. Four sites are known to have experienced particularly severe damage, most notably a large ancient village and cemetery.

To address management considerations pertinent to this river value, the NPS would undertake the following actions:

- Protective measures would ensure that exceptional sites would be protected from unmitigated effects that could lead to adverse effects or degradation on a segmentwide level. A plan of action for addressing the abandoned infrastructure on sites would be developed in consultation with traditionally-associated American Indian tribes and groups. Any solution(s) developed would also include a recommended approach for deterring visitor use within the sites.
- Informal trails, non-essential roads, and abandoned infrastructure would be removed to protect and enhance the archeological resources contributing to the ORV in Segment 4.
- Remove informal trails and non-essential roads.

There are no existing instances of adverse effect or degradation to this ORV. As discussed above, management considerations are present associated with abandoned infrastructure that remains on an exceptional site containing diverse components and extremely sensitive cultural materials that are highly valued by traditionally associated American Indians. Management considerations are also associated with non-essential roads and trails that impact archeological sites. In recognition of the high cultural significance of these sites, this alternative requires the park to develop plans to remove abandoned infrastructure and non-essential roads. Restoration actions to establish a 2.5 acre recruitment area for Valley Oaks would further protect adjacent archeological resources. Construction of employee housing in Old El Portal, Abbieville, and Rancheria would be designed to avoid or mitigate threats and disturbances to archeological sites. Monitoring and protective measures would ensure that new use patterns associated with the new housing would not affect contributing elements of the El Portal Archeological District.

**Conclusion.** Under Alternative 4, the archeological resources in this recreational river segment would continue to be absent of adverse effects and degradation on a segmentwide level. Removal of abandoned infrastructure, informal trails and non-essential gravel roads would enhance protection of archeological resources. Valley Oak restoration actions would protect adjacent archeological resources from further ground disturbance, Construction of new employee housing would be designed to avoid or mitigate effects to the El Portal Archeological District. New or altered visitor use patterns associated with the new housing development would be monitored and protective actions would occur if effects triggered responses.

**TABLE 8-100: SEGMENT 4 ACTIONS AND THEIR IMPLICATIONS FOR CULTURAL ORV-11**

Facility	Action in Alternative 4	Effects toORV-11
<b>El Portal</b>		
Abbieville, Old El Portal, and Rancheria Flat Concessioner Employee Housing	New concessioner employee housing in Old El Portal (12 beds) and Rancheria Flat (96 beds). Remove or relocate 36 existing private residences at Abbieville out of the 150-foot riparian buffer.	Design, follow-on compliance, and mitigation measures would avoid and/or mitigate adverse effects to sensitive archeological resources. The El Portal Archeological District would continue to be protected at a segmentwide level.
Abbieville Trailer Park Area	Develop El Portal Remote Visitor Parking Area in the Abbieville/Trailer Park area to provide 200 spaces of visitor parking serviced by regional transit. Adjacent to cultural resources, however only suitable location proximate with direct access to Highway 140.	Design, follow-on compliance, and mitigation measures would avoid and/or mitigate adverse effects to sensitive archeological resources. The El Portal Archeological District would continue to be protected at a segmentwide level.
Odger's Bulk Fuel Storage	(Common to All) Remove Odger's bulk fuel storage facility and restore the rare floodplain community of valley oaks. Create a valley oak recruitment area of 2.5 acre in the vicinity of the current Odger's bulk fuel storage area, including the adjacent parking lots.	Mitigation measures would protect cultural resources during facility removal and ecological restoration. Change would continue to protect archeological resources locally.

**Segment 5 – South Fork Merced River Above Wawona (Wild Segment)**

***Biological ORV 1 – High-elevation Meadows and Riparian Habitat***

The Merced River sustains numerous small meadows and riparian habitat with high biological integrity. Restoration actions to remove informal trails and charcoal rings to protect cultural resources proposed under this alternative would not affect high-elevation meadows. The NPS proposes no major facility or visitor use actions for Segment 5 under Alternative 4. The biological ORV in this wild river segment would continue to be absent of adverse effects and degradation on a segmentwide level.

***Cultural ORV-12 – Regionally rare archeological features representing indigenous settlement including archeological sites with rock ring features***

Three regionally rare prehistoric archeological sites are located along this segment of the South Fork of the Merced Wild and Scenic River corridor. The sites contain unique stacked rock ring constructions and rock alignments. Two sites also contain pine timber remains within the ring interiors or incorporated into the stacked rock courses. Rock constructions are considered fragile and highly subject to human alteration from camping and campfire building disturbances. Two of the South Fork sites are adjacent to formal NPS trails, increasing the likelihood of disturbance. The vicinity of the sites has not been systematically surveyed, and it is possible that additional rock ring sites may be present along the South Fork. Should additional rock ring sites be discovered in the monitoring process, they would also become a part of the South Fork ORV. To remedy these considerations, NPS would:

- Complete documentation of the features. Restrict Wilderness camping in the area of the rock rings (camping allowed past particular marker). Remove informal trails and charcoal rings.

- Increase education and outreach to Wilderness travelers.

**Conclusion.** Under Alternative 4, the archeological resources in this wild river segment would continue to be absent of adverse effects and degradation on a segmentwide level. There are no specific actions to manage user capacity, land use, and/or facilities under Alternative 4 within Segment 5 beyond those designed to protect and enhance ORV-12 that would impact components of Cultural ORV-12. Monitoring activities described in Chapters 5 and 8 would continue to protect and enhance Cultural ORV-12 to ensure there are no adverse effects or degradation to ORV-12 on a segmentwide basis.

### ***Scenic ORV 18 – Scenic Wilderness Views along the South Fork Merced River***

The South Fork Merced River passes through a vast area of natural scenic beauty. The NPS has no immediate management considerations with respect to the Scenic Wilderness Views along the South Fork Merced River as this scenic ORV is determined to be absent of adverse effects and degradation. No new development or landscape changes are proposed within the river corridor. Because there are no considerations regarding the condition of this ORV, no actions other than continued protection is necessary. It is unlikely that this ORV would be affected by human intervention in the future.

**Conclusion.** Under Alternative 4, the scenic resources in this wild river segment would continue to be absent of adverse effects and degradation on a segmentwide level. The scenic ORV for Segment 5 is determined to be absent of adverse effects, degradation, management concerns, and management considerations. The NPS would not monitor the condition of this ORV.

## **Segment 7 – Wawona (Recreational Segment)**

### ***Biological ORV-3 – The Sierra sweet bay (Myrica hartwegii)***

As described in Chapter 5, the NPS would monitor the condition of this ORV through time using Sierra Sweet Bay Population Decline as its indicator. The health of this ORV would be determined by comparing populations located near Wawona Campground (an area that is likely to be disturbed by humans) with more remote populations that are less likely to receive such disturbance. This population of Sierra sweet bay is in good condition, with no management considerations present. Management action to enhance the population is not required at this time.

To ensure that this biological ORV is protected and enhanced through time, the NPS would monitor the condition of the Sierra sweet bay population to ensure early warning of conditions that require management action before impacts occur.

**Conclusion.** Under Alternative 4, the Sierra Sweet Bay in this recreational river segment would continue to be absent of adverse effects and degradation on a segmentwide level. Reduction in camping and visitor activity in the vicinity of Wawona Campground would enhance this resource.



**TABLE 8-101: SEGMENT 7 ACTIONS AND THEIR IMPLICATIONS FOR BIOLOGICAL ORV-3**

Facility	Action in Alternative 4	Effects to ORV-3
<b>Wawona</b>		
Wawona Campground	Retains 72 sites and one group site. Remove 27 sites that are either within the 100-year floodplain or in culturally sensitive areas.	Action would improve the condition of the ORV by reducing the potential effects on this species associated with campground visitation.

***Cultural ORV-13 – Wawona Archeological District***

The Wawona Archeological District encompasses numerous clusters of resources spanning thousands of years of occupation, including evidence of continuous, far-reaching traffic and trade. This district spans segments 5, 6, 7, and 8. Accordingly, the condition of this historic property is assessed at the property-level, rather than the segmentwide level. Segment 7 includes the remains of the U.S. Army Cavalry Camp A. E. Wood documenting the unique Yosemite legacy of the African-American buffalo soldiers and the strategic placement of their camp near the Merced River. There are several management considerations for this ORV: the Wawona Archeological District is subject to site-specific impacts from park operations, visitor use, artifact collection, vandalism, and ecological processes. The following actions would help to address these issues:

- Increase monitoring frequency at affected sites.
- At the district-wide level, revise the existing National Register nomination to reflect changes since its original writing, for example, incorporating newly discovered resources and documenting impacts.
- The Wawona Campground capacity would be reduced to 67 sites (including one group site). 32 sites are removed because they are either within the 100-year floodplain or in culturally sensitive areas.
- Remove informal trails and fire rings to prevent continuing disturbance.
- Develop site management plans as needed for sites with complex uses. Remove shoulder and off-road parking. Limit facility and concessionaire off -road vehicle travel/parking on hotel grounds
- Consider need for archeological site treatment measures to address impacts to shallow deposits of artifacts and features.

The NPS would delineate trails, roads, and other infrastructure away from sensitive cultural and ethnographic resource areas; conduct public education to discourage disturbance to sensitive features. To prevent these considerations, or others, from redeveloping, the NPS would monitor the condition of the ORV, and take specific actions should conditions exceed specific trigger points.

**TABLE 8-102: SEGMENT 7 ACTIONS AND THEIR IMPLICATIONS FOR CULTURAL ORV-13**

Facility and Land Use	Action in Alternative 4	Effects to ORV-13
<b>Wawona</b>		
Wawona Campground Septic System	Remove septic system, and connect to the sewer system. Build a lift station above the campground to connect to the existing water treatment plant.	Mitigation measures would protect cultural resources during facility construction.
Wawona RV dump site	Relocate the dump site to an appropriate location away from the river.	Mitigation measures would protect cultural resources during facility removal and construction.
Wawona Store	Replace the existing public restroom facilities with larger restrooms to accommodate visitor use levels. Improve picnic area, redesign bus stop.	Mitigation measures would protect cultural resources during facility construction.
Wawona Swinging Bridge	Provide access to Swinging Bridge with access on the south side of the river, delineate trail, restrooms, waste disposal and parking.	Mitigation measures would protect cultural resources during facility construction. Restrooms and waste disposal will reduce threats and disturbances to adjacent archeological resources.

### *Cultural ORV-14 – Wawona Historic Resources*

The Wawona Historic Resources ORV includes one of the few covered bridges in the region and the National Historic Landmark Wawona Hotel complex. The Wawona Hotel complex is the largest existing Victorian hotel complex within the boundaries of a national park, and one of the few remaining in the United States with this high level of integrity. The Wawona Covered Bridge is in good condition, and there are no current management considerations associated with it, however the bridge requires maintenance to keep the historic structure in good condition in the face of adverse weather and visitor use.

The Wawona Hotel complex continues to serve its original purpose as a guest lodging facility. Management considerations related to the hotel complex involve concessioner operations, the need for regular and routine preservation maintenance, and periodic rehabilitation to ensure visitor safety.

- Regular and routine preservation maintenance, conducted in accordance with the Secretary of the Interior's Standards, would ensure that this upkeep protects the historic character of the buildings
- Periodic rehabilitation would involve subject-matter specialists in planning, design and implementation to ensure actions do not compromise the historical integrity of the complex
- Concessioner operations would ensure that any operational modifications or updates are appropriate and in keeping with the historic character of the complex.

To prevent future impacts, the NPS would monitor the condition of the bridge, and take specific actions should conditions exceed trigger points. Trigger points are selected to inform managers well in advance of adverse effects or degradation on the Wawona Covered Bridge. Management considerations for the Wawona Hotel complex include the need for regular and routine preservation maintenance, periodic rehabilitation, and ongoing operations that serve its continuing function as a historic lodging facility. To address these management considerations, the NPS would ensure that these activities would conform to the Secretary of the Interior's Standards for Treatment of Historic Properties.

**TABLE 8-103: SEGMENT 7 ACTIONS AND THEIR IMPLICATIONS FOR WAWONA HISTORIC RESOURCES ORV-14**

Facility	Action in Alternative 4	Effects toORV-14
<b>Wawona</b>		
Wawona Hotel	Retain 104 lodging units at the Wawona Hotel Retain hotel restaurant, swimming pool and tennis court. Retain golf course and golf shop.	The action would retain contributors to the Wawona Historic Resource. The ORV would continue to be protected locally.

## Segment 8 – South Fork Merced River below Wawona (Wild Segment)

### *Biological ORV-3 – The Sierra sweet bay (Myrica hartwegii)*

As described in Chapter 5, the NPS would monitor the condition of this ORV through time using Sierra Sweet Bay Population Decline as its indicator. The health of this ORV in Segment 8 is in good condition, with no management considerations present. Management action to enhance the population is not required at this time.

### *Cultural ORV 13— Wawona Archeological District*

The Wawona Archeological District encompasses numerous clusters of resources spanning thousands of years of occupation, including evidence of continuous, far-reaching traffic and trade. This ORV in Segment 8 is in good condition, with no management considerations present. Management actions are not required at this time.

### *Scenic ORV-18 – Scenic Wilderness Views along the South Fork Merced River*

The South Fork Merced River passes through a vast area of natural scenic beauty. The NPS has no immediate management considerations with respect to the Scenic Wilderness Views along the South Fork Merced River as this scenic ORV is determined to be absent of adverse effects and degradation. No new development or landscape changes are proposed within the river corridor. Because there are no considerations regarding the condition of this ORV, no actions other than continued protection is necessary. It is unlikely that this ORV would be affected by human intervention in the future.

The scenic ORV for Segment 8 is determined to be absent of adverse effects, degradation, management concerns, and management considerations. The NPS would not monitor the condition of this ORV.

## ALTERNATIVE 5

### River Value – Free-flowing Condition in all Segments

A free-flowing river, or section of a river, moves in a natural condition without impoundment, diversion, straightening, riprapping, or other modification of the waterway. The current free-flowing condition of the

Merced River is fully protected and enhanced on a segmentwide basis. Riprap revetment, abandoned infrastructure within the bed and banks of the river, and bridges that constrict the flow of the river may produce localized effects on free-flowing condition of the river. Alternatives 2-6 would enact a comprehensive suite of actions to enhance the free-flowing condition of the river by removing 3,400 linear feet of riprap, and removing abandoned and unnecessary infrastructure from the river channel and its floodplain. Infrastructure that would be removed includes former sewage treatment facilities, sewer and water lines, and former bridge abutments. In addition, Alternative 5 would remove 435 linear feet of riprap from riverbank areas, beyond that proposed for removal under Alternatives 2-6.

Alternative 5 also proposes removal of Sugar Pine Bridge and the associated elevated multi-use trail connecting Sugar Pine Bridge and Ahwahnee Bridge. These features constrict flows during high-water events, and lead to accelerated riverbank, channel erosion, and prevent natural channel migration. The trail toward Lower Pines would require a new bridge to span a cut-off channel. Although the Stoneman and Ahwahnee bridges would remain under Alternative 5, the hydrological effects of these bridges would be mitigated with strategic placement of large wood on riverbanks, constructed log jams in the river channel, and the use of brush layering and other techniques to establish riverside vegetation and decrease erosion.

There are no new facilities proposed under Alternative 5 that would affect the free-flowing condition of the river. A number of proposed facility actions would enhance the connectivity of the river and its floodplain (see Hydrological/Geological ORVs). For example, the Yosemite Village Day-use Parking Area would be relocated 150 feet north of the river.

To protect the river's free flowing condition in the future, the NPS would require all proposed projects involving construction within the bed or banks of the Merced River or its tributaries to undergo an analysis in accordance with Section 7 of the WSRA. Through this process, the NPS would ensure that water resources projects within the designated river corridor would not lead to "direct or adverse effects" on free flow, and that projects on tributaries to the river do not "invade or unreasonably diminish" the river's free flowing condition.

Conclusion: The current free-flowing condition of the Merced River is fully protected and enhanced on a segmentwide basis, although localized considerations such as intermittent riverbank and bridges that constrict the flow of the river are present. Alternative 5 proposes a comprehensive suite of actions to enhance the free-flowing condition of the river by removing riprap, removing unnecessary infrastructure in the river channel, and removing Stoneman Bridge, as it produces pronounced hydraulic constrictions at high water flows. There are no new facilities proposed under Alternative 5 that would affect the free-flowing condition of the river, and a number of proposed facility actions would enhance the connectivity of the river and its floodplain (see Hydrological/ Geological ORVs). The NPS would require all proposed projects within the bed or banks of the Merced River or its tributaries to undergo an analysis in accordance with Section 7 of the WSRA to ensure that water resources projects would not lead to "direct or adverse effects" on free flow, and that projects on tributaries to the river do not "invade or unreasonably diminish" the river's free flowing condition. The actions proposed under Alternative 5 ensure that there are no direct or adverse effects on free-flowing condition of the Merced River.

## River Value – Water Quality in All Segments

The water quality of the Merced River is extremely high, and the current water quality of the river is fully protected and enhanced on a segmentwide basis. Intermittent localized instances of contamination may occur that are associated with automotive fluids in surface water runoff, recreational vehicle dump stations in proximity to the river, and accelerated erosion with potential sediment loading in the river during high water flows. Alternatives 2-6 would apply mitigation measures to ensure that surface water runoff associated with parking areas protects the water quality of the Merced River and meets regulations. The Upper Pines recreational vehicle dump station would be moved away from the river, and the Odger's bulk fuel storage area in El Portal would be moved out of the 500-year floodplain. In addition, Alternative 5 would relocate the Yosemite Village Day-use Parking Area north, 150-feet from the river. All campsites and infrastructure currently within 100-feet of the river would be removed. The pack trail from Curry Village stables to Happy Isles would be re-routed farther away from the river. These actions would reduce and mitigate potential sources of pollutants.

Proposed ecological restoration actions, particularly the actions that re-establish riverbank vegetation and reduce erosion potential would further enhance water quality conditions. These ecological restoration actions are described in more detail in the discussion of the biological ORVs below and in Appendix E.

There are no new facilities proposed under Alternative 5 that would threaten the water quality of the river. In areas of new development or high-density use, sensitive riverbanks would be fenced to eliminate trampling. Trampling can lead to vegetation loss and exposed soil, leading to accelerated sediment deposition in the river. To ensure that existing high water quality conditions are maintained in the future under Alternative 5, the NPS would monitor water quality indicators that are tied to human activity (e.g., nutrient levels), and take specific actions should specific trigger points be reached.

**Conclusion.** Under Alternative 5, water quality in all segments of the Merced River corridor would continue to be absent of adverse effects and degradation, and the potential for localized instances of contamination would be strongly reduced. Alternative 5 would address localized issues by applying mitigation measures to ensure surface water runoff associated with parking areas meets state standards, move the Upper Pines recreational vehicle dump station away from the river, and remove the Odger's bulk fuel storage area from the 500-yr floodplain. Ecological restoration actions would decrease the potential for accelerated riverbank erosion and sediment loading during high water events.

**TABLE 8-104: CORRIDOR-WIDE ACTIONS AND THEIR IMPLICATIONS FOR WATER QUALITY**

Location	Action in Alternative 5	Effects to Water Quality
<b>Segment 2</b>		
North, Lower and Upper Pines Campgrounds and Backpackers Campgrounds	Campsites within the 100-year floodplain would be removed. Designated river access and put in areas established at resilient areas, discourage access to sensitive areas. Upper Pines dump station relocated away from the river.	These changes would result in less erosion along the riverbank; water quality would be enhanced segmentwide.
New campsites at Upper Pines, Backpacker's, Camp 4, Eagle Creek, and Upper River Campgrounds	New campsites constructed at Upper Pines, Upper River, Backpackers, Eagle Creek, and Camp 4 out of the 150 foot riparian buffer.	Change would not result in additional water quality effects on a segmentwide level. Water quality would continue to be protected segmentwide.
Yosemite Village Day-Use Parking Area	Move the unimproved parking lot out of the 10-year floodplain and restore the riparian habitat adjacent to the river.	Change would result in less erosion and storm water run-off from the parking area; water quality would be enhanced locally.
Pack Trail from Concessioner Stables to Happy Isles	Reroute the pack stock trail from the Concessioner Stable farther north, adjacent to the Happy Isles Loop Road.	Change would result in less erosion from the stock trail. Water quality would be enhanced locally.
Housekeeping Camp Lodging	Retain 232 units and associated facilities. Remove 34 units out of the ordinary high water mark.	Fencing and designated river access points would also direct use to resilient areas resulting in less erosion. Water quality would be enhanced locally.
<b>Segment 4</b>		
NPS Maintenance and Administrative Complex	Existing parking area formalized and paved using best management practices	Change would result in less erosion and storm water concerns in the parking area; water quality would be enhanced locally.
Odger's Bulk Fuel Storage	(Common to All) Remove Odger's bulk fuel storage facility and restore the rare floodplain community of valley oaks. Create a valley oak recruitment area of 2.5 acre in the vicinity of the current Odger's bulk fuel storage area, including the adjacent parking lots.	Removal of bulk fuel storage from the 500-year floodplain would further protect water quality segmentwide.
<b>Segment 7</b>		
Wawona Campground	Replace current septic system with waste water collection system connected to the waste water treatment plant. RV dump site relocated away from the river.	Change would result in less potential for storm water concerns in the campground; water quality would be enhanced locally.
Wawona Picnicking	Delineate boundaries of two formal picnic areas with formal river access points.	Change would result in less erosion along; water quality would be enhanced locally.

## Segment 1 – Merced River Above Nevada Fall (Wild Segment)

### *Biological ORV-1 – High-elevation Meadows and Riparian Habitat*

The Merced River sustains numerous small meadows and riparian habitat with high biological integrity. Primary actions to protect and improve Biological ORV 1 include removal of informal trails that incise meadow habitat, trails in wet and/or sensitive vegetation, and trails that fragment meadow habitat, including trails in the Triple Peak Fork meadow, wetlands near Echo Valley and Merced Lake shore, mineral springs



between Merced Lake and Washburn Lake, and other areas as necessary. Removal of social trails that bisect the meadows would improve conditions in this segment because soil compactions and habitat fragmentation would be reduced. Grazing capacities would be established, monitored, and adapted as necessary which would also reduce soil compaction and habitat fragmentation, thus further enhancing meadow health.

