2.2 RECREATIONAL VALUES

2.2.1 Recreational Outstandingly Remarkable Values

Yosemite, one of America's first national parks and a World Heritage site, is a nationally and internationally renowned destination. The Merced River provides for exceptional river-related recreational opportunities, and the dramatic and picturesque setting is central to these recreational experiences. Settings range from the undeveloped wilderness of the Upper Merced to Yosemite Valley's views of high granite cliffs and towering waterfalls. Many first time-visitors are awe-inspired by the rivers' natural wonders and form their first connection to wilderness. Others return year after year, building long-lasting relationships and attachments to the rivers and their environs. For all visitors, the Merced River is a place to experience a designated Wild and Scenic River (WSR) in one of America's most revered national parks.

River Segment 1: Merced River above Nevada Fall

Visitors to this federally designated wilderness in the corridor engage in a variety of activities in an iconic High Sierra landscape, where opportunities for primitive and unconfined recreation, self-reliance, and solitude shape the experience.

Wild segments of the Merced River flow from the heart of the Sierra Nevada through its towering granite peaks and impressive forests. These spectacular, rugged river landscapes provide opportunities for solitude and immersion in nature, personal reflection, independence, and self-reliance. Activities are oriented toward primitive camping and wilderness travel, exploration, and adventure.

Of the many recreational activities, a few are particularly distinctive. Spectacular cascades vary by season along this river segment. In spring, hikers and backpackers experience the sight, sound, and power of the river's crashing waters. In drier months, the cascading waters become beautiful, delicate plumes. Backpacking on a major segment of the John Muir Trail affords visitors a multi-day Sierra Nevada wilderness trip that is internationally renowned for gorgeous riverside views, undeveloped settings, opportunities for solitude, and wilderness camping near the river.

River Segment 2: 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.

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 that shapes the recreational experiences of first-time and return visitors alike. Yosemite National Park affords a wide variety of activities in and along the river, several of which are river related or dependant and rare, unique or exemplary. These include primary river recreational activities such as swimming, paddling and water play, along with secondary river recreational activities such as hiking, picknicking or camping in proximity to the river.

Visitors can choose time frames and seasons that suit their desired activities, ranging from short day trips to multi-day opportunities. Appropriate infrastructure and services facilitate these river-related activities but do not dominate the landscape or interfere with the natural setting

Overall, the Yosemite Valley River Segment offers a variety of outstanding opportunities for frontcountry 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.

2.2.2 Recreational ORV Conditions

The quality of recreational values can be characterized –as visitors participating in desired activities in specific outdoor recreation settings to obtain desired experiences (Driver and Brown 1978, Haas et al. 1980a). The condition of recreational ORVs in the Merced River corridor is therefore defined by these measures: 1) the activities visitors participate in or "activity participation rates"; 2) the condition of the various setting attributes in which these activities occur; and 3) the visitor reported quality of the recreation experience or "satisfaction". Applying these measures, the recreational ORV of the Merced River in the wilderness above Nevada Fall and Yosemite Valley segments would be considered to be in a good condition when visitors have access to and can participate in the activity of their choice in a setting that meets their expectations for environmental, social, and management attributes and yields a relative level of satisfaction.

1) ***Recreational Activity Participation*:** As mentioned above, visitors participate in a variety of activities in specific settings to obtain desired experiences. According to the Guidelines, recreational activities can be both primary and secondary to the river. Primary contact recreation refers to "activities in which there is prolonged and intimate contact with the water. Secondary contact recreation refers to "activities in which contact with the water is either incidental or accidental. Both primary and secondary contact recreation are part of the recreational outstandingly remarkable values of the Merced River in the wilderness segment above Nevada Fall and the Yosemite Valley. This assessment of recreational values will include a listing of the primary and secondary recreational activities that occur in each river segment.

    - <u>*Measure: Activity Participation Rates*</u>. This measure applies to both the wild and Valley segments. Activity participation rates (% of visitors participating in a given activity) can be used as a measure of an activity's importance. These data are collected using general visitor surveys. In these studies visitors are asked to list the activities they participated in during their visit. They are also asked to list which activity was the primary reason for their visit. Results provide an indication as to which activities are most important to the visiting public.

2) ***Setting Attributes*:** refers to the environmental, social and managerial setting in which visitors participate in recreational activities to derive desired benefits (Manning 1985a).

    a) *Environmental setting attributes* consist of the degree of naturalness, remoteness, etc. versus more developed areas. The environmental setting quality of a given river segment is inherent in its classification. According to the Guidelines, "the basis for classification is the degree of naturalness, or stated negatively, the degree of evidence of man's activity in the river area. The most natural rivers will be classified wild; those somewhat less natural, scenic; and those least natural, recreational" (Secretarial Guidelines 1982). Accordingly, visitors can expect a more natural setting in the wild segment above Nevada Falls, whereas they can expect a less natural setting in the recreational segment in Yosemite Valley. This degree of naturalness is a significant attribute of the recreational experiences in these segments.

- *Measure: Visitor Perceptions of Naturalness*. Visitor survey research has addressed these setting attributes as well (Newman & Manning 2002).

b) Social Setting Attributes refer to the number of other people in an area. The negative and subjective evaluation of too many people in a given area generally refers to crowding (Manning 1999). Visitor perceptions of crowding provide a salient measurement of the negative effects of high visitor use levels on an individual's recreational experience (Vaske et al. 2008). Perceived crowding can be measured in multiple ways through visitor survey research. Commonly used measures in the literature and applied to Yosemite include perceived crowding, encounter rates, people at one time (PAOT), and vehicles at one time (VAOT).

- *Measure: Perceived Crowding*. This is a measure applied to both the wilderness and Valley segments. Visitor studies have asked the extent to which respondents feel crowded in certain situations (at specific locations and/or participating in certain activities). For example, visitors are asked to evaluate the how crowded they fell while visiting an attraction site such as the base of Yosemite Falls. In these studies, visitors rate their level of perceived crowding on a 9-point scale from (1) "Not at all crowded" or (1) to (9) "Extremely crowded." Results show the percent of visitors expressing various levels of perceived crowding along this scale.

- *Measure: Encounter Rates*. This is a measure applied specifically to the wilderness segment.[9] This measure refers to the number of encounters with other groups along trails in wilderness. Encounter rates are used as a measure of the extent to which visitors are able to obtain their desired solitude experience without the negative impact of too many encounters with other people.

- *Measure: People At One Time (PAOT)*. Other measures that are used involve asking visitors to evaluate the level of acceptability of the number of people at one time (PAOT) in a given area (see Manning 1999).

- *Measure: Vehicles At One Time (VAOT)*. Similarly, other studies measure visitors' perceptions of crowding along roadways in terms of the number of vehicles at one time (VAOT) along a specific road segment (see White 2010).

c) Managerial Setting Attributes refer to the degree to which management presence and related activities are part of the setting. These may include the presence of regulatory signs and other developments in frontcountry areas or park rangers on patrols in backcountry areas. The condition of the managerial setting is important in determining the condition of recreational values.

- *Measure: Importance-Performance*. Visitor surveys have addressed managerial setting attribute by asking respondents to rate the relative importance and perceived quality of various facilities and services in the park. The resulting "importance-performance" analysis provides park managers with feedback as to the extent to which the management setting, as measured by the quality ratings of various facilities and services, meets the expectations and needs of the visiting public.

[9] Encounter rates measure the frequency of meeting other individuals during the course of a recreational activity. Typically, a visitor that experiences a higher number of encounters will have a decreased sense of solitude than a visitor that has a lower encounter rate.

3) ***Recreation Experience Quality*:** The quality of the recreational experience is typically measured through visitor surveys where visitors are asked to rate their level of "satisfaction" with various aspects of their visit to the park. Satisfaction is a commonly used measure in outdoor recreation research and study (Manning 2011) and has been defined as "a function of the degree of congruence between aspirations and the perceived reality of experiences" (Bultena and Klessig 1969). That is to say the degree to which visitors are satisfied with their experiences may be largely due to whether or not their experience meets their expectations. Given this, it is important to note the subjective nature of satisfaction as a relative concept, specific to each individual's own interpretation of their experience. Nevertheless, satisfaction provides park managers with a general metric of whether visitors' recreational experiences are positive or negative, that is whether the experience meets their expectations or not.

   - *Measure: Visitor Satisfaction*. This measure applies to both the wild and Valley segments. It refers to the extent to which visitors report being "satisfied" with their experience. For example, in recent studies visitors were asked the following, "overall, how would you rate the quality of the facilities, services, and recreational opportunities provided to you and your personal group at Yosemite national Park during this visit?" The response scale ranged from "very good" to "very poor" (Blotkamp et al. 2009). Results provide insight into the overall quality of the experience of the recreational values along the Merced River corridor.

2.2.3 River Segment 1: Merced River above Nevada Fall

Segment 1 of the Merced Wild and Scenic River is located in the Yosemite Wilderness. The Recreational ORVs for this segment are described in Section 2.2.1. In summary, this segment provides wilderness-oriented recreational experiences in a river setting containing dramatic scenery and natural sounds.

Condition at the Time of 1987 Designation

2.2.3.1.1 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.[10] (Where available, specific information on use levels and facility conditions is provided in the next subsection.)

Although data specific to the Merced River corridor are unavailable for 1987, approximately 52,200 park visitors spent a total of 105,100 nights in the Yosemite wilderness (NPS 2011b). Based on this overnight visitation and permit data, it is estimated that the average group size for wilderness use was

[10] The High Sierra Camps are special administrative areas 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.

2.6 people per group, and the average visitor length of stay in the wilderness was approximately two days (Table 2.2-1). While park managers record wilderness permit allocations, information on visitation at specific locations within the wilderness is generally unavailable, except for data derived from periodic survey and visitor-count efforts.

TABLE 2.2-1: VISITOR USE IN YOSEMITE WILDERNESS IN 1987 AND 2010

	Quantity	
Visitor Use Measurement	1987	2010
Yosemite Wilderness Visitors	52,233	53,139
User Nights (in Yosemite Wilderness)	105,103	142,864
Wilderness Permits Issued	20,063	18,632
Group Size (number of people)	2.6	2.9
Average Stay (number of nights)	2.0	2.7

NOTE: Data specific to the Merced River corridor are not available.
SOURCE: NPS 2011c

Yosemite's wilderness, including the Merced River corridor, was one of the most highly visited wilderness areas in the National Wilderness Preservation System (NPS 2005b). Common activities in 1987 included hiking and backpacking. Figure 2.2-1 shows wilderness visitation and overnight stays between 1974 and 2010. Recreational use of Yosemite's wilderness peaked in 1975 when an estimated 172,000 overnight stays were recorded (NPS 2011c).

Figure 2.2-1: Annual Yosemite Wilderness Permits, Visitation and Overnight Use (1974-2011)

Note:
1. Visitation counts do not include day use visitors to the Yosemite backcountry.
2. No Permit information available for 1995 and 1996
3. 100-year-flood event occured in 1997

Hiking. The Merced River trail is the main trail in Segment 1, extending from Nevada Fall to Red Peak Pass Junction. The trail passes through Little Yosemite Valley to Merced Lake and then on to Washburn Lake. At Red Peak Pass Junction visitors can access the upper wilderness areas such as the Red Peak Pass, Isberg Pass, and Tuolumne Meadows (Figure 2.2-2).

The Mist Trail[11] from Happy Isles to the top of Nevada Fall is a primary access route for visitors to this river segment and a major day-use hiking attraction. The John Muir Trail[12] also originates at Happy Isles and provides an alternate route out of Yosemite Valley. A visitor use study conducted by Pettebone et al. (NPS 2008d) demonstrated that approximately 95% of the use originating at the Vernal Fall trailhead is day use. The two trails meet after Nevada Fall and the John Muir Trail continues along the Merced River for 1.5 miles, at which point it veers northward and exits the Merced River corridor. The downstream end of Segment 1 is located before the Mist and John Muir Trails meet. Although the majority of Segment 1 is upstream of this junction, the trails' popularity influences the recreational experience here.

Backpacking. The Merced River corridor above Nevada Fall provided some of the park's most popular wilderness camping opportunities.However, the potential for physical impacts on trails and meadows (e.g., trampling) from hiking and backpacker use within the Yosemite wilderness was noted in 1978 (Sano 1978).Camping in the Little Yosemite Valley and Merced Lake areas was allowed only in official campgrounds. At the time of Wild and Scenic designation, there were three wilderness campgrounds in this river segment: Little Yosemite Valley, Moraine Dome, and Merced Lake Backpackers' Campgrounds (Figure 2.2-2). In addition, overnight lodging was available in the Merced River corridor at the concessioner-operated Merced Lake High Sierra Camp, a potential wilderness addition.[13] Elsewhere in the wilderness areas, backpackers were free to choose their own dispersed campsites. Table 2.2-2 provides a summary of backpack camper facilities.

TABLE 2.2-2: BACKPACKING FACILITIES AND USE IN 1987

Camping Area	Estimated Maximum Capacity (number of campers)	Visitor Use	
		Overnight Stays	Average Group Size
Little Yosemite Valley Campground	125	11,214	3.27
Moraine Dome Campground	50		
Merced Lake Backpackers' Campground	90	N/A	N/A
Merced Lake High Sierra Camp (tent cabins)	60 (22 tent cabins)	N/A	N/A

N/A: not available
SOURCES: NPS 1987; Fincher 2010

Other Recreational Activities. Wilderness users in the Merced River corridor participated in other recreational activities in addition to those discussed above. Photography, swimming, and

[11] The Mist Trail is located within the Yosemite Valley (River Segment 2) and is a unique and popular trail that allows visitors to interact directly with the Merced River.

