

Transportation

Affected Environment

Regulatory Framework

Management Policies 2006

The National Park Service (NPS) *Management Policies 2006*, the basic service-wide policy document of the NPS, establishes provisions for management of a wide range of activities within the park.

Transportation-related topics addressed include the management of roads, traffic, parking, trails, bicycle paths, and many others. For example:

- Park roads will be well-constructed, sensitive to natural and cultural resources, reflect the highest principles of park design, and enhance the visitor experience. Before roads are chronically at or near capacity, the use of alternative destination points or transportation systems or limitation on use will be considered as alternatives to road expansion.
- All trails and walks will be carefully situated, designed, and managed to
 - reduce conflicts with automobiles and incompatible uses;
 - allow for a satisfying park experience;
 - allow accessibility by the greatest number of people; and
 - protect park resources.
- Parking areas and overlooks will be located to not unacceptably intrude, by sight, sound, or other impact, on park resources or values. When parking areas are deemed necessary, they will be designed to harmoniously accommodate motor vehicles and other appropriate users. Permanent parking areas will not normally be sized for the peak use day, but rather for the use anticipated on the average weekend day during the peak season of use.

Yosemite General Management Plan

The 1980 *General Management Plan* for Yosemite National Park establishes general management planning and policy direction for the park. The document sets forth specific management goals, including markedly reducing traffic congestion, among others. In keeping with this vision, the plan sets forth specific measures intended to reduce and ultimately eliminate private automobile use within Yosemite Valley, including the removal of excess day parking spaces, improvement of the shuttle system, creation of opportunities for bicycling throughout the Valley, and enforcement of the park's automobile capacity limitations.

The Superintendent's Compendium

The *Superintendent's Compendium* sets forth park policy on a wide range of specific activities within the park, including road closures; parking restrictions; vehicle load, weight, and size limits; speed limits; and bicycling, among many other provisions under the discretionary authority of the

Superintendent. With regard to traffic management, the *Superintendent's Compendium* helps guide park staff decision-making when traffic conditions reach certain threshold conditions. For example, the document states, "Visitors may enter Yosemite Valley until westbound traffic is backed-up from Lower Yosemite Falls to Curry Village Four-Way intersection or all day use parking spaces have been filled, and/or the 18,241-person capacity has been reached" (NPS 2011a). Other traffic management items in the *Superintendent's Compendium* include the following:

- All buses visiting Yosemite Valley, not including vans, are required to unload and pick up their passengers, and park only in areas designated by their commercial bus authorization.
- Establish vehicle load, weight, and size limits, which are more restrictive than state law, for park roads.
- Establish a 35 miles per hour (mph) maximum speed limit on park roads unless posted otherwise; specific lower maximum speed limits are established for roads under chain controls (25 mph) and for approaching or leaving all entrance station areas (20 mph).

The *Superintendent's Compendium* also sets forth park policy and regulations on commercial transportation within the park.

Roadway System and Traffic Volumes

Regional Roadway System

California state highways leading into Yosemite National Park (Highways 41, 120, and 140) transition into an internal parkwide road system at the entrance stations. Although the State of California has a road right-of-way for Highway 140 through the El Portal Administrative Site, it has no rights-of-way through the park, so there are no state highways within the park boundaries; however, state highway numbers are used on park signs to help orient visitors. Additional transportation facilities within the park consist of a series of spur roads, access drives, pedestrian trails, bicycle paths, and parking areas leading from the main roads. The park has roughly 200 miles of roads, of which about 30 miles traverse the Yosemite Valley floor. Main points of park entry are shown in **figure 9-40** and include: Arch Rock Entrance (El Portal Road/Highway 140), Big Oak Flat Entrance (Big Oak Flat Road/Highway 120), Hetch Hetchy Entrance (Hetch Hetchy Road), South Entrance (Wawona/Highway 41), and Tioga Pass Entrance (Tioga Road/Highway 120).



Figure 9-40
Park Roadways

Yosemite’s road network, outside of Yosemite Valley, is generally characterized by one travel lane in each direction. Destinations throughout the Valley are accessed through a loop, comprised primarily of Southside Drive (inbound) and Northside Drive (outbound). The loop is connected by four crossings of the Merced River, as described below. On average, park road speed limits are around 35 mph, lane widths are approximately 11 to 12 feet, and shoulder widths are roughly 0.5 feet to 2 feet. Major park roadways within the study corridors are described below (by segment), with traffic volume data recorded at fixed counter locations within the park during peak season periods.

Traffic Volumes

Traffic volumes within the park tend to be highest during the months of peak visitation, which are generally between May and September (Memorial Day to Labor Day), with July and August typically being the busiest months. **Table 9-154** provides an overview of peak season traffic volumes in 2011 at the park’s entrance stations.

TABLE 9-154: MONTHLY INBOUND VEHICLE TRAFFIC VOLUMES (IN 2011) AT PARK ENTRANCE STATIONS

Entrance Station	May		June		July		August		September	
	Total	%								
Arch Rock	44,950	32	56,213	29	59,327	22	54,471	21	44,896	23
Big Oak Flat	40,870	30	60,856	32	75,667	29	66,429	25	50,263	26
Hetch Hetchy	5,312	4	6,475	3	5,360	2	3,892	1	3,194	2
South	47,396	34	54,693	29	76,212	29	69,499	27	49,486	25
Tioga Pass	0	0	13,200	7	48,050	18	66,650	26	48,000	24
Total	138,528	100	191,437	100	264,616	100	260,941	100	195,839	100

SOURCE: NPS 2011m

Park traffic is comprised mainly of park visitors, and park employees (many of whom live along the Highway 140 corridor). As is evident from Table 9-154, vehicle entries are generally evenly spread among the entrance stations except for the Hetch Hetchy Entrance, which is the only entrance not directly accessible from a state highway and not connected to the park’s broader road network. In 2011, traffic was heaviest in July, with the largest number of vehicles entering through the South Entrance. The Tioga Pass is closed seasonally due to snow, generally from November to May. This explains the absence of Tioga Pass traffic data for May, as well as that month’s comparatively low traffic volume.

The vast majority of park visitors arrive by private automobile. A summer of 2007 park visitor survey (White and Aquino 2008) found that 84.4% of respondents arrived by private automobile. Other modes included commercial tour bus (4.8%), recreational vehicle (3.2%), and regional bus transit (1.3%). Among those who entered the park by private vehicle, nearly 87% traveled through the park in their private vehicle at least part of the time. However, more than 60% of these visitors also traveled via the Yosemite Valley Shuttle. Despite the attractiveness of the public transportation system, the prominence of private vehicle use among visitors creates complex traffic management challenges for park staff, especially on busy summer days.

Traffic volumes fluctuate seasonally, daily, and hourly within the park. As noted previously, traffic tends to be heaviest during the summer, between May and September. However, visitation patterns also vary based on day of the week and time of day, with traffic volumes in the park higher during weekends than on weekdays. Similarly, visitor travel to and from the park results in daily traffic peaks beginning in the late morning and lasting through early evening. While these fluctuations are seen throughout the park, their implications for Merced River management tend to be most pronounced within the Yosemite Valley area (Segment 2). Planning for management activities and facilities where peak conditions are significantly different from average typically applies the concept of design conditions, which address typically busy days during the peak season, but not the day with the highest visitation.

The park typically experiences the highest traffic volumes on weekends during the summer, with peak volumes occurring during holiday weekends. During the peak season of 2011 (Memorial Day weekend through Labor Day weekend), an average of 5,749 vehicles entered Yosemite Valley on Southside Drive daily. On the busiest day (June 18), 7,345 vehicles entered the Valley; this represents an increase of 28% when compared to an average day.

Daily traffic volumes recorded at fixed counter locations within the Yosemite Valley indicate a long-term historical trend of growth in traffic. Traffic volumes leveled off and even fell slightly between 2001 and 2006. However, they have once again begun to rise and have approached historic highs (NPS 2011n). Daily traffic volumes during most of the year do not exceed the capacity of any of the major roadways. Similarly, on busy summer days, travelers on most park roads during peak travel hours encounter only minor to moderate congestion. However, at key activity areas (popular attractions, parking areas, and major intersections) within Yosemite Valley, and at the park entrance stations, moderate to major congestion occurs (RSG 2011). Disruptions to traffic flow are often attributed to excessive circulation on roadways by visitors and tour bus drivers seeking parking spaces.

To assist people in planning their trip to Yosemite, the park has a new tool (as of July 2012) to inform travelers of traffic congestion (heavy, moderate or light) in different areas of the park (Yosemite Valley, Tuolumne Meadows, Wawona and Mariposa Grove, and Glacier point). A weekly Traffic Forecast is available at the Yosemite web site's Plan Your Visit page. Travelers can also sign up to receive the forecasts via email.

Transit and Tour Bus Services

Multiple transit services operate within Yosemite, including the Yosemite Area Regional Transit System (YARTS), external tour bus operators, and concessioner-operated in-park shuttle and tour bus services. With the exception of shuttle bus services in Tuolumne Meadows and to the Mariposa Grove from Wawona, nearly all buses travel to and from or within Yosemite Valley. As discussed in the following sections, while bus visitation represents a relatively small proportion of total annual visitation, a large number of visitors to the park rely on transit between destinations within the park. Bus visitation trends are briefly discussed in the following paragraphs, followed by a description of transit services within the park.

Bus Visitation Overview

The NPS tracks the number of buses entering the park, as well as the number of visitors that arrive by bus. **Figure 9-41** shows the number of visitors arriving by bus along with the number of buses entering the park for the period between 1990 and 2011 (NPS 2011m). As shown in figure 9-41, the number of visitors traveling to the park by bus steadily increased from 1990 (258,412 visitors and 10,784 buses) to 1996 (457,896 visitors and 17,656 buses). Between 1996 through 2003, both the number of visitors arriving by bus and the number of buses dropped by more than 50%. In 2003, 200,818 visitors arrived on 7,021 buses. In the years since, both the number of buses and bus ridership has fluctuated, but generally increased. In 2011, 300,979 visitors arrived by 10,565 buses. With some variation, the pattern of visitors arriving by bus over this period generally follows the pattern for overall park visitation for this same period. In 1996, 14% of visitors to the park arrived by bus. By 2003, that number had declined to 6%. In 2011, visitors arriving by bus comprised slightly more than 7% of total visitation.

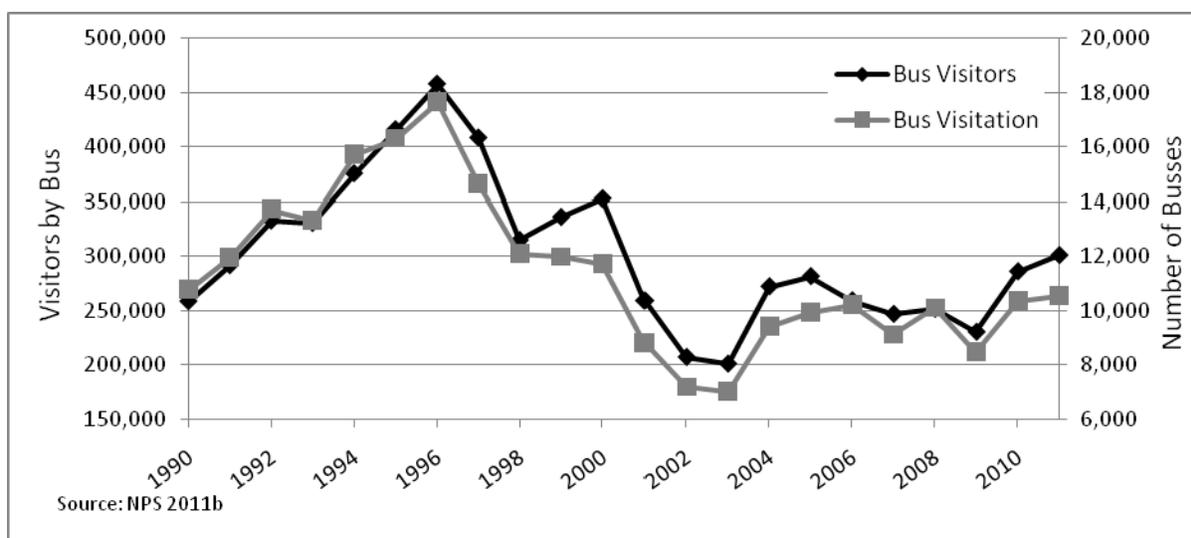


Figure 9-41
Bus Visitation to Yosemite National Park and
Number of Buses, 1990–2011

Figure 9-42 shows the percentage of annual buses as well bus visitation by month averaged over the 2000 to 2011 period. As shown in the figure, about 15% of the people who visit Yosemite by buses during an average year arrive during the peak months of August and September, respectively, with May, June, and July each accounting for 11% to 13% of annual visits by bus. Visitation by bus is lowest in the off-peak months of November through February, when combined ridership for these months constitutes just 13% of total annual ridership. The monthly patterns of visitation to Yosemite by bus have remained relatively constant over the last decade (NPS 2011m).