Facilities that would remain in this segment of the river include the Merced Lake High Sierra Camp, designated camping areas in Little Yosemite Valley, Moraine Dome, and the Merced Lake Backpackers Camping Area (including associated trails and footbridges). As described in Chapter 5, these facilities are not adversely impacting the Biological ORV. This alternative would nevertheless reduce the size of the High Sierra Camp by 18 beds and apply additional seasonal and weekend restrictions for commercial groups in the Mount Lyell, Merced Lake, and Little Yosemite Valley zones as indicated. These changes would reduce use levels near the riverbank and result in some improvement to riparian conditions in the immediate vicinity of these camping areas.

As described in Chapter 5, to ensure this ORV is protected and enhanced through time, the NPS would monitor three indicators to assess the condition of the ORV: meadow bare soil, meadow fragmentation due to the proliferation of informal trails, and streambank stability. The NPS would establish a baseline for all three indicators using site-specific monitoring protocols by 2013. Regular monitoring would also reveal whether assumptions about human behaviors and actions taken to correct past actions are sustaining conditions above the management standard. If conditions have reached trigger points; the NPS would implement specific response actions (as described in Chapter 5) to avoid or minimize adverse effects. The meadow monitoring programs for the biological ORV would monitor meadow fragmentation to ensure that use levels from hikers, backpackers and stock users do not result in meadow fragmentation or bare ground in excess of the management standards prescribed to protect and enhance meadows.

**TABLE 8-105: SEGMENT 1 ACTIONS AND IMPLICATIONS FOR BIOLOGICAL ORV-1**

Location	Action in Alternative 5	Effects toORV-1
Meadow trails	Remove informal trails that incise meadow habitat.	Change reduces effects to wet and sensitive meadows and results in localized enhancement to ORV-1.
Merced Lake High Sierra Camp	Reduce the Merced Lake High Sierra Camp, to 11 units (42 beds). Replace the flush toilets with composting toilet.	Facility is not directly adjacent to meadows. Changes would not affect high-elevation meadow and riparian habitat, this ORV would continue to be protected locally.
Private boating would be allowed in this segment	Boating would consist of short floats using pack raft or other craft that can easily be carried. Put-ins and take-outs would be undesignated and dispersed. Only ten boats per day allowed - permit would be required.	Limited numbers would protect riparian habitat from trampling and bank erosion that could result with unlimited access.
Wilderness zone capacity	All zone capacities within the Merced WSR Corridor remain the same as currently managed.	Current zone capacities are designed to protect wilderness character including natural conditions such as riverbanks and meadows. Action would not affect high-elevation meadow and riparian habitat, this ORV would continue to be protected on a segmentwide level.

**Conclusion.** Under Alternative 5, the biological ORV in Segment 1 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. All actions would further enhance riverbanks and meadows. Removal of social trails, grazing changes in Merced Lake East Meadow, and slightly reduced use of the Merced Lake High Sierra Camp would improve meadow conditions in this segment and thereby enhance the biological ORV. The wild segment of the Merced River corridor above Nevada Fall would show little evidence of human activity and remain largely free of structures. Facilities that would remain in this segment of the river include Merced Lake High Sierra Camp, Merced Lake Ranger Station, Little Yosemite Valley trail crew and ranger camp, trails and footbridges. The baseline condition assessment for the Biological ORV in this segment indicates that these facilities are not adversely affecting the Biological ORV.

### ***Geological/Hydrological ORV-4 – Glacially-carved Canyon in the Upper Merced River Canyon***

As discussed in Chapter 5, there are no management considerations with respect to the U-shaped, glacially carved canyon above Nevada Fall. This ORV is currently protected and enhanced within the meaning of the Wild and Scenic Rivers Act. Alternative 5 does not propose any actions that would change the condition of this ORV over time. Further, the U-shaped, glacially carved attributes of this ORV would not be affected by the types and levels of use authorized under this alternative, which are all directed toward wilderness oriented recreation. The NPS would nevertheless monitor the condition of this ORV to ensure that its condition does not decline.

### ***Scenic ORV-15 – Scenic Views in Wilderness***

Visitors to this Wilderness segment experience scenic views of serene montane lakes, pristine meadows, slickrock cascades, and High Sierra peaks. Management considerations associated with the condition of the scenic river above Nevada Fall include contributions of regional air pollution (primary factors contributing to this condition are outside of NPS jurisdiction), visual intrusions of temporary and permanent structures, and crowding in and near wilderness campgrounds. There are few “visual intrusions” noted beyond the High Sierra Camp and other designated camping areas. However, these effects are local in nature and do not degrade the ORV on a segment wide basis. The NPS would ensure that Merced Lake High Sierra Camp and other designated camping areas are maintained in a clean and tidy condition. Under Alternative 5, High Sierra Camp tent fabric would be replaced with colors that blend within the landscape, such as gray, brown or green, so as to reduce contrast (the tents are currently white canvas). These changes would be expected to blend quite well with the native landscape. These measures would enhance the scenic ORV in localized areas. Other visitor use management actions under Alternative 5 would reduce crowding, thus additionally enhancing this ORV on a segmentwide basis.

**TABLE 8-106: SEGMENT 1 ACTIONS AND IMPLICATIONS FOR SCENIC ORV-15**

Location	Action in Alternative 5	Effects to ORV-15
Merced Lake High Sierra Camp	Retain the Merced Lake High Sierra Camp, reducing the capacity to 11 units (42 beds). Replace tent fabric with colors that blend within the landscape.	Change would enhance ORV because the reduced infrastructure that remains would better blend in to the natural environment.
Designated Camping Areas	Retain the Merced Lake Backpackers, Little Yosemite Valley, and Moraine Dome designated camping areas.	Designated camping areas within the segment are currently protective of river values on a segmentwide level.
Facilities retained	Merced Lake Ranger Station, Little Yosemite Valley trail crew and ranger camp	These facilities and associated administrative uses and maintenance do not affect scenic values on a segmentwide level. The ORV would continue to be protected segmentwide.

The ORV is determined to be in the protected state, as defined by an absence of adverse effects and degradation, although intermittent air quality concerns are present. Because of the ambient nature of air quality, it cannot be managed exclusively for the river corridor. Facilities that would remain in this segment of the river include Merced Lake Ranger Station, Little Yosemite Valley trail crew and ranger camp, trails and footbridges. The baseline condition assessment for the scenic ORV in this segment indicates that these facilities are not adversely affecting the scenic ORV.

**Conclusion.** Under Alternative 5, the scenic ORV in Segment 1 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. All actions would further enhance scenic values in this segment. Reduction of the Merced Lake High Sierra Camp units (and replacing tent fabric) would address scenic considerations in this segment, which focus on the High Sierra Camp and thereby enhance the scenic ORV. The wild segment of the Merced River corridor above Nevada Fall would show little evidence of human activity and remain largely free of structures.

***Recreational ORV-19 – Wilderness Recreation above Nevada Fall***

Visitors to federally designated Wilderness in Segment 1 would engage in a variety of river related activities in an iconic High Sierra landscape, where opportunities for primitive and unconfined recreation, self-reliance, and solitude shape the Wilderness experience. The current condition of this ORV is at or above the management standard at the segment level. Localized management concerns in this segment relate to crowding at Little Yosemite Valley and Moraine Dome backpackers campgrounds, high use levels at the Merced Lake Backpackers Camping Area, and high encounter rates along the trails that connect these areas. Crowding and high use levels affect the Wilderness experience, which is an integral part of the recreational ORV in this segment.

This alternative would retain the High Sierra Camp at a reduced level. The capacity of the Little Yosemite Valley Wilderness Zone would be remain at 150. Actions in Alternative 5 would reduce the size of the High Sierra Camp by 18 beds and apply additional seasonal and weekend restrictions for commercial groups in the Mount Lyell, Merced Lake, and Little Yosemite Valley zones as indicated in Appendix L. These changes would reduce use levels and result in some decreased use in the immediate vicinity of these camping areas. These changes would reduce use crowding, high use levels, and increase opportunities for solitude in this Wilderness segment.

**TABLE 8-107: SEGMENT 1 ACTIONS AND IMPLICATIONS FOR RECREATION ORV-19**

Location	Action in Alternative 5	Effects toORV-19
Merced Lake High Sierra Camp	Retain the Merced Lake High Sierra Camp, reducing the capacity to 11 units (42 beds). Replace the flush toilets with composting toilet.	The actions would not substantively change wilderness character or wilderness experience in this segment; the recreation ORV would continue to be protected on a segmentwide level.
Little Yosemite Valley, Moraine Dome, and the Merced Lake Backpackers Camping Areas	Retain as designated camping. Replace flush toilets with composting toilet at the Merced Lake Backpackers Camping Area.	Opportunities for solitude and primitive elements of wilderness character would be enhanced locally at Little Yosemite Valley and Merced Lake Backpacker’s designated camping areas due to the reduction in crowding and opportunity to camp out of sight and sound of other campers. The recreation ORV would continue to be protected on a segmentwide level.
Private boating would be allowed in this segment	Swimming and water play allowed. Boating would consist of short floats using pack raft or other craft that can easily be carried. Put-ins and take-outs would be undesignated and dispersed. Permits required for private boating. No commercial boating. Private use limited to 10 boats per day with backcountry permit on Segment 1.	Permitted use would not substantively change wilderness character or wilderness experience in this segment; the recreation ORV would continue to be protected on a segmentwide level.
Wilderness zone capacity	All zone capacities within the Merced WSR Corridor remain the same as currently managed.	The actions would not substantively change wilderness character or wilderness experience in this segment; the recreation ORV would continue to be protected on a segmentwide level.

Facilities that would remain in this segment of the river include designated camping areas in Little Yosemite Valley, Moraine Dome, and the Merced Lake Backpackers Camping Area (including associated trails and footbridges) and the Merced Lake Ranger Station, Little Yosemite Valley trail crew and ranger camp, trails and footbridges. These facilities do not have an adverse effect on the Wilderness experience integral to this Recreational ORV.

NPS would monitor visitor encounter rates to ensure that they are not exceeding established standards. Should specific trigger points be reached, the NPS would be required to implement a series of specific actions to reduce visitor levels to an acceptable level. These actions increase in severity as the current condition ORV condition moves away from the management standard to ensure proper course correction and re-establishment of the management standard. These trigger points were selected to inform managers in advance of any adverse effects or degradation to this ORV.

Conclusion: Under Alternative 5, actions would not substantively change existing wilderness character or wilderness experience in this segment; the recreation ORV would continue to be protected on a segmentwide level.

## Segment 2 – Yosemite Valley (Recreational and Scenic Segments)

### *Biological ORV-2 – Mid-elevation Meadows and Riparian Habitat*

The meadows and riparian communities of Yosemite Valley comprise one of the largest mid-elevation meadow-riparian complexes in the Sierra Nevada. Actions to protect and enhance Biological ORV-2 under Alternative 5 include:

- Removal of informal trails in meadows where they fragment meadow habitat or cross through sensitive, wet vegetation communities. Overall, restore six miles of informal trails throughout Yosemite Valley;
- Use boardwalks or hardened surfaces to allow access to sensitive areas;
- Delineation of trails through upland areas and along meadow perimeters;
- De-compacting trampled soils and consolidate multiple parallel trails;
- Re-directing visitor use to more stable and resilient river access points such as sandbars, and designate formal river access sites. Establishing fencing and signage to protect sensitive areas; install boardwalks where appropriate, and actively revegetate where needed;
- Relocate or remove all campsites at least 100 feet away from the ordinary high-water mark;
- Restoration of the mosaic of meadow, riparian deciduous vegetation, black oak, and open mixed conifer forest at specific locations in Yosemite Valley. Management actions could include re-vegetation, prescribed fire, mechanical removal of conifers, and infrastructure re-design. Alternative 5 would include 203 acres ecological restoration.
- Installation of constructed log jams in the river channel between Clark’s Bridge and Sentinel Bridge to remediate river widening and improve channel complexity would also contribute to improving riparian health.
- Day use parking capacity is expanded and formalized. A total of 2,448 visitor parking spaces would be provided in the Valley accommodating a maximum of 7,549 people at one time to Segment 2. Managing access and other proactive restoration measures would protect Biological ORVs by during periods of high use.
- A series of actions to improve and relocate parking (described further below and in Chapter 8) would protect Biological ORVs by removing these uses from the river corridor and managing access in the corridor.

This recreational river segment would remain readily accessible by road and will continue to have appropriate development along the shorelines (a comprehensive list of facilities in Segment 2 is included in table 7-1). Under this alternative, all roads, buildings, campgrounds, trails, utilities and infrastructure, and other facilities in this segment with current local effects on the biological ORV would be removed, reduced, or relocated. Facilities that would remain in this segment of the river, including the Ahwahnee Hotel and Yosemite Lodge have no direct impact on the biological river value as indicated in the baseline condition assessment. Effects to the free-flowing condition of the river as a result of the bridges that would remain under this alternative would be mitigated through constructed log jams.

Some associated facilities are proposed for relocation as described below.

The NPS would monitor three indicators to assess the condition of ORV 2: meadow fragmentation resulting from informal trails, the status of riparian habitat, and riparian bird abundance. As described in Chapter 5, adverse effects and degradation are not present in relation to the meadow fragmentation indicator. Management concerns in meadows are present; however, actions to address informal trailing impacts and fragmentation would be taken at all meadows where these concerns have been documented. Initial surveys of the riparian status indicator in 2010 indicate that degradation is not present, but management concerns are also present in the riparian corridor.

The NPS is beginning to monitor the third indicator in this segment, riparian bird abundance. The first status assessments would take place in 2013, after one year of monitoring. The next assessment requires information from two out of three years.

To ensure Biological ORV-2 is protected by this plan and protected and enhanced through time, the NPS would continue to monitor the condition of the ORV to provide early warning of conditions that require management action before impacts occur. Regular monitoring would also reveal whether conditions have reached trigger points; and, if so, the NPS would implement specific response actions (as described in Chapter 5) to avoid or minimize adverse effects.

**TABLE 8-108: SEGMENT 2 ACTIONS AND IMPLICATIONS FOR BIOLOGICAL ORV-2**

Location	Action in Alternative 5	Effects to ORV-2
Segmentwide Restoration	Restoration includes restoration of meadow habitat, removal of informal trails, riparian restoration and establishment of designated river access points, and use of boardwalks and hardened surfaces.	Actions would enhance the biological ORV segmentwide.
<b>Curry Village and Campgrounds</b>		
North, Lower and Upper Pines Campgrounds and Backpackers Campgrounds	All campsites within 100 feet of the river would be removed. Designated raft put-in areas established.	These changes would result in less erosion along the riverbank because designated access points to resilient areas are identified for visitors, and sensitive areas would be restored and access would be discouraged; the biological ORV would be enhanced segmentwide.
New campsites at Upper Pines, Backpacker's, Eagle Creek, Camp 4, and Upper River Campgrounds	New campsites constructed at Upper Pines, Upper River, Backpackers, Camp 4 and Eagle Creek out of the 150 foot riparian buffer.  Lower River: Designate river access at Housekeeping Camp eastern beach.	Actions would protect riparian areas from direct impacts related to the increase in visitor activity in these areas. Fencing and designated river access points would also direct use to resilient areas. Monitoring would proactively assess the effectiveness of these actions and established triggers to ensure that future protective measures are implemented in a timely manner. Change would result in protection of biological ORV in this segment.



**TABLE 8-108: SEGMENT 2 ACTIONS AND IMPLICATIONS FOR BIOLOGICAL ORV-2 (CONTINUED)**

Location	Action in Alternative 5	Effects to ORV-2
<b>Curry Village (cont)</b>		
Curry Orchard Day Use Parking Area	Provide 430 parking spaces through a re-design of the parking lot.	Actions include engineering solutions to promote water flow and increase drainage to Stoneman Meadow protecting and improving meadow health resulting in enhancement of the ORV locally.
Ahwahnee, Stoneman and Sugar Pine Bridges	Ahwahnee and Stoneman bridges would be retained. Sugar Pine Bridge would be removed.	Removal would reduce channel widening, erosion, and scouring thereby enhancing local riparian communities. Existing riparian impacts mitigated with strategic placement of large wood on riverbanks and the addition of brush layering and constructed log jams to address scouring resulting in enhancement of the ORV locally.
<b>Yosemite Village and Housekeeping Camp</b>		
Housekeeping Camp Lodging	Retain 232 lodging units, and remove 34 units out of river bed and banks. Retain Housekeeping Camp shower houses, restrooms, and laundry, and remove grocery store. Restore one acre of the riparian ecosystem.	These changes would reduce effects to riparian corridor and locally enhance ORV components due to restoration. In addition access would be directed to resilient sandy beaches. The ORV would be enhanced locally.
Ahwahnee Row and Tecoya Dorms Concessioner Housing	Create 50-foot setback from Indian Creek – ecologically restore the riparian habitat and protect by restoration fencing.	Changes would result in reduction of residential activities in riparian areas; biological ORV would be enhanced locally.
Sentinel Drive Roadside Parking	Remove roadside parking along Sentinel Drive and restore to natural conditions.	These changes would remove uses from the meadow edge thus reducing erosion and trampling impacts and enhancing ORV components locally.
Yosemite Village Day Use Parking Area/Roundabout	Move the Yosemite Village Day Use Parking Area northward 150 feet away from the river to facilitate restoration goals. Formalize parking area with a total of 850 parking places. Build a traffic circle at the Village Drive and Northside Drive intersection at Yosemite Village Day Use Parking Area.	The extent of construction would partially encroach into Cook’s Meadow; however riparian habitat would be enhanced by moving development away from the river. Mitigations would compensate wetland loss, and protect sensitive areas from staging impacts such as compaction and erosion. While Cook’s Meadow may be affected locally, the ORV would continue to be protected segmentwide.
<b>Yosemite Lodge And Camp 4</b>		
Superintendent’s House (Residence 1)	Remove and relocate to the NPS housing area outside of the river corridor.	Relocation of this facility outside of the river corridor may reduce informal trailing in the adjacent meadow thereby enhancing the ORV locally.
Northside Drive (Stoneman Bridge to Yosemite Village Day Use Parking Area)	Facility retained. A component of the primary transportation & circulation road system that connects all major visitor service nodes. Hydrologic connectivity improved by increasing culverts.	Facility has a localized effect on the ORV as road bisects meadow; ORV would continue to be protected segmentwide.

**Conclusion:** Under Alternative 5, the biological ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. Actions would further enhance riverbanks and meadows. Removal or relocation of select campsites and infrastructure and reduced use would improve meadow conditions in this segment and thereby enhance the biological ORV.

The recreational segment of the Merced River corridor in East Yosemite Valley would remain readily accessible by road and will have appropriate development along the shorelines. The scenic portion of Segment 2 in West Yosemite Valley would remain free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

### ***Geological/Hydrological ORV-5 – The “Giant Staircase”***

The NPS has no immediate management considerations with respect to the Giant Staircase characteristic of the geology of Yosemite Valley above Happy Isles as this geologic ORV is determined to be absent of adverse effects and degradation. Because there are no considerations regarding the condition of this ORV, no actions other than continued protection is necessary. It is unlikely that this ORV would be affected by human intervention in the future. Therefore, the NPS would not monitor the condition of this ORV as part of the *Merced River Plan/DEIS*.

### ***Geological/Hydrological ORV-6 – Rare, Mid-elevation Alluvial River***

As described in Chapter 5, the NPS selected the status of riparian habitat as the indicator to specifically assess the effectiveness of actions designed to protect this and other ORV. This ORV integrates geologic/hydrologic processes and the condition of aquatic, riparian, and floodplain communities.

The following actions are included to specifically protect and enhance Free-flowing Conditions and Biological ORV-2, but would also address the protection and enhancement of ORV-6.

- Large wood, constructed log jams, and brush layering would be used in the vicinity of bridges to decrease bed scouring and streambank instability. Riprap would be removed where possible and replaced with native riparian vegetation, using bioengineering techniques. In the event that such actions do not improve conditions, bridge redesign or removal could be reconsidered.
- Under Alternative 5 the free-flowing condition of the river would be enhanced by removing Sugar Pine Bridge. Mitigation measures would be employed during removal and the long-term recovery of the area is expected. Restoring free-flowing conditions would enhance riparian communities associated with ORV-6.
- Removing abandoned underground infrastructure, along the river corridor would be part of a comprehensive strategy to correct altered surface and subsurface hydrology.
- Remove riprap where riverbanks do not need stabilization to allow for channel migration. Replace riprap with bioengineered riverbanks, integrating native riparian vegetation, where riverbank stabilization is necessary for protection of critical infrastructure.

**TABLE 8-109: SEGMENT 2 ACTIONS AND IMPLICATIONS FOR GEOLOGICAL/HYDROLOGICAL ORV-6**

Location	Action in Alternative 5	Effects to ORV-6
<b>Curry Village and Campgrounds</b>		
North, Lower and Upper Pines Campgrounds and Backpackers Campgrounds	All campsites within 100 feet of the river would be removed. Designated raft put-in areas established.	These changes would result in less erosion along the riverbank because designated access points to resilient areas are identified for visitors, and sensitive areas would be restored and access would be discouraged; the biological ORV would be enhanced segmentwide.
Curry Village Lodging	Lodging would include 453 units, (290 tents and 163 hard-sided units)	Lodging is outside the 100-year floodplain and is not causing adverse effects or degradation to ORV-6 segmentwide.
Ahwahnee and Stoneman Bridges	Both these bridges are retained. Existing riparian impacts mitigated with strategic placement of large wood on riverbanks and the addition of brush layering and constructed log jams to address scouring.	Changes would improve riparian areas and channel complexity; the biological ORV would be enhanced segmentwide.
<b>Yosemite Village and Housekeeping Camp</b>		
Yosemite Village Day Use Parking Area/Village Center	Move the Yosemite Village Day Use Parking Area day-use parking area northward 150 feet away from the river to facilitate restoration goals. Formalize parking area with a total of 850 parking places.	These changes would reduce effects to riparian corridor and locally enhance ORV components as use would be relocated away from areas critical to river or meadow function; the biological ORV would be enhanced locally.
Housekeeping Camp Lodging	Retain 232 lodging units, and remove 34 units out of observed ordinary high water mark. Retain Housekeeping Camp shower houses, restrooms, and laundry, and remove grocery store. Restore one acre of the riparian ecosystem.	These changes would reduce effects to riparian corridor and locally enhance ORV components due to restoration. In addition access would be directed to resilient sandy beaches. The ORV would be enhanced locally.
Ahwahnee Row and Tecoya Dorms Concessioner Employee Housing	Remove housing and development out of the 100-year floodplain, recontour topography, decompact soils, and restore stream hydrologic function.	Changes would result in reduction of residential activities in riparian areas; biological ORV would be enhanced locally.
Yosemite Village Day Use Parking Area /Roundabout	Construct a traffic circle at Yosemite Village Day Use Parking Area parking area to address congestion at intersection. Additionally, re-route Northside Drive south of the parking area to alleviate pedestrian/vehicle conflicts.	The extent of construction would encroach into Cook's Meadow; however wetlands would be restored by moving development away from the river. A net increase in wetland areas is expected. Mitigations would protect sensitive areas from staging impacts such as compaction and erosion. While the traffic circle and realignment of Northside Drive may affect the hydrologic processes of the alluvial river locally, the ORV would be protected segmentwide.
<b>Yosemite Lodge and Camp 4</b>		
Yosemite Lodge Parking Area	Construct 300 vehicle parking spaces and 15 tour bus parking spaces.	Implementation of mitigation measures would protect the floodplain from erosion and other disturbance during construction. The ORV would continue to be protected locally.
Yosemite Lodge Visitor Facilities	Retain the existing 245 units.	Lodging is outside the 100 year floodplain and is not causing adverse effects. The ORV would continue to be protected locally.
Yosemite Lodge Concessioner Employee Housing	Remove old and temporary housing at Highland Court and the Thousands Cabins. Construct two new concessioner housing areas housing 104 employees. Construct 78 employee parking spaces.	Lodging is outside the 100 year floodplain and is not causing adverse effects. The ORV would continue to be protected locally.