[12] The 211-mile John Muir Trail is a world-famous trail stretching from Yosemite Valley to Mount Whitney, the highest point in the contiguous United States. This trail overlaps with the Pacific Crest Trail for most of its length.

contemplation are among the activities that enabled wilderness visitors to experience the sense of solitude, self-reliance, exploration, and adventure that contributed to a fulfilling recreational experience.

Recreational opportunities within the Merced River corridor also included commercially guided pack trips and private stock use (i.e. horseback riding). Total stock use[14] levels and proportion of recreational stock use (either by the concessioner-run commercial trips or private individuals) in 1987is not known (Sano 1978). However, in 1978, total stock use reportedly constituted less than 3% of all wilderness use. Furthermore, at that time, private individual stock use accounted for the greatest proportion of stock use within the Yosemite wilderness (42.3% of grazing use) (Sano 1978). Horseback/mule day trips operated by the concessioner also offered visitors the opportunity to ride on horseback/mule to the Half Dome shoulder area. From this point these visitors could climb Half Dome by foot and later return to Yosemite Valley that same day.

2.2.3.1.2 Setting Attributes

At the time of designation in 1987, the location of hiking trails and camping areas allowed park users close contact with the river itself. Other setting attributes included the park's wilderness trailhead quota system. Scenic qualities influencing the recreational experience are described in Section 2.4, Scenic Values.

Although no information on wilderness conditions prior to designation is available regarding the extent and effects of wilderness stock use, the potential for physical impacts on trails and meadows (e.g., trampling), grazing effects, and aesthetic factors (e.g., manure on trails) from hiking and stock use in the Sierra wilderness was acknowledged in 1978 (Sano 1978).

2.2.3.1.2.1 Environmental Setting Attributes

At the time of designation in 1987, the recreational experience was primarily influenced by the scenic value of the landscape in this river segment and by the river itself. Section 2.4, Scenic Values, provides a description of these scenic values. Section 2.2.1 describes the character of the river as it affected the recreational experience.

2.2.3.1.2.2 Social Setting Attributes

At the time of designation in 1987, no formal surveys had been conducted to evaluate visitor perceptions of crowding, or encounters with other parties on or off wilderness trails. The park instituted a wilderness trailhead quota system in 1977 to protect resources and provide for an experience of solitude and independence. Permit allocations controlled the number of overnight wilderness users entering at specific trailheads throughout the park. In 1987, the NPS issued 20,060 overnight wilderness permits for areas throughout the park. Day visitors could access the Merced River corridor (and other wilderness areas) without obtaining a wilderness permit. As a result, the extent of past day-use visitation to the Yosemite wilderness in 1987 is unknown. However, day use in

[14]Stock use in the Yosemite wilderness: (1) NPS Administrative Use (e.g. wilderness patrols, facility and trail maintenance, or repair crew support), (2) Concessioner Use (e.g., High Sierra Camp supply support and concessioner guided trips), (3) Commercial Use Authorization (i.e., commercially guided overnight pack trips), and (4) private individuals (Acree et al 2010). Non-recreational stock use (i.e., for NPS Administrative Use and High Sierra Camp supply support) is discussed under "Facilities, Services, and Amenities."

the wilderness portion of the Merced corridor was minimal, except for the stretch from Nevada Fall to the Half Dome trail (Fincher 2010).

As shown in Table 2.2-3, 170 daily wilderness permits were available 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 2.2-3: TRAILHEAD QUOTAS PRIMARILY FOR MERCED RIVER WILDERNESS ACCESS

	Wilderness Permit Quota[a,b]	
Trailhead	1989	2012
Happy Isles (to Little Yosemite Valley)	35	30
Happy Isles (LYV Pass Through Access)[c]	10	10
Glacier Point (to Little Yosemite Valley)	25	10
Mono Meadow	15	20
Rafferty Creek	35	20
Lyell Canyon[d]	50	40
Total	**170**	**130**

NOTE:

[a] 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.

[b] Quotas represent maximum number of people per day permitted.

[c] "Pass Through Access" requires permit holders to hike through Little Yosemite Valley to camp further up river or elsewhere outside of LYV.

[d] 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

2.2.3.1.2.3 Managerial Setting Attributes

At the time of designation in 1987, the managerial attributes of the recreational setting in this segment included limited infrastructure such as trails and some designated campsites along with administrative controls such as the trailhead quota system. These attributes likely had a beneficial effect on the recreational experience in this section allowing for access while minimizing impact to resource conditions and overcrowding.

The transportation and parking facilities in Yosemite Valley available to wilderness visitors also affected visitors' access to Segment 1. Visitors to the Merced River corridor generally travelled by private vehicle to Yosemite and parked in the Valley at the designated trailhead parking located east of Curry Village. Some Merced River corridor visitors also parked at the Glacier Point parking lot (for access via the Glacier Point trailhead) or in Tuolumne Meadows to hike down to the Merced River from the Sunrise trailhead (Fincher 2010). A park shuttle system also operated in Yosemite Valley

1987. Therefore, some wilderness users may have parked at other Yosemite Valley locations and travelled partly by shuttle bus or hiked all the way to the Happy Isles trailhead.

NPS rangers stationed in the wilderness were also important in managing wilderness visitation. Rangers were responsible for law enforcement, campground supervision, resource protection and providing information to Wilderness users. In addition, NPS work crews performed essential trail, utility and other facility maintenance and repair duties in wilderness areas.

Administrative stock use within the Merced River corridor included both day and overnight use. Day use entailed transit along trails for supply and maintenance of the Little Yosemite Valley Ranger Station and backpacker campground, travel between overnight camps, NPS ranger patrols, and recreational rides. Most of this use occurred at Little Yosemite Valley, where visitor use is concentrated. No information is available on the extent of the 1987 day use levels for stock use within the Merced River corridor (NPS 2011g).

Administrative stock overnight use included essential support and maintenance activities related to the following: Merced Lake Ranger Station, Merced Lake High Sierra Camp (HSC), and Merced Lake backpacker campground; wilderness ranger patrols; trail crew camps; sawyer crews; firefighter spike camps; search and rescue operations; and research and resource management activities (NPS 2011g). No 1987 data are available on the level of administrative stock use. However, in 1978, administrative stock use was reported to represent a minor (15.6%) proportion of the total wilderness stock use (Sano 1978). The park's concessioner stock use was estimated to account for 40.7% of the total annual wilderness stock use (this figure included both the High Sierra Camps supply operations as well as commercially guided pack trips operated by the concessioner).

As the only designated camping areas in proximity to Valley trailheads, the Little Yosemite Valley and Moraine Dome Campgrounds are important overnight and staging locations for many wilderness visitors hiking up Half Dome, proceeding along the John Muir Trail, or continuing up-river. The Merced Lake Backpackers' Campground is also a popular backpacking location due to its proximity to Merced Lake and nearby access to the facilities provided at the Merced Lake High Sierra Camp.The wilderness campgrounds in Little Yosemite Valley were popular among overnight wilderness visitors because of camping restrictions elsewhere in the Merced River corridor and the demand created by hikers en-route to Half Dome or Tuolumne Meadows via the John Muir Trail. The availability of bear boxes may also factor in backpackers' decisions to camp within established campgrounds. At the time of designation, the Little Yosemite Valley Campground (Figure 2.2-2) was the largest designated camping area in the wilderness. Although the wilderness campgrounds did not have set capacities, the Little Yosemite Valley Campground could typically accommodate up to 125 overnight backpackers (Fincher 2010). The Moraine Dome Campground, a smaller backpacker campground also located in Little Yosemite Valley, could accommodate up to 50 overnight campers (Fincher 2010). At both of these areas, there are no designated campsites. Instead backpackers select their own campsite location from within a relatively wide campground area where camping is permitted. In 1987, during the operating season (May 13 to October 10) at these two campgrounds, there were 11,214 overnight visitors, for an average of 75 campers per night. The average group size at these campgrounds was approximately 3.27 people (NPS 1987).

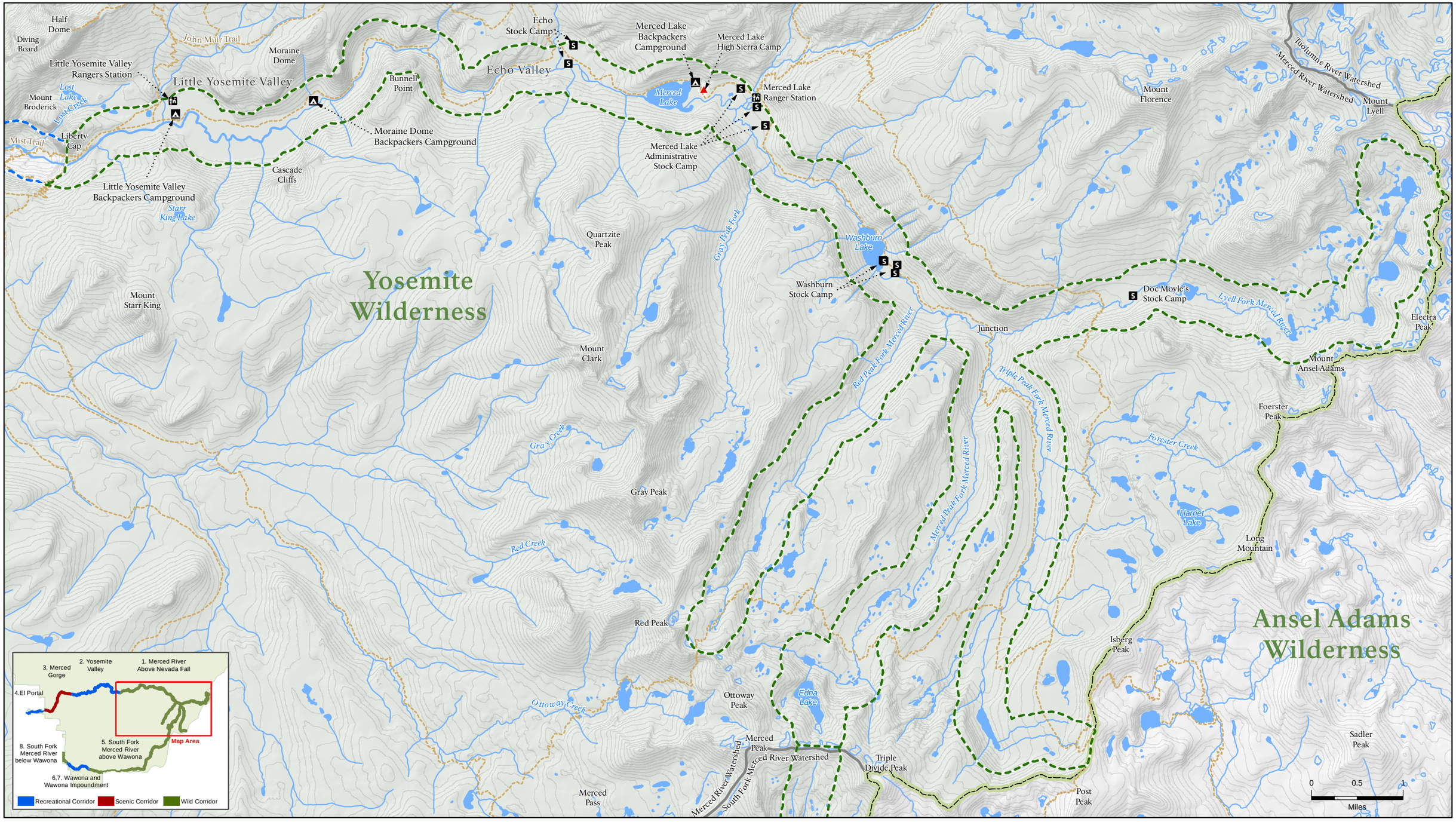

Figure 2.2-2
Recreational ORV - River Segment 1.
Merced River Above Nevada Fall
Wild WSR Corridor

- Wild WSR Corridor Classification
- Recreational
- Watershed Boundary
- Yosemite National Park Boundary
- Lake
- High Sierra Camp
- Ranger Station
- Backpackers Campground
- Stock Campsite
- Trail
- Stream/River
- 100' Contour Line

National Park Service U.S. Department of the Interior

Produced by: **Yosemite Planning Division**

Projection:	North American Datum 1983, UTM Zone 10
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At the time of designation in 1987, both campgrounds were undeveloped and offered no amenities except for toilet facilities. The chemical toilet sumps had to be cleaned every few days, and the solid waste was packed out by mule. Reportedly, the toilets frequently needed repair and were often non-operational until the necessary repairs were completed. There was also a ranger station (the Little Yosemite Valley Ranger Station) in the area located within 100 feet of the Merced River (NPS 1987).

The Merced Lake Backpackers' Campground was farther up-river on the eastern shore of Merced Lake near the Merced Lake High Sierra Camp. The campground had basic toilet facilities. Campers could also purchase meals at the Merced Lake High Sierra Camp and use its shower and toilet facilities. Merced Lake Backpackers' Campground could accommodate approximately 90 overnight campers.