Buses providing day tours with no overnight stay arrive at the park in mid- to late morning and depart the park in mid-to-late afternoon, with duration of park visit ranging from four to six hours. Buses that bring visitors to the park for overnight stays generally follow the same routine as for day trips, the exception being that when buses arrive at Yosemite Lodge, visitors depart and check into the lodge for

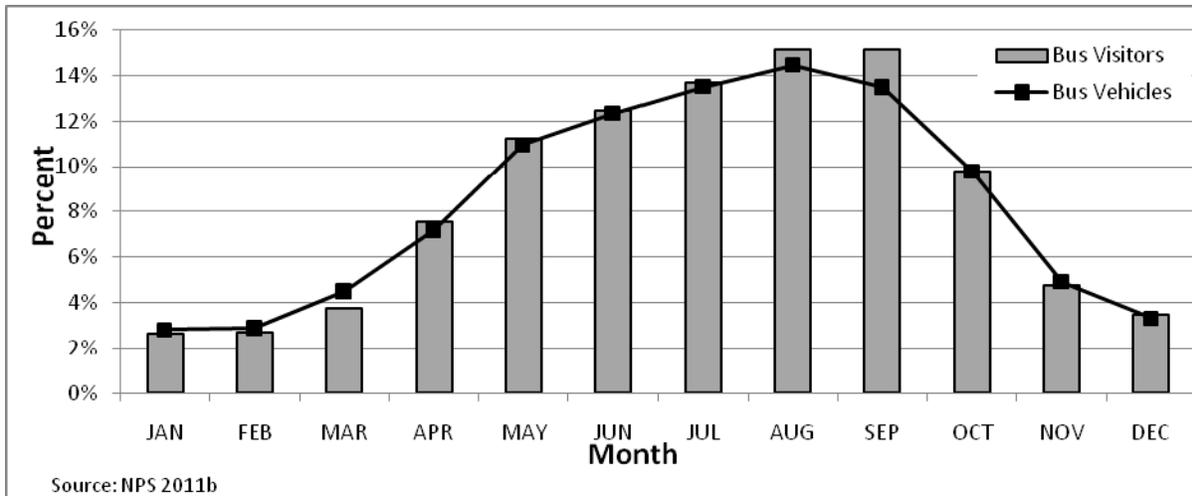


Figure 9-42
Percent of Annual Buses and Bus Visitors by Month
(Ten-Year Average)

their overnight stay. The bus then departs with tour guests who were brought to the park one day to three days earlier and have checked out of Yosemite Lodge for a return trip back to their point of origin or to another out-of-park destination.

Regional Bus Transit

Yosemite Area Regional Transportation System

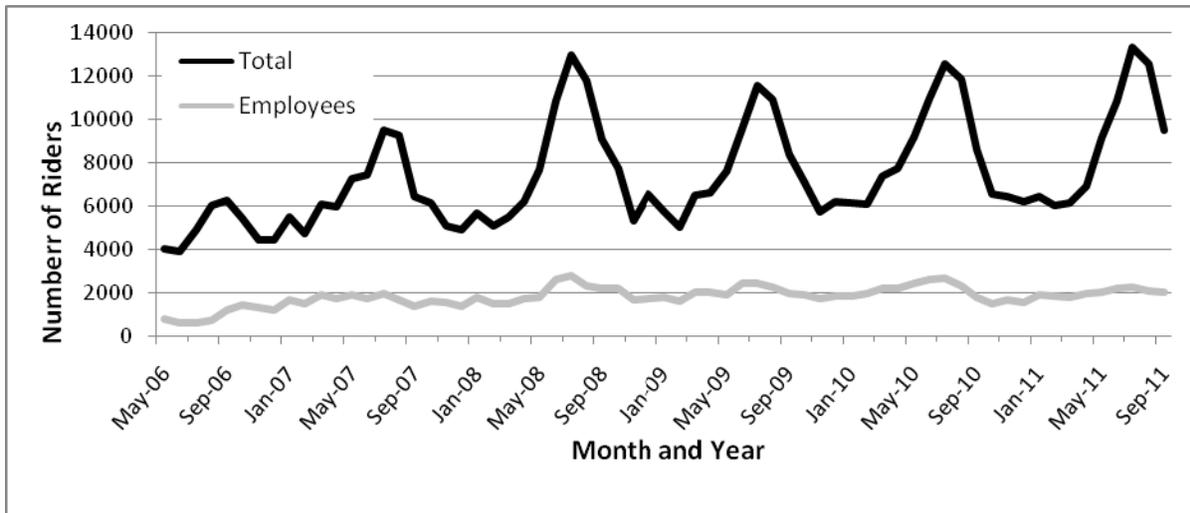
The YARTS was formed in 1999 by a Joint Powers Authority made up of the member counties of Mariposa, Merced, and Mono. YARTS provides regional bus service with four daily runs from Merced to Yosemite Valley, four daily runs from Mariposa to the Valley, and one daily run from Sonora to the Valley. Less service is provided on weekends, and more service is provided in summer, including a daily round-trip from Mammoth and points in Mono County through the Tuolumne Meadows area and connection to Valley buses. Through its connection with Amtrak, YARTS provides public transit services from San Francisco Bay Area airports, including the San Francisco, San Jose and Oakland international airports, and from the Fresno International Airport.

YARTS service began operations in 2000 in order to provide an alternative mode of transportation to and from Yosemite. The service is designed to serve the following traveling patterns:

- visitors staying in the neighboring gateway communities and visiting Yosemite
- employees along the Highway 140 corridor who work in El Portal or Yosemite
- students and employees who travel to Merced for school and/or work
- visitors who travel from Mono County to Yosemite for recreation during the summer only

- In summer 2012, YARTS added daily round trip visitor transportation services between Sonora/Jamestown, Groveland, Buck Meadows and other destinations along Highway 120 west to Yosemite Valley.

Figure 9-43 presents YARTS ridership data for employees, visitors, and others along the Highway 140 corridor from May 2006 through September 2011 (NPS 2011o). During this timeframe, the trend in overall ridership has been consistent, although distinct seasonal patterns have developed.



NOTE: Chart does not reflect Amtrak ridership.
SOURCE: NPS 2011o.

Figure 9-43
YARTS Ridership along Highway 140
May 2006 through September 2011

As is evident from the table, employee ridership remains fairly consistent throughout the year, while total ridership fluctuates dramatically based on season. Total ridership tends to be highest during peak summer months (e.g., May through September). Average peak month ridership between 2006 and 2011 ranged from 5,682 (May) to 8,696 (June). Conversely, ridership is lowest during the off-peak months (e.g., November through February). Average off-peak month ridership between 2006 and 2011 ranged from 3,689 (February) to 4,119 (December) (NPS 2011o).

YARTS ridership to the park along the Highway 140 corridor represents a very small percentage of total park visitation. However, the summer 2007 visitor survey found that the YARTS bus service is very important to its riders (White and Aquino 2008). For the years 2006 through 2011, total annual YARTS ridership ranged from a low of 49,924 in 2006 to a high of 77,281 in 2011, representing between 1.5% and 1.9% of total park visitation for the respective years. Visitor ridership closely follows the seasonal visitation numbers for the park, with the four summer months of May through September representing approximately 50% of total visitor ridership for the years 2006 through 2011 (NPS 2011o). It is assumed this trend would continue in the future.

Parking Areas

Parking supply within the park consists of designated day use and overnight visitor, employee, and resident lots, located throughout the primary developed areas of Yosemite Valley, El Portal Administrative Site, and Wawona. Other designated parking areas include trailhead parking lots and paved turn-outs along park roads. In addition, during peak summer days, motorists rely on an increasing number of informal areas for parking, such as unpaved roadside shoulders. Despite the potential resource impacts associated with use of these informal parking areas, the park depends upon these areas to satisfy parking demand during peak periods. Parking shortages are a substantial contributor to vehicle congestion within some areas of the river corridor, in particular the Yosemite Valley portion of the corridor. Congestion and crowding can degrade the overall visitor experience. The 2005 visitor survey found that parking areas were the most frequently mentioned locations where visitors felt crowded (Littlejohn et al. 2005). The park uses traffic management personnel to actively manage traffic and parking conditions. The number of parking spaces varies depending upon the way visitors configure their vehicles and the types of vehicles in an area. For example, RVs typically take more space than a sedan, and directing RVs to different areas increases the number of spaces available for sedans.

Segment 2: Yosemite Valley

Roadway System

The Valley Loop Road, shown in **figure 9-44**, is an approximately 12-mile-long combination one-way/two-way loop road that provides primary circulation within Yosemite Valley. It also connects the other major roads, facilitating through-park travel, and is maintained for year-round use. The pavement width is about 21 feet, and there are two travel lanes. Four bridges across the Merced River connect the roadway that runs parallel to the south Valley wall (Southside Drive) with the roadway on the north (Northside Drive). One-way operation is maintained along Southside Drive from Pohono Bridge in the West Valley to Stoneman Bridge near Curry Village in the East Valley. Two segments of one-way travel are maintained on Northside Drive. The first one-way section extends from Stoneman Bridge to Yosemite Village. The second one-way section extends from 100 yards west of Camp 4 to the Pohono Bridge. Two-way traffic is allowed between Camp 4 and Yosemite Village on Northside Drive.

In addition to Pohono and Stoneman bridges, connections between Northside Drive and Southside Drive are provided at El Capitan Bridge and at Sentinel Bridge near the Yosemite Chapel. Average daily traffic volumes in July 2011 were about 6,196 vehicles on Southside Drive and 6,240 vehicles on Northside Drive (NPS 2011n). The discrepancy between inbound and outbound traffic is likely because not every vehicle that enters the Valley leaves the Valley on the same day. Average daily volumes on peak weekends and peak holiday weekends have exceeded the July 2011 daily average in the past. In addition, monthly daily average traffic volumes may vary from those stated above.

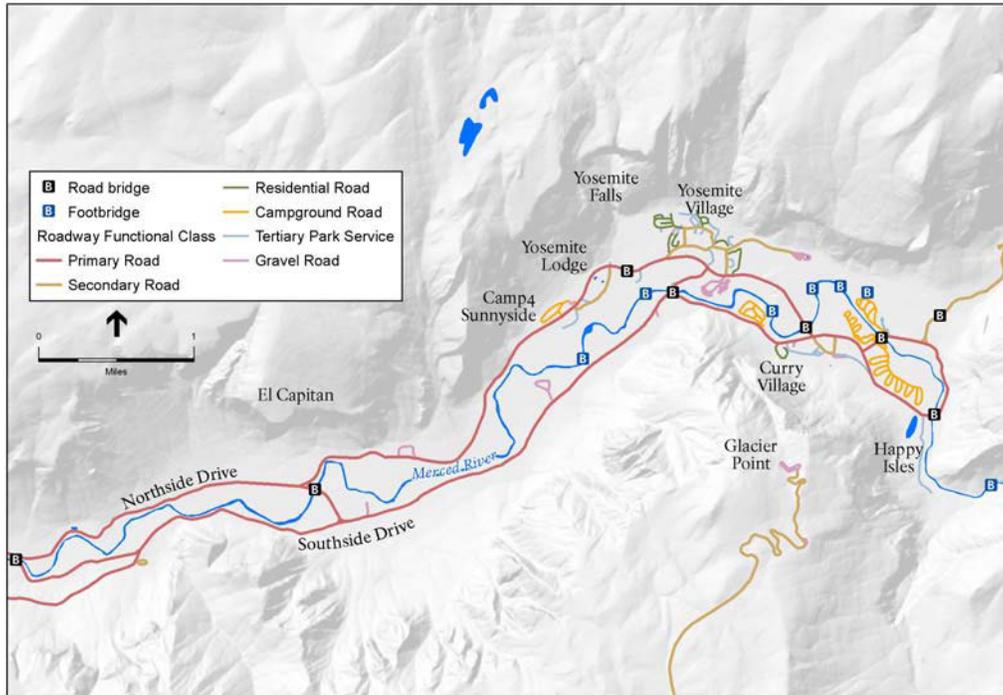


Figure 9-44
Yosemite Valley Loop Road

Traffic Volumes

Traffic volumes inbound to Yosemite Valley increase through the early portion of the day, reaching a peak from 10:00 a.m. to about noon. Average inbound traffic volumes on Southside Drive during this period in July 2011 were about 641 vehicles per hour. On the busiest day in 2011, the inbound hourly volume of traffic reached about 648 to 821 vehicles per hour. On these days, the peak travel period generally extends from 10:00 a.m. to about 2:00 p.m. Peak traffic occurs when available parking has reached saturation, resulting in continuous stop-and-go traffic for those two to four hours of peak demand. Inbound traffic is slowed or diverted.