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Yellow Pine Administrative Site	Retain 4 group administrative use sites (up to 120 people).	Campground is within floodplain but would undergo restoration and is not impacting areas critical to alluvial river function. The ORV would continue to be protected segmentwide.
Yosemite Lodge Road and Northside Drive	Construct a pedestrian underpass and roundabout to address congestion at intersection and alleviate pedestrian/vehicle conflicts. Roadside parking would be removed and more culverts would be added. Implementation of mitigations would protect the riparian corridor from erosion, pollutants, and general habitat disturbance during construction.	Changes would remove and redirect uses from the riverbank thus reducing erosion and trampling impacts in riparian corridor. Underpass not likely to affect geological and hydrological processes. The ORV would continue to be protected locally.
El Capitan Crossover	Facility retained. This roadway segment is a key connector between Northside and Southside Drives and serves as an exit point at west end of Yosemite Valley.	Bridge protects riparian habitat from destruction caused by random crossings throughout the river corridor; the ORV would continue to be protected locally.
Northside Drive (Stoneman Bridge to Yosemite Village Day Use Parking Area)	Remove portion of road and relocate the bike path to the south, to improve the meadow/river connectivity. Restore meadow contours and native vegetation.	Removes facility that currently has a localized effect on the ORV. Restoration enhances the ORV locally.

To ensure this ORV is protected and enhanced through time, the NPS would monitor the condition of the ORV using the status of riparian habitat as an indicator, and take specific actions should conditions reach trigger points.

**Conclusion.** Under Alternative 5, the geologic/hydrologic ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. All actions would enhance the 10 and/or 100-year floodplains and this ORV. Actions to protect and enhance free-flowing conditions as well as meadows and riparian complexes in Segment 2 would result in additional enhancement of the geologic/hydrologic ORV. The recreational segment of the Merced River corridor in East Yosemite Valley would remain readily accessible by road and will have appropriate development along the shorelines. The scenic portion of Segment 2 in West Yosemite Valley would remain free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

***Cultural ORV-8 – Yosemite Valley American Indian Ethnographic Resources***

As described in Chapter 5, Yosemite Valley American Indian ethnographic resources include relatively contiguous and interrelated places that are inextricably and traditionally linked to the history, cultural identity, beliefs, and behaviors of contemporary and traditionally-associated American Indian tribes and groups. Management considerations related to ethnographic resources involve park operations, crowding, and visitor use. Actions included in the Merced River Plan/DEIS include:

- Continue coordination between traditionally associated American Indian tribes, groups, and traditional practitioners (through the Park American Indian Liaison) with law enforcement, fire management, interpretation, invasive species, ecological restoration, and facilities management programs;
- Continue to provide operational guidelines for material staging areas, parking, etc. to protect ethnographic resources;

- Ensure access for traditionally-associated American Indians for participation in annually scheduled traditional cultural events. In addition, tribal access for the personal conduct of ongoing traditional cultural practices would be assured through the Yosemite tribal fee waiver pass program.
- Reduce and formalize day-use parking capacity Manage access in Segment 2 to protect traditionally-used plant populations in the river corridor during periods of high use.
- A series of actions to improve and relocate parking (described further below and in Chapter 8) would protect Cultural ORVs by removing these uses from the proximity of several cultural resources.

Threats to traditionally-used plant populations include invasive species such as Himalayan Blackberry (*Rubus armeniacus*), drainage and hydrology impacts to meadows, and erosion and revetments that affect riparian vegetation. The *Merced River Plan/DEIS* would address these considerations through the following actions:

- The ecological restoration actions associated with this planning effort implemented in concert with the existing invasive plant management program would address impacts to some traditionally-used plant populations in some locations.

**TABLE 8-110: SEGMENT 2 ACTIONS AND IMPLICATIONS FOR CULTURAL ORV-8**

Location	Action in Alternative 5	Effects toORV-8
Visitation	19,900 people per day	This level of visitation may continue to result in a lack of privacy for traditional cultural practices in specific locations seasonally. Access to annually-scheduled traditional cultural events and personal conduct of traditional cultural practices would be assured thereby continuing protection of the ORV segmentwide.
<b>Curry Village and Campgrounds</b>		
Traditional Cultural Property Documentation	Document the Yosemite Valley Traditional Cultural Property, consisting of traditional use areas, spiritual places and historic villages and complete National Register evaluation and interpretive summary	Documentation, mapping, and evaluation would provide the detail necessary to protect and enhance the ORV segmentwide.
Upper Pines, Backpacker’s, Eagle Creek, Camp 4, and Upper River Campgrounds	All campsites within 150 feet of the river would be removed. New campsites constructed at Upper Pines, Backpacker’s, Eagle Creek, Camp 4, and Upper River Campgrounds. Designated boating put in areas established.	These changes would result in less erosion along the riverbank because designated access points to resilient areas are identified for visitors, and sensitive areas would be restored and access would be discouraged.
Curry Village Lodging	Lodging would include 453 units, (163 hard-sided units and 290 tents).	Lodging is outside the 100 year floodplain and is not causing adverse effects or degradation to ORV-6 on a segmentwide basis.
<b>Yosemite Village and Housekeeping Camp</b>		
Housekeeping Camp Lodging	Retain 266 lodging units.	These changes would reduce effects to riparian corridor and locally enhance ORV components due to restoration. In addition access would be directed to resilient sandy beaches.
<b>Yosemite Lodge and Camp 4</b>		
Yosemite Lodge Parking Area	West of Yosemite Lodge re-developed to provide additional 150 day use parking spaces.	Implementation of best management practices would protect the floodplain from erosion and other disturbance. The ORV would continue to be protected locally.
Yosemite Lodge Parking	25 additional spaces added at Yosemite Lodge due to redesign, improving parking efficiency near Northside Drive.	Implementation of best management practices would protect the floodplain from erosion and other disturbance. The ORV would continue to be protected locally.

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Yosemite Lodge Visitor Facilities	Retain existing 245 rooms.	Lodging is outside the 100-year floodplain and is not affecting the riparian and hydrologic processes. The ORV would continue to be protected locally.
Yosemite Lodge Concessioner Employee Housing	Remove old and temporary housing at Highland Court and the Thousands Cabins. Construct two new concessioner housing areas housing 104 employees. Construct 78 employee parking spaces.	Lodging is outside the 100-year floodplain and is not affecting the geologic and hydrologic processes. The ORV would continue to be protected locally.
Yellow Pine Administrative Campground	Retain 4 group administrative use sites (up to 120 people).	Yellow Pines is used for overflow camping during annual traditional cultural events. Retention of this campground continues to protect the ORV segmentwide.
Superintendent's House (Residence 1)	Remove and relocate to the NPS housing area.	Relocation of this facility outside of the river corridor may reduce informal trailing in the river corridor. Restoration will allow for recruitment of desirable black oaks in this area. The ORV would be enhanced locally.
Eagle Creek New Campground	New campground developed east of El Capitan Picnic Area with two group auto campsites.	Implementation of mitigation measures would protect planted areas from disturbance during construction; the ORV would continue to be protected locally.

- Restoration actions to protect riparian areas, meadows, and hydrological resources would further contribute to the protection and enhancement of the traditional-use plant communities included in this ORV.
- Introduction of seedlings to affected stands of black oaks and protection as necessary to ensure that ratios of adults to saplings is at least 0.65.
- Primary actions to manage major vista points under Scenic ORV-16 include mechanical thinning or removal of conifer trees. This action would be coordinated to ensure that the ORV-8 trigger point for the ratio of sapling to adult trees is not exceeded.

Facilities that would remain in this segment of the river have no direct impact on the ethnographic component of the cultural ORV as indicated in the baseline condition assessment.

The Merced River Plan/DEIS proposes a variety of actions to address specific considerations including continued coordination between traditionally associated American Indian tribes, groups, and traditional practitioners and the NPS; continued access for traditionally associated American Indians for participation in annually scheduled traditional cultural events; and ecological restoration actions to protect and enhance traditionally used plant populations. To prevent future impacts, the NPS would monitor the condition of the ORV, and take specific actions should additional trigger points be exceeded.

**Conclusion.** Under Alternative 5, the ethnographic component of the cultural ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. Actions to protect and enhance floodplains, meadows and riparian complexes in Segment 2 would result in additional enhancement of the traditionally-used plant resources of the ethnographic component of the cultural ORV. Actions that would remove infrastructure and restore black oak woodlands would also enhance a critical component of this ORV. Reduction in maximum people per day in Yosemite Valley, and management of user capacity and visitor use would not limit access to traditional practitioners because measures would be in place to ensure access to annually-scheduled events as well as individual access for ongoing traditional cultural practices. Furthermore, the overall reduction in visitation under Alternative 5 would reduce the effects of crowding and enhance privacy for traditional cultural practices.



**Cultural ORV-9 – Yosemite Valley Archeological District.**

The Yosemite Valley Archeological District is a linked landscape that contains dense concentrations of resources that represent thousands of years of human settlement along this segment of the Merced River. Heavily-used formal trails and informal trails, as well as illegal campfires, graffiti, and trampling stock trail use, parking and informal rock climbing can all affect ORVs in this area. Archeological resource protection would be achieved through actions in this plan to manage visitor use levels, divert foot traffic around sites, removing informal trails, and formalizing river and meadow access locations, mitigating ecological restoration practices by using noninvasive techniques wherever possible. Many of the actions related to ecological restoration in Segment 2, such as delineating roadside parking, would also help protect archeological sites by diverting foot traffic away from sites and into less sensitive areas. Actions to enhance the recreational ORV in Segment 2 would manage recreational users both in terms of flow and location of users at any one time. A reduction in people and vehicles at one time in Yosemite Valley could also reduce visitor use-related effects on archeological resources.

**TABLE 8-111: SEGMENT 2 ACTIONS AND THEIR IMPLICATIONS FOR CULTURAL ORV-9**

Location	Action in Alternative 5	Impact on ORV-9
<b>Curry Village and Campgrounds</b>		
Upper and Lower River Campgrounds, North, Lower and Upper Pines, and Backpackers Campgrounds	All campsites within 100-year floodplain would be removed. Upper Campsite in culturally sensitive area.	Design, follow-on compliance, and mitigation measures would avoid or mitigate effects to sensitive archeological resources. Actions would continue to protect the ORV segmentwide.
Curry Village Lodging	Total would be 453 guest units, including: 290 tents in Curry Village retained; 98 hard-sided units in Boys Town constructed; 18 units at Stoneman House retained; and 47 cabin-with-bath units in Curry Village retained.	Design, follow-on compliance, and mitigation measures would avoid or mitigate effects to sensitive archeological resources. Actions would continue to protect the ORV segmentwide.
Huff House Employee Housing	Temporary housing at Huff House and Boys Town is removed. Construct 16 buildings, housing 164 employees using the same dormitory prototype.	Design, follow-on compliance, and mitigation measures would avoid or mitigate effects to sensitive archeological resources. Actions would continue to protect the ORV segmentwide.
<b>Yosemite Village and Housekeeping Camp</b>		
The Ahwahnee Pool and Tennis Courts	Remove the pool and tennis courts. Tennis courts are located in a sensitive cultural area	Mitigation measures would (as applicable) include avoidance, documentation, data recovery, and interpretation of cultural resources during facility removal. Local impacts to the ORV may occur; however, actions would continue to protect the ORV segmentwide.
The Ahwahnee Parking Lot	Redesign and formalize the existing parking lot; providing for proper drainage. Construct new 50 parking space lot east of the current parking.	Design, follow-on compliance, and mitigation measures would avoid or mitigate effects to sensitive archeological resources. Actions would continue to protect the ORV segmentwide.

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Camp 6/Village Center Parking Area	The Concessioner General Offices, Garage, and the Bank Building are removed. Move the Camp 6 day-use parking area northward 150 feet away from the river to facilitate restoration goals. Formalize parking area with a total of 850 parking places. Re-route Northside Drive to the south of the Yosemite Village Day-use Parking Area and construct a traffic circle at Northside Drive/Village Drive to address traffic congestion and pedestrian/vehicle conflicts.	Mitigation measures would (as applicable) include avoidance, documentation, data recovery, and interpretation of cultural resources during facility removal and construction. Local impacts to the ORV may occur; however, actions would continue to protect the ORV segmentwide.
Housekeeping Camp Lodging	Remove 34 lodging units – retain 232 units.	Mitigation measures would (as applicable) include avoidance, documentation, data recovery, and interpretation of cultural resources during facility removal. Local impacts to the ORV may occur; however, actions would continue to protect the ORV segmentwide.
Yosemite Village Concessioner Employee Housing	Temporary housing at Lost Arrow is removed, replaced with 50 bed permanent housing facility.	Design, follow-on compliance, and mitigation measures would avoid or mitigate effects to sensitive archeological resources. Actions would continue to protect the ORV segmentwide.
<b>Yosemite Lodge and Camp 4</b>		
West of Yosemite Lodge New Parking	West of Yosemite Lodge re-developed to provide additional 300 day use parking spaces.	Design, follow-on compliance, and mitigation measures would avoid or mitigate effects to sensitive archeological resources. Actions would continue to protect the ORV segmentwide.
Yosemite Lodge Visitor Facilities	Retain existing lodging units (245 units).	Mitigation measures would (as applicable) include avoidance, documentation, data recovery, and interpretation of cultural resources during facility construction. Local impacts to the ORV may occur; however, actions would continue to protect the ORV segmentwide.
Yosemite Lodge Concessioner Employee Housing	Remove old and temporary housing at Highland Court and the Thousands Cabins. Construct two new concessioner housing areas housing 104 employees. Construct 78 employee parking spaces.	Mitigation measures would (as applicable) include avoidance, documentation, data recovery, and interpretation of cultural resources during facility removal and construction. Local impacts to the ORV may occur; however, actions would continue to protect the ORV segmentwide.
Camp 4 and Yellow Pines Campground	Camp 4 expanded eastward to provide 35 additional walk-in sites. Retain 35 walk-in campsites at Camp 4. Retain campground and administrative use sites in Yellow Pine.	Design, follow-on compliance, and mitigation measures would avoid or mitigate effects to sensitive archeological resources. Actions would continue to protect the ORV locally.
Superintendent’s House (Residence 1)	Remove and relocate to the NPS housing area.	Mitigation measures would (as applicable) include avoidance, documentation, data recovery, and interpretation of cultural resources during facility construction. Local impacts to the ORV may occur; however, actions would continue to protect the ORV segmentwide.

Site-specific treatment actions would be developed through site management plans, where necessary, to avoid resource loss through park actions (such as development, repair, and maintenance of facilities and underground utilities to support visitor use or natural forces).

Management considerations for this ORV also involve continuing to survey and monitor archeological resources as well as update required documentation.

Under Alternative 5 the free-flowing condition of the river would be enhanced by removing the Sugar Pine Bridge. Mitigation measures would be utilized to reduce localized impacts and ensure that this action would not cause adverse effects or degradation to ORV-9 on a segmentwide basis. All ground disturbances associated with ecological restoration actions; removal of buildings and infrastructure; re-routing of roads; and, parking lot and campground construction under this alternative would be subject to park standard operating procedures, subject matter expert review, and monitoring (as needed) to ensure that archeological resources are protected. Facilities that would remain in this segment of the river have no direct impact on the archeological component of the cultural ORV as indicated in the baseline condition assessment.

The NPS would delineate bike paths, roads, and other infrastructure away from sensitive cultural and ethnographic resource areas; remove graffiti at rock art and other sensitive features, conduct public education to discourage climbing, and remove climbing hardware from sensitive features. To prevent these considerations, or others, from redeveloping, the NPS would monitor the condition of the ORV, and take specific actions should conditions exceed specific trigger points.

**Conclusion:** Under Alternative 5, the archeological component of the cultural ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. Localized visitor-use-related impacts to archeological resources would be addressed through various enhancement actions. All ground disturbances associated with ecological restoration actions; removal of buildings and infrastructure; re-routing of roads; and, parking lot and campground construction under this alternative would be subject to park standard operating procedures, subject matter expert review, and monitoring (as needed) to ensure that archeological resources are protected. Reduction in maximum people per day in Yosemite Valley, and management of user capacity and visitor use would reduce the potential for visitor use impacts.

### ***Cultural ORV-10 – Yosemite Valley Historic Resources***

As described in Chapter 5, the Yosemite Valley Historic Resources represent a linked landscape of river-related or river-dependent, rare, unique or exemplary buildings and structures that bear witness to the historical significance of the river system. Protective actions to address management concerns related to the Yosemite Valley Historic Resources ORV-10 include:

- Follow the recommendations from the Ahwahnee Historic Structures Report (1997) and the Ahwahnee Cultural Landscape Report (2010) when redesigning the Ahwahnee Parking Lot to bring the Ahwahnee stone gate house and the Ahwahnee Parking Lot to “good” condition.
- Develop a Historic Structures Report for the LeConte Memorial Lodge NHL to determine the rehabilitation needs to bring the building to “good” condition.
- Rehabilitate the Superintendent’s House (Residence 1) per the Historic Structure Report (Lingo 2012) to bring the building to “good” condition. This rehabilitation of the building will occur under all action alternatives, regardless of whether the building is relocated.

Under Alternative 5 the free-flowing condition of the river would be protected by removing the Sugar Pine Bridge. Relocation of the Superintendent’s House (Residence 1) is proposed under Alternative 5 to address the 1982 Guidelines for the Wild and Scenic Rivers Act that requires managing agencies to consider relocation of major public use facilities outside of the river corridor. The bridge and the Superintendent’s House (Residence 1) are components of the Yosemite Valley Historic Resources component of the cultural ORV in Segment 2. The NPS would document and interpret any building or structure threatened with removal or relocation. In this manner, while the individual tangible element or elements may be lost or moved, a record of their existence and historical significance would still be available to the public.

**TABLE 8-112: SEGMENT 2 ACTIONS AND THEIR IMPLICATIONS FOR CULTURAL ORV-10**

Location	Action in Alternative 5	Effects to ORV-10
Segmentwide visitation	19,900 visitors per day	This level of visitation would
<b>Curry Village and Campgrounds</b>		
Stoneman Meadow and Curry Orchard parking lot	Restore Stoneman Meadow including removal of 1,335 feet of Southside Drive and re-alignment of road through Boys Town area. Extend the meadow boardwalk through wet areas to Curry Village (up to 275').	Change would affect circulation patterns locally. Change is not likely to affect buildings and structures included in the Yosemite Valley Historic Resources ORV collective. The ORV would be protected segmentwide.
Curry Village Lodging	Total would be 453 guest units, including: 290 tents in Curry Village retained; 98 hard-sided units in Boys Town constructed; 18 units at Stoneman House retained; and 47 cabin-with-bath units in Curry Village retained.	Mitigation measures would contribute to documentation and interpretation of historic cultural resources during facility removal. Change would not affect contributing element of the Yosemite Valley Historic Resources ORV collective. The ORV would be protected segmentwide.
Huff House Employee Housing	Temporary housing at Huff House and Boys Town is removed. Construct 16 buildings, housing 164 employees using the same dormitory prototype.	Mitigation measures would contribute to documentation and interpretation of historic cultural resources during facility removal and construction. Change would not affect contributing element of the Yosemite Valley Historic Resources ORV collective. The ORV would be protected segmentwide.
<b>Yosemite Village and Housekeeping Camp</b>		
The Ahwahnee Pool and Tennis Courts	Remove the pool and tennis courts. Tennis courts are located in a sensitive cultural area	Mitigation measures would contribute to documentation and interpretation of historic cultural resources during facility removal. Change would not affect contributing element of the Yosemite Valley Historic Resources ORV collective. The ORV would be protected segmentwide.
Ahwahnee Parking Lot	Follow the recommendations from the Ahwahnee Historic Structures Report (1997) and the Ahwahnee Cultural Landscape Report (2010) when redesigning the Ahwahnee Parking Lot to bring the Ahwahnee stone gate house and the Ahwahnee Parking Lot to “good” condition.	Redesign of the Ahwahnee Parking Lot would rehabilitate contributors to the cultural ORV thereby enhancing the Yosemite Valley Historic Resources ORV locally and segmentwide.

Yosemite Village Day-Use Parking Area	Remove Concessioner General Offices, Concessioner Garage, and the Bank Building are removed. Re-align the intersection at Northside Drive and Village Drive. Add a three-way intersection at Sentinel Drive and the entrance to the parking area. Provide on-grade pedestrian crossings. Re-route Northside Drive to the south of the Yosemite Village Day-use Parking Area and construct a traffic circle at Northside Drive/Village Drive to address traffic congestion and pedestrian/vehicle conflicts.	The removal of historic and non-historic properties and re-alignment/re-establishment of the intersections would affect circulation patterns locally. Change is not likely to affect buildings and structures included in the Yosemite Valley Historic Resources ORV collective. The ORV would be protected segmentwide.
Sugar Pine Bridge	Remove bridge and the connecting berm.	The action would remove a contributor to the Yosemite Valley Historic Resource ORV resulting in localized effects. Mitigation measures include documenting and interpreting the resource. The loss of this bridge would not result in a segmentwide adverse effect of the collective of resources. The ORV would be protected segmentwide.
Superintendent’s House (Residence 1)	Relocate outside the river corridor to the NPS housing area. Rehabilitate historic structure in new location.	The action would remove a contributor to the Yosemite Valley Historic Resource ORV resulting in localized effects. Mitigation measures include documenting and interpreting the resource. The loss of this resource would not result in a segmentwide adverse effect of the collective of resources. The ORV would be protected segmentwide.
Bridalveil Falls Trail	Redesign trails, boardwalks, and viewing at the base of the falls to improve wayfinding and pedestrian circulation. Restore informal trails. Improve ADA compliance of pedestrian walkways and restrooms.	The action would affect trails that are connected by the historic footbridges which are components of the Yosemite Valley Historic Resources ORV. Mitigation measures and Section 106 review would ensure the protection of the historic resources and the redesign could result in enhancement of the ORV locally.