There is no specific information on the state of campsite facilities in the Merced River corridor at the time of designation. However, since 1972, three studies have been performed to evaluate the quality of campsite conditions within the Yosemite wilderness area parkwide (Boyers et al. 2000). An initial parkwide campsite baseline inventory and condition assessment was completed in 1972. A second major assessment of wilderness campsite conditions was performed between 1981 and 1986. Following extensive wilderness campground restoration efforts by NPS, a final wilderness campsite condition assessment was conducted in 1992. The assessment reported a major improvement in wilderness campsite quality over the study period (1972-1986) as a result of site restoration efforts in the mid- and late 1980s at the most impacted areas. Similar improvements were also observed in the later study period (1986-1992) (Boyers et al. 2000).

Merced Lake High Sierra Camp. In 1987, the High Sierra Camps provided tent cabin accommodations and meals for guests during the summer months. The Merced Lake High Sierra Camp was the only one of the five High Sierra Camps located in the Merced corridor. There were 22 tent cabins at the campground, each of which accommodated two to four people; the total capacity of the Merced Lake High Sierra Camp was 60 people/beds. Two of the tents were generally used to house employees, and one was reserved for wranglers traveling with stock.

Operation of the Merced Lake High Sierra Camp required regular delivery of supplies from Yosemite Valley to the camp. Supplies were delivered by the concessioner's stock operations (NPS 2005b). The concessioner's supply operations are discussed under "Facilities, Services, and Amenities" section below.

2.2.3.1.3 Recreational Experience Quality

At the time of designation in 1987, the river corridor through this segment provided for 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 Condition

2.2.3.2.1 Recreational Activity Participation

Similar to wilderness activities prior to designation, the most common visitor activities within the corridor are hiking, backpacking, stock use[15], 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 (see Table 2.2-3).. Additionally, NPS instituted an interim Half Dome permit system in 2010 to manage the number of Half Dome hikers.[16] 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. Recently, the park concessioner has discontinued day use horseback/mule trips to Half Dome although visitors can arrange half-day trips to Clark's Point, which overlooks Vernal Fall.

General Wilderness Use. As shown in Figure 2.2-1**,** between 1987 and 2011, annual overnight wilderness use was usually below or comparable to the 1987 visitation of about 105,100 overnight stays (NPS 2011A). However, since 2006, Yosemite wilderness overnight visitation has increased substantially, exceeding 1987 levels. In 2011, approximately 51,400 Yosemite visitors spent nearly 137,077 nights in the wilderness (NPS 2011c) (Figure 2.2-1). Although the length of overnight visitor stays in 2011 is approximately 36% greater than 1987 levels, the number of wilderness visitors in 2011 was approximately the same as in 1987 (NPS 2011c). This spike in visitation indicates that users have increased their average length of stay in the park's wilderness areas.

Wildrness visitation in Yosemite is generally concentrated within a few popular locations, campsites, and trails. Visitor use is concentrated in less than 30% of the park, with most use distributed along approximately 70 miles of the park's 800-mile trail system (Newman 2001). The wilderness trails receiving the most use are the John Muir Trail and the "High Sierra Loop," a popular route that connects all of the High Sierra Camps. However, only 1.5 miles of the John Muir Trail is located within the wilderness segment of the Merced River corridor. Similarly, only a very short segment (2.7 miles) of the High Sierra Loop extends into the Merced River corridor. Backpackers often choose to stay near the High Sierra Camps which provide some services and amenities, including bathrooms and meals, available for purchase (Fincher 2010).

Half Dome visitors in the wilderness segment include both day and overnight users, primarily in the corridor from Nevada Fall upstream to Little Yosemite Valley (approximately 1.5 miles) where the trail leaves the river. The number of Half Dome visitors is currently managed through an interim permit system which manages visitation to 450 people per day[17] to ensure visitor safety on the Half Dome cables and provide an appropriate wilderness experience. The 2011 permit system requires a Half Dome permit seven days a week. As of this writing, the NPS is completing an environmental assessment that may adjust the permit system or retain it on a long-term basis; the final decision is expected in 2012.

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[15] As previously discussed, only the private and commercially-guided trips would potentially represent recreational ORV activities. The majority of stock use in the Merced River corridor is for the administrative or concessioner supply purposes in support of recreational activities or resource protection (e.g., Merced Lake High Sierra Camp or NPS trail maintenance crews) (NPS 2011g).

[16] Cables installed to assist Half Dome climbers are located outside of the wild and scenic river corridor.

[17] 450 people per day: 300 pre-register day use, 100 reserved for wilderness overnight permits, and 50 released at 7am the day before the permit is valid. Groups are restricted to 6 people or less.

Hiking. The designated trail system within Segment 1 has not changed since 1987. Table 2.2-5 shows the most recent trails condition assessment data for the main hiking trails located within the Merced River corridor above Nevada Fall. Between Nevada Fall and Merced Lake the hiking trails are considered to be in poor condition (NPS 2011e; Ballenger et al. 2011). The trails heading up river from Merced Lake are assessed to be in better condition. However, since the comparative condition of these trails in 1987 is unknown, the extent of any subsequent physical improvement or impacts to these trails' conditions cannot be determined.

TABLE 2.2-5: TRAIL CONDITIONS WITHIN THE MERCED RIVER ABOVE NEVADA FALL (2010)

Trail Segment	Distance (miles)	Condition
Nevada Fall to Little Yosemite Valley	1.0	Poor
Little Yosemite Valley to Echo Valley	6.65	Poor
Merced Lake[a]	2.56	Poor
Merced Lake Ranger Station to Triple Peak Trail	9.51	Fair
Red Peak Pass Trail	12.0	Good

NOTE:
[a] Trail between Echo Valley and Merced Lake Ranger Station
SOURCE: NPS 2011e

Many hikers use the 1.5-mile section of the John Muir Trail in the Merced River corridor to hike from Nevada Fall and exit the corridor at Little Yosemite. Hikers along this trail section include both wilderness users heading up to Tuolumne Meadows and the Tenaya Lake / Sunrise Trailhead and the majority of Half Dome visitors. In contrast, very few day users continue to hike along the Merced River further up the Little Yosemite Valley towards Echo Valley.

An estimated average of 27 overnight users per day hiked from Little Yosemite Valley toward Merced Lake over the course of the 2010 wilderness season, for a total of 2,864 hikers. The highest daily use occurred in August, when an average of 34 individuals hiked along the route.

Backpacking. As shown in Table 2.2-3, in the mid- to late 1990s NPS reduced the number of overnight wilderness permits from 170 to 130 per day from the trailheads that provide access to Segment 1 from Yosemite Valley. As a result, fewer overnight wilderness visitors can access the Merced River corridor above Nevada Fall each day from the six trailheads. Table 2.2-6 shows average 2010 inbound trail use along the Merced (i.e., hikers traveling from Little Yosemite Valley toward Merced Lake and the wilderness).

TABLE 2.2-6: TRAIL USE ABOVE LITTLE YOSEMITE VALLEY TO MERCED LAKE (2010) (WILDERNESS-BOUND HIKER TRAFFIC)

Month	Average People per Day	Total People per Day
July	31	952
August	34	1,063
September	23	677
October[a]	10	117
Season (July to September)	30	2,864

NOTE: [a] Use counts were taken from October 1 through October 12.
SOURCE: NPS 2011a

Other Recreational Activities. Wilderness users in this river segment participate in other recreational activities in addition to those discussed above. Photography, swimming, wildlife viewing, and contemplation are among the activities that enable wilderness visitors to experience the sense of solitude, self-reliance, exploration, and adventure that contribute to a fulfilling wilderness experience.

Throughout the Yosemite Wilderness, commercially guided pack trips account for approximately 50% of the total overnight stock use,[18] with stock use by private individuals accounting for less than 5% (as informally tracked by the Yosemite Wilderness Office) (Acree et al. 2010). In 2003, NPS began limiting commercially guided pack trips to 3,973 stock and visitor nights annually; resulting in total commercial stock use by Commercial Use Authorization outfitters being far below the prescribed limits. Between 2003 and 2009, annual wilderness stock use by the nine Commercial Use Authorization outfitters averaged 1,629 stock-use nights. In 2004, when the highest level of commercial stock use occurred, a total of 2,210 stock-use nights were spent in the wilderness, which is approximately 57.3% of the maximum commercial stock-use level currently permitted by the NPS(NPS YOSE Wilderness Office). However, in addition to Commercial Use Authorization limits, the amount of stock use is also limited by the number of nights that the trail system is open each year. Consequently, presentation of annual use as a percentage of the authorized use may not adequately describe stock use on a daily basis.

Commercially guided pack trip use within Yosemite is concentrated in several high-use travel corridors. Lyell and Virginia Canyons (both outside the corridor) are the most popular destinations, with a minority of groups traveling into the Merced corridor from Lyell Canyon (Acree et al. 2010). As a result, recreational use of stock animals within the Merced River corridor by commercially guided pack trips and private individuals is low. Furthermore, within the Merced River corridor, commercially guided pack trips travelonly in the vicinity of the Meced Lake High Sierra Camp .

Recently, the park concessioner discontinued its day use horseback/mule trips to Half Dome, although visitors can arrange for half-day trips to Clark's Point overlooking Vernal Fall. However, this day-trip recreational stock use is also low. Data on the extent of stock use in Segment 1 of the Merced River are provided in Table 2.1-1. Average annual total stock use in this river segment from 2004 through 2010 was 344 nights. Of this overnight stock use, commercially guided pack trips averaged only 48 stock-use nights, which represents less than 3% of all the guided pack trips that occurred in Yosemite Wilderness areas.

2.2.3.2.2 Setting Attributes

A wilderness survey conducted in 2001 and 2002 provided recent data on the recreational experience and encounter rates in wilderness areas (Newman et al. 2001). The survey investigated visitor tradeoffs among environmental, social, and managerial aspects of the wilderness experience within Yosemite. The analysis indicated that the attitudes and preferences of wilderness users are influenced by numerous factors.

2.2.3.2.2.1 Environmental 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. Section 2.4, Scenic Values, describes the visual

[18] The remaining 45% of overnight stock use is for NPS Administrative Use and concessioner High Sierra Camp supply trips.

qualities that contribute to the recreational experience in the river corridor. Section 2.2.1, above, describes the character of the river as it affects the recreational experience; current conditions remain similar to those in 1987 at the time of Merced Wild and Scenic River designation.

The 2001 (Newman & Manning) wilderness study indicated two indicators of environmental quality: signs of human use at campsites and signs of stock or stock use. In this study, more than half of the participants surveyed indicated that signs of human use were extremely to very important to them and their decision to recreate in that area of wilderness. Regarding stock use, this study reported that visitors reported seeing less stock and signs of stock use than they had expected to see, and would tolerate mildly more stock use before they would consider not returning to that hiking trail. Regarding signs of human use at campsites, this study reports that visitors are experiencing a higher level of campsite impacts that they would like to see in that campsite, but reported seeing an expected level of impact. Additionally, these visitors would be higher levels of human impacts to wilderness before they would no longer camp at those sites (Newman & Manning 2001).

Section 2.4, Scenic Values, describes the scenic qualities that influence the recreational experience. In general, the scenic qualities and river character are the same as existed in 1987.

2.2.3.2.2.2 Social Setting Attributes

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. Encounters with more than one individual per hour, over consecutive hours, occured about 35% of the sampled time between Moraine Dome and Echo Valley. Upstream of the High Sierra Camp on the trail to Washburn Lake, this percentage drops to about 24%. Wilderness users beyond the Washburn Lake junction rarely encounter more than one party per hour on average (NPS 2008a). Encounter rates are described in the ORV Condition Measures section below.

Respondents from the 2001-2002 wildreness survey (Newman & Manning) reported that their wilderness experience was most affected by the ability to obtain a wilderness permit and the availability of opportunities for camping away from other users. Other important factors included the variety of campsite choices and the extent of previous human use of the campsites. In addition, respondents indicated that signs of stock and human use (such as campsite impacts) as well as encounter rates with other hikers also influenced the quality of their wilderness experience. The survey suggested that many wilderness visitors tolerate higher encounter rates on popular trails, but are less tolerant of high encounter rates at campsites and in more remote wilderness locations. Others reported that their overall recreational and wilderness experience was influenced to a greater extent by the availability of wilderness access and/or the camping conditions within remote wilderness areas than by encounter rates. The Merced River corridor between Nevada Fall and the Merced Lake High Sierra Camp is very popular, and the survey did not define this segment as a more remote wilderness area. Upstream of the Merced Lake High Sierra Camp, camping is dispersed (no established campgrounds) and the area offers a more remote wilderness experience.

The frequency of encounters with other people or groups along trails is commonly used as a proxy to evaluate opportunities for solitude in wilderness settings. Park staff measure encounter rates through actual trail counts or through surveys that ask visitors to estimate the number of other people/groups encountered during hikes. Increased encounters with other parties in the park's wilderness areas can

diminish the feeling of solitude, which is a component of the Recreational ORV in this river segment. Newman and Manning (2001) found that visitors will tolerate higher numbers of encounters while hiking than while in camp. The NPS collected data between 2004 and 2010 to determine the frequency of wilderness encounters with other hikers along trails in the upper Merced River corridor. Encounter rates were observed at four trail segments: Moraine Dome to Echo Valley; Echo Valley to Merced Lake Ranger Station; Merced Lake Ranger Station to Washburn Lake; and Washburn Lake to Red Peak Pass Junction.