Traffic volumes leaving Yosemite Valley tend to increase towards the later part of the day, peaking between 4:00 p.m. and 6:00 p.m. Average outbound traffic volumes on Northside Drive during this period in July 2011 were about 724 vehicles per hour. Traffic volumes on the average day equal or exceed 500 vehicles per hour on Northside Drive from about 2:00 p.m. to 6:00 p.m. On the busiest day in 2011, the outbound traffic volume peaked at 750 vehicles per hour and exceeded 500 vehicles per hour from 1:00 p.m. to 8:00 p.m. (NPS 2011n).

Traffic Flow Conditions

The roadway system in Yosemite Valley can be confusing to first-time visitors because of the one-way circulation, limited opportunities to cross the Merced River, and circuitous travel routes. Highly congested locations include the intersection of Northside Drive and the Camp 6 parking lot entrance, the intersection of Northside Drive and Sentinel Drive (“Bank Three Way”), and the pedestrian

crossing from Yosemite Lodge to Lower Yosemite Fall. Conflicts between vehicles and pedestrians at these key intersections are a primary factor in causing traffic delays, which are experienced primarily during the afternoon hours during the peak season. Traffic congestion in the Valley can cause frustrating delays to visitors in private vehicles, leads to increased vehicle emissions, and disrupts the operation of the Valley shuttle bus system.

The park employs a traffic management response team to assist with traffic congestion, mainly within the Valley, during peak summer days. The traffic management team helps relieve congestion by providing visitor information, directing vehicles to parking locations, and managing intersections, pedestrian and vehicle traffic. On those occasions when traffic volumes and parking in the East Valley reaches or exceeds capacity, traffic managers will redirect traffic otherwise bound for the East Valley. This diversion measure is commonly known as the “shunt” (see figure 9-45) and involves a series of specific management contingencies for managing excess traffic at a rate of 200 to 400 vehicles per hour.

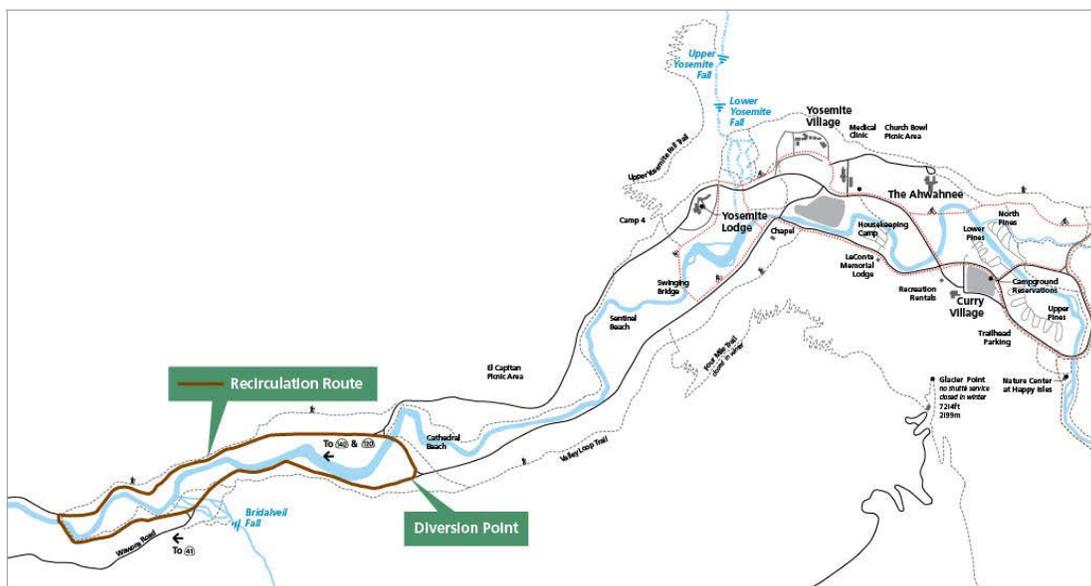


Figure 9-45
East Valley Redirection “Shunt”

Commercial Tour Buses

Approximately 4.8% of visitors arrived at Yosemite by commercial tour bus during the summer of 2007 (RSG 2011). In July 2011, an average of 41 commercial tour buses entered the park each day, which is lower than the Valley historically accommodated in past peak years such as the summer of 1996; tours include day use itineraries and overnight stays. A typical one-day tour to Yosemite Valley includes short 15-minute to 30-minute stops at popular vistas such as Tunnel View and along Southside Drive at the Bridalveil Fall viewing area, then proceeding to Yosemite Lodge for a longer stop of two hours to three hours. At Yosemite Lodge, visitors have a variety of options, such as walking to Lower Yosemite Fall, visiting the Yosemite Lodge gift shop and food court, and/or getting on the Valley shuttle bus for a trip around the Valley floor. While stopped at Yosemite Lodge, buses park in

the 15 designated bus parking spaces adjacent to this facility. The number of buses simultaneously arriving and departing at these locations (i.e., platooning) has led to delays in the park in the past. Currently, there are no regulations that control or prevent platooning. Upon leaving the Valley, buses typically stop along Northside Drive at the El Capitan Meadow for 15–30 minutes to enjoy views of El Capitan and the adjacent El Capitan Meadow.

Buses that bring visitors to the park for overnight stays generally follow the same routine as described above for day trips, except that when buses arrive at Yosemite Lodge, visitors depart and check into the lodge for their overnight stay. The bus then departs with tour guests who were brought to the park one day to three days earlier and have checked out of Yosemite Lodge for a return trip back to their point of origin or to another out-of-park destination.

Yosemite Valley Bus Tours

Park tours originating within the park take visitors around the Valley floor and beyond. Concessioner-operated open-air trams (towed by a hybrid-diesel-powered truck-tractor) with a capacity of 70 passengers are used in summer to carry visitors along the Valley Loop Road and to Tunnel View on the Wawona Road above the West Valley. The trams are usually at capacity from mid-morning to late afternoon. A variety of tours beyond Yosemite Valley are also offered by the park concessioner. Most park tours originate at the lodging facilities within the Valley. In summer, daily trips from Yosemite Valley include one hikers' bus to Glacier Point and one to Tuolumne Meadows, and a grand tour that includes the Valley floor, the Mariposa Grove of Giant Sequoias, and Glacier Point.

Valley Shuttle Bus System

The current concessioner-operated shuttle bus system (with a fleet of 18 buses) operates year-round in Yosemite Valley, offering service to the major developed areas in the East Valley. The shuttles run daily from 7:00 a.m. to 10:00 p.m. every 10 to 20 minutes on the main route (an 8-mile loop with 22 stops). Service to Happy Isles and the Mirror Lake Trailhead may stop after a major snowfall. Two other Valley shuttle lines run during the summer only. The first (El Capitan Shuttle) provides service between the Valley Visitor Center and the El Capitan bridge, with stops at Camp 4, El Capitan picnic area, and the Four Mile Trailhead. The second (Express Shuttle) provides direct service between the Yosemite Village day parking area and the Valley Visitor Center. The latter two routes operate daily between 9:00 a.m. and 6:00 p.m. During the winter, when the ski area is operating, separate shuttle service is provided between the Valley and Badger Pass (typically mid-December through March). Two shuttle stops within the Valley (Camp 4 and El Capitan Meadow) lack the physical improvements of a formal bus stop.

Valley shuttle bus system ridership is highest during peak summer months (e.g., May to September). The Summer 2007 visitor survey found that weekday visitors (69%) are more likely than weekend visitors (54%) to use the shuttle bus system (White and Aquino 2008). On average, during the peak season in 2011, daily ridership exceeded 19,000. In July, average daily ridership exceeded 22,000 passengers. During the off-peak winter months of 2011 (e.g., January, February, November, and December), daily ridership averaged 2,154 passengers. Among these months, February had the lowest daily ridership of just 1,649 passengers (DNC 2011b).

High passenger volumes during peak summer months have a number of negative implications for drivers, passengers, and the broader public. A recent report on transportation conditions within the park (RSG 2011) documented park shuttle conditions during multiple summer visits in 2010 and 2011. According to the report, shuttle crowding was observed from mid-morning to late afternoon with standing room only conditions, which resulted in passengers being left behind because of insufficient shuttle capacity. In addition to crowding, challenges for shuttle bus users and drivers are also created by vehicle traffic, pedestrians, and bicyclists.

Parking Areas

Yosemite Valley is the area with the highest concentration of development and the most parking spaces in Yosemite. Because of the extensive use of informal parking areas during periods of high demand and because many such areas are not paved or marked, it is difficult to identify a specific parking supply. However, an inventory of parking used by visitors in the Valley conducted in 2011 identified about 1,614 spaces for day-visitor vehicles in the East Valley, primarily at Camp 6, the Village Store parking lot, Curry Orchard, and at various destinations along the Northside and Southside Drive loop roads, and along Sentinel Drive (NPS 2011p). The 2011 parking inventory identified about 440 day parking spaces in the West Valley (between Yosemite Lodge and Pohono Bridge on Northside Drive, and between Pohono Bridge and the El Capitan crossover). Many of the spaces are informal turnouts and other areas are best suited to short-term use associated with auto touring. Parking for overnight guest vehicles is available at lodging, campground, and wilderness access areas. No designated day parking is available in the Yosemite Lodge area, but day visitors often compete with overnight guests for the available spaces. Designated day parking is permitted in the Camp 4 “overflow” lot (former Chevron Station), with parking regulated by signs noting times of permitted day use, and overnight permit-required information.

On crowded summer days, all formal parking is fully occupied, with parking spilling onto the roadway shoulders throughout the East Valley. This uncontrolled parking leads to pedestrian, bicycle, and vehicle conflicts, damage to vegetation and soils along the road edge, and the formation of informal trails. During these peak times, parking attendants direct day visitors to use the available spaces within the Camp 6 day parking lot as efficiently as possible, and they also direct vehicles to park as efficiently as possible in roadside spaces. Under this directed parking scenario, a maximum capacity of about 1,852 day-visitor vehicles can be achieved for the East Valley.

The demand for parking in the East Valley is primarily affected by day use visitation. Parking demand varies during the day and from day to day as the number of day and overnight visitors and nonresident employees fluctuates. During peak parking events, specific areas of constrained supply become evident. For example, the park has documented parking demand in excess of supply at Camp 6, Yosemite Lodge, Camp 4, Curry Orchard, The Ahwahnee, the Wilderness lot, and various employee and residential parking areas.

In the West Valley, parking lots are available at Bridalveil Fall and Tunnel View, and numerous roadside spaces exist along Southside Drive, Northside Drive, and El Capitan crossover between Pohono Bridge and the East Valley.

Segments 3 and 4: Merced River Gorge and El Portal

Roadway System

El Portal Road is about 7.5 miles long within the park. At the park boundary, this road connects to Highway 140. The El Portal Road enters the park about two miles east of the El Portal Administrative Site, passes through the Arch Rock Entrance Station, and continues to the Valley Loop Road near Pohono Bridge. It is maintained for year-round access and has been historically called the All-Year Highway. The road is characterized by steep, rocky canyon walls with small river flats and terraces and has a typical pavement width that varies from 19 feet to 22 feet.

Highway 120 enters the park at the Big Oak Flat Entrance Station, and continues through the park to Tioga Pass, exiting eastbound near the summit. Big Oak Flat Road begins at Crane Flat and continues for about 11 miles to its junction with El Portal Road. Big Oak Flat Road may be used as a through route in conjunction with other major park roads and is maintained for year-round access. The topography changes from mountainous on the east end of the road to rolling terrain at the west end. The width paved roadway ranges from 26 to 30 feet.

Traffic Volumes

Average daily traffic entering the park on El Portal Road (Arch Rock Entrance Station) and on Big Oak Flat Road (Big Oak Flat Entrance Station) in July 2011 (the most recent peak period for which such data are available) was about 1,910 and 2,440 vehicles, respectively (NPS 2012F).

Traffic Flow Conditions

During busy days, when large numbers of vehicles are entering the park, long queues form at park entrances, where motorists are waiting to pay. As stated above, the park employs a traffic management team that periodically implements traffic restrictions during the busiest summer weekends when congestion in Yosemite Valley is most severe. Congestion is monitored using qualitative factors, such as observations of traffic conditions and the judgment of park supervisory personnel. Because implementation of restricted access measures is labor-intensive, diverts park staff from other operations, and can result in moving congestion impacts into other less-developed park areas, such measures are implemented only when conditions warrant it in the interest of public safety.