To address management considerations, the *Merced River Plan/DEIS* proposes continuing the active program of maintenance for historic buildings and structures; employing existing design guidelines to ensure that new development or redevelopment complements the ORV and the Yosemite Valley Historic District; and periodically assessing and updating professional documentation for the historic resources.

Ecological and scenic value restoration actions in Segment 2 would enhance the cultural landscape which contributes to the historic setting of the resources that comprise the ORV-10. There are no construction actions associated with Alternative 5 that would affect the spatial organization of the historic resource collective, though changes in the circulation patterns as a result of re-routing roads at the Yosemite Village day-use parking area and at Stoneman Meadow would affect circulation patterns that are associated with this ORV. These effects would be localized and would not affect the condition of the ORV on a segmentwide level.

**Conclusion:** Under Alternative 5, the historic resources component of the cultural ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. Removal of three bridges and the relocation of the Superintendent’s House (Residence 1) would result in localized effects that would be mitigated through documentation and interpretation. Once removed or

relocated, these resources would no longer be considered part of the ORV collective. All disturbances to circulation and spatial organization associated with ecological restoration actions; removal of buildings and infrastructure; re-routing of roads; and, parking lot and campground construction under this alternative would be subject to park standard operating procedures, subject matter expert review, and documentation (as needed) to ensure that historic resources are protected.

### *Scenic ORV-16 – Iconic Scenic Views in Yosemite Valley*

Visitors to Yosemite Valley experience scenic views of some of the world's most iconic scenery, with the river and meadows forming a placid foreground to towering cliffs and waterfalls. Actions intended to manage natural resources may include the use of prescribed fire or controlled burns to thin forests that are encroaching on meadows; cutting trees, tree branches or other vegetation by mechanical means; and the application of herbicides to control invasive species. Related actions intended to protect the Recreation ORV would limit the number of visitors to lessen visitor density and congestion at attraction sites and make improvements to the transportation system that would reduce automobile congestion. Air quality can affect visitors' ability to experience scenic values in Segment 2. The NPS would cooperate with regional authorities to reduce airborne contaminants caused by combustion, including carbon dioxide emissions, smoke caused by fire, particulate matter generated by construction, and to improve air quality conditions.

In consideration of Wild and Scenic River Act requirements that the NPS consider the presence of existing structures, major facilities and services provided for visitor use, the NPS would eliminate several structures and facilities in Segment 2 under this alternative. Under Alternative 5 actions would remove structures at the Ahwahnee pool and tennis court. Removal of these structures could enhance scenic resources from specific locations. Ecological restoration actions in Segment 2 would enhance the meadow and riparian communities which contribute to the scenic values in Yosemite Valley. This recreational river segment would remain readily accessible by road and will continue to have appropriate development along the shorelines (a comprehensive list of facilities in Segment 2 is included in table 7-1). Facilities that would remain in this segment of the river have no direct impact on the scenic river value as indicated in the baseline condition assessment. Changes to parking and vehicle traffic in Yosemite Valley to enhance Recreational ORV- 20 particularly the removal of roadside parking along Sentinel Drive and restoration to natural conditions would enhance Scenic ORV-16.

**Conclusion.** Under Alternative 5, the scenic ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. Tree thinning and ecological restoration actions would improve natural scenic conditions. Removal of buildings at Housekeeping Camp, the Concessioner Garage, the Concessioner General Offices, and the Concessioner Stables would reduce intrusions on scenic resources. All parking lot and campground construction under this alternative would be subject to park standard operating procedures and subject matter expert review to ensure that scenic resources are protected.



**TABLE 8-113: SEGMENT 2 ACTIONS AND THEIR IMPLICATIONS FOR SCENIC ORV-16**

Location	Action in Alternative 5	Effects to ORV-16
<b>Segmentwide</b>		
Selected Scenic Vista Points	Selectively thin conifers and other trees and shrubs that encroach on selected scenic vista points. Remove unnecessary facilities and ensure that all future development satisfies objectives that provide low contrast ratings.	Changes would enhance the scenic values on a segmentwide level.
<b>Curry Village and Campgrounds</b>		
Yosemite Valley Campgrounds	All campsites within 150 feet of the river removed. New campsites installed at Upper Pines, Backpacker's, Eagle Creek, Camp 4, West of Lodge, and Upper River Campgrounds	Changes to campgrounds would not interfere with iconic scenery. Removal of campgrounds near the river will enhance viewsheds segmentwide.
<b>Yosemite Village and Housekeeping Camp</b>		
Yosemite Village Day-Use Parking Area/Village Center Parking Area	The Concessioner General Offices, Concessioner Garage, and the Bank Building are removed. Move the Yosemite Village Day Use Parking Area day-use parking area northward 150 feet away from the river to facilitate restoration goals. Formalize parking area with a total of 750 parking places.	Removal of buildings would enhance viewsheds locally.
Housekeeping Camp Lodging	Retain 232 lodging units, and remove 34 lodging units out of the observed ordinary high water mark.	Removal of Housekeeping units near the river will enhance viewsheds locally.
Yosemite Village Concessioner Employee Housing	Temporary housing at Huff House and Boys Town is removed. Remove housing units (7 buildings, 64 beds) in rock fall hazard zone. Construct 16 buildings, housing 164 employees using the same dormitory prototype. Temporary housing at Lost Arrow is removed, replaced with 50 bed permanent housing facility.	Facilities are out of major viewsheds and changes would not interfere with iconic scenery.

***Recreational ORV-20 – River-related Recreation in Yosemite Valley***

Visitors to Yosemite Valley enjoy a wide variety of river-related recreational activities in the Valley's extraordinary setting along the Merced River. Throughout the Yosemite Valley segment, the river has provided the setting for recreational experiences such as fishing, floating, and sightseeing. Transportation is considered an important part of the visitor experience in Yosemite Valley because it is the means of access to recreational opportunities in Yosemite Valley. Management considerations address the amount of vehicle traffic and the number of people at one time in Yosemite Valley at the peak times of day during the park's busy summer season.

**TABLE 8-114: SEGMENT 2 ACTIONS AND THEIR IMPLICATIONS FOR RECREATIONAL ORV-20**

Location	Action in Alternative 5	Effects toORV-20
Segmentwide visitation	19,900 visitors per day	This managed change in visitation would reduce crowding and congestion thereby enhancing the recreation ORV on a segmentwide level.
<b>Curry Village and Campgrounds</b>		
Concessioner Stables	Retain Concessioner Stables to support Merced Lake High Sierra Camp and overflow parking for campgrounds. Commercial equestrian day rides would be eliminated. Kennel service remains. Retain associated housing (25 beds).	Actions result in little change from current conditions and would not substantially alter components of the river recreation experience. The ORV would continue to be protected segmentwide.
Curry Village Lodging	Lodging would include 453 units, as compared with 400 under Alternative 1.	Changes to Lodge would be in keeping with current facility. Lodge itself is not part of the ORV-20 but does facilitate access to ORV-20 for certain visitors. This use would remain. The ORV would continue to be protected segmentwide.
Lower Rivers Nature Walk	Create an interpretive (nature) walk through Lower River that emphasizes river-related natural processes, the park's ecological restoration work and what visitors can do to protect the river.	Change would improve interpretation of the river and its values. The ORV would continue to be protected locally.
<b>Yosemite Village and Housekeeping Camp</b>		
The Ahwahnee Pool and Tennis Courts	Remove the pool and tennis courts	Removal of facilities would reduce opportunities for one type of recreation activities, but would not substantially alter components of the river recreation experience. The ORV would continue to be protected segmentwide.
Segment wide River Access	Swimming and water play allowed. No commercial boating. Private use limited to 100 trips per day in Segment 2 between put in at Lower River Day Use Area and take out at Sentinel Beach.	Change would limit commercial boating and would limit the number of private boating. However, this change does not affect components of the recreational ORV. This reduction in boats enhances dispersed recreation along the river corridor thereby enhancing the ORV segmentwide.
Housekeeping Camp Lodging	Retain 232 lodging units, and remove 34 units out of observed ordinary high water mark. Retain Housekeeping Camp shower houses, restrooms, and laundry, and remove grocery store. Restore one acre of the riparian ecosystem.	Changes similar to current conditions and would not substantially alter components of the river recreation experience. The ORV would continue to be protected segmentwide.
Bridalveil Falls Trail	Redesign trails, boardwalks, and viewing at the base of the falls to improve wayfinding and pedestrian circulation. Restore informal trails. Improve ADA compliance of pedestrian walkways and restrooms.	Change would bring about localized improvements in circulation and wayfinding thus enhance ORV-20 locally.
<b>Yosemite Lodge and Camp 4</b>		
Yosemite Lodge Visitor Facilities	Retain 245 existing rooms	Changes similar to current conditions and would not substantially alter components of the river recreation experience. The ORV would continue to be protected segmentwide.

**TABLE 8-114: SEGMENT 2 ACTIONS AND THEIR IMPLICATIONS FOR RECREATIONAL ORV-20 (CONTINUED)**

Location	Action in Alternative 5	Effects toORV-20
<b>Yosemite Lodge and Camp 4 (cont.)</b>		
Yellow Pine and Camp 4 Campgrounds	Camp 4 expanded eastward to provide 35 additional walk-in sites. Retain 35 walk-in campsites at Camp 4. Retain 4 group administrative use sites (up to 120 people).	Increased access to camping as recreational experience would not substantially alter components of the river recreation experience. The ORV would continue to be protected segmentwide.
East Valley Day-Use Parking	Reduction in available day-use parking, and implementation of an East Yosemite Valley Day-use Parking Permit system	This will result in a segmentwide enhancement of the recreational experience in segment 2 by reducing crowding at key attraction sites as well as access to these areas (along roadways, in parking lots, etc).

All restoration actions to protect and enhance biological, cultural, geologic/hydrologic, and scenic ORVs would further enhance visitors’ connections to the river and its values, which are essential to the recreational ORV in this segment. These actions would ensure that the changes in day-use, camping, and lodging opportunities would not cause adverse effects or degradation to ORV-20 on a segmentwide basis. Camping and overnight lodging would be available segmentwide, and essential aspects of the recreational ORV would not be affected. There are also actions proposed in Alternative 5 that would improve picnicking, and wayfinding. Finally, commercial boating is eliminated and private boating is limited to 100 trips per day in Segment 2, in this alternative which reduces crowding and increases the stretches of the river on which private boating and paddling is allowed, thereby enhancing key aspects of this recreational experience.

Chapter 6 provides a more detailed description of the day-visitor capacity management strategies that directly measure aspects of the Recreation ORV and outlines specific actions. These actions include:

- Utilize parking and traffic management staff to improve parking efficiency and traffic flow in Yosemite Valley and other locations where needed.
- Institute a transportation fee at entrance stations (for peak-use season).
- Divert vehicles to other destinations outside of Yosemite Valley when parking in the Valley fills.
- When all parking fills to capacity, day visitors would be diverted at checkpoints throughout the park and at entrance stations.
- East Valley day-use parking permits would be issued by advanced reservation and on a first-come-first-serve basis.

NPS would use the Highway Capacity Manual Pedestrian Level of Service (discussed further in Chapter 5) for evaluating the capacity and quality of service of transportation facilities, including walkways, multi-use paths, and similar pedestrian facilities. NPS would also monitor parking rates and vehicles at one time to ensure that they are not exceeding the management standard. Should specific trigger points be reached, the NPS would implement a series of specific actions to improve parking to an acceptable level. Similarly, should visitor densities begin to approach specific triggers; NPS would take steps to keep such densities within the management standard.

**Conclusion.** Under Alternative 5, the recreation ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. The reduction in camping and lodging opportunities, as well as reduction in visitation particularly during the peak season will significantly reduce crowding thereby enhancing the recreational ORV. All restoration actions would enhance opportunities to connect with the river and its values. The reduction in commercial services would affect opportunities for particular types of recreational activities, but would not affect the essential components of the recreation ORV on a segmentwide basis.

### **Segment 3 – The Merced Gorge (Scenic Segment)**

#### ***Scenic ORV-17 – Scenic View in the Merced River Gorge***

The Merced River drops 2,000 feet over 14 miles; a continuous cascade under spectacular Sierra granite outcrops and domes. There are no existing management considerations with respect to the Scenic ORV in the Merced River Gorge. Although there are some localized visual intrusions from essential facilities such as visitor parking areas, restrooms, the Arch Rock entrance station and the El Portal Road, these facilities are consistent with the scenic classification of this river segment. As explained in Chapter 5, this ORV is currently protected and enhanced.

This alternative does not propose any new development or landscape changes within the river corridor aside from improvements to existing roadside pullouts and drainage. These changes would not degrade or adversely impact the scenic ORV on a segmentwide basis. Although private vehicles and overall visitation during peak periods will be managed for East Yosemite Valley only, it is probable that visitation and visitors at one time in Segment 3 will also witness a reduction under this alternative. This reduction in visitation and visitors at one time may reduce vehicles per viewshed, thereby enhancing the scenic ORV. Monitoring associated with this ORV would ensure that the attributes that comprise this ORV remain within the accepted management class rating.

Alternative 5 would accommodate the same kinds and amounts of use that exist today in Segment 3. The types and levels of use in Segment 3 under this alternative would remain largely unchanged. Actions considered under Alternative 5 would cause no adverse effects or degradation to ORVs on a segmentwide basis.

**Conclusion.** Under Alternative 5, this scenic river segment would show little evidence of human activity and remain largely free of structures. The scenic ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. The reduction in camping and lodging opportunities, as well as reduction in visitation particularly during the peak season in Yosemite Valley will significantly reduce the number of vehicles per viewshed in this segment. All restoration actions would further enhance scenic characteristics in this segment.

## Segment 4 – El Portal (Recreational Segment)

### *Geological/Hydrological ORV-7 – The Boulder Bar in El Portal*

Natural processes would continue to shape the landscape and the geologic ORV. The NPS has not identified any management considerations with respect to the El Portal boulder bar. Land use and facility actions proposed in this alternative would not affect this ORV. Because there are no considerations regarding the condition of this ORV, no actions other than continued protection are necessary. Moreover, the types and levels of visitor and administrative use (e.g., housing, maintenance operations, office space, passive recreation) allowed under this alternative would not affect this ORV. Therefore, the NPS would not monitor the condition of this ORV as part of the *Merced River Plan/DEIS*.

**Conclusion.** Under Alternative 5, the geologic values of this recreational river segment would continue to be absent of adverse effects and degradation on a segmentwide level. There are no actions that would affect the boulder bar in El Portal, and there are no ongoing concerns or considerations associated with this resource.

### *Cultural ORV-11 – The El Portal Archeological District*

The El Portal Archeological District contains dense concentrations of resources that represent thousands of years of occupation and evidence of continuous, far-reaching traffic and trade. This segment includes some of the oldest deposits in the region. Four sites are known to have experienced particularly severe damage, most notably a large ancient village and cemetery.

To address management considerations pertinent to this river value, the NPS would undertake the following actions:

- Protective measures would ensure that exceptional sites would be protected from unmitigated effects that could lead to adverse effects or degradation on a segmentwide level. A plan of action for addressing the abandoned infrastructure on sites would be developed in consultation with traditionally-associated American Indian tribes and groups. Any solution(s) developed would also include a recommended approach for deterring visitor use within the sites.
- Informal trails, non-essential roads, and abandoned infrastructure would be removed to protect and enhance the archeological resources contributing to the ORV in Segment 4.
- Remove informal trails and non-essential roads.

There are no existing instances of adverse effect or degradation to this ORV. As discussed above, management considerations are present associated with abandoned infrastructure that remains on an exceptional site containing diverse components and extremely sensitive cultural materials that are highly valued by traditionally associated American Indians. Management considerations are also associated with non-essential roads and trails that impact archeological sites. In recognition of the high cultural significance of these sites, this alternative requires the park to develop plans to remove abandoned infrastructure and non-essential roads. Restoration actions to establish a 2.5 acre recruitment area for Valley Oaks would further protect adjacent archeological resources. Construction of employee housing in Old El Portal, Abbieville, and Rancheria would be designed to avoid or mitigate threats and

**TABLE 8-115: SEGMENT 4 ACTIONS AND THEIR IMPLICATIONS FOR CULTURAL ORV-11**

Facility	Action in Alternative 5	Effects to ORV-11
<b>El Portal</b>		
Abbieville, Old El Portal, and Rancheria Flat Concessioner Employee Housing	New concessioner employee housing in Old El Portal (12 beds) and Rancheria Flat (94 beds). Remove or relocate 36 existing private residences at Abbieville out of the 150-foot riparian buffer.	Design, follow-on compliance, and mitigation measures would avoid and/or mitigate adverse effects to sensitive archeological resources. The El Portal Archeological District would continue to be protected at a segmentwide level.
Abbieville Trailer Park Area	Develop El Portal Remote Visitor Parking Area in the Abbieville/Trailer Park area to provide 200 spaces of visitor parking serviced by regional transit. Adjacent to cultural resources, however only suitable location proximate with direct access to Highway 140.	Design, follow-on compliance, and mitigation measures would avoid and/or mitigate adverse effects to sensitive archeological resources. The El Portal Archeological District would continue to be protected at a segmentwide level.
Odger's Bulk Fuel Storage	(Common to All) Remove Odger's bulk fuel storage facility and restore the rare floodplain community of valley oaks. Create a valley oak recruitment area of 2.5 acre in the vicinity of the current Odger's bulk fuel storage area, including the adjacent parking lots.	Mitigation measures would protect cultural resources during facility removal and ecological restoration. Change would continue to protect archeological resources locally.

disturbances to archeological sites. Monitoring and protective measures would ensure that new use patterns associated with the new housing would not affect contributing elements of the El Portal Archeological District.

**Conclusion:** Under Alternative 5, the archeological resources in this recreational river segment would continue to be absent of adverse effects and degradation on a segmentwide level. Removal of abandoned infrastructure, informal trails and non-essential gravel roads would enhance protection of archeological resources. Valley Oak restoration actions would protect adjacent archeological resources from further ground disturbance, Construction of new employee housing would be designed to avoid or mitigate effects to the El Portal Archeological District. New or altered visitor use patterns associated with the new housing development would be monitored and protective actions would occur if effects triggered responses.

**Segment 5 – South Fork Merced River Above Wawona (Wild Segment)**

***Biological ORV-1 – High-elevation Meadows and Riparian Habitat***

The Merced River sustains numerous small meadows and riparian habitat with high biological integrity. Restoration actions to remove informal trails and charcoal rings to protect cultural resources proposed under this alternative would not affect high-elevation meadows. The NPS proposes no major facility or visitor use actions for Segment 5 under Alternative 5. The biological ORV in this wild river segment would continue to be absent of adverse effects and degradation on a segmentwide level.

***Cultural ORV-12 – Regionally rare archeological features representing indigenous settlement including archeological sites with rock ring features***

Three regionally rare prehistoric archeological sites are located along this segment of the South Fork of the Merced Wild and Scenic River corridor. The sites contain unique stacked rock ring constructions and rock alignments. Two sites also contain pine timber remains within the ring interiors or incorporated into the



stacked rock courses. Rock constructions are considered fragile and highly subject to human alteration from camping and campfire building disturbances. Two of the South Fork sites are adjacent to formal NPS trails, increasing the likelihood of disturbance. The vicinity of the sites has not been systematically surveyed, and it is possible that additional rock ring sites may be present along the South Fork. Should additional rock ring sites be discovered in the monitoring process, they would also become a part of the South Fork ORV. To remedy these considerations, NPS would:

- Complete documentation of the features. Restrict Wilderness camping in the area of the rock rings (camping allowed past particular marker). Remove informal trails and charcoal rings.
- Increase education and outreach to Wilderness travelers.

**Conclusion:** Under Alternative 2, the archeological resources in this wild river segment would continue to be absent of adverse effects and degradation on a segmentwide level. There are no specific actions to manage user capacity, land use, and/or facilities under Alternative 5 within Segment 5 beyond those designed to protect and enhance ORV-12 that would impact components of Cultural ORV-12. Monitoring activities described in Chapters 5 and 8 would continue to protect and enhance Cultural ORV-12 to ensure there are no adverse effects or degradation to ORV-12 on a segmentwide basis.

### ***Scenic ORV 18 – Scenic Wilderness Views along the South Fork Merced River***

The South Fork Merced River passes through a vast area of natural scenic beauty. The NPS has no immediate management considerations with respect to the Scenic Wilderness Views along the South Fork Merced River as this scenic ORV is determined to be absent of adverse effects and degradation. No new development or landscape changes are proposed within the river corridor. Because there are no considerations regarding the condition of this ORV, no actions other than continued protection is necessary. It is unlikely that this ORV would be affected by human intervention in the future.

**Conclusion.** Under Alternative 5, the scenic resources in this wild river segment would continue to be absent of adverse effects and degradation on a segmentwide level. The scenic ORV for Segment 5 is determined to be absent of adverse effects, degradation, management concerns, and management considerations. The NPS would not monitor the condition of this ORV.

### **Segment 7 – Wawona (Recreational Segment)**

#### ***Biological ORV-3 – The Sierra sweet bay (*Myrica hartwegii*)***

As described in Chapter 5, the NPS would monitor the condition of this ORV through time using Sierra Sweet Bay Population Decline as its indicator. The health of this ORV would be determined by comparing populations located near Wawona Campground (an area that is likely to be disturbed by humans) with more remote populations that are less likely to receive such disturbance. This population of Sierra sweet bay is in good condition, with no management considerations present. Management action to enhance the population is not required at this time.

To ensure that this biological ORV is protected and enhanced through time, the NPS would monitor the condition of the Sierra sweet bay population to ensure early warning of conditions that require management action before impacts occur.