TABLE 2.2-7: PERCENT OF TIME WILDERNESS HIKERS ENCOUNTERED NO MORE THAN ONE OTHER PARTY DURING MOST (>80%) OF THEIR TRIP

Trail Segment	2004	2005*	2006	2007	2008	Average
Moraine Dome – Echo Valley	60.0%	72.2%	64.3%	71.4%	N/A	65.1%
Echo Valley – Merced Lake Ranger Station	71.4%	88.5%	58.6%	76.9%	45.5%	67.0%
Merced Lake Ranger Station – Washburn Lake	80.0%	100%	54.4%	83.3%	66.6%	76.3%
Washburn Lake – Red Peak Pass Junction	100%	100%	100%	100%	N/A	100%
Total for All Segments	**75.0%**	**85.7%**	**62.1%**	**78.8%**	**48.3%**	**70.7%**

NOTE: Percentages show the amount of time (hours) that hikers meet no more than one other party per hour during most (i.e., > 80%) of their trail use. The total for all segments is a weighted average of the survey data. Encounter data are for the wilderness recreation season between May to mid-October.

* High snow levels created atypical wilderness use. Tioga Road and many wilderness trails opened late in the season, and the High Sierra Camps did not open at all in 2005.

SOURCE: NPS 2008a

As shown in Table 2.2-4, the survey determined that 70.7% of the time, on average, hikers encountered one other party per hour for the majority of their trip.[19] Encounter rates among Merced River corridor hikers were lowest in 2005, when 85.7% of the time, on average, hikers encountered one or fewer parties per hour in the wilderness for the majority (at least 80%) of their trip. The highest encounter rates occurred in 2008 (NPS 2008a).

Encounter rates were generally lower on more remote trails. At no point did hikers on the Washburn Lake to Junction trail encounter more than one other party per hour for more than 80% of their trip. In contrast, the Moraine Dome to Echo Valley trail had the highest average encounter rate over the survey period. Over one-third of hikers met more than one other party for a significant portion (more than 20%) of their trip (NPS 2008a).

2.2.3.2.2.3 Managerial Setting Attributes

Recreational opportunities in Segment 1 have been influenced by wilderness permit allocations (described above), parking capacity, and other transportation services to and from trailheads. In addition, stock use needed to supply the Merced Lake High Sierra Camp (or for NPS administrative purposes) sometimes results in trail conditions within the corridor that are considered problematic by some hikers (NPS 2011h). Users also report varying levels of campsite quality and evidence of stock-use impacts. Since 1987, problems with the Little Yosemite Valley campground toilet have been remedied, offering an improved facility. Additionally, in the mid-1990s the Merced Lake Backpackers'

[19] Encounters with other hikers affect the "opportunity for solitude" component of the wilderness experience and thus could affect the segment's Recreational ORV. Higher encounter rates would generally diminish the "opportunity for solitude."

Campground was relocated away from the lake. In 2001, the campground's previous toilet sump and sewer line was also removed. The utility systems at the Merced Lake High Sierra Camp have also been upgraded.[20]

Non-riparian factors also contribute to the recreational experience, including facilities and features that support or limit access to the area or provide services to recreationists. For example, the availability of parking facilities and transportation services providing access to wilderness trailheads can influence the number of users entering wilderness areas.

Most wilderness visitors to the Merced River corridor generally travel by private vehicle and park in the Valley at the designated trailhead parking located east of Curry Village. Some Merced River corridor visitors also parked at the Glacier Point parking lot (for access via the Glacier Point trailhead) or in Tuolumne Meadows to hike down to the Merced River from the Sunrise trailhead. Since 1987, the expanded bus transit options to locations outside Yosemite Valley (including both Glacier Point and out-of-park destinations, such as City of Merced and Mammoth Lakes) have offered additional options for visitors to reach the park and organize their visit.

As previously discussed, the wilderness trailhead quota system plays a direct role in managing the extent and location of wilderness use within this river segment. In addition, NPS rangers stationed in the wilderness are important in managing wilderness use, while NPS work crews perform essential trail and other facility maintenance services. Merced Lake High Sierra Camp is not within the Wilderness designation but was designated in the California Wilderness Act as a potential wilderness addition. However, amenities such as toilets, showers, and meal services at Merced Lake High Sierra Camp will also contribute to visitors' recreational experience within the Wilderness areas.

The designated wilderness campgrounds within Little Yosemite Valley and Merced Lake continue to experience heavy use. Throughout the peak visitation season, between Memorial and Labor Days, these campgrounds typically operate at or near capacity (Fincher 2010). The Mist and John Muir Trails, originating within Yosemite Valley, are most commonly used to access the Merced River corridor. Some overnight use may come from Half Dome visitors who camp in Little Yosemite Valley and extend their overnight stay in order to hike up to Merced Lake.

Since the 1987 designation, NPS relocated the Little Yosemite Valley Campground and Ranger Station away from the Merced River. In addition, the chemical toilets were replaced with composting toilets, and two public fire rings and bear boxes were added. The Moraine Dome Campground remains an undeveloped camping area. The capacity of these two campgrounds has not changed since the designation (Fincher 2010).

In 1991, NPS relocated the Merced Lake Backpackers' Campground away from the lake. The campground capacity has not changed since the relocation (Fincher 2010).

As previously discussed, three studies have been performed to evaluate the quality of campsite conditions in the park's wilderness area (Boyers et al. 2000). During the study period (1972-1992), the number of identifiable campsites decreased by 17%—predominantly due to the successful restoration

[20] The Merced Lake Ranger Station is located outside the Merced River corridor and therefore is not included in this discussion.

of many campsites to natural conditions.[21] A major improvement in wilderness campsite quality was reported as a result of site restoration efforts in the mid- and late 1980s at the most impacted areas (Boyers et al. 2000). However, in the absence of more recent assessment data, the current condition of campgrounds and campsites in this river segment cannot be characterized. Nonetheless, a visitor survey conducted in 2001 reported that most users had a positive wilderness experience (Newman 2001).

Merced Lake High Sierra Camp. Since 1987, the NPS has installed solar panels and a new septic system and made other minor utility repairs and upgrades at the Merced Lake High Sierra Camp. Residual from the septic system is removed by helicopter once every three years. While the use of helicopters generates noise in areas near the wilderness, the alternative—hauling waste out by pack stock—would result in additional stock use. The capacity of the Merced Lake High Sierra Camp is 60 people/beds, which has not changed from 1987 levels (Fincher 2010). In 2008, the Merced Lake High Sierra Camp's occupancy rate was 82%, up from 59% in 2007 (NPS 2008c). The concessioner's supply operations are discussed under "Facilities, Services, and Amenities" section below.

The Merced Lake High Sierra Camp operations rely on concessioner-managed stock for supplies. Although the NPS does not tally this stock use, during the nine-week operating season, the concessioner typically operates two to three supply trips per week to the Merced Lake High Sierra Camp (running a string of six heads of stock). The supply trips leave from the Yosemite Valley stables in the morning and return the next night. In addition, at the start and end of the operating season, the concessioner also runs stock trips to open and close its High Sierra Camp facilities.

Except for a short portion of the trail near Vernal Fall, the supply trips share the trail with hikers along most of the Merced River corridor. Generally, conflicts between hikers and stock use occur mostly along the 1.5 mile segment of the John Muir Trail within the wilderness segment of the corridor. The concessioner schedules its supply runs early in the morning to reduce its interaction with trail hikers, but encounters occur on occasion (Fincher 2010). In addition, many hikers disapprove of the presence of stock use in the wilderness. A 1994 survey of hikers within the nearby John Muir Wilderness found that over half of the hikers responding to the survey found stock use in the wilderness undesirable (Watson et al. 1994) Administrative stock operations also provide support and supplies for NPS staff working in the wilderness.[22] Not counting the concessioner's stock use to supply its High Sierra Camps , NPS administrative stock use typically accounts for approximately 45% of the total overnight stock use in the Yosemite wilderness[23] (as informally tracked by the Yosemite Wilderness Office) (Acree et al.

[21] Within most of the Wilderness area, backpackers are permitted to select their own campsites in accordance with NPS regulations. Wilderness visitors are only required to camp at a designated areas / sites within Little Yosemite Valley or at the five High Sierra Camp. Consequently, environmental restoration of formerly identifiable campsites does not reduce the available Wilderness camping opportunities.

[22] All work performed in wilderness areas by park personnel (e.g. trail crews, backcountry utilities crews, historic preservation staff, resources management personnel, park rangers etc.) is subject to prior work plan development and management approval. In each case, employee logistical and safety needs are considered, as well as an analysis of the necessary supplies and equipment. In some cases, helicopter support is reviewed as an alternative. Park management considers the financial cost, resource impacts, efficiency and scheduling to select the recommended course of action. In each case, park staff also considers the potential resources and visitor experience impacts of a "no action" alternative.

[23] However, given that the need and location of many administrative activities (e.g. trail maintenance and resource management) may vary from year to year, it may be difficult to represent an "average" level of administrative stock use within specific management areas.

2010). Average total annual stock use in this river segment was 344 stock-use nights, with the majority (86%) of this overnight use by NPS administrative stock. The NPS uses stock for a variety of purposes including trail maintenance, historic structures maintenance, research and monitoring, etc.

2.2.3.2.3 Recreational Experience Quality

A comprehensive visitor study was conducted in 1991 (4 years after the Merced designation) asked respondents to evaluate various aspects of their visit to Yosemite (Gramann 1992). Respondents were asked to rate the quality of their ovrall experience on a six-point scale ranging from 1-"Poor" to 6-"Perfect." The vast majority (93%) of visitors reported that their experience was "very good" or better, with 48% reporting they had an "excellent" experience and 27% reporting a "perfect" experience.

More detailed anaylsis of visitor satisfaction ratings in the Gramann study reveled that the most common positive contributers to satisfaction were natural scenery, positive behavior of other visitors, and *opportunities for solitude*. Aspects of their visit that detracted from overall satisfaction included the perception of low quality services, lack of opportunity to relax, perceptions of crowding, and opinions about the level of development appropriate in the park.

Additionally, a 2001 (Newman & Manning) study indicates that wilderness users' experience is most negatively impacted by signs of other campers and campsites, encounters with other groups, and encountering stock. These findings suggest that visitors at or around the time of the Merced designation were able to obtain high quality recreational experiences where they were able to relax and obtain solitude. However, increasing use of the wilderness regions of the park near the Merced River may lead to reduced quality in the visitors' experience.

2.2.3.3. Preliminary Management Considerations

The preliminary management considerations associated with the Recreation ORV in segment 1:

- High levels of stock use can result in user conflicts with hikers sharing the trails.
- Future efforts to improve opportunities for wilderness solitude are complicated by the competing desires many visitors have for increased wilderness access and their lack of tolerance of higher encounter rates (Newman 2001).
- Current use levels at the wilderness campgrounds, and trails leading to them, affect wilderness character and opportunities for solitude and primitive experiences.

2.2.4 River Segment 2: Yosemite Valley

Segment 2 of the Merced Wild and Scenic River flows through Yosemite Valley. This river segment provides an awe-inspiring setting for a variety of active, creative, educational, social, and reflective experiences and activities.

Condition at the Time of 1987 Designation

2.2.4.1.1 Recreational Activity Participation

Individual user experiences can be affected by the participation of other visitors in the same activity (e.g., by causing crowding) or in different activities within the same geographic area (e.g., fishing along the shore or floating the river). 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.

The 1992 Gramman study indicated that 75% of park visitors went to the Valley. This provides general visitation estimates of Valley visitor levels at the time of designation (Gramann 1992). In 1987, parkwide recreational visitation at Yosemite was approximately 3.15 million, and the total overnight stays were approximately 1.69 million. Based on the 1992 survey, approximately 2.3 million individuals visited Yosemite Valley in 1987.

Figure 2.2-3 shows park-wide and overnight visitation levels between 1985 and 2011 Figure 2.2-4 shows the camping and lodging overnight visitation by major park. Yosemite Valley campground use was reported to be 384,000 overnight visits in 1988, and total overnight visits (including visits at campgrounds and lodges) was estimated to be 1.87 million people. Using the Gramann (1992) study's 1990-1991 average length of stay of 2.7 days, the calculated numbers of visitors are approximately 700,000 overnight and 2.5 million day use.