Parking Areas

Parking areas within the Merced River gorge (Segment 3) consists of available roadside parking along the shoulder of El Portal Road; two off-road, paved parking lots; and a paved parking lot next to the Arch Rock Entrance Station. There are 220 day vehicle parking spaces and two bus parking spaces available in Segment 3 between Pohono Bridge and the park boundary. Minimal designated parking is available for exclusive employee and administrative use in this area and does not compete with visitor parking and access.

Park, park concessioner, and park partner employees work and live in the El Portal area and contribute to the parking demand within Segment 4 along with a small number of day visitors. The visitor day

parking consists of 290 spaces (primarily at the El Portal Market and fuel station and along the roadsides). There are 610 parking spaces for administrative uses and 106 residential parking spaces. The off-street and roadside parking areas located between the Merced River and Foresta Road at the El Portal Maintenance facility were not designed or built to prevent water quality contamination from automotive fluids, surface water runoff, or sediment transport. Furthermore, parking at this location often exceeds the supply, and use of informal parking along Foresta Road is necessary.

Segment 7: Wawona

Roadway System

Wawona Road is about 27 miles long within the park. At the South Entrance, this road connects to Highway 41. Wawona Road is the principal access to Wawona, Mariposa Grove, Badger Pass Ski Area, Glacier Point, and Yosemite Valley and is maintained for year-round access. Throughout its length, the 24-foot-wide road traverses mountainous terrain with steep grades and is surrounded by moderate to dense forest.

Traffic Volumes

Average daily traffic entering at the South Entrance Station in July 2011 was about 1,940 vehicles (NPS 2012F).

Traffic Flow Conditions

While the number of vehicles on park roads has increased over the years, traffic volumes generally do not exceed the capacity of the roads. Traffic conditions on Wawona Road are typically acceptable along the South Fork Merced River where Wawona Road crosses and then follows the river. On peak summer days, when the Mariposa Grove parking lots reach capacity, motorists are directed to drive north to Wawona, park in Wawona, and take the shuttle bus back to Mariposa Grove. While this helps relieve pressure on formal and informal parking areas near Mariposa Grove, it exacerbates parking congestion, poor traffic circulation, and pedestrian/motor vehicle conflicts that occur in Wawona during peak summer days (RSG 2011).

Commercial Tour Buses

Approximately 4.8% of visitors arrived by commercial tour bus during the summer of 2007 (RSG 2011). In July 2011, an average of 41 commercial tour buses entered the park each day, which is lower than the Valley historically accommodated in past peak years such as the summer of 1996; tours include day use itineraries and overnight stays. The tour buses primarily focus on Yosemite Valley (as described for Segment 2 above), but some day tours may also include a stop at the Mariposa Grove of Giant Sequoias if they enter or depart the park through Wawona. The stop at the Mariposa Grove requires a transfer from the tour bus to the Wawona Shuttle because tour buses can negotiate the sharp turns on Mariposa Grove Road.

Wawona Shuttle Bus System

In the spring through fall, a free shuttle bus service operates between Wawona and Mariposa Grove of Giant Sequoias. The Wawona shuttle is a continuous loop on a 15-minute frequency that picks up and drops off passengers at the Wawona Store, South Entrance, and at the Mariposa Grove Gift Shop. During peak summer days, when the Mariposa Grove parking lots become full, motorists are instructed to drive to Wawona and ride the shuttle back to Mariposa Grove. In 2011, daily roundtrip ridership on the Wawona shuttle averaged 1,782 passengers. July had the highest volume of passengers, with average daily roundtrip ridership exceeding 2,800 passengers. Roundtrip shuttle service between the Wawona Hotel and the Yosemite Lodge is provided once daily. The Yosemite Valley-Wawona shuttle operates from approximately Memorial Day through Labor Day. Despite these formal routes, the Wawona stop lacks the improvements of a designated bus stop. For example, the stop does not have adequate seating and provides no shelter.

Parking Areas

Parking is provided in Wawona for visitors and employees associated with facilities such as the Wawona Hotel complex, the Wawona Store and Gift Shop, the Pioneer Yosemite History Center, a campground, and two picnic areas. Parking demand varies during the day and from day to day as the number of visitors and employees fluctuates. As noted previously, on peak summer days when the Mariposa Grove parking lots reach capacity, motorists are encouraged to park in Wawona and ride the free shuttle bus back to the Mariposa Grove.

There are approximately 290 day vehicle parking and 8 bus parking spaces around the Wawona Hotel and Golf Course, the Wawona Store, and Pioneer Yosemite History Center, as well as adjacent to Forest Drive and along Chilnualna Falls Road. When visitors are catching the free shuttle bus to Mariposa Grove from Wawona, they often park along the roadside shoulders of Wawona Road and Forest Drive. This uncontrolled parking leads to pedestrian and vehicle conflicts. Parking for administrative functions are located within the land assignments for these uses and do not compete with visitor parking.

Environmental Consequences Methodology

The focus of this impact assessment was the effect of potential management actions on how well the transportation system would accommodate parking and the associated traffic flow and transportation experience within the Merced River corridor. Conditions were assessed based on potential changes in traffic volumes through the river corridor tied to amounts of visitor use as prescribed by the Merced River Plan, along with associated changes to visitor accommodations and/or parking areas under each alternative.

Changes in parking were evaluated (1) as to how well they would accommodate the demand for parking and (2) for the associated effect on levels of congestion and other factors influencing the transportation experience on the roadway system serving the Merced River corridor. The analysis focuses on Yosemite Valley (Segment 2), Merced River Gorge (Segment 3), El Portal (Segment 4), and Wawona (Segment 7) because there are no actions proposed for Segments 1, 5, 6, and 8 (wilderness segments accessible only by trails, not roads) that would affect transportation conditions.

Day use capacity was determined and expressed as the number of people who would be accommodated in the river corridor at one time. Overnight capacity is expressed as the number of total persons allowed to stay overnight. Because each alternative prescribes these visitor use levels along with the associated parking spaces to accommodate the use levels, this analysis assumes that no more parking would occur beyond that which is prescribed for each alternative. Physical barriers to roadside parking would be a component of each of Alternatives 2–6. Several mechanisms for enforcing parking restrictions, including parking management staffing and a parking permit system, are being explored under the various alternatives. Additionally, it is assumed that day and overnight parking areas would be designated and that the parking management system would ensure that day use visitors did not park in overnight spaces and vice versa. This would ensure that neither day nor overnight visitors would be displaced by one another, and that the day capacities, which would be managed through the availability of day parking, were not exceeded.

Each alternative is evaluated in terms of the context, intensity, and duration of the transportation impacts, and whether the impacts are considered beneficial or adverse to the overall transportation system, parking, traffic flow, and transportation experience.

- **Context.** The context of the impact considers whether the impact would be local, segmentwide, parkwide, or regional. For the purposes of this analysis, local impacts would be those that occur in a specific area within a segment of the river, such as an intersection or parking lot. This analysis further identifies if there are local impacts in multiple segments. Segmentwide impacts would consist of a number of local impacts within a single segment, or larger-scale impacts that would affect the segment as a whole. Parkwide impacts would extend beyond the river corridor and the study area within Yosemite. Regional impacts would be those that extend to the Yosemite gateway region.
- **Intensity.** The intensity of the impact considers whether the impact would be negligible, minor, moderate, or major. Intensity was calculated based on the number of visitors affected by the proposed actions. Negligible impacts would be effects considered not detectable and be those that could have an effect on less than 5% of visitors during the peak season of visitation. Minor impacts would be effects that would be slightly detectable and be those that could have an effect on 5% to 10% of visitors during the peak season of visitation. Moderate impacts would be clearly detectable and those that could have an effect on 10% to 20% of visitors during the peak season of visitation. Major impacts would have a substantial, highly noticeable influence on the transportation system and experience and be those that could have an effect on more than 20% of visitors during the peak season of visitation.
- **Duration.** The duration of the impact considers whether the impact would occur in the short term or the long term. A short-term impact would be temporary in duration and would be associated with transitional types of activities. A long-term impact would have a permanent effect on the performance of the transportation system, parking, traffic flow, and transportation experience.
- **Type of Impact.** Impacts were evaluated in terms of whether they would be beneficial or adverse to the overall transportation system, parking, traffic flow, and transportation experience. Research completed in Yosemite shows that visitors have their most significant park experiences when they are out of their vehicles (White et al. 2006). Currently, regarding existing transportation conditions, the majority of Yosemite visitors experience high levels of freedom and access and feel they can go “where they want, when they want” (unpublished

author communication related to White 2010). Beneficial impacts would occur when potential actions would accommodate visitor parking needs and improve traffic flow (i.e., decrease congestion), thereby at least maintaining the existing high levels of acceptability of the transportation experience. Adverse impacts would occur when potential actions would not accommodate parking demand, would increase congestion, or would alter the transportation experience (by prolonging time spent traveling in the park in a vehicle).

Environmental Consequences of Alternative 1 (No Action)

All River Segments¹

The NPS would continue to undertake transportation-related maintenance improvements and resource protection measures such as repaving; adding signage; and delineating trail, parking, and roadways. The overall management direction under Alternative 1 (No Action) for the river corridor would be based on the guiding management documents in place as of 2010, as modified by the settlement agreement.

Under Alternative 1 (No Action) there would continue to be an average of 3% annual growth in visitation following recent trends. It is expected that more days during the peak season would receive the visitation currently experienced on the busiest days. Visitation could increase in the off-peak seasons, resulting in this overall annual increase. If this were to occur, then traffic congestion during nonpeak periods (e.g., during months on either side of peak summer months, and on weekdays during peak summer months) could approximate current congestion during peak periods. Increases in visitation during peak periods also could occur, and to the degree that such increases happen, congestion would marginally worsen.

Segment 2: Yosemite Valley

Roadway System. There would be no changes to the roadway system in Segment 2 under Alternative 1 (No Action); therefore, no impacts would occur.

Traffic Volumes. It is expected that current trends would continue under Alternative 1 (No Action), and the number of days per year with 6,000 or more vehicles passing Chapel Straight would increase over time. The maximum vehicle volume in the East Valley, however, is expected to remain at about 7,000 vehicles. As a result, Segment 2 would continue to experience segmentwide, long-term, minor, adverse impacts.

Traffic Flow Conditions. Segmentwide, long-term, moderate to major, adverse impacts associated with traffic congestion and delays would continue to occur at busy intersections in Yosemite Valley, and likely worsen as visitation levels increase by an average of 3% per year under Alternative 1 (No Action). Parking shortages and poorly performing intersections are a substantial contributor of vehicle congestion within Yosemite Valley. Alternative 1 (No Action) would continue current transportation management practices to address increases in park visitation, increases in traffic

¹ There are no transportation facilities in Segments 1, 5, 6, or 8 of the Merced River corridor; therefore, this analysis focuses on the Segments 2, 3, 4, and 7, and those segments are grouped as appropriate.

volumes on the park roadways, intersection performance, and parking demand that exceeds supply. However, in the absence of enhanced transportation management actions, increases in park visitation (and associated increases in traffic volumes and parking demand) would continue to adversely affect the quality of the transportation experience by prolonging time spent traveling in the park in a vehicle. Consistent with current management practices, temporary access restrictions may be implemented at times in the Valley when westbound traffic is backed up from Lower Yosemite Fall to the Curry Village four-way intersection, or when all day use parking spaces have been filled (*Superintendent's Compendium*).

Charter Buses. There would be no changes to the management of charter bus access to the park under Alternative 1 (No Action). The demand for charter bus parking currently is not met by the supply. There could be segmentwide, long-term, minor, adverse impacts associated with parking demand continuing to exceed the supply.

Yosemite Valley Bus Tours. Under Alternative 1 (No Action), there would be segmentwide, long-term, negligible impacts on Yosemite Valley bus tours. These services would continue to operate as they do currently.

Valley Shuttle Bus System. No new shuttle stops would be added under Alternative 1 (No Action). There could be segmentwide, long-term, minor to moderate, adverse impacts associated with continuing crowding on Valley shuttle buses and service delays for those buses as they are slowed by traffic congestion on the Valley Loop Road.

Parking Areas. The existing 5,049-space parking capacity for private automobiles and commercial tour buses would remain unchanged, dispersed at sites and turnouts. Camp 6 and the Curry Orchard would continue to serve as the primary day use parking lots in Segment 2 under Alternative 1 (No Action). There could be segmentwide, long-term, minor to moderate, adverse impacts associated with parking demand continuing to exceed supply, likely worsening as visitation levels increase by an average of 3% per year.