**Conclusion.** Under Alternative 5, the Sierra Sweet Bay in this recreational river segment would continue to be absent of adverse effects and degradation on a segmentwide level. Reduction in camping and visitor activity in the vicinity of Wawona Campground would enhance this resource.

**TABLE 8-116: SEGMENT 7 ACTIONS AND THEIR IMPLICATIONS FOR BIOLOGICAL ORV-3**

Facility	Action in Alternative 5	Effects toORV-3
<b>Wawona</b>		
Wawona Campground	Retains 72 sites and one group site. Remove 27 sites that are either within the 100-year floodplain or in culturally sensitive areas.	Action would improve the condition of the ORV by reducing the potential effects on this species associated with campground visitation. The ORV would be protected locally.

***Cultural ORV-13 – Wawona Archeological District***

The Wawona Archeological District encompasses numerous clusters of resources spanning thousands of years of occupation, including evidence of continuous, far-reaching traffic and trade. This district spans segments 5, 6, 7, and 8. Accordingly, the condition of this historic property is assessed at the property-level, rather than the segmentwide level. Segment 7 includes the remains of the U.S. Army Cavalry Camp A. E. Wood documenting the unique Yosemite legacy of the African-American buffalo soldiers and the strategic placement of their camp near the Merced River. There are several management considerations for this ORV: the Wawona Archeological District is subject to site-specific impacts from park operations, visitor use, artifact collection, vandalism, and ecological processes. The following actions would help to address these issues:

- Increase monitoring frequency at affected sites.
- At the district-wide level, revise the existing National Register nomination to reflect changes since its original writing, for example, incorporating newly discovered resources and documenting impacts.
- The Wawona Campground capacity would be reduced to 67 sites (including one group site). 32 sites are removed because they are either within the 100-year floodplain or in culturally sensitive areas.
- Remove informal trails and fire rings to prevent continuing disturbance.
- Develop site management plans as needed for sites with complex uses. Remove shoulder and off-road parking. Limit facility and concessionaire off -road vehicle travel/parking on hotel grounds
- Consider need for archeological site treatment measures to address impacts to shallow deposits of artifacts and features.

The NPS would delineate trails, roads, and other infrastructure away from sensitive cultural and ethnographic resource areas; conduct public education to discourage disturbance to sensitive features. To

prevent these considerations, or others, from redeveloping, the NPS would monitor the condition of the ORV, and take specific actions should conditions exceed specific trigger points.

**TABLE 8-117: SEGMENT 7 ACTIONS AND THEIR IMPLICATIONS FOR CULTURAL ORV-13**

Facility and Land Use	Action in Alternative 5	Effects to ORV-13
<b>Wawona</b>		
Wawona Campground Septic System	Remove septic system, and connect to the sewer system. Build a lift station above the campground to connect to the existing water treatment plant.	Mitigation measures would (as applicable) include avoidance, documentation, data recovery, and interpretation of cultural resources during facility construction. Local impacts to the ORV may occur; however, actions would continue to protect the ORV segmentwide.
Wawona RV dump site	Relocate the dump site to an appropriate location away from the river.	Mitigation measures would (as applicable) include avoidance, documentation, data recovery, and interpretation of cultural resources during facility construction. Local impacts to the ORV may occur; however, actions would continue to protect the ORV segmentwide.
Wawona Store	Replace the existing public restroom facilities with larger restrooms to accommodate visitor use levels. Improve picnic area, redesign bus stop.	Mitigation measures would (as applicable) include avoidance, documentation, data recovery, and interpretation of cultural resources during facility construction. Local impacts to the ORV may occur; however, actions would continue to protect the ORV segmentwide.
Wawona Swinging Bridge	Provide access to Swinging Bridge with access on the south side of the river, delineate trail, restrooms, waste disposal and parking.	Mitigation measures would (as applicable) include avoidance, documentation, data recovery, and interpretation of cultural resources during facility construction. Restrooms and waste disposal will reduce threats and disturbances to adjacent archeological resources. Local impacts to the ORV may occur; however, actions would continue to protect the ORV segmentwide.

***Cultural ORV-14 – Wawona Historic Resources***

The Wawona Historic Resources ORV includes one of the few covered bridges in the region and the National Historic Landmark Wawona Hotel complex. The Wawona Hotel complex is the largest existing Victorian hotel complex within the boundaries of a national park, and one of the few remaining in the United States with this high level of integrity. The Wawona Covered Bridge is in good condition, and there are no current management considerations associated with it, however the bridge requires maintenance to keep the historic structure in good condition in the face of adverse weather and visitor use.

The Wawona Hotel complex continues to serve its original purpose as a guest lodging facility. Management considerations related to the hotel complex involve concessioner operations, the need for regular and routine preservation maintenance, and periodic rehabilitation to ensure visitor safety.

- Regular and routine preservation maintenance, conducted in accordance with the Secretary of the Interior’s Standards, would ensure that this upkeep protects the historic character of the buildings
- Periodic rehabilitation would involve subject-matter specialists in planning, design and implementation to ensure actions do not compromise the historical integrity of the complex

- Concessioner operations would ensure that any operational modifications or updates are appropriate and in keeping with the historic character of the complex.

To prevent future impacts, the NPS would monitor the condition of the bridge, and take specific actions should conditions exceed trigger points. Trigger points are selected to inform managers well in advance of adverse effects or degradation on the Wawona Covered Bridge. Management considerations for the Wawona Hotel complex include the need for regular and routine preservation maintenance, periodic rehabilitation, and ongoing operations that serve its continuing function as a historic lodging facility. To address these management considerations, the NPS would ensure that these activities would conform to the Secretary of the Interior’s Standards for Treatment of Historic Properties.

**TABLE 8-118: SEGMENT 7 ACTIONS AND THEIR IMPLICATIONS FOR WAWONA HISTORIC RESOURCES ORV-14**

Facility	Action in Alternative 5	Effects to ORV-14
<b>Wawona</b>		
Wawona Hotel	Retain 104 lodging units at the Wawona Hotel. Retain hotel restaurant, swimming pool and tennis court. Retain golf course and golf shop.	The action would retain contributors to the Wawona Historic Resource. The ORV would continue to be protected locally.

## Segment 8 – South Fork Merced River below Wawona (Wild Segment)

### *Biological ORV-3 — The Sierra sweet bay (Myrica hartwegii)*

As described in Chapter 5, the NPS would monitor the condition of this ORV through time using Sierra Sweet Bay Population Decline as its indicator. The health of this ORV in Segment 8 is in good condition, with no management considerations present. Management action to enhance the population is not required at this time.

### *Cultural ORV 13— Wawona Archeological District*

The Wawona Archeological District encompasses numerous clusters of resources spanning thousands of years of occupation, including evidence of continuous, far-reaching traffic and trade. This ORV in Segment 8 is in good condition, with no management considerations present. Management actions are not required at this time.

### *Scenic ORV-18 – Scenic Wilderness Views along the South Fork Merced River*

The South Fork Merced River passes through a vast area of natural scenic beauty. The NPS has no immediate management considerations with respect to the Scenic Wilderness Views along the South Fork Merced River as this scenic ORV is determined to be absent of adverse effects and degradation. No new development or landscape changes are proposed within the river corridor. Because there are no considerations regarding the condition of this ORV, no actions other than continued protection is necessary. It is unlikely that this ORV would be affected by human intervention in the future.

The scenic ORV for Segment 8 is determined to be absent of adverse effects, degradation, management concerns, and management considerations. The NPS would not monitor the condition of this ORV.

## ALTERNATIVE 6

### River Value – Free-flowing Condition in All Segments

A free-flowing river, or section of a river, moves in a natural condition without impoundment, diversion, straightening, riprapping, or other modification of the waterway. The current free-flowing condition of the Merced River is fully protected and enhanced on a segmentwide basis. Riprap revetment, abandoned infrastructure within the bed and banks of the river, and bridges that constrict the flow of the river may produce localized effects on free-flowing condition of the river. Alternatives 2-6 would enact a comprehensive suite of actions to enhance the free-flowing condition of the river by removing 3,400 linear feet of riprap, and removing abandoned and unnecessary infrastructure from the river channel and its floodplain. Infrastructure that would be removed includes former sewage treatment facilities, sewer and water lines, and former bridge abutments. In addition, Alternative 6 would remove 348 linear feet of riprap from riverbank areas, beyond that proposed for removal under Alternatives 2-6.

All three historic bridges, the Stoneman, the Sugar Pine and the Ahwahnee, would remain in place under Alternative 6. The existing hydrological effects of these bridges would be mitigated with strategic placement of large wood on riverbanks, constructed log jams in the river channel, and the use of brush layering techniques to establish riverside vegetation and decrease erosion.

There are no new facilities proposed under Alternative 6 that would affect the free-flowing condition of the river. A number of proposed facility actions would enhance the connectivity of the river and its floodplain (see Hydrological/Geological ORVs). For example, the Yosemite Village Day-use Parking Area would be relocated north 150 feet away from the river.

To protect the river's free flowing condition in the future, the NPS would require all proposed projects involving construction within the bed or banks of the Merced River or its tributaries to undergo an analysis in accordance with Section 7 of the WSR. Through this process, the NPS would ensure that water resources projects within the designated river corridor would not lead to "direct or adverse effects" on free flow, and that projects on tributaries to the river do not "invade or unreasonably diminish" the river's free flowing condition.

**Conclusion:** The current free-flowing condition of the Merced River is fully protected and enhanced on a segmentwide basis, although localized considerations such as intermittent riverbank and bridges that constrict the flow of the river are present. Alternative 6 proposes a comprehensive suite of actions to enhance the free-flowing condition of the river by removing riprap and unnecessary infrastructure in the river channel. The existing hydrological effects of bridges that constrict the flow of the river would be mitigated with techniques to establish riverside vegetation and decrease erosion. There are no new facilities proposed under Alternative 6 that would affect the free-flowing condition of the river within the river channel, and a number of proposed facility actions would enhance the connectivity of the river and its floodplain (see Hydrological/ Geological ORVs). The NPS would require all proposed projects within the

bed or banks of the Merced River or its tributaries to undergo an analysis in accordance with Section 7 of the WSRA to ensure that water resources projects would not lead to “direct or adverse effects” on free flow, and that projects on tributaries to the river do not “invade or unreasonably diminish” the river’s free flowing condition. The actions proposed under Alternative 6 ensure that there are no direct or adverse effects on free-flowing condition of the Merced River.

### **River Value – Water Quality in All Segments**

The water quality of the Merced River is extremely high, and the current water quality of the river is fully protected and enhanced on a segmentwide basis. Intermittent local instances of contamination may occur in connection with surface water runoff from parking areas, recreational vehicle dump stations in proximity to the river, and accelerated erosion with potential sediment loading in the river during high water flows. Alternatives 2-6 would apply mitigation measures to ensure that surface water runoff associated with parking areas protects the water quality of the Merced River and meets regulations. The Upper Pines and Wawona recreational vehicle dump stations would be moved away from the river, and the Odger’s bulk fuel storage area in El Portal would be moved out of the 500-year floodplain. In addition, Alternative 6 would relocate the Yosemite Village Day-use Parking Area 150-feet away from the river. All campsites and infrastructure currently within 100-feet of the river would be removed. The pack trail from Curry Village stables to Happy Isles would be re-routed farther away from the river. These actions would reduce result in less erosion along the riverbank, reduce use in sensitive areas, direct use to resilient areas, and mitigate potential sources of pollutants.

Ecological restoration actions would take place along the riverbank and floodplain of the Merced River. These actions would enhance water quality, particularly the actions that re-establish riverbank vegetation and reduce erosion potential. Ecological restoration actions are described in more detail in the discussion of the biological ORVs below and in Appendix E.

There are no new facilities proposed under Alternative 6 that would affect the water quality of the river. In areas of new development or high-density use, sensitive riverbanks would be fenced to



**TABLE 8-119: CORRIDOR-WIDE ACTIONS AND THEIR IMPLICATIONS FOR WATER QUALITY**

Location	Action in Alternative 6	Effects to Water Quality
<b>Curry Village and Campgrounds</b>		
North, Lower and Upper Pines Campgrounds and Backpackers Campgrounds	All campsites within 100 feet of the river would be removed. Designated put in areas established.	These changes would result in less erosion along the riverbank because designated access points to resilient areas are identified for visitors, and sensitive areas would be restored and access would be discouraged. Water quality would be enhanced segmentwide.
New campsites at Upper Pines, Backpackers, Camp 4, Eagle Creek and Upper and Lower River Campgrounds	New campsites constructed at Upper Pines, Upper River, Lower River, Backpackers, Eagle Creek, West of Lodge and Camp 4 out of the 150 foot riparian buffer. Lower River: Designate river access at Housekeeping Camp eastern beach.	New campsites would be located 150 feet away from the river to protect riparian areas from direct impacts related to the increase in visitor activity in these areas. Fencing and designated river access points would also direct use to resilient areas. Change would not result in result in additional water quality effects on a segmentwide level.
Stock Trail from Concessioner Stables to Happy Isles	Remove 3,800' of pack stock trail proximate to the riverbank. Remove residual asphalt and other fill material. Also, in addition to common to all, re-route stock use north along the road where they meet up on the Valley Loop Trail.	Change would result in less erosion from the stock trail and stock use. Water quality continue to be protected locally.
Curry Orchard Day-Use Parking Area:	Provide 430 parking spaces through a re-design of the parking lot.	Engineering solutions included to promote water flow and increase drainage to Stoneman Meadow. Change would not result in result in additional water quality effects on a segmentwide level.
<b>Yosemite Village and Housekeeping Camp</b>		
Yosemite Village Day Use Parking Area	Move the Yosemite Village Day Use Parking Area day-use parking area northward 150 feet away from the river to facilitate restoration goals. Formalize parking area with a total of 850 parking places.	Fencing and designated river access points would also direct use to resilient areas. Change would result in less erosion and storm water run-off from the parking area; water quality would continue to be protected locally.
Housekeeping Camp Lodging	Retain 232 lodging units, and remove 34 units out of river bed and banks. Retain Housekeeping Camp shower houses, restrooms, and laundry, and remove grocery store. Restore one acre of the riparian ecosystem.	Fencing and designated river access points would also direct use to resilient areas. Water quality would continue to be protected locally.
Concessioner Employee Housing	Create 50-foot setback from Indian Creek – ecologically restore the riparian habitat and protect by restoration fencing.	These changes would result in less erosion along the riverbank by reducing activities in this setback. Sensitive areas would be restored and protected by fencing.
<b>Segment 4</b>		
NPS Maintenance and Administrative Complex	Existing parking area formalized and paved using best management practices.	Change would result in less erosion and storm water concerns in the parking area; water quality would continue to be protected locally.
Odger's Bulk Fuel Storage	(Common to All) Remove Odger's bulk fuel storage facility and restore the rare floodplain community of valley oaks. Create a valley oak recruitment area of 2.5 acre in the vicinity of the current Odger's bulk fuel storage area, including the adjacent parking lots.	Removal of bulk fuel storage from the 500-year floodplain would further protect water quality segmentwide.

**TABLE 8-119: CORRIDOR-WIDE ACTIONS AND THEIR IMPLICATIONS FOR WATER QUALITY (CONTINUED)**

Location	Action in Alternative 6	Effects to Water Quality
<b>Segment 7</b>		
Wawona Campground	Replace current septic system with waste water collection system connected to the waste water treatment plant. RV dump site relocated away from the river.	Change would result in less potential for storm water concerns in the campground; water quality would be enhanced locally.
Wawona Picnicking	Delineate boundaries of two formal picnic areas with formal river access points.	Change would result in less erosion along; water quality would be enhanced locally.

eliminate trampling. Trampling can lead to vegetation loss and exposed soil, leading to accelerated sediment deposition in the river. To maintain excellent water quality, the NPS would monitor water quality indicators that are tied to human activity (e.g., nutrient levels), and take specific actions should specific trigger points be reached.

**Conclusion.** Under Alternative 6, water quality in all segments of the Merced River corridor would continue to be absent of adverse effects and degradation, and the potential for localized instances of contamination would be strongly reduced. Alternative 5 would address localized issues by moving the Upper Pines and Wawona recreational vehicle dump stations away from the river, moving the Odger's bulk fuel storage area outside of the 500-yr floodplain, and applying mitigation measures to ensure surface water runoff associated with parking areas meets requirements. Ecological restoration actions would decrease the potential for accelerated riverbank erosion and sediment loading during high water events. To ensure that existing high water quality conditions are maintained, the NPS would monitor water quality indicators that are tied to human activity (e.g., nutrient levels), and take specific actions should specific trigger points be reached.

## Segment 1 – Merced River Above Nevada Fall (Wild Segment)

### *Biological ORV 1 – High-elevation Meadows and Riparian Habitat*

The Merced River sustains numerous small meadows and riparian habitat with high biological integrity. Primary actions to protect and improve Biological ORV 1 include removal of informal trails that incise meadow habitat, trails in wet and/or sensitive vegetation, and trails that fragment meadow habitat, including trails in the Triple Peak Fork meadow, wetlands near Echo Valley and Merced Lake shore, mineral springs between Merced Lake and Washburn Lake, and other areas as necessary. Removal of social trails that bisect the meadows would improve conditions in this segment because soil compactions and habitat fragmentation would be reduced. Preliminary grazing capacities would be established, monitored, and adapted as necessary which would also reduce soil compaction and habitat fragmentation, thus further enhancing meadow health. Under this alternative the High Sierra Camp would remain at its current capacity of 60 people per night.

As described in Chapter 5, to ensure this ORV is protected and enhanced through time, the NPS would monitor three indicators to assess the condition of the ORV: meadow bare soil, meadow fragmentation due to the proliferation of informal trails, and streambank stability. The NPS would establish a baseline for all three indicators using site-specific monitoring protocols by 2013. Regular

**TABLE 8-120: SEGMENT 1 ACTIONS AND IMPLICATIONS FOR BIOLOGICAL ORV-1**

Location	Action in Alternative 6	Effects to ORV-1
Meadow Trails	Remove informal trails that incise meadow habitat.	Change reduces effects to wet and sensitive meadows and results in localized enhancement to ORV-1.
Merced Lake High Sierra Camp	Retain the Merced Lake High Sierra Camp, keeping 22 units (60 beds). Replace the flush toilets with composting toilet.	Facility is not directly adjacent to meadows. Changes would not affect high-elevation meadow and riparian habitat, this ORV would continue to be protected locally.
Private boating would be allowed in this segment	Boating would consist of short floats using pack raft or other craft that can easily be carried. Put-ins and take-outs would be undesignated and dispersed. Ten boats per day allowed - permit would be required.	Limited numbers would protect riparian habitat from trampling and bank erosion that could result with unlimited access. Changes would not affect high-elevation meadow and riparian habitat, this ORV would continue to be protected on a segmentwide level.
Wilderness zone capacity	All zone capacities within the Merced WSR Corridor remain the same as currently managed.	Current zone capacities are designed to protect wilderness character including natural conditions such as riverbanks and meadows. Action would not affect high-elevation meadow and riparian habitat, this ORV would continue to be protected on a segment –wide level.

monitoring would also reveal whether assumptions about human behaviors and actions taken to correct past actions are sustaining conditions above the management standard. If conditions have reached trigger points; the NPS would implement specific response actions (as described in Chapter 5) to avoid or minimize adverse effects. The meadow monitoring programs for the biological ORV would monitor meadow fragmentation to ensure that use levels from hikers, backpackers and stock users do not result in meadow fragmentation or bare ground in excess of the management standards prescribed to protect and enhance meadows.

**Conclusion.** Under Alternative 6, the biological ORV in Segment 1 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. All actions would further enhance riverbanks and meadows. Removal of social trails, grazing in Merced Lake East Meadow, and reduced use would improve meadow conditions in this segment and thereby enhance the biological ORV. The wild segment of the Merced River corridor above Nevada Fall would show little evidence of human activity and remain largely free of structures. **Facilities that would remain** in this segment of the river include Merced Lake High Sierra Camp, Merced Lake Ranger Station, Little Yosemite Valley trail crew and ranger camp, trails and footbridges. The baseline condition assessment for the Biological ORV in this segment indicates that these facilities are not adversely affecting the Biological ORV.

***Geological/Hydrological ORV-4 – Glacially-carved Canyon in the Upper Merced River Canyon***

As discussed in Chapter 5, there are no management considerations with respect to the U-shaped, glacially carved canyon above Nevada Fall. This ORV is currently protected and enhanced within the meaning of the Wild and Scenic Rivers Act. Alternative 3 does not propose any actions that would change the condition of this ORV over time. Further, the U-shaped, glacially carved attributes of this ORV would not be affected by

the types and levels of use authorized under this alternative, which are all directed toward wilderness oriented recreation. The NPS would nevertheless monitor the condition of this ORV to ensure that its condition does not decline.

***Scenic ORV-15 – Scenic Views in Wilderness***

Visitors to this Wilderness segment experience scenic views of serene montane lakes, pristine meadows, slickrock cascades, and High Sierra peaks. Management considerations associated with the condition of the scenic river above Nevada Fall include contributions to regional air pollution, visual intrusions, temporary and permanent structures, and crowding in and near wilderness campgrounds. There are few “visual intrusions” noted beyond the High Sierra Camp and other designated camping areas. The NPS would ensure that Merced Lake High Sierra Camp and other designated camping areas are maintained in a clean and tidy condition. Under Alternative 6, High Sierra Camp tent fabric would be replaced with colors that blend within the landscape, such as gray, brown or green, so as to reduce contrast (the tents are currently white canvas). These changes, as well as any other structures proposed at the camp or elsewhere in Segment 1, would be expected to blend quite well with the native landscape.

The ORV is determined to be in the protected state, as defined by an absence of adverse effects and degradation, although intermittent air quality concerns are present. Because of the ambient nature of air quality, it cannot be managed exclusively for the river corridor. Facilities that would remain in this segment of the river include Merced Lake Ranger Station, Little Yosemite Valley trail crew and ranger camp, trails and footbridges. The baseline condition assessment for the scenic ORV in this segment indicates that these facilities are not adversely affecting the scenic ORV.

**TABLE 8-121: SEGMENT 1 ACTIONS AND IMPLICATIONS FOR SCENIC ORV-15**

Location	Action in Alternative 6	Effects to ORV-15
Merced Lake High Sierra Camp	Retain the Merced Lake High Sierra Camp, at current capacity (60 beds). Replace tent fabric with colors that blend within the landscape.	Change would enhance the ORV locally.
Designated Camping Areas	Retain the Merced Lake Backpackers, Little Yosemite Valley, and Moraine Dome designated camping areas.	Designated camping areas within the segment are currently protective of river values on a segmentwide level.
Facilities retained	Merced Lake Ranger Station, Little Yosemite Valley trail crew and ranger camp	These facilities and associated administrative uses and maintenance do not affect scenic values on a segmentwide level. The ORV would continue to be protected segmentwide.