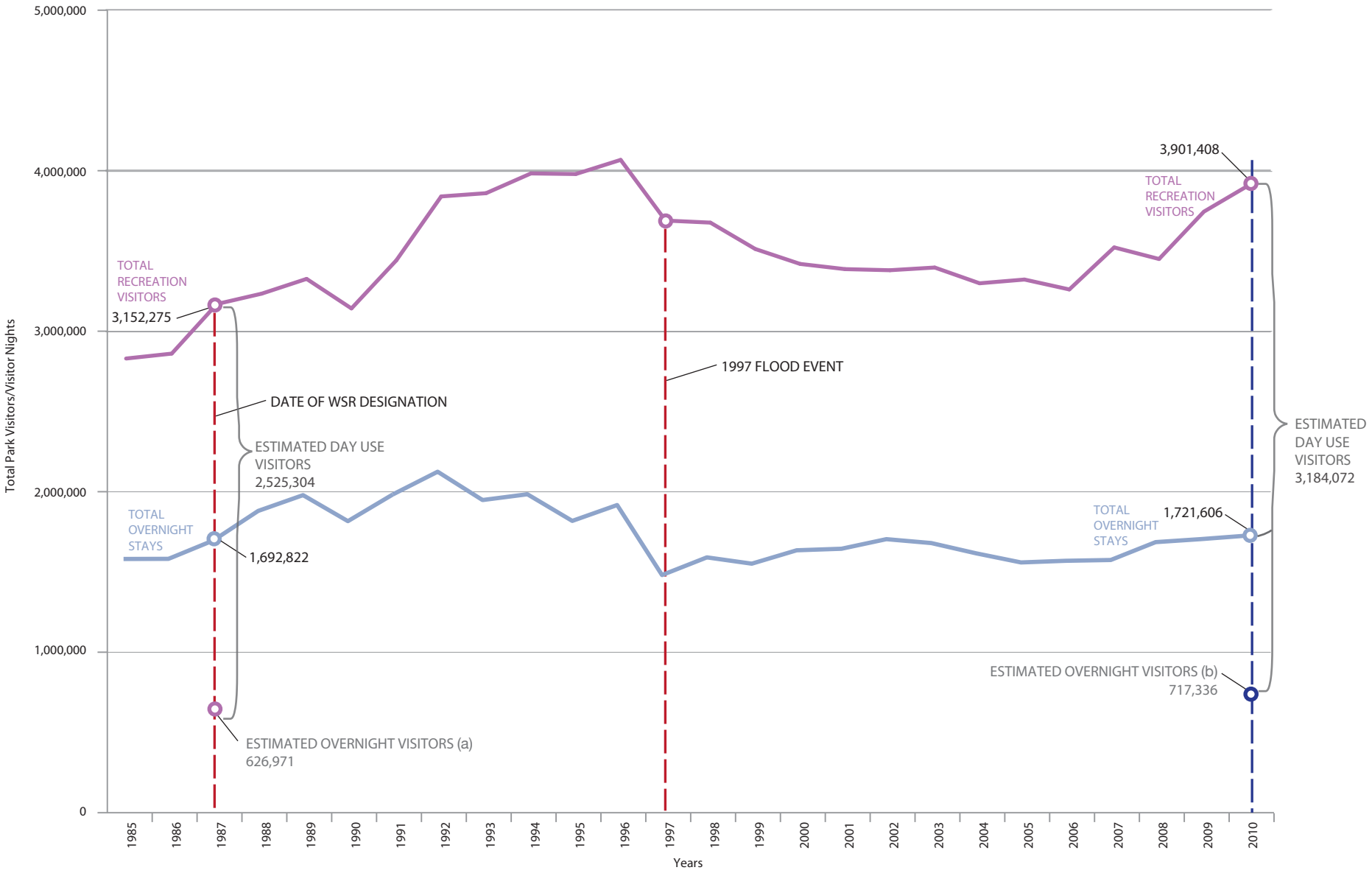
In 1987, recreational opportunities in the Yosemite Valley segment were similar to those currently available and included visiting attraction sites, auto touring, biking, hiking, camping, climbing, fishing, rock climbing, picnicking, swimming, floating, photography, wildlife viewing, painting, as well as educational and interpretive pursuits. Available information is summarized below.

Auto-touring. Private vehicles were the predominant form of travel for park visitors within the Valley at the time of designation (Van Wagtendonk 1980; BRW Inc. 1994).

Camping. In the Valley, camping was only permitted within designated campgrounds. In 1987, the designated campgrounds included: Sunnyside/Camp 4; Muir Tree; Upper, Lower, and North Pines; and Upper and Lower River. In addition, ten group campsites were available in the Valley. These facilities are described below under the subheading Facilities, Services, and Amenities.

Day Hiking. There were about 37 miles of hiking trails in the Valley ranging from short, easy hikes to very strenuous hikes (Table 2.2-7).

Visiting Attraction Sites. The primary attraction sites in Yosemite Valley were Yosemite, Bridalveil, and Vernal Falls, which have typically experienced high levels of visitor use. However, no visitor count information is available for these sites at the time of the designation.



NOTES: (a) The number of overnight visitors is estimated based on an average 2.7 days length of stay for 1992 park visitors (Gramann 1992).

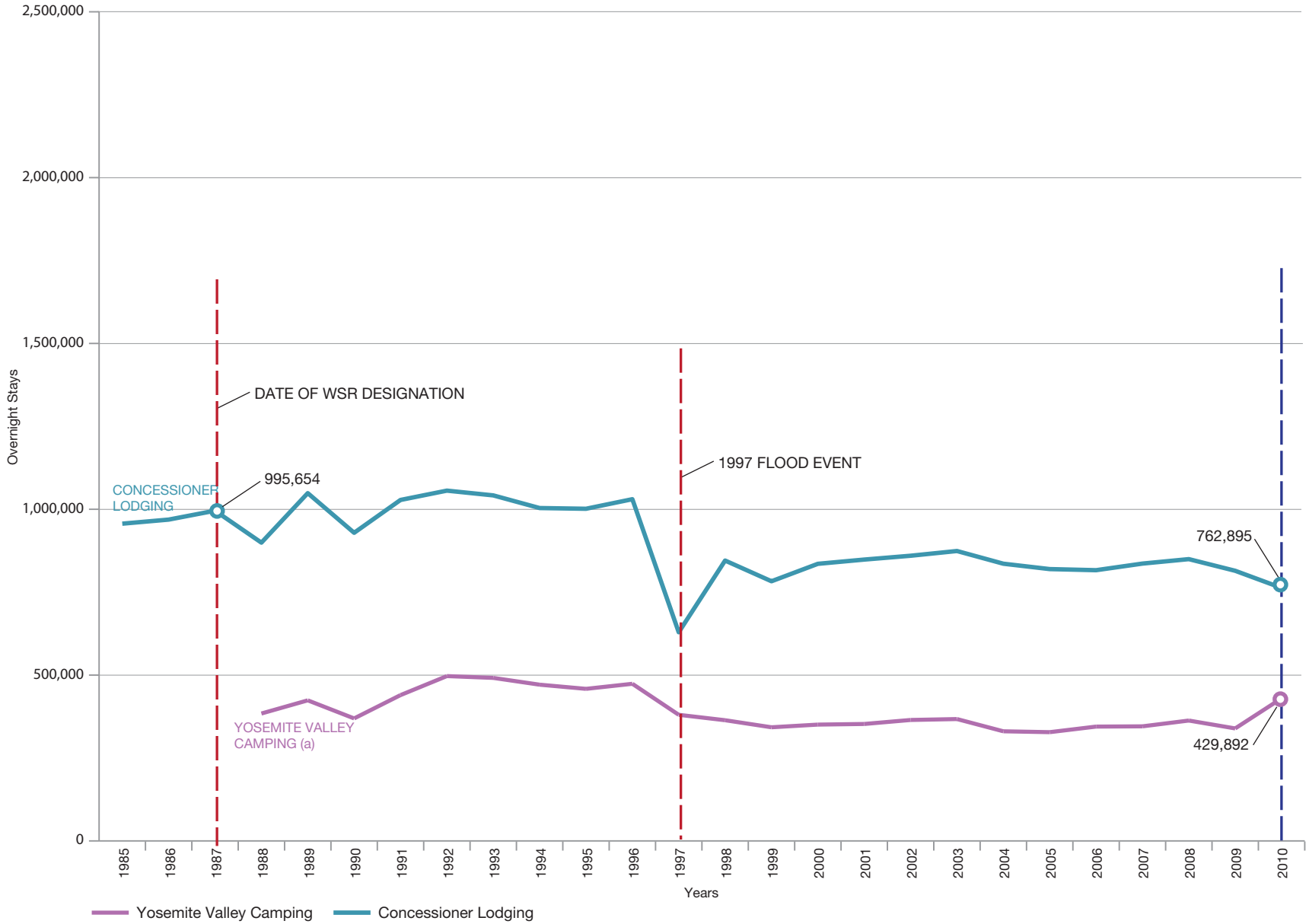
(b) The number of overnight visitors is estimated based on an average 2.4 days length of stay for 2010 park visitors (Blotkamp et al. 2010).

SOURCE: NPS 2011c; Blotkamp et al. 2010; Gramann 1992

Merced River Comprehensive Management Plan

Figure 2.2-3

Yosemite National Park Total Park Visitors and Overnight Visitor Use (1985-2010)



(a) Pre-1988 overnight visitor use counts do not include Yosemite Valley camping numbers.

SOURCE: NPS, 2010a

Figure 2.2-4

Yosemite National Park Overnight Visitor Use (1985-2010)

TABLE 2.2-7: DAY HIKING TRAILS IN YOSEMITE VALLEY

Destination	Starting point	Distance/Time	Level of Difficulty/ Elevation Gain
Bridalveil Fall	Bridalveil Fall Parking Area	0.5-mile round-trip, 20 minutes	Easy
Lower Yosemite Fall	Lower Yosemite Fall Shuttle Stop #6	1-mile round-trip, 20 minutes	Easy
Upper Yosemite Fall trail to Columbia Rock	Camp 4 near Shuttle Stop #7	2-mile round-trip, 2 to 3 hours	Strenuous, 1,000-foot gain
Mirror Lake	Mirror Lake Shuttle Stop #17	2-mile round-trip, 1 hour	Easy
Vernal Fall footbridge, winter route	Happy Isles Shuttle Stop #16	1.4-mile round-trip, 1 to 2 hours	Moderate, 400-foot gain
Top of Vernal Fall,	Happy Isles Shuttle Stop #16	3-mile round-trip, 2 to 4 hours	Strenuous, 1,000-foot gain
Top of Nevada Fall, (Mist Trail)	Happy Isles Shuttle Stop #16	5-mile round-trip, 5 to 6 hours	Strenuous, 1,900-foot gain
Top of Nevada Fall (ice cut route)	Happy Isles Stop#16	5.4 mile round-trip, 5 to 6 hours	Strenuous, 1,900 foot gain
Four Mile Trail to Glacier Point (closed in winter past Union Point)	Southside Drive	4.8-mile one-way, 3 to 4 hours one-way	Very strenuous, 3,200-foot gain
Valley Floor Loop	Lower Yosemite Fall Shuttle Stop #6	13-miles full loop, 5 to 7 hours full loop	Moderate

SOURCE: NPS 2011d

2.2.4.1.2 Setting Attributes

Section 2.4, Scenic Values, describes the visual qualities that influence the recreational experience. Throughout the Valley segment, the river has provided major visual attractions—such as Vernal and Nevada Falls—and also directly created recreational experiences for visitors, 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.

2.2.4.1.2.1 *Environmental Setting Attributes*

From the Merced River and its banks, views of Yosemite Falls, Bridalveil Fall, El Capitan, and Half Dome, among other scenic vista points, have been important visual resources within Segment 2. Meandering through a sequence of compound oxbows, wetlands, and meadows, the river and its features provided broad panoramic vistas. Other important scenic resources that could be seen from within the Yosemite Valley segment at the time of designation include: Nevada, Illilouette, Vernal, and Ribbon Falls; the cliffs at Yosemite Point/Lost Arrow Spire; and the scenic interface of river, rock, meadow, and forest throughout the Valley.

2.2.4.1.2.2 Social Setting Attributes

The Valley received approximately 2.3 million visitors from all over the world in 1987. Although formal user surveys had not been conducted at the time of designation, NPS staff noted crowded

conditions in the Valley in 1980 (NPS 1980a). A 1990-1991 study found that approximately 4 out of 10 respondents reported crowding in the park as a "moderate" problem (Gramann 1992).

Visitor concerns regarding crowding were reported and analyzed in 1990 and 1991 (Gramann 1992). Visitor surveys were completed in summer and the off-season, by auto passengers and tour bus passengers. Visitors were asked to rate a set of conditions in Yosemite Valley for items such as traffic, number of accommodations, and number of people. Respondents could select a category on a scale where -1 equaled "not enough", 0 equaled "the right amount", and 1 equaled "too much." Among summer visitors, who arrived by auto, both the amount of vehicle traffic and number of people received a rating of 0.49. According to Gramann, "In other words a relatively large number of summer auto visitors believed that there was too much traffic and too many people in Yosemite Valley" (Gramman 1992: 79). Regarding visitors' responses to a question about crowding, Gramann also specifically stated "overall, 42.1% of auto passengers felt that crowding represented at least a moderate concern…" (Gramann 1992: 85) Auto passengers were also asked if there were any locations within the park where there were too many people. The most frequently listed location in response to this question was Yosemite Valley/Yosemite Falls. In addition, 26% of auto passengers mentioned Valley/Curry Village as having too many visitors.

2.2.4.1.2.3 Managerial Setting Attributes

The recreational experience and opportunities were influenced by factors such as parking capacity, transportation services, lodging facilities, roads and trails, raft rental, ranger-led programs, and interpretive displays. At the time of designation, several Valley campgrounds offered additional overnight camping opportunities by the river. More specific details on the extent of these attributes and facilities are provided below.