Segment 2 Impact Summary: There could be segmentwide, long-term, minor to moderate, adverse impacts on transportation conditions in Segment 2 under Alternative 1 (No Action) from the continuation of current transportation management actions to address increases in park visitation, increases in traffic volumes on the park roadways, and increased parking demand that exceeds the parking supply (i.e., a larger parking deficit).

Segments 3 and 4: Merced River Gorge and El Portal

Alternative 1 (No Action) would retain the existing transportation conditions in Segments 3 and 4. Camping, lodging, parking, and circulation facilities would remain in their current locations, in their current conditions, and at their current capacities. Current access to the Merced River gorge would continue to be limited by available roadside parking along the shoulder of El Portal Road; at two off-road, paved parking lots; and at the paved parking lot next to the Arch Rock Entrance Station. Current trends would likely continue under Alternative 1, exacerbating traffic back-ups at the Arch Rock entrance station and reducing performance at the intersection of Highways 140 and 120. Public

transportation routes would not change. For these reasons, there would be local, long-term, minor, adverse impacts associated with transportation conditions (traffic flow and parking for automobiles and charter buses) in certain portions of Segments 3 and 4 under Alternative 1 (No Action).

Segments 3 & 4 Impact Summary: There would be local, long-term, minor, adverse impacts associated with transportation conditions (traffic flow and parking for automobiles and charter buses) in Segments 3 and 4 under Alternative 1 (No Action).

Segment 7: Wawona

Roadway System. There would be no changes to the roadway system in Segment 7 under Alternative 1 (No Action), and no transportation impacts would occur.

Traffic Flow Conditions. As described in the Affected Environment section above, the number of vehicles on park roads has increased over the years, but traffic conditions on Wawona Road are typically acceptable along the South Fork Merced River where Wawona Road crosses and then follows the river. On peak summer days, when the Mariposa Grove parking lots reach capacity, motorists are directed to drive to Wawona and take the shuttle bus back to Mariposa Grove. This relieves pressure on parking areas near Mariposa Grove, but exacerbates congestion and poor traffic circulation in Wawona during peak summer days. Segmentwide, long-term, minor to moderate, adverse impacts would continue to occur at busy intersections in Wawona, and likely worsen as visitation levels increase by an average of 3% per year, under Alternative 1 (No Action).

Charter Buses. There would be no changes to the management of charter bus access to the park in Segment 7 under Alternative 1 (No Action). The demand for charter bus parking currently is not met by the supply. There could be segmentwide, long-term, minor, adverse impacts associated with parking demand continuing to exceed the supply.

Wawona Shuttle Bus System. No new shuttle stops would be added under Alternative 1 (No Action). There could be segmentwide, long-term, minor, adverse impacts associated with continuing crowding on Wawona shuttle buses, and service delays for those buses, as they are slowed by traffic congestion on area roads.

Parking Areas. The existing parking supply for private automobiles (day visitors and employees) and commercial tour buses would remain unchanged in Segment 7 under Alternative 1 (No Action). There could be segmentwide, long-term, minor, adverse impacts associated with parking demand continuing to exceed supply, likely worsening as visitation levels increase by an average of 3% per year.

Segment 7 Impact Summary: There could be segmentwide, long-term, minor, adverse impacts on transportation conditions in Segment 7 under Alternative 1 (No Action) from the continuation of current transportation management actions to address increases in park visitation, traffic volumes on the park roadways, and parking demand that exceeds the parking supply (i.e., a larger parking deficit).

Summary of Impacts from Alternative 1 (No Action)

Overall, with the assumed continuing increases in visitation and associated traffic volumes and parking demand, increased traffic congestion, pedestrian-vehicle conflicts, and inappropriate roadside parking would be clearly detectable (experienced by 10% to 20% of visitors). Therefore, Alternative 1 (No Action) would result in segmentwide, long-term, moderate, adverse impacts on transportation conditions.

Cumulative Impacts from Alternative 1: No-Action

Cumulative effects to transportation discussed herein are based on analysis of past, present, and reasonably foreseeable actions in the Yosemite region in combination with potential effects of the no-action alternative. The projects identified below include only those projects that could affect transportation within the river corridor or in the park vicinity.

Past Actions

Past actions have resulted in both adverse and beneficial impacts on transportation. The majority of past projects listed in Appendix B (e.g., Yosemite Valley Loop Road Rehabilitation, completed in 2008, South Entrance Exit Lane Project, completed in 2012, and Wawona Road Rehabilitation Project completed in 2011) had short-term, adverse effects on transportation conditions in the corridor (i.e., associated with construction-related increases in traffic volumes on park roads), which have no net adverse or beneficial effects on current or future transportation conditions. The following past projects had long-term, minor, beneficial effects on transportation conditions, which would continue under Alternative 1:

- The YARTS is a regional transportation system established in 2000, whose intent is to provide an alternative to private vehicles by expanding the range of travel options for visitors to Yosemite Valley and to other primary park destinations, and for employees commuting to work in the park. It also provides a means for visitors to travel to the Valley when restricted access measures are implemented for private vehicles during times of severe congestion. YARTS has a corridorwide, long-term, moderate, beneficial effect by reducing the number of day visitors arriving in private vehicles.
- El Portal Road improvement projects had both adverse (short-term during construction) and beneficial (long-term) effects on transportation. Short-term, construction-related effects included visitor delays and visitor safety through the construction work zone. Those effects were mitigated by implementation of a traffic control plan, with measures such as strict construction timing restrictions, roadway safety procedures, flaggers, and signaling. Safety improvements on El Portal Road facilitate regional transit service on that route, which is a segmentwide, long-term, minor, beneficial impact.
- Housing Projects (i.e., Curry Village Employee Housing, Curry Village Huff House Temporary Housing, Yosemite Valley Lost Arrow Temporary Employee Housing, and Yosemite Valley Ahwahnee Temporary Employee Housing) included the construction of housing and related facilities to accommodate concessioner employees. The housing units replaces concessioner housing lost in the January 1997 flood and the rockfall events at Curry Village in October 2008, and were developed in consultation with litigants as part of a settlement agreement concerning

the *Merced Wild and Scenic River Comprehensive Management Plan/DEIS*. These actions provide temporary lodging for concessioner employees, and were needed to help meet immediate short-term housing needs for the park concessioner until permanent employee housing is available. Construction was completed between 2007 and 2009. These projects have a corridorwide, long-term, moderate, beneficial effect by reducing the number of employee commute trips to and from the park.

- Yosemite Valley Shuttle Bus Stop Improvements consisted of the preparation of preliminary design plans, environmental compliance documents, and construction drawings; the construction of six, 10-foot by 80-foot concrete braking pads, and the rehabilitation or replacement of 94,000 square feet of asphalt road approaches and the construction of bus stop shelters. Construction was completed in 2010. These improvements support shuttle bus service in the Valley, which is a segmentwide, long-term, minor, beneficial impact.

Present Actions

Present actions proposed in the Yosemite region are separated below into four general categories: (1) projects anticipated to have a net beneficial effect; (2) projects anticipated to have both beneficial and adverse effects; (3) projects anticipated to have adverse effects; and (4) projects anticipated to have a no-net adverse or beneficial effect.

Present projects that could have a cumulative corridorwide, long-term, moderate, beneficial effect on transportation include:

- Increased YARTS services
- Changeable electronic signs in Mariposa, Midpines, and El Portal, alerting drivers of traffic conditions in Yosemite Valley
- Computer-Aided Dispatch / Automatic Vehicle Locator
- Web-based Traffic Forecasts to inform travelers of traffic congestion (heavy, moderate or light) in different areas of the park (Yosemite Valley, Tuolumne Meadows, Wawona and Mariposa Grove, and Glacier point). Travelers can also sign up to receive the forecasts via email. The aforementioned actions would individually, and in combination, encourage travel to the park by alternative (nonprivate vehicle) modes.

Present projects that could have a short-term, adverse effect, but a cumulative long-term, beneficial effect on transportation include:

- South Park Intelligent Transportation System to let visitors know when parking lots are full
- Parking alternative option at the El Portal Administrative Site
- The South Entrance Station Kiosk Replacement
- The Restoration of Mariposa Grove Ecosystem Project
- Parkwide Communication Data Network infrastructure upgrade.

Although the above projects would have some site-specific, short-term, adverse affects (e.g., construction-related transportation effects), the general goal of each of these projects is to improve transportation circulation and safety.

Present projects that could have a short-term, adverse effect on transportation include:

- Ahwahnee Comprehensive Rehabilitation Plan
- East Yosemite Valley Utilities Improvement Plan
- Rehabilitate (pulverize and repave) approximately 25 miles of the Wawona Road between Southside Drive and South Entrance. Only minimal work at turnouts and intersections, which will be within the existing paved footprint.
- The Ahwahnee Hotel Improve Porte Cochère Access Walkways and Fence project, which would replace rotted wooden components along (1) the uncovered wood-plank walkway that runs along the service yard fence to the porte cochère, (2) the service yard fence, and (3) the wood-plank boardwalk in the main entry gallery
- Parkwide pavement preservation program that requires temporary road closures for various segments of roads in the corridor

The adverse effects associated with the projects listed above would be short term and primarily related to construction-generated traffic on roadways serving the project sites. There would be no net, long-term, adverse or beneficial effects on transportation.

Present projects anticipated having no net, long-term or short-term, adverse or beneficial effects on transportation include:

- Commercial Use Authorization for Commercial Activities, to regulate and oversee operations of permit holders involved in conducting commercially-guided day hiking, overnight backpacking, fishing, photography workshops, stock use (pack animal trips and pack support trips for hikers), and Nordic skiing activities in Yosemite.

The continuation of transportation-related maintenance improvements and resource protection measures such as repaving, and trail, parking, and roadway delineation would have short-term, minor, adverse effects on transportation during construction, including visitor delays and visitor safety through the construction work zones. Those effects would be mitigated by implementation of a traffic control plan, with measures such as strict construction timing restrictions, roadway safety procedures, and flaggers.

Restricted access measures would continue to control the volume of incoming vehicles when traffic and parking conditions in Yosemite Valley are over congested. The YARTS would continue to reduce the number of individual vehicles operated within the park. These actions would have segmentwide, long-term, moderate, beneficial effects on transportation.

Reasonably Foreseeable Future Actions

Similar to past actions, reasonably foreseeable future actions would result in both adverse and beneficial impacts on transportation. Reasonably foreseeable future projects that could have short-term, adverse effects on transportation associated with construction activities include the following:

- **Concessioner Parking Lot Restoration Project.** Concessioner-assigned paved parking areas would be replaced to a maintainable condition and to provide safe access for visitors and staff. Currently, paved parking areas have substantial deterioration from age, construction activities, tree root lift, rodent activity, and extreme weather. Numerous potholes, annual patching, and excessive cracks exist, causing safety and concerns related to Americans with Disabilities Act and Architectural Barriers Act Accessibility Standards requirements. As part of this project, paved areas would be evaluated individually for proper drainage, elevations, curbing, striping, and improved efficiency. The existing parking area footprints would be retained as designated in the concessions contract for concessioner land assignments. This project would not expand any parking areas, nor would it add any parking spaces.
- **Curry Village Rehabilitation of Historic Cabins with Bath Structures** would address a rehabilitation program for the 26 guest cabins with baths that are still being used for guest accommodations on the western side of Curry Village just north of the rockfall hazard zone. This project is currently in the design stage and would be implemented in a multi-year phased project.
- **The Ahwahnee Dormitory Seismic Upgrades** would replace the foundation with a permanent foundation to provide long-term structural stabilization of the dormitory building. The project also will include an evaluation of the existing utilities and components located under the building floor, the building floor structure, structural elements of the building, and soil erosion and drainage issues to determine if these elements should be replaced or rehabilitated as part of the project. This project is tentatively scheduled for 2012.
- **Parkwide pavement preservation program** that requires temporary road closures for various segments of roads in the corridor.

The park anticipates that visitor demand would increase, which could exacerbate traffic congestion on park roads. Reasonably foreseeable future projects that could have a cumulative long-term, beneficial effect on transportation by encouraging travel to the park by alternative (non-private vehicle) modes or improving transportation infrastructure outside of the river corridor include the following:

- **Transit Passenger Information System.** This project will enable improved communication to park visitors on the status of the park's shuttle buses through development of a visitor information system for all the shuttle bus systems in Yosemite Valley, Mariposa Grove/Wawona, Badger Pass, and Tioga Road.

Other beneficial impacts for reasonably foreseeable future actions would be similar to those discussed for past and present actions (i.e., the restricted access measures and increased YARTS services). Reducing traffic congestion and encouraging travel to the park by alternative (non-private vehicle) modes would have segmentwide, long-term, moderate, beneficial effects on transportation.