**Conclusion.** Under Alternative 6, the scenic ORV in Segment 1 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. All actions would further enhance scenic values in this segment. Replacement of the Merced Lake High Sierra Camp tent fabric would address scenic considerations in this segment, which focus on the High Sierra Camp and thereby enhance the scenic ORV. The wild segment of the Merced River corridor above Nevada Fall would show little evidence of human activity and remain largely free of structures.

### ***Recreational ORV-19 – Wilderness Recreation above Nevada Fall***

Visitors to federally designated Wilderness in Segment 1 would engage in a variety of river related activities in an iconic High Sierra landscape, where opportunities for primitive and unconfined recreation, self-reliance, and solitude shape the Wilderness experience. The current condition of this ORV is at or above the management standard at the segment level. Localized management concerns in this segment relate to crowding at Little Yosemite Valley and Moraine Dome backpackers campgrounds, high use levels at the Merced Lake Backpackers Camping Area, and high encounter rates along the trails that connect these areas. Crowding and high use levels affect the Wilderness experience, which is an integral part of the recreational ORV in this segment.

This alternative would retain the High Sierra Camp at current levels. The capacity of the Little Yosemite Valley Wilderness Zone would be remain at 150. Actions in Alternative 6 would apply additional seasonal and weekend restrictions for commercial groups in the Mount Lyell, Merced Lake, and Little Yosemite Valley zones as indicated. These changes would reduce use levels and result in some decreased use in the immediate vicinity of these camping areas. These changes would reduce use crowding, high use levels, and increase opportunities for solitude in this Wilderness segment.

Facilities that would remain in this segment of the river include designated camping areas in Little Yosemite Valley, Moraine Dome, and the Merced Lake Backpackers Camping Area (including associated trails and footbridges) and the Merced Lake Ranger Station, Little Yosemite Valley trail crew and ranger camp, trails and footbridges. These facilities do not have an adverse effect on the Wilderness experience integral to this Recreational ORV.

NPS would monitor visitor encounter rates to ensure that they are not exceeding established standards. Should specific trigger points be reached, the NPS would be required to implement a series of specific actions to reduce visitor levels to an acceptable level. These actions increase in severity as the current condition ORV condition moves away from the management standard to ensure proper course correction and re-establishment of the management standard. These trigger points were selected to inform managers in advance of any adverse effects or degradation to this ORV.

**Conclusion:** Under Alternative 6, actions would not substantively change existing wilderness character or wilderness experience in this segment; the recreation ORV would continue to be protected on a segmentwide level.

**TABLE 8-122: SEGMENT 1 ACTIONS AND IMPLICATIONS FOR RECREATION ORV-19**

Location	Action in Alternative 6	Effects to ORV-19
<b>Location</b>		
Merced Lake High Sierra Camp	Retain the Merced Lake High Sierra Camp, at current capacity (60 beds). Replace the flush toilets with composting toilet.	The actions would not substantively change wilderness character or wilderness experience in this segment; the recreation ORV would continue to be protected on a segmentwide level.
Merced Lake and Little Yosemite Valley Backpackers Camping Areas	Concentrate visitor use at Little Yosemite Valley and Merced Lake by retaining designated camping areas in these zones.	The actions would not substantively change wilderness character or wilderness experience in this segment; the recreation ORV would continue to be protected on a segmentwide level.
Segmentwide River Access	Swimming and water play allowed. Permits required for private boating. No commercial boating	Permitted use would not substantively change wilderness character or wilderness experience in this segment; the recreation ORV would continue to be protected on a segmentwide level.
<b>Visitor Use Management Action</b>		
Private boating would be allowed in this segment	Boating would consist of short floats using pack raft or other craft that can easily be carried. Put-ins and take-outs would be undesignated and dispersed. Private use limited to 10 boats per day with backcountry permit on Segment 1. Permit would be required.	Permitted use would not substantively change wilderness character or wilderness experience in this segment; the recreation ORV would continue to be protected on a segmentwide level.
Wilderness zone capacity	All zone capacities within the Merced WSR Corridor remain the same as currently managed.	The actions would not substantively change wilderness character or wilderness experience in this segment; the recreation ORV would continue to be protected on a segmentwide level.

## Segment 2 – Yosemite Valley (Recreational and Scenic Segments)

### *Biological ORV-2 – Mid-elevation Meadows and Riparian Habitat*

The meadows and riparian communities of Yosemite Valley comprise one of the largest mid-elevation meadow-riparian complexes in the Sierra Nevada. Actions to protect and enhance Biological ORV-2 under Alternative 6 include:

- Removal of informal trails in meadows where they fragment meadow habitat or cross through sensitive, wet vegetation communities. Overall, restore six miles of informal trails throughout Yosemite Valley;
- Use boardwalks or hardened surfaces to allow access to sensitive areas;
- Delineation of trails through upland areas and along meadow perimeters;
- De-compacting trampled soils and consolidate multiple parallel trails;
- Re-directing visitor use to more stable and resilient river access points such as sandbars, and designate formal river access sites. Establishing fencing and signage to protect sensitive areas; install boardwalks where appropriate, and actively revegetate where needed;



- Relocate or remove all campsites at least 100 feet away from the ordinary high-water mark;
- Restoration of the mosaic of meadow, riparian deciduous vegetation, black oak, and open mixed conifer forest at specific locations in Yosemite Valley. Management actions could include re-vegetation, prescribed fire, mechanical removal of conifers, and infrastructure re-design. Alternative 6 would include 170 acres ecological restoration.
- Installation of constructed log jams in the river channel between Clark’s Bridge and Sentinel Bridge to remediate river widening and improve channel complexity would also contribute to improving riparian health.
- Day use parking capacity is expanded and formalized. A total of 2,598 visitor parking spaces would be provided in the Valley accommodating a maximum of 7,941 people at one time to Segment 2. Managing access and other proactive restoration measures would protect Biological ORVs by during periods of high use.
- A series of actions to improve and relocate parking (described further below and in Chapter 8) would protect Biological ORVs by removing these uses from the river corridor and managing access in the corridor.

This recreational river segment would remain readily accessible by road and will continue to have appropriate development along the shorelines (a comprehensive list of facilities in Segment 2 is included in table 7-1). Under this alternative, all roads, buildings, campgrounds, trails, utilities and infrastructure, and other facilities in this segment with current local effects on the biological ORV would be removed, reduced, or relocated. Facilities that would remain in this segment of the river, including the Ahwahnee Hotel and Yosemite Lodge have no direct impact on the biological river value as indicated in the baseline condition assessment. Effects to the free-flowing condition of the river as a result of the bridges that would remain under this alternative would be mitigated through constructed log jams. Some associated facilities are proposed for relocation as described below.

The NPS would monitor three indicators to assess the condition of ORV 2: meadow fragmentation resulting from informal trails, the status of riparian habitat, and riparian bird abundance. As described in Chapter 5, adverse effects and degradation are not present in relation to the meadow fragmentation indicator. Management concerns in meadows are present; however, actions to address informal trailing impacts and fragmentation would be taken at all meadows where these concerns have been documented. Initial surveys of the riparian status indicator in 2010 indicate that degradation is not present, but management concerns are also present in the riparian corridor.

The NPS is beginning to monitor the third indicator in this segment, riparian bird abundance. The first status assessments would take place in 2013, after one year of monitoring. The next assessment requires information from two out of three years.

**TABLE 8-123: SEGMENT 2 ACTIONS AND IMPLICATIONS FOR BIOLOGICAL ORV-2**

Location	Action in Alternative 6	Effects to ORV-2
<b>Segmentwide</b>		
Segmentwide Restoration	(Common to all) Restoration includes restoration of meadow habitat, removal of informal trails, riparian restoration and establishment of designated river access points, and use of boardwalks and hardened surfaces.	Actions would enhance the biological ORV segmentwide.
<b>Curry Village and Campgrounds</b>		
North, Lower and Upper Pines Campgrounds and Backpackers Campgrounds	All campsites within 100 feet of the river would be removed. Designated raft put-in areas established.	These changes would result in less erosion along the riverbank because designated access points to resilient areas are identified for visitors, and sensitive areas would be restored and access would be discouraged; the biological ORV would be enhanced segmentwide.
Stoneman Meadow and Curry Orchard Parking Lot	Provide 430 parking spaces through a re-design of the parking lot.	Engineering solutions included to promote water flow and increase drainage to Stoneman Meadow. Change would not result in result in additional effects to meadow and riparian habitat on a segmentwide level.
New campsites at Upper Pines, Backpacker's, Camp 4, Eagle Creek, and Upper and Lower River Campgrounds	New campsites constructed at Upper Pines, Upper River, Lower River, Backpacker's, Eagle Creek and Camp 4 out of the 150-foot riparian buffer.	New campsites would be located 150 feet away from the river to protect riparian areas from direct impacts related to the increase in visitor activity in these areas. Fencing and designated river access points would also direct use to resilient areas. Monitoring would proactively assess the effectiveness of these actions and established triggers to ensure that future protective measures are implemented in a timely manner. Change would result in protection of the ORV segmentwide.
Ahwahnee, Stoneman and Sugar Pine Bridges	All three historic bridges are retained. Existing riparian impacts mitigated with strategic placement of large wood on riverbanks and the addition of brush layering and constructed log jams to address scouring.	Actions would increase channel complexity and reduce channel widening, erosion, and scouring, thereby enhancing riparian communities locally.
<b>Yosemite Village and Housekeeping Camp</b>		
Yosemite Village Day Use Parking Area/Village Center Parking Area	Move the Yosemite Village Day Use Parking Area northward 150 feet away from the river to facilitate restoration goals. Formalize parking area with a total of 850 parking places.	These changes would reduce effects to riparian corridor and enhance ORV components as use would be relocated away from areas critical to river or meadow function. The ORV would be enhanced locally.
Housekeeping Camp Lodging	Retain 232 lodging units, and remove 34 units out of river bed and banks. Retain Housekeeping Camp shower houses, restrooms, and laundry, and remove grocery store. Restore one acre of the riparian ecosystem.	These changes would reduce effects to riparian corridor and enhance ORV components locally due to restoration. In addition access would be directed to resilient sandy beaches.

**TABLE 8-123: SEGMENT 2 ACTIONS AND IMPLICATIONS FOR BIOLOGICAL ORV-2 (CONTINUED)**

Location	Action in Alternative 6	Effects to ORV-2
<b>Yosemite Village and Housekeeping Camp (cont.)</b>		
Ahwahnee Row and Tecoya Dorms Concessioner Housing	Create 50-foot setback from Indian Creek – ecologically restore the riparian habitat and protect by restoration fencing.	These changes would remove uses from the riverbank thus reducing erosion and trampling impacts in riparian corridor and enhancing ORV components locally.
Sentinel Drive Roadside Parking	Remove roadside parking along Sentinel Drive and restore to natural conditions.	These changes would remove uses from the riverbank thus reducing erosion and trampling impacts in riparian corridor and enhancing ORV components locally.
Yosemite Village Day Use Parking Area/Roundabouts	Move the Yosemite Village Day Use Parking Area northward 150 feet away from the river to facilitate restoration goals. Formalize parking area with a total of 850 parking places. Two traffic roundabouts, one at the Village Drive and Northside Drive intersection at Yosemite Village Day Use Parking Area and one at the intersection of Sentinel Drive and Northside Drive, would be needed. A pedestrian undercrossing would be constructed to address traffic congestion and pedestrian/vehicle conflicts.	The extent of construction would partially encroach into Cook’s Meadow; however wetlands would be restored by moving development away from the river. Mitigations would compensate wetland loss, and protect sensitive areas from staging impacts such as compaction and erosion. The ORV would be protected locally.
<b>Yosemite Lodge and Camp 4</b>		
Superintendent’s House (Residence 1)	Remove and relocate to the NPS housing area outside of the river corridor.	Relocation of this facility outside of the river corridor may reduce informal trailing in the adjacent meadow thereby enhancing the ORV locally.
Yosemite Lodge Road and Northside Drive	Construct a pedestrian underpass to address congestion at intersection and alleviate pedestrian/vehicle conflicts. Roadside parking would be removed and more culverts would be added. Implementation of mitigations would protect the riparian corridor from erosion, pollutants, and general habitat disturbance during construction.	Changes would remove and redirect uses from the riverbank thus reducing erosion and trampling impacts in riparian corridor; the ORV would be protected locally.
Yosemite Lodge Visitor Facilities	In addition to retaining the existing 245 units, construct new 3-story lodging structure(s) with the pre-flood number of 440 units (redesign Yosemite Lodge out of the 100-year floodplain).	New and existing lodging would be outside the 100-year floodplain and would not affect meadow or riparian habitat; the ORV would continue to be protected locally.
Northside Drive (Stoneman Bridge to Yosemite Village Day Use Parking Area)	Facility retained. A component of the primary transportation & circulation road system that connects all major visitor service nodes. Hydrologic connectivity improved by increasing culverts.	Change has a localized effect on the ORV as road bisects meadow but in keeping with recreational designation; ORV would continue to be protected segmentwide.

To ensure Biological ORV-2 is protected by this plan and protected and enhanced through time, the NPS would continue to monitor the condition of the ORV to provide early warning of conditions that require management action before impacts occur. Regular monitoring would also reveal whether conditions have reached trigger points; and, if so, the NPS would implement specific response actions (as described in Chapter 5) to avoid or minimize adverse effects.

**Conclusion.** Under Alternative 6, the biological ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. Actions would further enhance riverbanks and meadows. Removal or relocation of select campsites and infrastructure and reduced use would improve meadow conditions in this segment and thereby enhance the biological ORV. The recreational segment of the Merced River corridor in East Yosemite Valley would remain readily accessible by road and will have appropriate development along the shorelines. The scenic portion of Segment 2 in West Yosemite Valley would remain free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

### ***Geological/Hydrological ORV-5 – The “Giant Staircase”***

The NPS has no immediate management considerations with respect to the Giant Staircase characteristic of the geology of Yosemite Valley above Happy Isles as this geologic ORV is determined to be absent of adverse effects and degradation. Because there are no considerations regarding the condition of this ORV, no actions other than continued protection is necessary. It is unlikely that this ORV would be affected by human intervention in the future. Therefore, the NPS would not monitor the condition of this ORV as part of the *Merced River Plan/DEIS*.

### ***Geological/Hydrological ORV-6 – Rare, Mid-elevation Alluvial River***

As described in Chapter 5, the NPS selected the status of riparian habitat as the indicator to specifically assess the effectiveness of actions designed to protect this and other ORV. This ORV integrates geologic/hydrologic processes and the condition of aquatic, riparian, and floodplain communities.

The following actions are included to specifically protect and enhance Free-flowing Conditions and Biological ORV-2, but would also address the protection and enhancement of ORV-6.

- Large wood, constructed log jams, and brush layering would be used in the vicinity of bridges to decrease bed scouring and streambank instability. Riprap would be removed where possible and replaced with native riparian vegetation, using bioengineering techniques. In the event that such actions do not improve conditions, bridge redesign or removal could be reconsidered.
- Removing abandoned underground infrastructure, along the river corridor would be part of a comprehensive strategy to correct altered surface and subsurface hydrology.
- Remove riprap where riverbanks do not need stabilization to allow for channel migration. Replace riprap with bioengineered riverbanks, integrating native riparian vegetation, where riverbank stabilization is necessary for protection of critical infrastructure.

**TABLE 8-124: SEGMENT 2 ACTIONS AND IMPLICATIONS FOR GEOLOGICAL/HYDROLOGICAL ORV-6**

Location	Action in Alternative 5	Effects toORV-6
<b>Curry Village and Campgrounds</b>		
North, Lower and Upper Pines Campgrounds and Backpackers Campgrounds	All campsites within 100 feet of the river would be removed. Designated raft put-in areas established.	These changes would result in less erosion along the riverbank because designated access points to resilient areas are identified for visitors, and sensitive areas would be restored and access would be discouraged; the biological ORV would be enhanced segmentwide
Curry Village Lodging	Lodging would include 453 units, (290 tents and 163 hard-sided units)	Lodging is outside the 100 year floodplain and is not causing adverse effects or degradation to ORV-6 on a segmentwide basis.
Ahwahnee, Stoneman and Sugar Pine Bridges	All three bridges are retained.	Existing riparian impacts mitigated with strategic placement of large wood on riverbanks and the addition of brush layering and constructed log jams to address scouring.
<b>Yosemite Village and Housekeeping Camp</b>		
Yosemite Village Day Use Parking Area/Village Center Parking Area	Move the Yosemite Village Day Use Parking Area day-use parking area northward 150 feet away from the river to facilitate restoration goals. Formalize parking area with a total of 850 parking places.	These changes would reduce effects to riparian corridor and locally enhance ORV components as use would be relocated away from areas critical to river or meadow function.
Housekeeping Camp Lodging	Retain 232 lodging units, and remove 34 units out of observed ordinary high water mark. Retain Housekeeping Camp shower houses, restrooms, and laundry, and remove grocery store. Restore one acre of the riparian ecosystem.	These changes would reduce effects to riparian corridor and locally enhance ORV components due to restoration. In addition access would be directed to resilient sandy beaches.
Ahwahnee Row and Tecoya Dorms Concessioner Employee Housing	Remove housing and development out of the 100-year floodplain, recontour topography, decompact soils, and restore stream hydrologic function.	Changes would result in reduction of residential activities in riparian areas; biological ORV would be enhanced locally.
Yosemite Village Day Use Parking Area /Roundabout	Construct a pedestrian underpass and roundabout at Yosemite Village Day Use Parking Area parking area to address congestion at intersection and alleviate pedestrian/vehicle conflicts.	The extent of construction would encroach into Cook’s Meadow; however wetlands would be restored by moving development away from the river. Expect a net increase in wetland areas. Mitigations would protect sensitive areas from staging impacts such as compaction and erosion.
<b>Yosemite Lodge and Camp 4</b>		
Yosemite Lodge Parking Area	Construct 300 vehicle parking spaces and 15 tour bus parking spaces.	Implementation of mitigation measures would protect the floodplain from erosion and other disturbance during construction.
Yosemite Lodge Visitor Facilities	Retain the existing 245 units.	Lodging is outside the 100 year floodplain and is not causing adverse effects
Yosemite Lodge Concessioner Employee Housing	Remove old and temporary housing at Highland Court and the Thousands Cabins. Construct two new concessioner housing areas housing 104 employees. Construct 78 employee parking spaces.	Lodging is outside the 100 year floodplain and is not causing adverse effects

**TABLE 8-124: SEGMENT 2 ACTIONS AND IMPLICATIONS FOR GEOLOGICAL/HYDROLOGICAL ORV-6 (CONTINUED)**

Location	Action in Alternative 5	Effects to ORV-6
<b>Yosemite Lodge and Camp 4 (cont.)</b>		
Yellow Pine Administrative Site	Retain 4 group administrative use sites (up to 120 people).	Campground is within floodplain but would undergo restoration and is not impacting areas critical to river function.
Yosemite Lodge Road and Northside Drive	Construct a pedestrian underpass and roundabout to address congestion at intersection and alleviate pedestrian/vehicle conflicts.	Roadside parking would be removed and more culverts would be added. Implementation of mitigations would protect the riparian corridor from erosion, pollutants, and general habitat disturbance during construction. Changes would remove and redirect uses from the riverbank thus reducing erosion and trampling impacts in riparian corridor.
El Capitan Crossover	Facility retained. This roadway segment is a key connector between Northside and Southside Drives and serves as an exit point at west end of Yosemite Valley.	Bridge protects riparian habitat from destruction caused by random crossings throughout the river corridor
Northside Drive (Stoneman Bridge to Yosemite Village Day Use Parking Area)	Remove portion of road and relocate the bike path to the south, to improve the meadow/river connectivity. Restore meadow contours and native vegetation.	Removes facility that currently has a localized affect on the ORV. Restoration enhances the ORV in this area.

To ensure this ORV is protected and enhanced through time, the NPS would monitor the condition of the ORV using the status of riparian habitat as an indicator, and take specific actions should conditions reach trigger points.

**Conclusion:** Under Alternative, the geologic/hydrologic ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. All actions would enhance the 10 and/or 100-year floodplains and this ORV. Actions to protect and enhance free-flowing conditions as well as meadows and riparian complexes in Segment 2 would result in additional enhancement of the geologic/hydrologic ORV. The recreational segment of the Merced River corridor in East Yosemite Valley would remain readily accessible by road and will have appropriate development along the shorelines. The scenic portion of Segment 2 in West Yosemite Valley would remain free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

### ***Cultural ORV-8 – Yosemite Valley American Indian Ethnographic Resources***

As described in Chapter 5, Yosemite Valley American Indian ethnographic resources include relatively contiguous and interrelated places that are inextricably and traditionally linked to the history, cultural identity, beliefs, and behaviors of contemporary and traditionally-associated American Indian tribes and groups. Management considerations related to ethnographic resources involve park operations, crowding, and visitor use. Actions included in the Merced River Plan/DEIS include:

- Continue coordination between traditionally associated American Indian tribes, groups, and traditional practitioners (through the Park American Indian Liaison) with law enforcement, fire



management, interpretation, invasive species, ecological restoration, and facilities management programs;

- Continue to provide operational guidelines for material staging areas, parking, etc. to protect ethnographic resources;
- Ensure access for traditionally-associated American Indians for participation in annually scheduled traditional cultural events. In addition, tribal access for the personal conduct of ongoing traditional cultural practices would be assured through the Yosemite tribal fee waiver pass program.
- Reduce and formalize day-use parking capacity Manage access in Segment 2 to protect traditionally-used plant populations in the river corridor during periods of high use.
- A series of actions to improve and relocate parking (described further below and in Chapter 8) would protect Cultural ORVs by removing these uses from the proximity of several cultural resources.

Threats to traditionally-used plant populations include invasive species such as Himalayan Blackberry (*Rubus armeniacus*), drainage and hydrology impacts to meadows, and erosion and revetments that affect riparian vegetation. The *Merced River Plan/DEIS* would address these considerations through the following actions:

- The ecological restoration actions associated with this planning effort implemented in concert with the existing invasive plant management program would address impacts to some traditionally-used plant populations in some locations.
- Restoration actions to protect riparian areas, meadows, and hydrological resources would further contribute to the protection and enhancement of the traditional-use plant communities included in this ORV.
- Introduction of seedlings to affected stands of black oaks and protection as necessary to ensure that ratios of adults to saplings is at least 0.65.
- Primary actions to manage major vista points under Scenic ORV-16 include mechanical thinning or removal of conifer trees. This action would be coordinated to ensure that the ORV-8 trigger point for the ratio of sapling to adult trees is not exceeded.