Numerous park facilities directly affect the recreational experience in the Yosemite Valley segment. These include camping, lodging, parking, picnic areas, river access points, and trails, as described below. Recreational use, facilities, services, and amenities are concentrated in this segment compared with other Merced River segments.

Overnight Accommodations. Camping and lodging facilities in the Valley have provided visitors with opportunities for multi-day experiences within the river corridor with easy access to river. Table 2.2-8 shows the camping and lodging facilities operating at the time NPS issued the General Management Plan and in 2010 (NPS 1980b; NPS 2011b). At that time, there were 1,528 overnight lodging units and 872 campsites in Yosemite Valley. The information in the 1980 General Management Plan may be representative of the number and location of overnight camping and lodging facilities present at the time of Wild and Scenic River designation. The NPS estimated that park hotel and tent cabin facilities could accommodate an average of up to 4.5 people per room[24], and camping areas could accommodate six people per campsite (NPS 2009a). Based on these occupancy estimates, the Valley provided overnight accommodations for up to 12,108 people per night (NPS 2009a). Aggregate overnight stay information for the concessioner lodging facilities and camping within Yosemite is shown in Figure 2.2-3.

[24] The average group size of 4.5 people for a lodging room was used in the NPS Facilities worksheet (NPS 2009a).

TABLE 2.2-8: YOSEMITE VALLEY VISITOR FACILITIES (1980 AND 2012)

Facility	1980 (GMP) No. of Sites/Units	2012 No. of Sites/Units
Campgrounds		
Sunnyside / Camp 4	38	35
Muir Tree / Yellow Pine[a]	20	NA
Backpackers Camp	NA	22
Pines Campgrounds[b]	438	379
Upper and Lower River	376	NA
Group Campsites	10	NA
Total Campsites	872	436
Lodging		
The Ahwahnee	121	123
Housekeeping Camp	300	266
Curry Village	626	394
Yosemite Lodge	481	245
Total Lodging	1,528	1,028
Day Use Parking	2,513	2,293

NOTES:
[a] Muir Tree campground has been renamed to Yellow Pine Campground.
[b] Includes North, Upper, and Lower Pines Campgrounds in Yosemite Valley as well as the Backpackers, and Group Campgrounds in the Yosemite Wilderness.

SOURCES: NPS 1980b, 2011b, 2012b

Parking. The availability of day-use and overnight parking facilities allows for—and in some instances limits—access to recreational locations in the Merced River corridor in Yosemite Valley. The 1980 General Management Plan identified 2,513 day parking spaces in the Valley (Table 2.2-8). Subsequent traffic and circulation analysis performed in 1994 confirmed the approximate number of Yosemite Valley day parking spaces; therefore, the 1980 and 1994 figures provide a good estimate of the number of sanctioned (allowed by NPS) day-use parking spaces at the time of designation (BRW, Inc. 1994).

The 1994 traffic analysis noted substantial change in the proportion of park visitation accounted for by day users to Yosemite Valley. In 1981 day users accounted for 15% of overall park visitation(not just Yosemite valley); by 1991, 37% of park visitors were making day trips in and out of Yosemite (BRW, Inc. 1994). The study reported that Yosemite Valley overnight accommodations were operating at or near full occupancy during peak-season periods. The study also reported that Yosemite Valley vehicle traffic exceeded the capacity of the loop roads on holiday weekends. Furthermore, the analysis determined that traffic congestion was a recurring problem at the intersection of Yosemite Falls and Northside Drive, and that Yosemite Valley's formal parking facilities were perpetually at capacity in the summer months (BRW Inc. 1994).

2.2.4.1.3 Recreational Experience Quality

Since designation, segment 2 – Yosemite Valley has afforded a variety of opportunities to view scenery and to travel along and interact directly with the Merced River. Again, 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. This study also looked at visitor evaluations of satisfaction specific to Yosemite Valley. In general, most summer visitors to the

Valley in 1991 reported that the level of conditions and factilities 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.

Current Condition

2.2.4.1.4 Recreational Activity Participation

Similar to 1987, the river corridor provides for a variety of opportunities to view scenery within the 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 and/or taking a scenic drive, day hiking, wildlife viewing, picnicking, creative arts, camping, ranger-led programs, bicycling, floating, nature study, and rock climbing. Both day-use and overnight camping and lodging are available in this river segment. Campground sites in the 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. Ongoing studies assessing recreational user capacity in the Valley include a boating survey being conducted in the summer of 2011 to assess the quantity, type, and locations of recreational floating.*The uniqueness* of the Valley attracts many visitors, who engage in a wide variety of activities. Some of the activities most commonly engaged in are discussed below.

General Visitation and Use. Figure 2.2-4 shows park wide visitation and overnight use levels between 1987 and 2011. It also shows the camping and lodging overnight visitation by major park location (specifically including Yosemite Valley camping use between 1988 and 2010). In 2011, parkwide visitation at Yosemite was approximately 4 million visitors, and parkwide total overnight stays were reported to be 1.3 million, based on 2007 traffic data showing that approximately 33% of vehicles entering the park for recreation are overnight visitors (NPS 2007a). As discussed previously, Yosemite Valley entrance data is not collected by the NPS; therefore, exact counts of Valley visitation are not available. As a result, survey data with information on visitors' intended locations is used to infer the amount of visitation that occurs in Yosemite Valley.

According to the most recent visitor survey, Yosemite Valley was the most common destination for Yosemite visitors, with 85% of visitors traveling to Yosemite Valley (White and Aquino 2008; Blotkamp et al. 2010).25 Therefore, Yosemite Valley's 2010 recreational visitation is estimated to be between approximately 2.73 to 3.31 million visitors.

Partly as a result of the decrease in overnight accommodations following the 1997 flooding, several rockfall events within the Valley, and the development of lodging and camping facilities in gateway communities, the proportion of day-use visitation within the Valley has increased. Based on a 2007 traffic analysis, 66% of park visitors were day users (NPS 2007a). In contrast, the 1980 Van Wagtendonk study found that only 25% of park visitors were day users.

[25] Unlike the summer 2009 survey, the winter 2008 visitor survey did not specifically determine the proportion of visitors for whom Yosemite Valley was a preferred destination (Le et al. 2008). However, the three most commonly visited sites in winter 2008 were the same Yosemite Valley sites as those reported by summer visitors, with similar popularity among visitors (Yosemite Falls, Yosemite Valley Visitor Center, and Bridalveil Fall). Note that these three sites are all outside of the Merced River corridor.

Table 2.2-10 shows visitors' self-reported participation rates in the most popular activities that are typically considered river-related. Scenery-related activities had the highest proportion of participation, followed by day hiking and wildlife or bird watching. Bicycling and nature study showed lower levels of participation at 12% and 7%, respectively. Some of these activities will be discussed in greater detail below.

TABLE 2.2-10: SELF-REPORTED ACTIVITY PARTICIPATION RATES FROM 2009 SUMMER VISITOR SURVEY

Activity	Percentage Participation
Viewing scenery	93%
Taking a scenic drive	64%
Day hiking	54%
Wildlife viewing / bird watching	43%
Picnicking	33%
Creative arts	26%
Camping in a developed campground	16%
Attending ranger-led programs	15%
Bicycling	12%
Nature study	7%
Rock climbing	6%

NOTE: Activities listed do not include other popular but non-river-related activities engaged in by Yosemite Valley visitors, such as dining at Yosemite Valley restaurants, shopping, or visiting museums.
SOURCE: Blotkamp et al. 2010

Art and Photography. About one-fourth (26%) of visitors reported they participated in creative arts (NPS 2011d). Free art classes are offered from spring through fall at the Yosemite Art and Education Center in Yosemite Valley, and art supplies can also be purchased at the center. The Yosemite Conservancy's Outdoor Adventures program offers art and photography seminars throughout the park. The Yosemite Renaissance offers an artist-in-residence program. Free photography walks are offered year-round. Other facilities in the Valley feature art displays. The Yosemite Museum Gallery displays exhibits of Yosemite art during spring and summer, and the Ansel Adams Gallery features the work of Ansel Adams, contemporary photographers, and other fine artists.

Auto-touring and Sightseeing. As shown in Table 2.2-10, auto-touring and sightseeing are the two most common river-related visitor activities in Yosemite Valley. Auto-touring in the Valley provides opportunities to visit several "attraction sites" and/or viewpoints during a single trip. Key attraction sites include Bridalveil, Vernal, and Lower Yosemite Falls. Although Yosemite Falls is not located within the one-quarter-mile river corridor, their visibility from within the river corridor and attraction value directly influence visitation patterns by many visitors within the Merced River Corridor. Additionally, access trails and parking areas serving these key attraction sites are located within the river corridor. These attraction sites are particularly popular in spring and early summer when the snowmelt and high flows in the river produce awe-inspiring waterfalls. As flows diminish and summer advances, they are less heavily visited.

Biking. Of the survey respondents, 12% reported bicycling in the Valley (NPS 2011d), where more than 12 miles of paved bike paths are available. In addition, bicyclists can ride on roads unless posted otherwise. Motorized scooters are permitted for accessibility purposes. The park does not allow off-

trail riding, mountain biking, or use of motorized bicycles or scooters on bike paths. Bicycles are available for rent in Yosemite Valley in Curry Village and Yosemite Lodge when bicycle path and weather conditions are favorable (NPS 2011d).

Camping. About 16% of visitors reported they camped in developed campground facilities. Campground facilities and capacities are described in Table 2.2-8. Campground sites in the Valley are in high demand and frequently filled to capacity.

Day Hiking. Slightly more than half of survey respondents (54%) reported participating in day hiking. There are about 37 miles of hiking trails in the Valley (Table 2.2-7), ranging from easy to strenuous.

Floating. Floating in private or concessioner-rented vessels on the Merced River is permitted between Stoneman Bridge and Sentinel Beach Picnic Area. The concessioner began renting rafts for this three-mile segment of the river in 1982. Initially the concessioner rented up to 50 rafts a day. This number grew to 200 rafts a day in the 1990s, with the stipulation that no more than 100 were in use on the river at any one time.

Floaters were counted from Stoneman Bridge and from the Sentinel Beach Picnic Area in May and June of 2007. "Floaters" includes both persons on rafts and on inner tubes. An average of 205 floaters per day was counted at Stoneman Bridge and 193 floaters at Sentinel Beach Picnic Area (Table 2.2-11). At Stoneman Bridge, the number of floaters counted on weekdays was 226, compared to 177 for weekend days. At Sentinel Beach Picnic Area , the average number of floaters counted on weekdays was 219 and on weekends was 158 (Pettebone et al. 2008). Fridays were counted as weekdays, and during the survey one of the Fridays occurred over the Memorial Day long weekend, which may account for the higher observed weekday use levels.

TABLE 2.2-11: FLOATING COUNTS ON THE MERCED RIVER 2007

	Stoneman Bridge (persons)	Sentinel Beach Picnic Area (persons)
Weekdays (M- F)	226	219
Weekend Days (S- Su)	177	158
SOURCE: NPS 2008a		

Picnicking. One-third of survey respondents reported they participated in picnicking. Designated picnic areas exist at El Capitan picnic area, Cathedral Beach, Sentinel Beach, Swinging Bridge, Lower Yosemite Fall trailhead, the Church Bowl, and in Yosemite Village. Per the Concession Services Plan, visitors may picnic at all outdoor food service locations operated by the concessioner.

Ranger-led Programs. Of the survey respondents, 15% indicated they participated in ranger-led programs. Visitors were not asked about their participation in interpretive programs offered by organizations other than NPS. Programs are offered daily in the Valley and include activities, such as walks and talks on cultural resources, ecology, and geology (NPS 2011d).

Rock Climbing. Yosemite Valley features world-renowned climbing. Of survey respondents, 6% indicated they participated in rock climbing. There are numerous climbing routes in the Valley; some are single-day and others are multi-day routes, requiring climbers to bivouac (camp) along the route.

Wildlife Viewing/Birdwatching. About 40% of survey respondents indicated they participate in wildlife viewing/bird watching. Survey respondents were not asked about particular species they were interested in viewing. Yosemite National Park provides essential habitat for about 165 species of migrating, wintering, and breeding birds, as well as for another 91 species recorded as transient or vagrant (NPS 2011d). There are also opportunities to view deer, black bear, and other mammals.

Attraction Sites. Examining use levels at specific attraction sites is another means of describing participation in the Recreational ORV. Pettebone et al. (2008) measured visitor use at attraction sites in the Valley. Table 2.2-12 shows the average daily visitor arrivals as measured for the peak season months in 2007 at Bridalveil, Vernal, and Yosemite Falls.[26]

TABLE 2.2-12: AVERAGE DAILY VISITATION AT KEY YOSEMITE VALLEY ATTRACTION SITES BY MONTH (2007)

	Bridalveil Fall	Vernal Fall	Yosemite Falls
May [a]	3,510	2,377	4,796
June	3,188	2,297	4,425
July	2,870	2,219	3,782
August	2,307	2,077	2,174
September	1,505	1,588	1,504
Average arrivals	2,415	1,911	3,274

NOTE: Visitation averages are for visitors arriving at the attraction sites between 10 a.m. and 5 p.m.
[a] In May, data collection began on 5/24.
SOURCE: NPS 2007b

As shown in the table, Bridalveil, Vernal, and Yosemite Falls are particularly popular in the early summer, when the Sierra snowmelt ensures that the waterfalls have higher flows than they do in the later summer months.