Overall Cumulative Impact

Cumulative projects are not anticipated to affect transportation conditions on Segments 1, 5, 6, and 8 (wilderness segments accessible only by trails, not roads), and therefore, no cumulative impacts would occur. For segments 2, 3, 4 and 7, camping, lodging, parking, and circulation facilities are assumed to remain in their current locations, in their current conditions, and at their current capacities. Consequently, traffic congestion and delays would continue to occur at busy intersections and could worsen somewhat if visitation levels increase in the future. Congestion and delays would be segment-wide, long-term, minor, adverse impacts on transportation conditions.

Environmental Consequences of Actions Common to Alternatives 2–6

All River Segments

Impacts of Actions to Protect and Enhance River Values

Actions to protect and enhance river values that are common to Alternatives 2–6 would primarily have local, short-term, minor adverse transportation effects associated with restoration activities, but would have no long-term impacts because increased traffic would cease with completion of the restoration work. The transportation effects of changes to the amount of overnight accommodation (i.e., campsites and lodging units) as part of the restoration (protect and enhance) actions are described below under Impacts of Actions to Manage User Capacity, Land Use, and Facilities.

Impacts of Actions to Manage User Capacity, Land Use, and Facilities

There would be no visitor use or transportation actions common to Alternatives 2–6. However, some form of day use parking permit system would be common to Alternatives 2–6, but the specifics of the system would vary for each alternative. The amount of overnight accommodations and day parking and transit options would vary by alternative, and each alternative would accommodate different levels of peak use demand for visitation in the Valley, as described under each alternative.

Segment 2: Yosemite Valley

Impacts of Actions to Protect and Enhance River Values

Actions to protect and enhance river values common to Alternatives 2–6 in Segment 2 would primarily have short-term transportation effects, associated with restoration activities, but would have no long-term impacts because increased traffic would cease with completion of the restoration work. The transportation effects of changes to the amount of overnight accommodation (i.e., campsites and lodging units) as part of the restoration (protect and enhance) actions are described below under Impacts of Actions to Manage User Capacity, Land Use, and Facilities.

Impacts of Actions to Manage User Capacity, Land Use, and Facilities

Actions common to all alternatives within Segment 2 that are proposed to specifically address transportation conditions include adding a 41-space parking lot for Camp 4 campground, allocating parking spaces for 15 tour buses within the redeveloped day use parking area west of Yosemite Lodge, and constructing a shuttle bus stop near Camp 4. Construction activities may result in minor delays in the short-term, but once operational, these actions would result in segment-wide, long-term, minor beneficial impacts to transportation conditions, as traffic congestion would be somewhat lessened during periods of peak visitor use. In addition, the relocation of the Concessioner Garage service to the Government Utility Building would allow for an expansion of parking areas within Camp 6, also resulting in segment-wide, long-term, minor beneficial impacts. Other actions associated with overnight accommodations and facilities that are common to all alternatives in Segment 2, including actions associated with the Huff House temporary housing area, Curry Village services and facilities, the western expansion of Backpackers Campground, the eastward expansion of Camp 4, and the removal of old and temporary housing at Highland Court and the Thousands Cabins would have a segment-wide, long-term, negligible beneficial impact to transportation conditions.

Segment 2 Impact Summary: Actions to manage user capacities, land use, and facilities would have segmentwide, long-term, negligible to minor, beneficial impacts on transportation and circulation within Segment 2.

Segments 3 and 4: Merced River Gorge and El Portal

Impacts of Actions to Protect and Enhance River Values

Actions to protect and enhance river values common to Alternatives 2–6 in Segments 3 and 4 would primarily have short-term transportation effects, associated with restoration activities, but would have no long-term impacts because increased traffic would cease with completion of the restoration work. The transportation effects of changes to the amount of overnight accommodation (i.e., campsites and lodging units) as part of the restoration (protect and enhance) actions are described below under Impacts of Actions to Manage User Capacity, Land Use, and Facilities.

Impacts of Actions to Manage User Capacity, Land Use, and Facilities

Actions common to all alternatives associated with visitor use management and facilities within Segments 3 and 4 include constructing infill housing units in vacant lots in old El Portal. Construction activities may result in minor delays in the short-term, but once operational, this action would result in local, long-term, negligible beneficial impact to transportation conditions impacts to transportation as a small amount of traffic is removed from Segment 2.

Segments 3 & 4 Impact Summary: Actions to manage user capacities, land use, and facilities would have segmentwide, long-term, negligible, beneficial impacts on transportation and circulation within Segments 3 & 4.

Segment 7: Wawona

Impacts of Actions to Protect and Enhance River Values

Actions to protect and enhance river values common to Alternatives 2–6 in Segment 7 would primarily have short-term transportation effects, associated with restoration activities, but would have no long-term impacts because increased traffic would cease with completion of the restoration work. The transportation effects of changes to the amount of overnight accommodation (i.e., campsites) as part of the restoration (protect and enhance) actions are described below under Impacts of Actions to Manage User Capacity, Land Use, and Facilities.

Impacts of Actions to Manage User Capacity, Land Use, and Facilities

There would be no visitor use or transportation actions common to Alternatives 2–6 in Segment 7. The amount of overnight accommodations and day parking and transit options would vary by alternative, and each alternative would accommodate different levels of peak use demand for visitation to Wawona, as described under each alternative.

Segment 7 Impact Summary: Impacts of actions common to Alternatives 2-6 would be similar to those of Alternative 1 (No Action), and result in segmentwide, long-term, minor, adverse impacts on transportation conditions in Segment 7.

Summary of Impacts Common to Alternatives 2–6

Impacts common to all segments under Alternatives 2–6 would result in corridorwide, short-term, negligible to minor, adverse impacts on traffic, transit, and tour bus services and parking areas associated with restoration activities. Operational impacts common to all segments under Alternatives 2–6 would result in corridorwide, long-term, negligible to minor, beneficial impacts on traffic, transit, tour bus services and parking areas with implementation of these actions.

Environmental Consequences of Alternative 2: Self-Reliant Visitor Experiences and Extensive Floodplain Restoration

All River Segments

Impacts of Actions to Protect and Enhance River Values

Under Alternative 2, actions to protect and enhance river values would primarily have corridorwide, short-term, minor, adverse transportation effects associated with restoration activities (e.g., removal of Sugar Pine, Ahwahnee, and Stoneman bridges to preserve the free-flowing condition of the Merced River). The transportation effects of changes to the amount of overnight accommodation (i.e., campsites and lodging units) as part of the restoration (protect and enhance) actions are described below under Impacts of Actions to Manage User Capacity, Land Use, and Facilities.

Impacts of Actions to Manage User Capacity, Land Use, and Facilities

Under Alternative 2, actions to manage visitor use and facilities would slightly decrease opportunities for camping in the river corridor and decrease lodging, expand regional bus service, decrease day parking, and improve traffic circulation by a marked reduction in visitor use through a day use parking permit system for the East Yosemite Valley during the peak season. Permit compliance would be checked at park entrance stations and, secondarily, at Yosemite Valley locations or parking areas. These management actions would have corridorwide, moderate, long-term, beneficial impacts on transportation conditions.

Segment 2: Yosemite Valley

Impacts of Actions to Protect and Enhance River Values

Under Alternative 2, in Segment 2, actions to protect and enhance river values would primarily have segmentwide, short-term, minor, adverse transportation effects associated with restoration activities. However, traffic flow and circulation would be improved through the rerouting of Northside Drive south of the Camp 6 parking area (which would be relocated north of the current location, closer to the Yosemite Village). No roundabouts would be necessary under Alternative 2. While a pedestrian undercrossing would not be necessary, Alternative 2 would construct an at-grade pedestrian crossing west of the intersection of Northside Drive and Yosemite Lodge Drive to alleviate pedestrian/vehicle conflicts. Additionally, the intersection at Sentinel Bridge would be redesigned and Southside Drive would switch to a two-way road. The transportation effects of changes to the amount of overnight accommodation (i.e., campsites and lodging units) as part of the restoration actions are described below under Impacts of Actions to Manage User Capacity, Land Use, and Facilities.

Impacts of Actions to Manage User Capacity, Land Use, and Facilities

Under Alternative 2, in Segment 2, actions to manage visitor use and facilities include a traffic and parking management program. About 537 fewer parking spaces would be provided in Yosemite Valley, based on a calculation of the parking needed to accommodate the reduced use levels in the river corridor; no parking would be added in the West Valley. Due to the reductions in the supply of day parking with Alternative 2 as compared to current peak demand, a day use parking permit system would be instituted for East Yosemite Valley. This system would be provided during the peak use season on a mixed first come, first served and advance reservation basis. Permits would be checked at entrance stations and secondarily at Valley locations or parking areas, and day use would be limited to 9,400 visitors per day.

The total number of daily visitors to East Yosemite Valley under Alternative 2 would be 13,900 people, an approximately 33% decrease from existing peak-day conditions. At this level of visitation, there would not be a need for overflow parking during times of peak visitation. The amount of overnight lodging would decrease substantially from existing conditions under Alternative 2 in Segment 2, from 1,034 units to 556 units. The number of campsites in Segment 2 would decrease slightly, from 462 to 450 sites.

Regional bus service into Yosemite Valley would be expanded during the peak summer season under Alternative 2 with new service on the Highway 41 corridor.

Transportation and circulation would be improved due to the day use parking permit system, and the resulting substantially lower use levels. When combined, these actions would have segmentwide, moderate, long-term, beneficial impacts on transportation conditions within Yosemite Valley.

Segment 2 Impact Summary: Actions to manage user capacities, land use, and facilities would have segmentwide, long-term, moderate, beneficial impacts on transportation and circulation within Segment 2.

Segments 3 and 4: Merced River Gorge and El Portal

Impacts of Actions to Protect and Enhance River Values

Under Alternative 2, in Segments 3 and 4, actions to protect and enhance river values would have segmentwide, short-term, minor, adverse transportation effects associated with restoration activities as described for Segment 2.

Impacts of Actions to Manage User Capacity, Land Use, and Facilities

Under Alternative 2, no significant changes to the kinds and amounts of use are proposed in Segment 3, and the only change in Segment 4 would be increased employee housing (added to replace the housing removed from the Valley). The total number of daily visitors to actively recreate in Segments 3 and 4 with Alternative 2 would not change from existing peak-day conditions.

Public transit options along Segments 3 and 4 would be expanded the same as described for Segment 2. Segment 3 is considered a “pass through” segment and, therefore, it does not contain any stops for passengers to enter or depart from transportation services that travel along this corridor. When combined, these actions would have segmentwide, minor, long-term, beneficial impacts on transportation conditions.

Segments 3 & 4 Impact Summary: Actions to manage user capacities, land use, and facilities would have segmentwide, long-term, minor, beneficial impacts on transportation and circulation within Segments 3 & 4.

Segment 7: Wawona

Impacts of Actions to Protect and Enhance River Values

Under Alternative 2, in Segment 7, actions to protect and enhance river values would have segmentwide, short-term, minor, adverse transportation effects associated with restoration activities, but would have no long-term impacts because increased traffic would cease with completion of the restoration work.

Impacts of Actions to Manage User Capacity, Land Use, and Facilities

Under Alternative 2, no significant changes to the kinds and amounts of use in Segment 7 are proposed. The total number of daily visitors to Segment 7 under Alternative 2 would increase slightly over Alternative 1 peak-day levels, primarily due to increased transit use.

Segment 7 Impact Summary: Impacts of Alternative 2 actions would be similar to those of Alternative 1 (No Action), and result in segmentwide, long-term, minor, adverse impacts on transportation conditions in Segment 7.

Summary of Impacts from Alternative 2: Self-Reliant Visitor Experiences and Extensive Floodplain Restoration

Transportation conditions under Alternative 2 would be improved (reduced crowding and congestion) from management of visitor use to lower levels through the implementation of a day use parking permit system for East Yosemite Valley, expanded regional transit service, improved circulation patterns, and reduced vehicle-pedestrian conflicts. Although the number of parking spaces would be reduced, the lower visitor level would reduce the ratio of visitors to parking spaces, an improvement that would be clearly detectable (by 10% to 20% of visitors traveling in the Merced River corridor) during the peak season of visitation. Overall, with implementation of mitigation measures MM-TRA-1 through MM-TRA-5, as applicable (see Appendix C), Alternative 2 would have corridorwide, moderate, long-term, beneficial impacts on transportation conditions.