Facilities that would remain in this segment of the river have no direct impact on the ethnographic component of the cultural ORV as indicated in the baseline condition assessment.

The *Merced River Plan/DEIS* proposes a variety of actions to address specific considerations including continued coordination between traditionally associated American Indian tribes, groups, and traditional practitioners and the NPS; continued access for traditionally associated American Indians for participation in annually scheduled traditional cultural events; and ecological restoration actions to protect and enhance traditionally used plant populations. To prevent future impacts, the NPS would monitor the condition of the ORV, and take specific actions should additional trigger points be exceeded.

**TABLE 8-125: SEGMENT 2 ACTIONS AND THEIR IMPLICATIONS FOR CULTURAL ORV-8**

Location	Action in Alternative 6	Effects to ORV-8
<b>Segmentwide</b>		
Traditional Cultural Property Documentation	Document the Yosemite Valley Traditional Cultural Property, consisting of traditional use areas, spiritual places and historic villages and complete National Register evaluation and interpretive summary	Documentation, mapping, and evaluation would provide the detail necessary to protect and enhance the ORV segmentwide.
Visitation	21,800 people per day	This level of visitation may continue to result in a lack of privacy for traditional cultural practices in particular locations seasonally. Access to annually-scheduled traditional cultural events and personal conduct of traditional cultural practices would be assured thereby continuing protection of the ORV segmentwide.
<b>Curry Village and Campgrounds</b>		
North Pines, Lower Pines, and Backpackers Campgrounds	Remove camp sites, including from North Pines (14), Lower Pines (5), and Backpackers (15), and restore the area within 100' of the floodplain with native plant communities.	Removal of campsites from the floodplain would reduce effects to riparian corridor and enhance plant growth and support native restoration. New campsites would be located 150 feet away from the river to protect riparian areas from direct impacts related to potential trampling. Fencing and designated river access points would also direct use to resilient areas. The ORV would continue to be protected segmentwide.
<b>Yosemite Village and Housekeeping Camp</b>		
Ahwahnee Meadow	Restore the impacted portion of Ahwahnee Meadow to natural meadow conditions. Remove the tennis courts from the black oak woodland.	Removal of the abandoned infrastructure and native plant revegetation will allow for recruitment of desirable black oaks in this area thereby enhancing the ethnographic component of the cultural ORV locally.
<b>Yosemite Lodge and Camp 4</b>		
Yosemite Lodge Parking Area	Construct 300 vehicle parking spaces and 15 tour bus parking spaces.	Additional parking near the Wahhoga designated use area will enhance access for traditional practitioners to participate in ongoing cultural practices; thereby enhancing the ORV segmentwide.
Yellow Pine Administrative Site	Retain 4 group administrative use sites (up to 120 people).	Campground is within culturally important areas but is not currently impacting resources due to location and level of use. Retention of Yellow Pines Campground will enhance access for traditional practitioners to participate in ongoing traditional cultural practices segmentwide.

**TABLE 8-125: SEGMENT 2 ACTIONS AND THEIR IMPLICATIONS FOR CULTURAL ORV-8 (CONTINUED)**

Location	Action in Alternative 6	Effects to ORV-8
<b>Yosemite Lodge and Camp 4 (cont.)</b>		
Eagle Creek New Campground	New campground developed east of El Capitan Picnic Area with ~79 car and recreational vehicle sites.	Implementation of mitigation measures would protect planted areas from disturbance during construction; the ORV would continue to be protected locally.
Former Bridalveil Sewer Plant	Remove the buried infrastructure.	Removal of abandoned infrastructure and native plant revegetation will allow for recruitment of desirable black oaks in this area thereby enhancing the ethnographic component of the cultural ORV locally.

**Conclusion.** Under Alternative 6, the ethnographic component of the cultural ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. Actions to protect and enhance floodplains, meadows and riparian complexes in Segment 2 would result in additional enhancement of the traditionally-used plant resources of the ethnographic component of the cultural ORV. Actions that would remove infrastructure and restore black oak woodlands would also enhance a critical component of this ORV. Reduction in maximum people per day in Yosemite Valley, and management of user capacity and visitor use would not limit access to traditional practitioners because measures would be in place to ensure access to annually-scheduled events as well as individual access for ongoing traditional cultural practices. Furthermore, the overall reduction in visitation under Alternative 6 would reduce the effects of crowding and enhance privacy for traditional cultural practices.

***Cultural ORV-9 – Yosemite Valley Archeological District.***

The Yosemite Valley Archeological District is a linked landscape that contains dense concentrations of resources that represent thousands of years of human settlement along this segment of the Merced River. Heavily-used formal trails and informal trails, as well as illegal campfires, graffiti, and trampling stock trail use, parking and informal rock climbing can all affect ORVs in this area. Archeological resource protection would be achieved through actions in this plan to manage visitor use levels, divert foot traffic around sites, removing informal trails, and formalizing river and meadow access locations, mitigating ecological restoration practices by using noninvasive techniques wherever possible. Many of the actions related to ecological restoration in Segment 2, such as delineating roadside parking, would also help protect archeological sites by diverting foot traffic away from sites and into less sensitive areas. Actions to enhance the recreational ORV in Segment 2 would manage recreational users both in terms of flow and location of users at any one time. A reduction in people and vehicles at one time in Yosemite Valley could also reduce visitor use-related effects on archeological resources.

Site-specific treatment actions would be developed through site management plans, where necessary, to avoid resource loss through park actions (such as development, repair, and maintenance of facilities and underground utilities to support visitor use or natural forces).

Management considerations for this ORV also involve continuing to survey and monitor archeological resources as well as update required documentation.

**TABLE 8-126: SEGMENT 2 ACTIONS AND THEIR IMPLICATIONS FOR CULTURAL ORV-9**

Location	Action in Alternative 6	Effects to ORV-9
<b>Segmentwide</b>		
Removal of abandoned infrastructure at Eagle Creek/Rocky Point, Bridalveil Fall Sewer Plant, Royal Arches Meadow, corridor-wide	Remove abandoned underground infrastructure	Individual actions will be subject to NHPA Section 106 review to avoid and/or mitigate effects to archeological resources. This action could result in local effects to the archeological component of the cultural ORV, however, the river value would continue to be protected segmentwide.
Concessioner Employee Housing	Temporary employee housing would be removed and replaced with permanent housing at Huff House (164 beds), Lost Arrow (50 beds) and Yosemite Lodge (104 beds).	Design, follow-on compliance, and mitigation measures would avoid or mitigate effects to sensitive archeological resources. Actions would continue to protect the ORV segmentwide.
<b>Curry Village and Campgrounds</b>		
New campsites at Upper Pines, Backpacker's, Camp 4, West of Yosemite Lodge, and Upper and Lower River Campgrounds	All campsites within 100 feet of the river would be removed. Upper Campsite in culturally sensitive area. New campsites and infrastructure constructed out of the 150-foot riparian buffer. Lower River – designate river access at Housekeeping Camp eastern beach	Design, follow-on compliance, and mitigation measures would avoid or mitigate effects to sensitive archeological resources. Actions would continue to protect the ORV segmentwide.
<b>Yosemite Village and Housekeeping Camp</b>		
The Ahwahnee Pool and Tennis Courts	Remove the pool and tennis courts. Tennis courts are located in a sensitive cultural area	Mitigation measures would include avoidance, documentation, data recovery, and interpretation of cultural resources during facility construction. Local impacts to the ORV may occur; however, actions would continue to protect the ORV segmentwide.
Yosemite Village Day Use Parking Area/Roundabouts	Move the Yosemite Village Day Use Parking Area northward 150 feet away from the river to facilitate restoration goals. Formalize parking area with a total of 850 parking places. Two traffic roundabouts, one at the Village Drive and Northside Drive intersection at Yosemite Village Day Use Parking Area and one at the intersection of Sentinel Drive and Northside Drive would be needed. A pedestrian undercrossing would be constructed to address traffic congestion and pedestrian/vehicle conflicts.	Mitigation measures would include avoidance, documentation, data recovery, and interpretation of cultural resources during facility construction. Local impacts to the ORV may occur; however, actions would continue to protect the ORV segmentwide.
<b>Yosemite Lodge and Camp 4</b>		
Yosemite Lodge Parking Area	Construct 300 vehicle parking spaces and 15 tour bus parking spaces.	Mitigation measures would include avoidance, documentation, data recovery, and interpretation of cultural resources during facility construction. Local impacts to the ORV may occur; however, actions would continue to protect the ORV segmentwide.
Yosemite Lodge Intersection Congestion	Design a pedestrian underpass to alleviate pedestrian/vehicle conflicts.	Mitigation measures would include avoidance, documentation, data recovery, and interpretation of cultural resources during facility construction. Local impacts to the ORV may occur; however, actions would continue to protect the ORV segmentwide.

All ground disturbances associated with ecological restoration actions; removal of buildings and infrastructure; re-routing of roads; and, parking lot and campground construction under Alternative 6 would be subject to park standard operating procedures, subject matter expert review, and monitoring (as needed) to ensure that archeological resources are protected. Facilities that would remain in this segment of

the river have no direct impact on the archeological component of the cultural ORV as indicated in the baseline condition assessment.

The NPS would delineate bike paths, roads, and other infrastructure away from sensitive cultural and ethnographic resource areas; remove graffiti at rock art and other sensitive features, conduct public education to discourage climbing, and remove climbing hardware from sensitive features. To prevent these considerations, or others, from redeveloping, the NPS would monitor the condition of the ORV, and take specific actions should conditions exceed specific trigger points.

**Conclusion:** Under Alternative 6, the archeological component of the cultural ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. Localized visitor-use-related impacts to archeological resources would be addressed through various enhancement actions. All ground disturbances associated with ecological restoration actions; removal of buildings and infrastructure; re-routing of roads; and, parking lot and campground construction under this alternative would be subject to park standard operating procedures, subject matter expert review, and monitoring (as needed) to ensure that archeological resources are protected. Reduction in maximum people per day in Yosemite Valley, and management of user capacity and visitor use would reduce the potential for visitor use impacts.

### ***Cultural ORV-10 – Yosemite Valley Historic Resources***

As described in Chapter 5, the Yosemite Valley Historic Resources represent a linked landscape of river-related or river-dependent, rare, unique or exemplary buildings and structures that bear witness to the historical significance of the river system. Protective actions to address management concerns related to the Yosemite Valley Historic Resources ORV-10 include:

- Follow the recommendations from the Ahwahnee Historic Structures Report (1997) and the Ahwahnee Cultural Landscape Report (2010) when redesigning the Ahwahnee Parking Lot to bring the Ahwahnee stone gate house and the Ahwahnee Parking Lot to “good” condition.
- Develop a Historic Structures Report for the LeConte Memorial Lodge NHL to determine the rehabilitation needs to bring the building to “good” condition.
- Rehabilitate the Superintendent’s House (Residence 1) per the Historic Structure Report (Lingo 2012) to bring the building to “good” condition. This rehabilitation of the building will occur under all action alternatives, regardless of whether the building is relocated.

Relocation of the Superintendent’s House (Residence 1) is proposed under Alternative 6 to address the 1982 Guidelines for the Wild and Scenic Rivers Act that requires managing agencies to consider relocation of major public use facilities outside of the river corridor. The Superintendent’s House

**TABLE 8-127: SEGMENT 2 ACTIONS AND THEIR IMPLICATIONS FOR CULTURAL ORV-10**

Location	Action in Alternative 6	Effects to ORV-10
<b>Curry Village and Campgrounds</b>		
Stoneman Meadow and Curry Orchard parking lot	Restore Stoneman Meadow including removal of 1,335 feet of Southside Drive and re-alignment of road through Boys Town area. Extend the meadow boardwalk through wet areas to Curry Village (up to 275').	Change would affect circulation patterns locally. Change is not likely to affect buildings and structures included in the Yosemite Valley Historic Resources ORV collective.
Curry Village Lodging	Total would be 453 guest units, including: 290 tents in Curry Village retained; 98 hard-sided units in Boys Town constructed; 18 units at Stoneman House retained; and 47 cabin-with-bath units in Curry Village retained.	Mitigation measures would contribute to documentation and interpretation of historic cultural resources during facility removal. Change would not affect contributing element of the Yosemite Valley Historic Resources ORV collective. The ORV would be protected segmentwide.
Huff House Employee Housing	Temporary housing at Huff House and Boys Town is removed. Construct 16 buildings, housing 164 employees using the same dormitory prototype.	Mitigation measures would protect cultural resources during facility removal and construction. Change would not affect contributing element of the Yosemite Valley Historic Resources ORV collective. The ORV would be protected segmentwide.
<b>Yosemite Village and Housekeeping Camp</b>		
The Ahwahnee Pool and Tennis Courts	Remove the pool and tennis courts. Tennis courts are located in a sensitive cultural area	Mitigation measures would protect cultural resources during facility removal. Change would not affect contributing element of the Yosemite Valley Historic Resources ORV collective.
Ahwahnee Parking Lot	Follow the recommendations from the Ahwahnee Historic Structures Report (1997) and the Ahwahnee Cultural Landscape Report (2010) when redesigning the Ahwahnee Parking Lot to bring the Ahwahnee stone gate house and the Ahwahnee Parking Lot to "good" condition.	Redesign of the Ahwahnee Parking Lot would rehabilitate contributors to the cultural ORV thereby enhancing the Yosemite Valley Historic Resources ORV locally and segmentwide.
Yosemite Village Day-Use Parking Area	Remove Concessioner General Offices, Concessioner Garage, and the Bank Building are removed. Re-align the intersection at Northside Drive and Village Drive. Add a three-way intersection at Sentinel Drive and the entrance to the parking area. Provide on-grade pedestrian crossings.	The removal of historic and non-historic properties and re-alignment/re-establishment of the intersections would affect circulation patterns locally. Change is not likely to affect buildings and structures included in the Yosemite Valley Historic Resources ORV collective.
Superintendent's House (Residence 1)	Relocate outside the river corridor to the NPS housing area. Rehabilitate historic structure in new location.	The action would remove a contributor to the Yosemite Valley Historic Resource ORV resulting in localized effects. Mitigation measures include documenting and interpreting the resource. The loss of this resource would not result in a segmentwide adverse effect of the collective of resources.
Bridalveil Falls Trail	Redesign trails, boardwalks, and viewing at the base of the falls to improve wayfinding and pedestrian circulation. Restore informal trails. Improve ADA compliance of pedestrian walkways and restrooms.	The action would affect trails that are connected by the historic footbridges which are components of the Yosemite Valley Historic Resources ORV. Mitigation measures and Section 106 review would ensure the protection of the historic resources and the redesign could result in enhancement of the ORV locally.



(Residence 1) is a component of the Yosemite Valley Historic Resources component of the cultural ORV in Segment 2. The NPS would document and interpret any building or structure threatened with removal or relocation. In this manner, while the individual tangible element or elements may be lost or moved, a record of their existence and historical significance would still be available to the public.

To address management considerations, the *Merced River Plan/DEIS* proposes continuing the active program of maintenance for historic buildings and structures; employing existing design guidelines to ensure that new development or redevelopment complements the ORV and the Yosemite Valley Historic District; and periodically assessing and updating professional documentation for the historic resources.

Ecological and scenic value restoration actions in Segment 2 would enhance the cultural landscape which contributes to the historic setting of the resources that comprise the ORV-10. There are no construction actions associated with Alternative 6 that would affect the spatial organization of the historic resource collective, though changes in the circulation patterns as a result of re-routing roads at the Yosemite Village day-use parking area and at Stoneman Meadow would affect circulation patterns that are associated with this ORV. These effects would be localized and would not affect the condition of the ORV on a segmentwide level.

**Conclusion:** Under Alternative 6, the historic resources component of the cultural ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. Relocation of the Superintendent’s House (Residence 1) would result in localized effects that would be mitigated through documentation and interpretation. Once removed or relocated, these resources would no longer be considered part of the ORV collective. All disturbances to circulation and spatial organization associated with ecological restoration actions; removal of buildings and infrastructure; re-routing of roads; and, parking lot and campground construction under this alternative would be subject to park standard operating procedures, subject matter expert review, and documentation (as needed) to ensure that historic resources are protected.

### ***Scenic ORV-16 – Iconic Scenic Views in Yosemite Valley***

Visitors to Yosemite Valley experience scenic views of some of the world’s most iconic scenery, with the river and meadows forming a placid foreground to towering cliffs and waterfalls. Actions intended to manage natural resources may include the use of prescribed fire or controlled burns to thin forests that are encroaching on meadows; cutting trees, tree branches or other vegetation by mechanical means; and the application of herbicides to control invasive species. Related actions intended to protect the Recreation ORV would limit the number of visitors to lessen visitor density and congestion at attraction sites and make improvements to the transportation system that would reduce automobile congestion. Air quality can affect visitors’ ability to experience scenic values in Segment 2. The NPS would cooperate with regional authorities to reduce airborne contaminants caused by combustion, including carbon dioxide emissions, smoke caused by fire, particulate matter generated by construction, and to improve air quality conditions.

In consideration of Wild and Scenic River Act requirements that the NPS consider the presence of existing structures, major facilities and services provided for visitor use, the NPS would eliminate several structures and facilities in Segment 2 under this alternative. Under Alternative 6 actions would remove structures at the Ahwahnee pool and tennis court. Removal of these structures could enhance scenic resources from specific

locations. Ecological restoration actions in Segment 2 would enhance the meadow and riparian communities which contribute to the scenic values in Yosemite Valley. This recreational river segment would remain readily accessible by road and will continue to have appropriate development along the shorelines (a comprehensive list of facilities in Segment 2 is included in table 7-1). Facilities that would remain in this segment of the river have no direct impact on the scenic river value as indicated in the baseline condition assessment. Changes to parking and vehicle traffic in Yosemite Valley to enhance Recreational ORV- 20 particularly the removal of roadside parking along Sentinel Drive and restoration to natural conditions would enhance Scenic ORV-16.

**TABLE 8-128: SEGMENT 2 ACTIONS AND THEIR IMPLICATIONS FOR SCENIC ORV-16**

Location	Action in Alternative 6	Effects to ORV-16
Select Scenic vista Points	(Common to All) Selectively thin conifers and other trees and shrubs that encroach on selected scenic vista points. Remove unnecessary facilities and ensure that all future development satisfies objectives that provide low contrast ratings.	Changes would enhance the scenic values on a segmentwide level.
Yosemite Valley Concessioner Housing	Temporary employee housing would be removed and replaced with permanent housing at Huff House (164 beds), Lost Arrow (50 beds) and Yosemite Lodge (104 beds).	Mitigation measures would avoid or mitigate effects to iconic scenic vistas. Actions would continue to protect the ORV locally.
<b>Curry Village and Campgrounds</b>		
Yosemite Valley Campgrounds	All campsites within 100 feet of the river removed. New campsites installed at Upper Pines, Upper River and Lower River, Backpacker's and Camp 4 and Eagle Creek campgrounds.	Changes to campgrounds would not interfere with iconic scenery and given the location of the facility would not cause impact scenic resources. Removal of the campgrounds near the river will enhance viewsheds locally.
<b>Yosemite Village and Housekeeping Camp</b>		
Yosemite Village Day Use Parking Area/Village Center Parking Area	The Concessioner General Offices, Concessioner Garage, and the Bank Building are removed. Move the Yosemite Village Day Use Parking Area day-use parking area northward 150 feet away from the river to facilitate restoration goals. Formalize parking area with a total of 850 parking places.	Removal of buildings would enhance viewsheds locally.
<b>Yosemite Lodge and Camp 4</b>		
Yosemite Lodge Parking	Construct 300 vehicle parking spaces and 15 tour bus parking spaces. 25 additional spaces at Yosemite Lodge due to redesign, improving parking efficiency near Northside Drive.	Changes to parking would be in keeping with current facility and given the location of the facility would not interfere with iconic scenery. Actions would continue to protect the ORV locally.
Yosemite Lodge Visitor Facilities	Construct new 3 story-lodging structure(s) with the pre-flood number of 440 units (redesign Yosemite Lodge out of the 100-year floodplain).	Rebuild of existing facility is in an already developed area and would not interfere with iconic scenery. Actions would continue to protect the ORV locally.
Yosemite Lodge Road and Northside Drive	Construct a pedestrian underpass to address congestion at intersection and alleviate pedestrian/vehicle conflicts.	Change would not be visible post construction and would not interfere with iconic scenery. Actions would continue to protect the ORV locally.

**Conclusion:** Under Alternative 5, the scenic ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. Tree thinning and ecological restoration actions would improve natural scenic conditions. Removal of buildings at Housekeeping Camp, the Concessioner Garage, the Concessioner General Offices, and the Concessioner Stables would reduce intrusions on scenic resources. All parking lot and campground construction under this alternative would be subject to park standard operating procedures and subject matter expert review to ensure that scenic resources are protected.

### ***Recreational ORV-20 – River-related Recreation in Yosemite Valley***

Visitors to Yosemite Valley enjoy a wide variety of river-related recreational activities in the Valley's extraordinary setting along the Merced River. Throughout the Yosemite Valley segment, the river has provided the setting for recreational experiences such as fishing, floating, and sightseeing. Transportation is considered an important part of the visitor experience in Yosemite Valley because it is the means of access to recreational opportunities in Yosemite Valley. Management considerations address the amount of vehicle traffic and the number of people at one time in Yosemite Valley at the peak times of day during the park's busy summer season.

All restoration actions to protect and enhance biological, cultural, geologic/hydrologic, and scenic ORVs would further enhance visitors' connections to the river and its values, which are essential to the recreational ORV in this segment. These actions would ensure that the increase in day-use, camping, and lodging opportunities would not cause adverse effects or degradation to ORV-20 on a segmentwide basis. Camping and overnight lodging would be available segmentwide, and essential aspects of the recreational ORV would not be affected. There are also actions proposed in Alternative 6 that would improve picnicking, and wayfinding. Finally, commercial boating is limited to 100 boats at one time and private boating is limited to 150 trips per day in Segment 2, in this alternative which reduces crowding and increases the stretches of the river on which private boating and paddling is allowed, thereby enhancing key aspects of this recreational experience.