Study results also show variation on an hourly basis and for weekdays and weekends. For example, at Vernal Fall Trailhead, hourly use is less than 100 people before 8 a.m. on weekdays but is more than 150 people for the same time period on weekends. Weekday use peaked at about 400 people at 3 p.m. on weekdays, but on weekends it peaked at about 500 people for a longer period of time (from 1 to 3 p.m.). Similar variations in use were found for Yosemite and Bridalveil Falls.

Additionally, a recent study of park visitation (Blotkamp, 2010) reported that 59% of visitor groups visited Yosemite Falls on their trip, 52% visited Bridalveil Falls, and 28% visited Vernal Falls (n=646 groups).

Summary of Recreational Activity Participation. Viewing scenery is by far the most popular activity for park visitors. Other popular activities include day hiking, floating, wildlife viewing, picnicking, and creative arts. The popularity of viewing scenery is reflected in use levels observed at attraction sites, particularly in spring and early summer when flow rates in the waterfalls are high. Use at attraction sites decreases as flow rates drop throughout the summer. During both weekdays and weekend days, there is high variation in hourly use levels, with relatively low use during early morning and early

[26] Yosemite Falls are located outside the Merced River corridor. However, while that fact means that the attraction itself may not represent a Recreational ORV, its proximity to the Merced River and its attraction value contribute to most Yosemite Valley visitors' recreational experience.

evening. Use tends to peak in the early afternoon and is consistently higher on weekends than on weekdays.

2.2.4.1.5 Setting Attributes

Opportunities to experience the sights and sounds of the Merced River and to view the Valley's scenery are Recreational ORVs. Visitors who perceive crowding may have a diminished recreational experience in this segment. In 1998, a visitor survey conducted queried visitors about what they liked and disliked about their visit to Yosemite Valley. Results of this study are discussed below.

2.2.4.1.5.1 Environmental Setting Attributes

Section 2.4, Scenic Values, describes the visual qualities that influence the recreational experience in this river segment. Major attractions in the Valley include Vernal, Nevada, and Bridalveil Falls, and the river provides directly for recreational activities such as fishing, floating, and swimming (Figures 2.2-5 and 2.2-6). The natural forces of the river that cause periodic Valley flooding may also influence the Recreational ORVs by affecting visitor access and facilities.

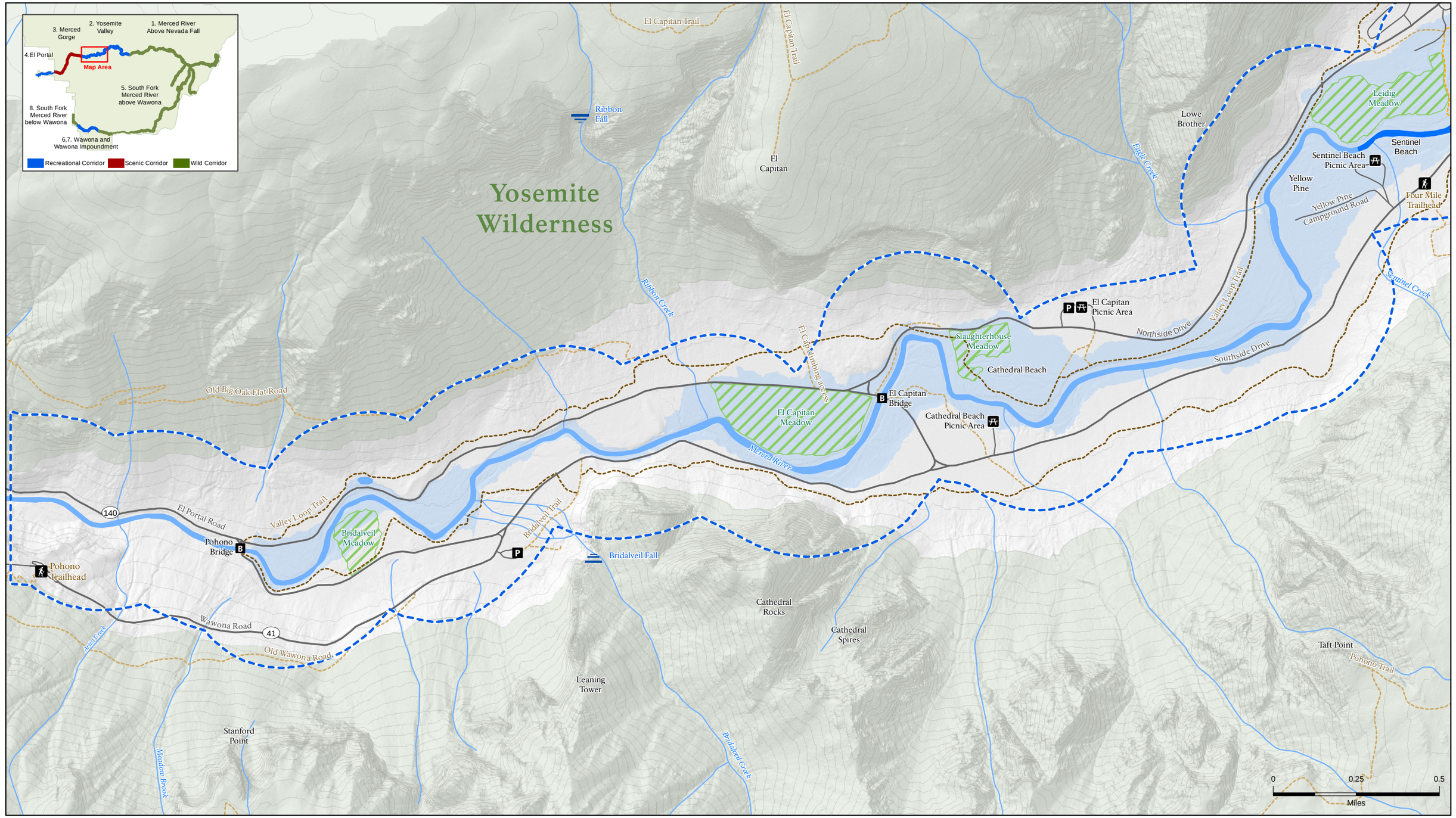


Figure 2.2-5
Recreational ORV - River Segment 2. Yosemite Valley
El Capitan Meadow, Cathedral Beach, and Sentinel Beach
Recreational WSR Corridor

Recreational WSR Corridor Classification
Monitored Meadow
100 Year Flood Boundary
Rafting Permitted
Road
Stream/River
Valley Loop Trail
Bike path
Trail
100' Contour Line
Waterfall
Picnic Area
Trailhead
Parking Area

National Park Service U.S. Department of the Interior

Produced by: **Yosemite Planning Division**

Projection:	North American Datum 1983, UTM Zone 10
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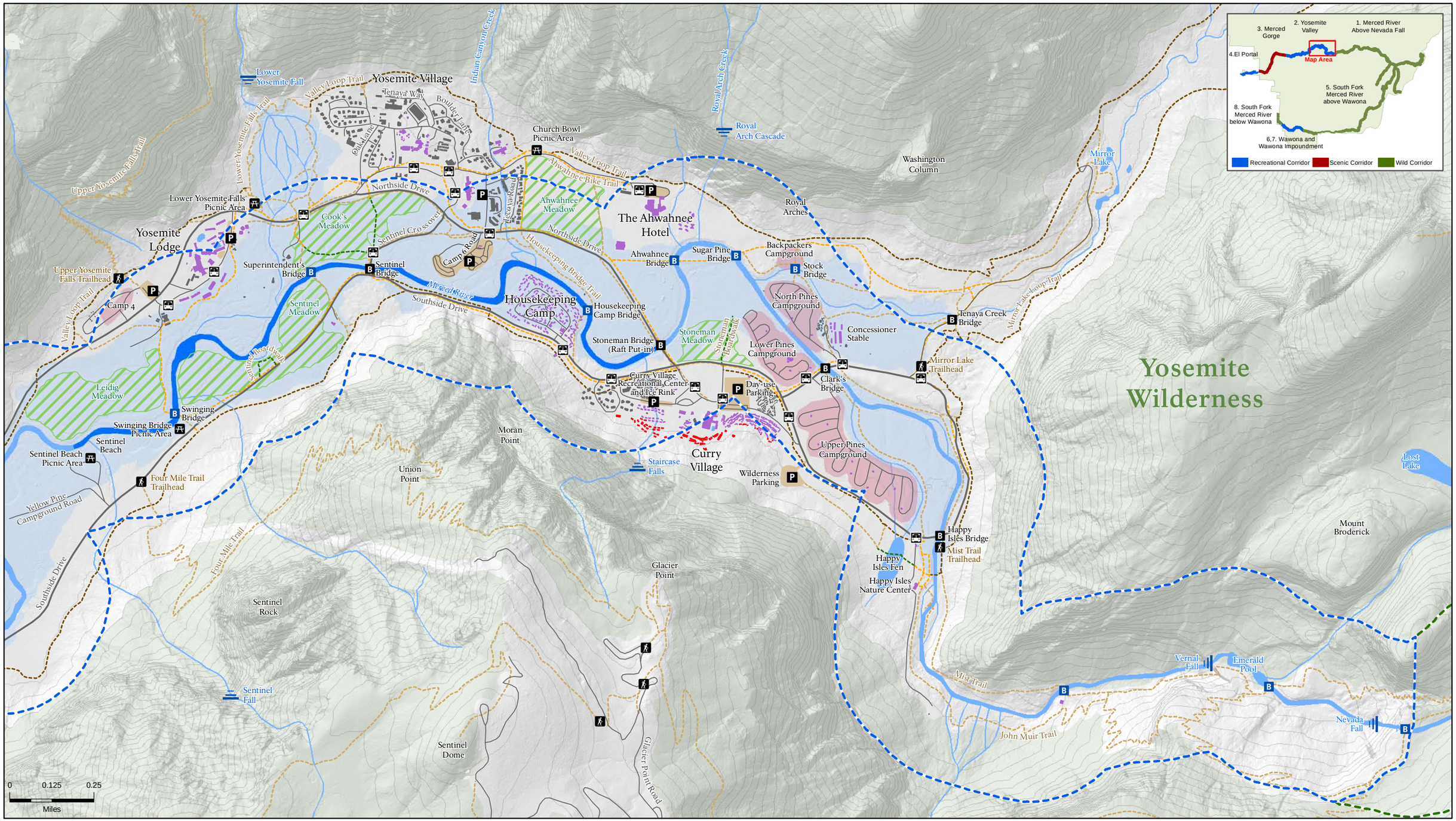


Figure 2.2-6
Recreational ORV - River Segment 2. Yosemite Valley
Yosemite Lodge, Yosemite Village, Curry Village, and The Ahwahnee
Recreational WSR Corridor

- Recreational WSR Corridor Classification
- Wild WSR Corridor Classification
- Building to be removed
- Visitor Based Activities and Services Building
- Other Building
- Monitored Meadow
- Campground
- Rafting Permitted
- 100 Year Flood Boundary
- Picnic Area
- Trailhead
- Shuttle Stop
- Parking Area
- Road bridge
- Footbridge
- Waterfall
- Stream/River
- Road
- Valley Loop Trail
- Bike path
- Boardwalk
- Trail
- 100' Contour Line

National Park Service U.S. Department of the Interior

Produced by: **Yosemite Planning Division**

Projection:	North American Datum 1983, UTM Zone 10
Date:	6/2/11
File:	Figure 2.2-6

The Mist Trail allows visitors to see, hear, and feel the river and exemplifies a Recreational ORV for this river segment. This type of recreational opportunity is rare on other rivers in the Sierra Nevada as is floating and swimming along a flat reach of river in a mountainous, meadow setting. In a 1998 survey by Manning et al., visitors were surveyed at the base of and along the trail to lower Yosemite Falls and at the trailhead to Vernal Fall. Visitors liked the scenery/natural beauty (35.2% of respondents), hiking/walking/specific trail (28.7%), and the falls (17.7%). Visitors disliked crowds (41.7% of survey respondents) and traffic (5.7%).

2.2.4.1.5.2 Social Setting Attributes

In 2010, Yosemite Valley received approximately 3.56 million visitors (89% of total park recreational visitation during that year) (NPS Puglic Statistics Office). As part of the NPS wide 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 the Valley (Littlejohn et al. 2006). 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 the 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).[27] While methodologies and results varied between surveys, all found some perceptions of crowding (up to 80% of those sampled in one survey regarding Bridalveil Fall). Perceptions varied depending on the visitor, place, and time of survey, but *some* perception of crowding was a common theme among these surveys and across more than a decade.