Cumulative Impacts from Alternative 2: Self-Reliant Visitor Experiences and Extensive Floodplain Restoration

The past, present, and foreseeable projects that would affect transportation in the river corridor under Alternative 2 would be the same as those under Alternative 1. Alternative 2, in combination with these cumulative projects, would result in a local, short-term, minor, adverse impact on transportation during construction periods. However, the improvements realized through current and reasonably foreseeable projects would further enhance the moderate, long-term, beneficial impacts on transportation that would result from the implementation of Alternative 2.

Environmental Consequences of Alternative 3: Dispersed Visitor Experiences and Extensive Riverbank Restoration

All River Segments

Impacts of Actions to Protect and Enhance River Values

Under Alternative 3, actions to protect and enhance river values would primarily have corridorwide, short-term, minor, adverse transportation effects associated with restoration activities (e.g., removal of Sugar Pine, Ahwahnee, and Stoneman bridges to preserve the free-flowing condition of the Merced River). The transportation effects of changes to the amount of overnight accommodation

(i.e., campsites and lodging units) as part of the restoration (protect and enhance) actions are described below under Impacts of Actions to Manage User Capacity, Land Use, and Facilities.

Impacts of Actions to Manage User Capacity, Land Use, and Facilities

Under Alternative 3, actions to manage visitor use and facilities would slightly decrease opportunities for camping in the river corridor and decrease lodging, expand regional bus service, decrease day parking, and improve traffic circulation by a marked reduction in visitor use through a day use parking permit system for the East Yosemite Valley during the peak season. Permit compliance would be checked at on-site parking locations. These management actions would have corridorwide, moderate, long-term, beneficial impacts on transportation conditions.

Segment 2: Yosemite Valley

Impacts of Actions to Protect and Enhance River Values

Under Alternative 3, in Segment 2, actions to protect and enhance river values would primarily have segmentwide, short-term, minor, adverse transportation effects associated with restoration activities. However, traffic flow and circulation would be improved through the rerouting of Northside Drive south of the Camp 6 parking area (which would be relocated north of the current location, closer to the Yosemite Village). No roundabouts would be necessary under Alternative 3. While a pedestrian undercrossing would not be necessary, Alternative 3 would construct an at-grade pedestrian crossing west of the intersection of Northside Drive and Yosemite Lodge Drive to alleviate pedestrian/vehicle conflicts. Additionally, the intersection at Sentinel Bridge would be redesigned and Southside Drive would switch to a two-way road. The transportation effects of changes to the amount of overnight accommodation (i.e., campsites and lodging units) as part of the restoration actions are described below under Impacts of Actions to Manage User Capacity, Land Use, and Facilities.

Impacts of Actions to Manage User Capacity, Land Use, and Facilities

Under Alternative 3, in Segment 2, actions to manage visitor use and facilities include a traffic and parking management program. About 740 fewer parking spaces would be provided in the Valley, based on a calculation of the parking needed to accommodate the reduced use levels in the river corridor; no parking would be added in the West Valley. Due to the reductions in the supply of day parking with Alternative 3 as compared to current peak demand, a day use parking permit system would be instituted for the East Yosemite Valley. This system would be provided during the peak use season on a mixed first come, first served and advance reservation basis. Permits would be checked at on-site parking locations, and day use would be limited to 8,500 visitors per day.

The total number of daily visitors to East Yosemite Valley under Alternative 3 would be 13,200 people, an approximately 37% decrease from existing peak-day conditions. At this level of visitation, there would not be a need for overflow parking during times of peak visitation. The amount of overnight lodging would decrease substantially from existing conditions under Alternative 3 in Segment 2, from 1,034 units to 621 units. The number of campsites in Segment 2 would increase slightly, from 462 to 477 sites.

Regional bus service into Yosemite Valley would be expanded during the peak summer season under Alternative 3 with new service on the Highway 41 corridor.

Transportation and circulation would be improved with substantially lower use levels. When combined, these actions would have segmentwide, moderate, long-term, beneficial impacts on transportation conditions within Yosemite Valley.

Segment 2 Impact Summary: Actions to manage user capacities, land use, and facilities would have segmentwide, long-term, moderate, beneficial impacts on transportation and circulation within Segment 2.

Segments 3 and 4: Merced River Gorge and El Portal

Impacts of Actions to Protect and Enhance River Values

Under Alternative 3, in Segments 3 and 4, actions to protect and enhance river values would have segmentwide, short-term, minor, adverse transportation effects associated with restoration activities.

Impacts of Actions to Manage User Capacity, Land Use, and Facilities

Under Alternative 3, no significant changes to the kinds and amounts of use are proposed in Segment 3, and the only change in Segment 4 would be increased employee housing (added to replace the housing removed from the Valley). The total number of daily visitors to actively recreate in Segments 3 and 4 with Alternative 3 would not change from existing peak-day conditions.

Public transit options along Segments 3 and 4 would be expanded as described for Segment 2 above. Segment 3 is considered a “pass through” segment and therefore it does not contain any stops for passengers to enter or depart from transportation services that travel along this corridor. When combined, these actions would have segmentwide, minor, long-term, beneficial impacts on transportation conditions.

Segments 3 & 4 Impact Summary: Actions to manage user capacities, land use, and facilities would have segmentwide, long-term, minor, beneficial impacts on transportation and circulation within Segments 3 & 4.

Segment 7: Wawona

Impacts of Actions to Protect and Enhance River Values

Under Alternative 3, in Segment 7, actions to protect and enhance river values would have segment, short-term, minor, adverse transportation effects associated with restoration activities, but would have no long-term impacts because increased traffic would cease with completion of the construction work.

Impacts of Actions to Manage User Capacity, Land Use, and Facilities

Under Alternative 3, no significant changes to the kinds and amounts of in use Segment 7 are proposed. The total number of daily visitors to Segment 7 under Alternative 3 would increase slightly over Alternative 1 peak-day levels, primarily due to increased transit use.

Segment 7 Impact Summary: Impacts of Alternative 3 actions would be similar to those of Alternative 1 (No Action), and result in segmentwide, long-term, minor, adverse impacts on transportation conditions in Segment 7.

Summary of Impacts from Alternative 3: Dispersed Visitor Experiences and Extensive Riverbank Restoration

Transportation conditions under Alternative 3 would be improved (reduced crowding and congestion) by management of visitor use to lower levels through the implementation of a day use parking permit system for the East Yosemite Valley, expanded regional transit service, improved circulation patterns, and reduced vehicle-pedestrian conflicts. Although the number of parking spaces would be reduced, the lower visitor level would reduce the ratio of visitors to parking spaces, an improvement that would be clearly detectable (by 10% to 20% of visitors traveling in the Merced River corridor) during the peak season of visitation. Overall, with implementation of mitigation measures MM-TRA-1 through MM-TRA-5, as applicable (see Appendix C), Alternative 3 would have corridorwide, moderate, long-term, beneficial impacts on transportation conditions.

Cumulative Impacts from Alternative 3: Dispersed Visitor Experiences and Extensive Riverbank Restoration

The past, present, and foreseeable projects that would affect transportation in the Merced River corridor under Alternative 3 would be the same as those under Alternative 1. Alternative 3, in combination with these cumulative projects, would result in a local, short-term, minor, adverse impact on transportation during construction periods. However, the improvements realized through current and reasonably foreseeable projects would further enhance the moderate, long-term, beneficial impacts on transportation that would result from Alternative 3.

Environmental Consequences of Alternative 4: Resource-Based Visitor Experiences and Targeted Riverbank Restoration

All River Segments

Impacts of Actions to Protect and Enhance River Values

Under Alternative 4, actions to protect and enhance river values would primarily have corridorwide, short-term, minor, adverse transportation effects associated with restoration activities (e.g., removal of Sugar Pine and Ahwahnee bridges to preserve the free-flowing condition of the Merced River). The transportation effects of changes to the amount of overnight accommodation (i.e., campsites and

lodging units) as part of the restoration (protect and enhance) actions are described below under Impacts of Actions to Manage User Capacity, Land Use, and Facilities.

Impacts of Actions to Manage User Capacity, Land Use, and Facilities

Under Alternative 4, actions to manage visitor use and facilities would slightly decrease opportunities for camping in the river corridor and decrease lodging, expand regional bus service, decrease day parking, and improve traffic circulation through a marked reduction in visitor use. A proactive on-site, day use traffic and parking management program would be implemented to encourage dispersion of visitation to the park's most congested areas. Overflow parking during times of peak visitation would be provided in El Portal at the Abbieville site, with the NPS shuttle system expanded to serve this new location. These management actions would have corridorwide, minor, long-term, beneficial impacts on transportation conditions.

Segment 2: Yosemite Valley

Impacts of Actions to Protect and Enhance River Values

Under Alternative 4, in Segment 2, actions to protect and enhance river values would primarily have segmentwide, short-term, minor, adverse transportation effects associated with restoration activities. Construction activities would include the removal of a portion of Southside Drive through Stoneman Meadow and realignment of the road through the Boys Town area. Northside Drive would be retained in its current configuration, though Northside Drive would be re-aligned at Village Drive to meet standards for a proper four-way intersection and improved performance. No roundabouts would be necessary under Alternative 4. A pedestrian underpass (at Yosemite Lodge/Yosemite Falls crossing) would be constructed. A three-way intersection would be added from Sentinel Drive to the Yosemite Village Day Use Area Parking Lot to improve traffic flow and to alleviate congestion at nearby intersections. The transportation effects of changes to the amount of overnight accommodation (i.e., campsites and lodging units) as part of the restoration actions are described below under Impacts of Actions to Manage User Capacity, Land Use, and Facilities.

Impacts of Actions to Manage User Capacity, Land Use, and Facilities

Under Alternative 4, in Segment 2, actions to manage visitor use and facilities include a traffic and parking management program. About 292 fewer parking spaces would be provided in Yosemite Valley, based on a calculation of the parking needed to accommodate the reduced use levels in the river corridor; no parking would be added in the West Valley. Due to the reductions in the supply of day parking under Alternative 4 as compared to current peak demand, a system of parking fees, and traffic and parking diversions would be instituted. This system would be provided during the peak use season to manage parking for visitors to the East Valley. Visitor orientation and wayfinding would be improved by linking the Camp 6 parking lot to Yosemite Village visitor services via an underpass and pathways. Traffic congestion would be mitigated with the provision of a pedestrian underpass at Yosemite Lodge.

The total number of daily visitors to the East Valley under Alternative 4 would be 17,000 people, an approximate 19% decrease from existing peak-day conditions. The amount of overnight lodging

would decrease slightly from existing conditions under Alternative 4 in Segment 2, from 1,034 units to 823 units. The number of campsites in Segment 2 would increase, from 466 to 701 sites.

Regional bus service into Yosemite Valley would be expanded during the peak summer season under Alternative 4, with new service on the Highway 41 corridor. Additionally, the Valley shuttle would be extended to the West Valley and serve the El Capitan crossover and Bridalveil Fall areas.

Transportation and circulation would be improved due to lower use levels. When combined, these actions would have segmentwide, moderate, long-term, beneficial impacts on transportation conditions within Yosemite Valley.

Segment 2 Impact Summary: Actions to manage user capacities, land use, and facilities would have segmentwide, long-term, moderate, beneficial impacts on transportation and circulation within Segment 2.

Segments 3 and 4: Merced River Gorge and El Portal

Impacts of Actions to Protect and Enhance River Values

Under Alternative 4, in Segments 3 and 4, actions to protect and enhance river values would have segmentwide, short-term, minor, adverse transportation effects associated with restoration activities.

Impacts of Actions to Manage User Capacity, Land Use, and Facilities

Under Alternative 4, no significant changes to the kinds and amounts of use are proposed in Segment 3, and the only changes in Segment 4 would be the development of a new remote parking area and increased employee housing (added to replace the housing removed from Yosemite Valley). The total number of daily visitors to actively recreate in Segments 3 and 4 with Alternative 4 would not change from existing peak-day conditions.

A new remote, 200-space visitor day parking area would be provided at the Abbieville/Trailer Court area in Segment 4, primarily to be used for visitor access to Yosemite Valley. The use associated with this parking area is accounted for in the Valley daily visitation levels reported for Segment 2 above. Public transit options along Segments 3 and 4 would be expanded as described for Segment 2 above. Segment 3 is considered a “pass through” segment, and therefore, it does not contain any stops for passengers to enter or depart from transportation services that travel along the river corridor through the Merced River gorge. Regional transit buses in Segment 4 would stop at the new day parking area. When combined, these actions would have segmentwide, minor, long-term, beneficial impacts on transportation conditions.

Segments 3 & 4 Impact Summary: Actions to manage user capacities, land use, and facilities would have segmentwide, long-term, minor, beneficial impacts on transportation and circulation within Segments 3 & 4.