**TABLE 8-129: SEGMENT 2 ACTIONS AND THEIR IMPLICATIONS FOR RECREATIONAL ORV-20**

Location	Action in Alternative 6	Effects to ORV-20
Segmentwide visitation	21,800 visitors per day	This managed change in visitation would reduce crowding and congestion thereby enhancing the recreation ORV on a segmentwide level.
Concessioner Stables	Retain Concessioner Stables to support Merced Lake High Sierra Camp and overflow parking for campgrounds. Commercial equestrian day rides would be eliminated. Kennel service remains. Retain associated housing (25 beds).	Changes similar to current conditions and would not substantially alter components of the river recreation experience.
Curry Village Lodging	Lodging would include 453 units, as compared with 400 under Alternative 1.	Changes to Lodge would be in keeping with current facility. Lodge itself is not part of the ORV-20 but does facilitate access to ORV-20 for certain visitors. This use would remain.
Lower Rivers Nature Walk	Create an interpretive (nature) walk through Lower Rivers that emphasizes river-related natural processes, the park's ecological restoration work and what visitors can do to protect the river.	Change would improve interpretation of the river and its values, and would enhance the recreation ORV in this segment.
<b>Yosemite Village and Housekeeping Camp</b>		
The Ahwahnee Pool and Tennis Courts	Remove the pool and tennis courts	Removal of facilities would reduce opportunities for one type of recreation activities, but would not substantially alter components of the river recreation experience.
Segment wide River Access	Swimming and water play allowed in all segments except 6, impoundment. No commercial boating. Boating allowed on all segments except 6, impoundment. Private use limited to 150 trips per day/commercial to 100 boats at one time in Segment 2 between the Pines Campgrounds and Sentinel Beach.	Change would limit commercial boating and would limit the number of private boating. However, this change does not affect components of the recreational ORV. This reduction in boats enhances dispersed recreation along the river corridor.
Housekeeping Camp Lodging	Retain 232 lodging units, and remove 34 units out of observed ordinary high water mark. Retain Housekeeping Camp shower houses, restrooms, and laundry, and remove grocery store. Restore one acre of the riparian ecosystem.	Changes similar to current conditions and would not substantially alter components of the river recreation experience.
Bridalveil Falls Trail	Redesign trails, boardwalks, and viewing at the base of the falls to improve wayfinding and pedestrian circulation. Restore informal trails. Improve ADA compliance of pedestrian walkways and restrooms.	Change would bring about localized improvements in aspects of the visitor experience (circulation and wayfinding) thus enhancing ORV-20.
<b>Yosemite Lodge And Camp 4</b>		
Yosemite Lodge Visitor Facilities	Construct new 3 story-lodging structure(s) with the pre-flood number of 440 units (redesign Yosemite Lodge out of the 100-year floodplain).	Lodge itself is not part of the ORV-20 but does facilitate access to ORV-20 for certain visitors. This use would remain
Yellow Pine, Camp 4, Yosemite Lodge, and West Valley Campgrounds.	Remove camping and restore the 100-year floodplain to natural conditions. Camp 4 expanded eastward to provide 35 additional walk-in sites. Retain 35 walk-in campsites at Camp 4. Retain 4 group administrative use sites (up to 120 people).	Improvements to campgrounds would improve recreational experience.
Recreational Experience Quality	Reduction in available day-use parking, and implementation of an East Yosemite Valley Day-use Parking Permit system	This will enhance the recreational experience of segment 2 by reducing crowding at key attraction sites as well as access to these areas (along roadways, in parking lots, etc).

Chapter 6 provides a more detailed description of the day-visitor capacity management strategies that directly measure aspects of the Recreation ORV and outlines specific actions. These actions include:

- Utilize parking and traffic management staff to improve parking efficiency and traffic flow in Yosemite Valley and other locations where needed.
- Institute a transportation fee at entrance stations (for peak-use season).
- Divert vehicles to other destinations outside of Yosemite Valley when parking in the Valley fills.
- When all parking fills to capacity, day visitors would be diverted at checkpoints throughout the park and at entrance stations.
- East Valley day-use parking permits would be issued by advanced reservation and on a first-come-first-serve basis.

NPS would use the Highway Capacity Manual Pedestrian Level of Service (discussed further in Chapter 5) for evaluating the capacity and quality of service of transportation facilities, including walkways, multi-use paths, and similar pedestrian facilities. NPS would also monitor parking rates and vehicles at one time to ensure that they are not exceeding the management standard. Should specific trigger points be reached, the NPS would implement a series of specific actions to improve parking to an acceptable level. Similarly, should visitor densities begin to approach specific triggers; NPS would take steps to keep such densities within the management standard.

**Conclusion:** Under Alternative 6, the recreation ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. The reduction in camping and lodging opportunities, as well as reduction in visitation particularly during the peak season will significantly reduce crowding thereby enhancing the recreational ORV. All restoration actions would enhance opportunities to connect with the river and its values. The reduction in commercial services would affect opportunities for particular types of recreational activities, but would not affect the essential components of the recreation ORV on a segmentwide basis.

### Segment 3 – The Merced Gorge (Scenic Segment)

#### *Scenic ORV-17 – Scenic View in the Merced River Gorge*

The Merced River drops 2,000 feet over 14 miles; a continuous cascade under spectacular Sierra granite outcrops and domes. There are no existing management considerations with respect to the Scenic ORV in the Merced River Gorge. Although there are some localized visual intrusions from essential facilities such as visitor parking areas, restrooms, the Arch Rock entrance station and the El Portal Road, these facilities are consistent with the scenic classification of this river segment. As explained in Chapter 5, this ORV is currently protected and enhanced.

This alternative does not propose any new development or landscape changes within the river corridor aside from improvements to existing roadside pullouts and drainage. These changes would not degrade or adversely impact the scenic ORV on a segmentwide basis. Although private vehicles and overall visitation during peak periods will be managed for East Yosemite Valley only, it is probable that visitation and visitors

at one time in Segment 3 will also witness a reduction under this alternative. This reduction in visitation and visitors at one time may reduce vehicles per viewshed, thereby enhancing the scenic ORV. Monitoring associated with this ORV would ensure that the attributes that comprise this ORV remain within the accepted management class rating.

Alternative 6 would accommodate the same kinds and amounts of use that exist today in Segment 3. The types and levels of use in Segment 3 under this alternative would remain largely unchanged. Actions considered under Alternative 6 would cause no adverse effects or degradation to ORVs on a segmentwide basis.

**Conclusion:** Under Alternative 6, this scenic river segment would show little evidence of human activity and remain largely free of structures. The scenic ORV in Segment 2 of the Merced River corridor would continue to be absent of adverse effects and degradation on a segmentwide level. The reduction in camping and lodging opportunities, as well as reduction in visitation particularly during the peak season in Yosemite Valley will significantly reduce the number of vehicles per viewshed in this segment. All restoration actions would further enhance scenic characteristics in this segment.

## **Segment 4 – El Portal (Recreational Segment)**

### ***Geological/Hydrological ORV-7 – The Boulder Bar in El Portal***

Natural processes would continue to shape the landscape and the geologic ORV. The NPS has not identified any management considerations with respect to the El Portal boulder bar. Land use and facility actions proposed in this alternative would not affect this ORV. Because there are no considerations regarding the condition of this ORV, no actions other than continued protection are necessary. Moreover, the types and levels of visitor and administrative use (e.g., housing, maintenance operations, office space, passive recreation) allowed under this alternative would not affect this ORV. Therefore, the NPS would not monitor the condition of this ORV as part of the *Merced River Plan/DEIS*.

**Conclusion:** Under Alternative 6, the geologic values of this recreational river segment would continue to be absent of adverse effects and degradation on a segmentwide level. There are no actions that would affect the boulder bar in El Portal, and there are no ongoing concerns or considerations associated with this resource.

### ***Cultural ORV-11 – The El Portal Archeological District***

The El Portal Archeological District contains dense concentrations of resources that represent thousands of years of occupation and evidence of continuous, far-reaching traffic and trade. This segment includes some of the oldest deposits in the region. Four sites are known to have experienced particularly severe damage, most notably a large ancient village and cemetery.

To address management considerations pertinent to this river value, the NPS would undertake the following actions:



- Protective measures would ensure that exceptional sites would be protected from unmitigated effects that could lead to adverse effects or degradation on a segmentwide level. A plan of action for addressing the abandoned infrastructure on sites would be developed in consultation with traditionally-associated American Indian tribes and groups. Any solution(s) developed would also include a recommended approach for deterring visitor use within the sites.
- Informal trails, non-essential roads, and abandoned infrastructure would be removed to protect and enhance the archeological resources contributing to the ORV in Segment 4.
- Remove informal trails and non-essential roads.

There are no existing instances of adverse effect or degradation to this ORV. As discussed above, management considerations are present associated with abandoned infrastructure that remains on an exceptional site containing diverse components and extremely sensitive cultural materials that are highly valued by traditionally associated American Indians. Management considerations are also associated with non-essential roads and trails that impact archeological sites. In recognition of the high cultural significance of these sites, this alternative requires the park to develop plans to remove abandoned infrastructure and non-essential roads. Restoration actions to establish a 2.5 acre recruitment area for Valley Oaks would further protect adjacent archeological resources. Construction of employee housing in Old El Portal, Abbieville, and Rancheria would be designed to avoid or mitigate threats and disturbances to archeological sites. Monitoring and protective measures would ensure that new use patterns associated with the new housing would not affect contributing elements of the El Portal Archeological District.

**TABLE 8-130: SEGMENT 4 ACTIONS AND THEIR IMPLICATIONS FOR CULTURAL ORV-11**

Facility	Action in Alternative 6	Effects to ORV-11
<b>El Portal</b>		
Abbieville, Old El Portal, and Rancheria Flat Concessioner Employee Housing	New concessioner employee housing in Abbieville (258 beds), Old El Portal (12 beds), and Rancheria Flat (9 beds).	Design, follow-on compliance, and mitigation measures would avoid and/or mitigate adverse effects to sensitive archeological resources. The El Portal Archeological District would continue to be protected at a segmentwide level.
Abbieville Trailer Park Area	Develop El Portal Remote Visitor Parking Area in the Abbieville/Trailer Park area to provide 200 spaces of visitor parking serviced by regional transit. Adjacent to cultural resources, however only suitable location proximate with direct access to Highway 140	Design, follow-on compliance, and mitigation measures would avoid and/or mitigate adverse effects to sensitive archeological resources. The El Portal Archeological District would continue to be protected at a segmentwide level.
Odger's Bulk Fuel Storage	(Common to All) Remove Odger's bulk fuel storage facility and restore the rare floodplain community of valley oaks. Create a valley oak recruitment area of 2.5 acre in the vicinity of the current Odger's bulk fuel storage area, including the adjacent parking lots.	Mitigation measures would protect cultural resources during facility removal and ecological restoration. Change would continue to protect archeological resources locally.

**Conclusion:** Under Alternative 6, the archeological resources in this recreational river segment would continue to be absent of adverse effects and degradation on a segmentwide level. Removal of abandoned infrastructure, informal trails and non-essential gravel roads would enhance protection of archeological resources. Valley Oak restoration actions would protect adjacent archeological resources from further ground disturbance, Construction of new employee housing would be designed to avoid or mitigate effects

to the El Portal Archeological District. New or altered visitor use patterns associated with the new housing development would be monitored and protective actions would occur if effects triggered responses.

## **Segment 5 – South Fork Merced River Above Wawona (Wild Segment)**

### ***Biological ORV-1 – High-elevation Meadows and Riparian Habitat***

The Merced River sustains numerous small meadows and riparian habitat with high biological integrity. Restoration actions to remove informal trails and charcoal rings to protect cultural resources proposed under this alternative would not affect high-elevation meadows. The NPS proposes no major facility or visitor use actions for Segment 5 under Alternative 6. The biological ORV in this wild river segment would continue to be absent of adverse effects and degradation on a segmentwide level.

### ***Cultural ORV-12 – Regionally rare archeological features representing indigenous settlement including archeological sites with rock ring features***

Three regionally rare prehistoric archeological sites are located along this segment of the South Fork of the Merced Wild and Scenic River corridor. The sites contain unique stacked rock ring constructions and rock alignments. Two sites also contain pine timber remains within the ring interiors or incorporated into the stacked rock courses. Rock constructions are considered fragile and highly subject to human alteration from camping and campfire building disturbances. Two of the South Fork sites are adjacent to formal NPS trails, increasing the likelihood of disturbance. The vicinity of the sites has not been systematically surveyed, and it is possible that additional rock ring sites may be present along the South Fork. Should additional rock ring sites be discovered in the monitoring process, they would also become a part of the South Fork ORV. To remedy these considerations, NPS would:

- Complete documentation of the features. Restrict Wilderness camping in the area of the rock rings (camping allowed past particular marker). Remove informal trails and charcoal rings.
- Increase education and outreach to Wilderness travelers.

**Conclusion.** Under Alternative 6, the archeological resources in this wild river segment would continue to be absent of adverse effects and degradation on a segmentwide level. There are no specific actions to manage user capacity, land use, and/or facilities under Alternative 6 within Segment 5 beyond those designed to protect and enhance ORV-12 that would impact components of Cultural ORV-12. Monitoring activities described in Chapters 5 and 8 would continue to protect and enhance Cultural ORV-12 to ensure there are no adverse effects or degradation to ORV-12 on a segmentwide basis.

### ***Scenic ORV 18 – Scenic Wilderness Views along the South Fork Merced River***

The South Fork Merced River passes through a vast area of natural scenic beauty. The NPS has no immediate management considerations with respect to the Scenic Wilderness Views along the South Fork Merced River as this scenic ORV is determined to be absent of adverse effects and degradation. No new development or landscape changes are proposed within the river corridor. Because there are no

considerations regarding the condition of this ORV, no actions other than continued protection is necessary. It is unlikely that this ORV would be affected by human intervention in the future.

**Conclusion.** Under Alternative 6, the scenic resources in this wild river segment would continue to be absent of adverse effects and degradation on a segmentwide level. The scenic ORV for Segment 5 is determined to be absent of adverse effects, degradation, management concerns, and management considerations. The NPS would not monitor the condition of this ORV.

## Segment 7 – Wawona (Recreational Segment)

### *Biological ORV-3 – The Sierra sweet bay (Myrica hartwegii)*

As described in Chapter 5, the NPS would monitor the condition of this ORV through time using Sierra Sweet Bay Population Decline as its indicator. The health of this ORV would be determined by comparing populations located near Wawona Campground (an area that is likely to be disturbed by humans) with more remote populations that are less likely to receive such disturbance. This population of Sierra sweet bay is in good condition, with no management considerations present. Management action to enhance the population is not required at this time.

To ensure that this biological ORV is protected and enhanced through time, the NPS would monitor the condition of the Sierra sweet bay population to ensure early warning of conditions that require management action before impacts occur.

**Conclusion.** Under Alternative 6, the Sierra Sweet Bay in this recreational river segment would continue to be absent of adverse effects and degradation on a segmentwide level. Reduction in camping and visitor activity in the vicinity of Wawona Campground would enhance this resource.

**TABLE 8-131: SEGMENT 7 ACTIONS AND THEIR IMPLICATIONS FOR BIOLOGICAL ORV-3**

Facility	Action in Alternative 6	Effects to ORV-3
<b>Wawona</b>		
Wawona Campground	Retains 72 sites and one group site. Remove 27 sites that are either within the 100-year floodplain or in culturally sensitive areas.	Action would improve the condition of the ORV by reducing the potential effects on this species associated with campground visitation.

### *Cultural ORV-13 – Wawona Archeological District*

The Wawona Archeological District encompasses numerous clusters of resources spanning thousands of years of occupation, including evidence of continuous, far-reaching traffic and trade. This district spans segments 5, 6, 7, and 8. Accordingly, the condition of this historic property is assessed at the property-level, rather than the segmentwide level. Segment 7 includes the remains of the U.S. Army Cavalry Camp A. E. Wood documenting the unique Yosemite legacy of the African-American buffalo soldiers and the strategic placement of their camp near the Merced River. There are several management considerations for this ORV: the Wawona Archeological District is subject to site-specific impacts from park operations, visitor

use, artifact collection, vandalism, and ecological processes. The following actions would help to address these issues:

- Increase monitoring frequency at affected sites.
- At the district-wide level, revise the existing National Register nomination to reflect changes since its original writing, for example, incorporating newly discovered resources and documenting impacts.
- The Wawona Campground capacity would be reduced to 67 sites (including one group site). 32 sites are removed because they are either within the 100-year floodplain or in culturally sensitive areas.
- Remove informal trails and fire rings to prevent continuing disturbance.
- Develop site management plans as needed for sites with complex uses. Remove shoulder and off-road parking. Limit facility and concessionaire off -road vehicle travel/parking on hotel grounds
- Consider need for archeological site treatment measures to address impacts to shallow deposits of artifacts and features.

**TABLE 8-132: SEGMENT 7 ACTIONS AND THEIR IMPLICATIONS FOR CULTURAL ORV-13**

Facility and Land Use	Action in Alternative 6	Effects toORV-13
<b>Wawona</b>		
Wawona Campground Septic System	Remove septic system, and connect to the sewer system. Build a lift station above the campground to connect to the existing water treatment plant.	Mitigation measures would include avoidance, documentation, data recovery, and interpretation of cultural resources during facility construction. Local impacts to the ORV may occur; however, actions would continue to protect the ORV segmentwide.
Wawona RV dump site	Relocate the dump site to an appropriate location away from the river.	Mitigation measures would include avoidance, documentation, data recovery, and interpretation of cultural resources during facility construction. Local impacts to the ORV may occur; however, actions would continue to protect the ORV segmentwide.
Wawona Store	Replace the existing public restroom facilities with larger restrooms to accommodate visitor use levels. Improve picnic area, redesign bus stop.	Mitigation measures would include avoidance, documentation, data recovery, and interpretation of cultural resources during facility construction. Local impacts to the ORV may occur; however, actions would continue to protect the ORV segmentwide.
Wawona Swinging Bridge	Provide access to Swinging Bridge with access on the south side of the river, delineate trail, restrooms, waste disposal and parking.	Mitigation measures would include avoidance, documentation, data recovery, and interpretation of cultural resources during facility construction. Local impacts to the ORV may occur; however, actions would continue to protect the ORV segmentwide. Restrooms and waste disposal will reduce threats and disturbances to adjacent archeological resources.

The NPS would delineate trails, roads, and other infrastructure away from sensitive cultural and ethnographic resource areas; conduct public education to discourage disturbance to sensitive features. To prevent these considerations, or others, from redeveloping, the NPS would monitor the condition of the ORV, and take specific actions should conditions exceed specific trigger points.

### ***Cultural ORV-14 – Wawona Historic Resources***

The Wawona Historic Resources ORV includes one of the few covered bridges in the region and the National Historic Landmark Wawona Hotel complex. The Wawona Hotel complex is the largest existing Victorian hotel complex within the boundaries of a national park, and one of the few remaining in the United States with this high level of integrity. The Wawona Covered Bridge is in good condition, and there are no current management considerations associated with it, however the bridge requires maintenance to keep the historic structure in good condition in the face of adverse weather and visitor use.

The Wawona Hotel complex continues to serve its original purpose as a guest lodging facility. Management considerations related to the hotel complex involve concessioner operations, the need for regular and routine preservation maintenance, and periodic rehabilitation to ensure visitor safety.

- Regular and routine preservation maintenance, conducted in accordance with the Secretary of the Interior’s Standards, would ensure that this upkeep protects the historic character of the buildings
- Periodic rehabilitation would involve subject-matter specialists in planning, design and implementation to ensure actions do not compromise the historical integrity of the complex
- Concessioner operations would ensure that any operational modifications or updates are appropriate and in keeping with the historic character of the complex.

**TABLE 8-133: SEGMENT 7 ACTIONS AND THEIR IMPLICATIONS FOR WAWONA HISTORIC RESOURCES ORV-14**

Facility	Action in Alternative 6	Effects toORV-14
<b>Wawona</b>		
Wawona Hotel	Retain 104 lodging units at the Wawona Hotel Retain hotel restaurant, swimming pool and tennis court. Retain golf course and golf shop.	The action would retain contributors to the Wawona Historic Resource. The ORV would continue to be protected locally.

To prevent future impacts, the NPS would monitor the condition of the bridge, and take specific actions should conditions exceed trigger points. Trigger points are selected to inform managers well in advance of adverse effects or degradation on the Wawona Covered Bridge. Management considerations for the Wawona Hotel complex include the need for regular and routine preservation maintenance, periodic rehabilitation, and ongoing operations that serve its continuing function as a historic lodging facility. To address these management considerations, the NPS would ensure that these activities would conform to the Secretary of the Interior’s Standards for Treatment of Historic Properties.

### **Segment 8 – South Fork Merced River below Wawona (Wild Segment)**

#### ***Biological ORV-3 — The Sierra sweet bay (Myrica hartwegii)***

As described in Chapter 5, the NPS would monitor the condition of this ORV through time using Sierra Sweet Bay Population Decline as its indicator. The health of this ORV in Segment 8 is in good condition, with no management considerations present. Management action to enhance the population is not required at this time.

### ***Cultural ORV 13— Wawona Archeological District***

The Wawona Archeological District encompasses numerous clusters of resources spanning thousands of years of occupation, including evidence of continuous, far-reaching traffic and trade. This ORV in Segment 8 is in good condition, with no management considerations present. Management actions are not required at this time.

### ***Scenic ORV-18 – Scenic Wilderness Views along the South Fork Merced River***

The South Fork Merced River passes through a vast area of natural scenic beauty. The NPS has no immediate management considerations with respect to the Scenic Wilderness Views along the South Fork Merced River as this scenic ORV is determined to be absent of adverse effects and degradation. No new development or landscape changes are proposed within the river corridor. Because there are no considerations regarding the condition of this ORV, no actions other than continued protection is necessary. It is unlikely that this ORV would be affected by human intervention in the future.

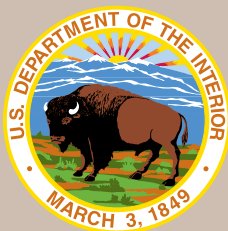
The scenic ORV for Segment 8 is determined to be absent of adverse effects, degradation, management concerns, and management considerations. The NPS would not monitor the condition of this ORV.



Merced Wild and Scenic River  
Draft Comprehensive Management Plan  
and Environmental Impact Statement

Yosemite National Park  
P.O. Box 577  
Yosemite, CA 95389

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