Manning et al. (1998) asked visitors to evaluate levels of crowding along a 50-meter length of trail at the aforementioned locations by viewing a series of 6 photographs that depicted 0 to 180 people. Respondents surveyed at the trail to the base of Vernal Fall would prefer to see 11 PAOT, would "tolerate" seeing 39 PAOT before they would no longer visit the area, and felt the National Park Service should allow a maximum of 30 PAOT. Visitors to the trail to the base of Vernal Fall reported seeing an average of 19 PAOT and reported being "somewhat crowded" (4.1 on a scale where 1 equals "not at all crowded" and 9 equals "extremely crowded"). Respondents surveyed at the trail to the base of Yosemite Falls would prefer to see 18 PAOT, would "tolerate" seeing 60 PAOT before they would no longer visit the area, and felt the National Park Service should allow a maximum of 46 PAOT. Visitors to this location reported seeing an average of 27 PAOT and reported being "somewhat crowded" (3.4 on a scale from 1 "not at all crowded" to 9 "extremely crowded"). Finally, respondents surveyed at the base of Yosemite Falls would prefer to see 43 PAOT, would "tolerate" seeing 126 PAOT before they would no longer visit the area, and felt the National Park Service should allow a maximum of 100 PAOT. Visitors surveyed at the base of Yosemite Falls reported seeing an average of 59 PAOT and reported being "somewhat crowded" (3.4 on a scale of 1 "not at all crowded" to 9 "extremely crowded"). A follow-up survey conducted at three additional sites in Yosemite Valley confirmed these findings (Manning et al. 1999).

[27] NPS is currently undertaking an additional river-specific use study during the summer of 2011, the results of which should be available in 2012.

In 2007, Lawson and others initiated research that integrated information on traffic levels, visitor use levels, and visitor preferences for use levels. Lawson et al. (2009) conducted visitor surveys and counts at attraction sites in the Valley. The authors used vehicle entrance traffic data from multiple entrance points to predict visitor use levels at attraction sites. The attraction sites included the trail to Mirror Lake, the base of and trail to Bridalveil Fall, the base of and trail to Lower Yosemite Fall, and the trailhead at Happy Isles. Multiple simulations predicted visitor use levels at attraction sites to determine how often visitor preferences for PAOT within a 50-meter stretch of trail would be exceeded. Many of these simulations indicated visitor preferences for PAOT were occasionally exceeded. Simulation results also showed that PAOT on trails and at attraction sites were exceeded more than 10% of the time at all study sites, except for PAOT on the trails to Mirror Lake and Lower Yosemite Fall. The preference standard for PAOT on the trail to Vernal Fall was exceeded in about one-quarter of the simulations. The preference standards for PAOT on the trail to Bridalveil Fall and at the base of Yosemite Falls were exceeded 50% of the time. Model simulations also showed that the preference standard for PAOT at the base of Bridalveil Fall was exceeded almost 80% of the time. Simulation results suggest there are crowding issues associated with Yosemite, Bridalveil, and Vernal Falls.

The Merced River is a focal point for Yosemite Valley visitor use. From June to September in 2005 and 2006, PAOT was measured at one minute intervals for one hour periods along 50 meter stretches of the Merced River from Stoneman Bridge to Sentinel Beach Picnic Area, the only reach where floating is currently allowed (Table 2.2-9). River segments were divided into low-, medium-, and high-use stretches. Data collected the following year showed PAOT levels increased (NPS 2006). There were 17 PAOT in the low-use segment, 32 in the medium-use segment, and 50 in the high-use segment.

TABLE 2.2-9: MAXIMUM PAOT LEVELS[1] FOR ALL ACTIVITIES ON LOW-, MEDIUM-, AND HIGH-USE SEGMENTS OF THE MERCED RIVER

	Low-use Segment	Medium-use Segment	High-use Segment
2005	8	13	37
2006	17	32	50

SOURCES: NPS 2005a, 2006
[1] Maximum PAOT levels were all recorded at 12 noon or later the day when sampling occurred.

2.2.4.1.5.3 Managerial Setting Attributes

The recreational experience and opportunities are influenced by such factors as seasonality, road and weather conditions, parking capacity, transportation services, picnic site availability, camping, lodging facilities, roads and trails, river conditions and access, raft rental, bike rental, ranger-led programs, and interpretive displays. Raft rentals affect the recreational experience in that the numbers of watercraft on the river at one point in time can impact visitors' perceptions of crowding. The presence, location, and capacity of various facilities in the Valley greatly influence visitor access and activities. More specific details on the extent of these attributes and facilities are provided in the following section. Since the time of designation several campground facilities, mostly in Lower and Upper River Campgrounds and Lower and North Pines Campgrounds (including ten group campsites), were removed following the 1997 flood. In addition, several hundred lodging units have been removed both at Yosemite Lodge (following the flood) and at Curry Village (due to a sequence of large rockfall events that have taken place in recent years).

Since 1987, the number of campsites and lodging units available in the Valley has decreased. More than 350 camping units were removed from the Upper and Lower Pines Campgrounds after the 1997 flood. There are 498 fewer lodging units due to the combined effects of the 1997 flood and the 2008 rockfall. Parking lot closures remain common.

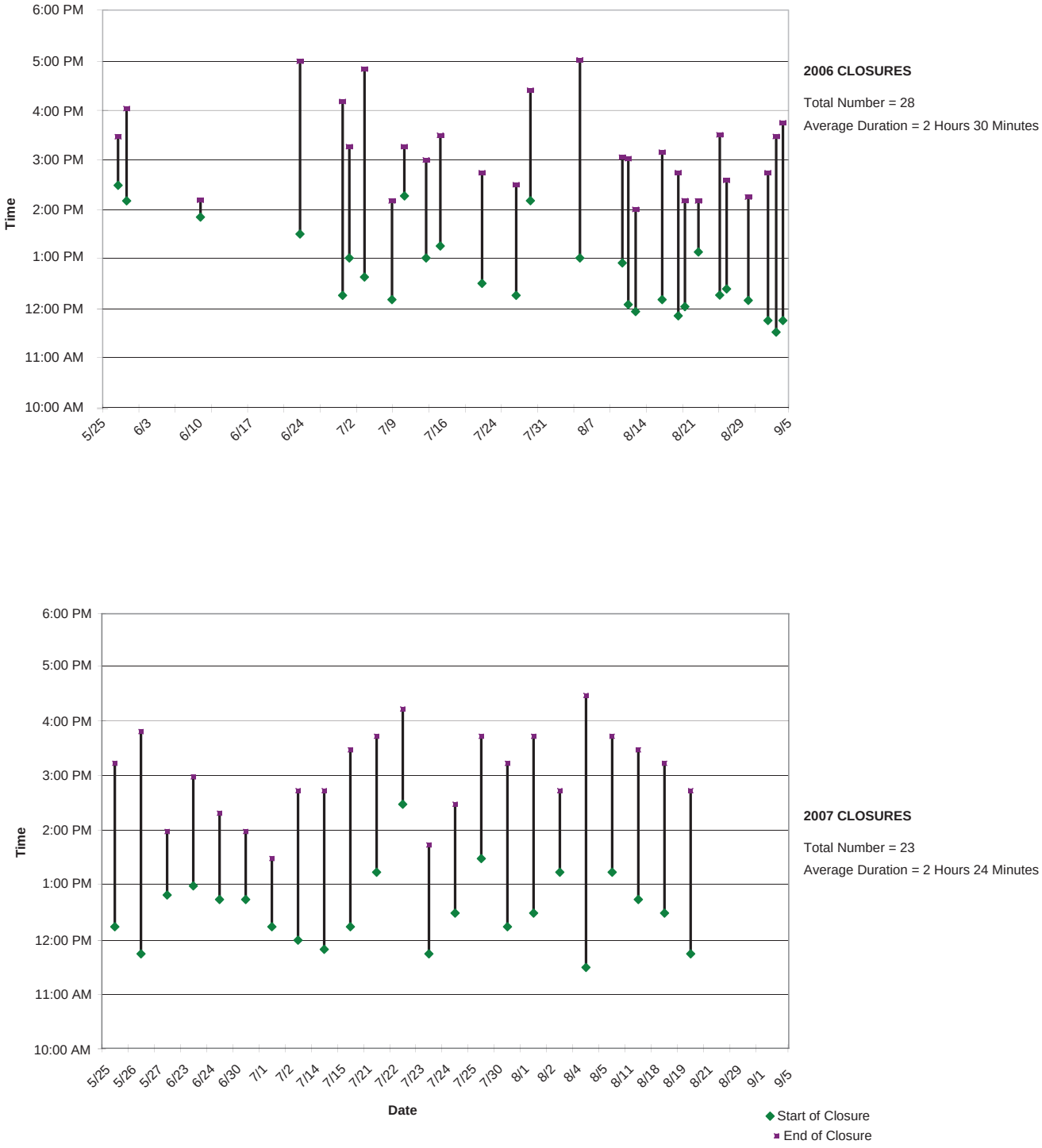
Overnight Accommodations. In 2010, 16% of the survey respondents reported camping in a developed campground. There are currently 583 campsites located within four campgrounds and 1,261 lodging units in Yosemite Valley. Altogether, these units can provide accommodations for up to 7,803 people (NPS 2009a). Overnight capacity within Yosemite Valley has decreased since 1987. In the 1997 flood, 353 campsites and 262 lodging units were lost. The 2008 rockfall event also eliminated 236 of the Curry Village cabins (Bacon 2010). Table 2.2-8 summarizes the overnight accommodations in the Valley.

Parking. Parking availability along with the number of day-use lot closures are indicators of congestion in Yosemite Valley. An estimated 3,650 parking spaces are available for visitors in Yosemite Valley. The parking capacity estimates within Yosemite Valley were determined based on data counts performed in a 2009 facility capacity spreadsheet (NPS 2009a). Additional data will be available in late 2011 or 2012, when an updated parking inventory is completed. Approximately 1,000 spaces are located in day-use parking lots with another estimated 750 spaces are available along roadways. The other remaining 1,900 spaces are located at or near lodging or campsite facilities and are primarily used by overnight visitors.

From 2005 through 2007, NPS rangers recorded the number of vehicles in the Camp 6 day-use parking lot. In 2005, rangers reported that the Camp 6 lot was filled to capacity and alternate traffic measures were implemented on 90 days, with 51 lot closures occurring between June and August (NPS 2005). Table 2.2-13 shows the number and duration of parking closures within Yosemite Valley in 2006 and 2007. In 2006, rangers indicated that the total number of Camp 6 lot closures during summer months had decreased to 28 (NPS 2006) and to 23 in 2007 (NPS 2007b). Closures occurred between May and September and the lot reached an average capacity of 800 vehicles before it was closed. Figure 2.2-7 shows the time and duration of all 28 closures recorded in 2006 and 23 closures recorded in 2007. In general, these closures occurred in the afternoon between 12:00 p.m. and 4:00 p.m. The earliest recorded closure time was 11:40 a.m., and the latest recorded reopening time was 4:30 p.m. The average length of time the lot closed in 2006 and 2007 was approximately 2.5 hours (NPS 2006, 2007b). Such closures remain common, particularly on weekends in 2011.

Table 2.2-13: Incidences of Parking Facility Closures in Yosemite Valley 2006-2007

Year	Total Number of Closures	Average Duration of Closure	Lot Capacity at Time of Closure
2006	28	2 hours, 30 minutes	800
2007	23	2 hours, 24 minutes	800
SOURCES: NPS 2006, 2007b			



NOTE: The 2007 parking lot closure data is shown by occurrence date to facilitate comparison between closures. Parking lot closures generally occurred on weekend days.

SOURCE: NPS 2006, 2007b

Merced River Comprehensive Management Plan

Figure 2.2-7

Time and Duration of Day Use Parking Lot Closures in 2006 and 2007

In the same 1998 study by Manning et. al referenced above, visitors were also asked to respond to questions about eight management issues and to rate the extent to which those issues were problematic on a scale ranging from 1, which equaled "no Problem," to 3, which equaled a "big problem." Approximately 3 out of 10 respondents mentioned traffic on roads in Yosemite Valley as a "big problem," while about 4 out of 10 stated that difficulty finding parking was a "big problem" (Manning et al. 1998). Moreover, respondents most frequently indicated that crowding was the least liked aspect of their visit.

A more recent study conducted by White and Aquino (2008) focused on transportation issues. Visitor surveys were conducted during the summer season at multiple locations in the park. Visitors were queried about waiting time to enter the park, the time needed to find a parking spot, and about the acceptability of waiting times. Only a few questions addressed crowding, and they were all asked in the context of traveling within the park. The majority of visitors reported waiting an average of less than three minutes to enter the park and an average of approximately two minutes to find parking. The majority of visitors rated traffic congestion at park entrances, on roadways, and in parking areas as "not a problem." Unlike the work conducted by Manning, this study did not investigate standards of quality for PAOT at attraction sites or along trails to attraction sites. The focus of this study was on transportation.

In addition, the Transportation Improvement Strategies Report will be complete in the summer of 2011 (Resource Systems Group 2011).

Recreational Experience Quality

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).

2.2.4.3 Preliminary Management Considerations

The preliminary management considerations associated with the Recreation ORV in segment 2:

- The popularity of some attraction sites results in perceived and real impacts of "crowding", reducing the quality of visitor experiences and/or resulting in other negative impacts to the site's use and resources.
- Yosemite Valley visitation periodically exceeds current parking and visitor facilities capacities.
- The reduction in the availability of overnight accommodations within Yosemite Valley as a result of the 1997 flood and 2008 rockfall events has decreased the number of visitors that can stay overnight in Yosemite Valley. This not only reduces the number of visitors that can have an overnight experience of Yosemite Valley, but the related higher proportion of day use may encourage greater concentrations of use at the major attraction sites.
- Floating on the river may result in public safety concerns and use conflicts with other visitors' recreational experiences.

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