Segment 7: Wawona

Impacts of Actions to Protect and Enhance River Values

Under Alternative 4, in Segment 7, actions to protect and enhance river values would have segmentwide, short-term, minor, adverse transportation effects associated with restoration activities, but would have no long-term impacts because increased traffic would cease with completion of the construction work.

Impacts of Actions to Manage User Capacity, Land Use, and Facilities

Under Alternative 4, no significant changes to the kinds and amounts of use in Segment 7 are proposed. The total number of daily visitors to Segment 7 under Alternative 4 would increase slightly over Alternative 1 peak-day levels, primarily due to increased transit use.

Segment 7 Impact Summary: Impacts of Alternative 4 actions would be similar to those of Alternative 1 (No Action), and result in segmentwide, long-term, minor, adverse impacts on transportation conditions in Segment 7.

Summary of Impacts from Alternative 4: Resource-Based Visitor Experiences and Targeted Riverbank Restoration

Transportation conditions under Alternative 4 would be improved (reduced crowding and congestion) by management of visitor use to lower levels through the implementation of a parking fee, and traffic and parking diversion system, expanded regional transit and Valley shuttle service, improved circulation patterns, and reduced vehicle-pedestrian conflicts. Although the number of parking spaces would be reduced, the lower visitor level would reduce the ratio of visitors to parking spaces, an improvement that would be slightly detectable (by 5% to 10% of visitors traveling in the Merced River corridor) during the peak season of visitation. Overall, with implementation of mitigation measures MM-TRA-1 through MM-TRA-5, as applicable (see Appendix C), Alternative 4 would have corridorwide, minor, long-term, beneficial impacts on transportation conditions.

Cumulative Impacts from Alternative 4: Resource-Based Visitor Experiences and Targeted Riverbank Restoration

The past, present, and foreseeable projects that would affect transportation in the Merced River corridor under Alternative 4 would be the same as those described above for Alternative 2. Alternative 4, in combination with these cumulative projects, would result in a local, short-term, minor, adverse impact on transportation during construction periods. However, the improvements realized through current and reasonably foreseeable project would further enhance the moderate, long-term, beneficial impacts on transportation that would result from the implementation of Alternative 4.

Environmental Consequences of Alternative 5: Enhanced Visitor Experiences and Essential River Bank Restoration

All River Segments

Impacts of Actions to Protect and Enhance River Values

Under Alternative 5, actions to protect and enhance river values would primarily have corridorwide, short-term, minor, adverse transportation effects associated with restoration activities. The transportation effects of changes to the amount of overnight accommodations (i.e., campsites and lodging units) as part of the restoration (protect and enhance) actions are described below under Impacts of Actions to Manage User Capacity, Land Use, and Facilities.

Impacts of Actions to Manage User Capacity, Land Use, and Facilities

Under Alternative 5, actions to manage visitor use and facilities would increase opportunities for camping in the river corridor and slightly increase lodging, expand regional bus service, increase day parking in three primary areas (the West Valley, Yosemite Lodge, and El Portal), and improve traffic circulation with a new traffic circle and a pedestrian underpass in Yosemite Valley. Alternative 5 also would include a traffic and parking management program, which while focused on the Valley, would improve transportation conditions parkwide. Alternative 5 would accommodate current average day use for the summer season. These management actions would have corridorwide, moderate, long-term, beneficial impacts on transportation conditions.

Segment 2: Yosemite Valley

Impacts of Actions to Protect and Enhance River Values

Under Alternative 5, in Segment 2, actions to protect and enhance river values would primarily have segmentwide, short-term, minor, adverse transportation effects associated with restoration activities. Northside Drive would be retained in its current configuration, but a traffic circle (at the Northside Drive / Village Drive [Camp 6] intersection) and a pedestrian underpass (at Yosemite Lodge/Yosemite Falls crossing) would be constructed. A three-way intersection would be added from Sentinel Drive to the Yosemite Village Day Use Area Parking Lot to improve traffic flow and to alleviate congestion at nearby intersections. The transportation effects of changes to the amount of overnight accommodation (i.e., campsites and lodging units) as part of the restoration actions are described below under Impacts of Actions to Manage User Capacity, Land Use, and Facilities.

Impacts of Actions to Manage User Capacity, Land Use, and Facilities

Under Alternative 5, in Segment 2, actions to manage visitor use and facilities include a traffic and parking management program, additional parking, and changes to camping and overnight accommodations. The total number of daily visitors to East Yosemite Valley under Alternative 5 would be 19,900 people, an approximately 5% decrease from existing peak-day conditions.

The day use capacity management system under Alternative 5 would include a phased-in progressive management plan for reducing overall congestion and would reduce crowding and congestion in Segment 2 on peak-use days. This would lead to a day use parking permit system for the East Yosemite Valley if day use visitation to the East Yosemite Valley from private vehicles exceeds the parking availability and formal traffic diversions at El Capitan Crossover are instituted for 14 days or more during the summer season for two consecutive years. Permits would be checked at on-site parking locations, and day use would be limited to 12,800 visitors per day. Both regional transit and Valley shuttle options would be expanded, the latter extended to the West Valley to serve the El Capitan crossover and Bridalveil Fall areas. Vehicles driving into Yosemite Valley on peak-use days would be subject to transportation fees, directed to overflow parking in the West Valley, and ultimately require a parking reservation. The management system would improve transportation conditions in the Valley, particularly on peak days.

Under Alternative 5, the amount of overnight lodging would remain essentially the same as existing conditions in Segment 2, increasing slightly from 1,034 units to 1,053 units. The number of campsites in Segment 2 would increase from 462 to 640 sites, a 39% increase.

In addition to the day use capacity management system, transportation and parking improvements would improve traffic flow and circulation. About 111 parking spaces would be added in Segment 2, a 5% increase over the spaces currently available (including 100 overflow parking spaces in the West Valley), which would reduce vehicles circulating through Yosemite Valley looking for parking. The above-mentioned traffic circle and a pedestrian underpass would result in less congestion and enhanced pedestrian safety.

Regional bus service into Yosemite Valley would be expanded during the peak summer season under Alternative 5. The regional transit service would accommodate both employees and visitors and would add an additional stop at the El Portal remote day use parking area. Additionally, the Valley shuttle would be extended to the West Valley to serve the El Capitan crossover and Bridalveil Fall areas.

Although the total number of daily visitors to East Yosemite Valley would be only slightly reduced from existing peak-day numbers, the implementation of the day use capacity management system, additional parking spaces, and transportation system improvements would lessen traffic jams, and improve the chance that visitors entering Yosemite have a place to park (thus eliminating unnecessary circling). When combined, these actions would have segmentwide, major, long-term, beneficial impacts on transportation conditions within Yosemite Valley.

Segment 2 Impact Summary: Actions to manage user capacities, land use, and facilities would have segmentwide, long-term, major, beneficial impacts on transportation and circulation within Segment 2.

Segments 3 and 4: Merced River Gorge and El Portal

Impacts of Actions to Protect and Enhance River Values

Under Alternative 5, in Segments 3 and 4, actions to protect and enhance river values would have segmentwide, minor, adverse short-term transportation effects associated with restoration activities.

Impacts of Actions to Manage User Capacity, Land Use, and Facilities

Under Alternative 5, no significant changes to the kinds and amounts of use are proposed in Segment 3, and the only changes in Segment 4 would be the development of a new remote parking area and increased employee housing (added to replace the housing removed from the Valley). The total number of daily visitors to actively recreate in Segments 3 and 4 under Alternative 5 would not change from existing peak-day conditions.

A new remote, 200-space visitor day parking area would be provided at the Abbieville/Trailer Court area in Segment 4, primarily to be used for visitor access to Yosemite Valley. The use associated with this parking area is accounted for in the Valley daily visitation levels reported above for Segment 2. Public transit options along Segments 3 and 4 would be expanded as described for Segment 2 above. Segment 3 is considered a “pass through” segment, and therefore, it does not contain any stops for passengers to enter or depart from transportation services that travel along this corridor. Regional transit buses in Segment 4 would stop at the new day parking area. When combined, these actions would have segmentwide, moderate, long-term, beneficial impacts on transportation conditions.

Segments 3 & 4 Impact Summary: Actions to manage user capacities, land use, and facilities would have segmentwide, long-term, moderate, beneficial impacts on transportation and circulation within Segments 3 & 4.

Segment 7: Wawona

Impacts of Actions to Protect and Enhance River Values

Under Alternative 5, in Segment 7, actions to protect and enhance river values would have segmentwide, short-term, minor, adverse transportation effects associated with restoration activities, but would have no long-term impacts because increased traffic would cease with completion of the construction work.

Impacts of Actions to Manage User Capacity, Land Use, and Facilities

Under Alternative 5, in Segment 7, no significant changes to the kinds and amounts of use are proposed. The total number of daily visitors to Segment 7 under Alternative 5 would increase slightly over Alternative 1 peak-day levels, primarily due to increased transit use.

Segment 7 Impact Summary: Impacts of Alternative 5 actions would be similar to those of Alternative 1 (No Action), and result in segmentwide, long-term, minor, adverse impacts on transportation conditions in Segment 7.

Summary of Impacts from Alternative 5: Enhanced Visitor Experience and Essential River Bank Restoration

Under Alternative 5, the park would increase access to and the availability of parking and camping, and maintain the current levels of overnight lodging. Transportation conditions would be improved

(reduced crowding and congestion) by better management of traffic, improved circulation patterns (i.e., a traffic circle) and parking, expanded regional transit and Valley shuttle service, and reduced vehicle-pedestrian conflicts, which would be highly detectable (by more than 20% of visitors traveling in the Merced River corridor) during the peak season of visitation. Overall, with implementation of mitigation measures MM-TRA-1 through MM-TRA-5, as applicable (see Appendix C), Alternative 5 would have corridorwide, major, long-term, beneficial impacts on transportation conditions.

Cumulative Impacts from Alternative 5: Enhanced Visitor Experience and Essential River Bank Restoration

The past, present, and foreseeable projects that would affect transportation in the Merced River corridor under Alternative 5 would be the same as those described for Alternative 2. Alternative 5, in combination with these cumulative projects, would result in a local, short-term, minor, adverse impact on transportation during construction periods. However, the improvements realized through current and reasonably foreseeable project would further enhance the moderate, long-term, beneficial impacts on transportation that would result from the implementation of Alternative 5.

Environmental Consequences of Alternative 6: Diversified Visitor Experiences and Selective Riverbank Restoration

All River Segments

Impacts of Actions to Protect and Enhance River Values

Under Alternative 6, actions to protect and enhance river values would primarily have corridorwide, short-term, minor, adverse transportation effects associated with restoration activities (e.g., potential removal of Sugar Pine bridge to preserve the free-flowing condition of the Merced River). The transportation effects of changes to the amount of overnight accommodation (i.e., campsites and lodging units) as part of the restoration (protect and enhance) actions are described below under Impacts of Actions to Manage User Capacity, Land Use, and Facilities.

Impacts of Actions to Manage User Capacity, Land Use, and Facilities

Under Alternative 6, actions to manage visitor use and facilities would increase opportunities for camping in the river corridor and increase lodging, expand regional bus service, increase day parking, and improve traffic circulation with new roundabouts and a pedestrian underpass in Yosemite Valley. Alternative 6 also includes a traffic and parking management program, which while focused on the Valley, would improve transportation conditions parkwide. Alternative 6 would provide enough day parking in the river corridor to accommodate current peak use, and at an average 3% growth per year, enough parking to accommodate day use demand for the next five years. These management actions would have corridorwide, moderate, long-term, beneficial impacts on transportation conditions.

Segment 2: Yosemite Valley

Impacts of Actions to Protect and Enhance River Values

Under Alternative 6, in Segment 2, actions to protect and enhance river values would primarily have segmentwide, short-term, minor, adverse transportation effects associated with restoration activities. Northside Drive would be retained in its current configuration, but roundabouts (at Northside Drive / Village Drive [Camp 6], and Sentinel Drive / Northside Drive [Bank 3-Way]) and a pedestrian underpass (at the Yosemite Lodge/ Yosemite Falls area) would be constructed. A three-way intersection would be added from Sentinel Drive to the Yosemite Village Day Use Area Parking Lot to improve traffic flow and to alleviate congestion at nearby intersections. The transportation effects of changes to the amount of overnight accommodation (i.e., campsites and lodging units) as part of the restoration actions are described below under Impacts of Actions to Manage User Capacity, Land Use, and Facilities.

Impacts of Actions to Manage User Capacity, Land Use, and Facilities

Under Alternative 6, in Segment 2, actions to manage visitor use and facilities include a traffic and parking management program, and additional parking, camping, and overnight accommodations. The total number of daily visitors to East Yosemite Valley under Alternative 6 would be 21,800 people, an approximately 4% increase from existing peak-day conditions. Overall, Alternative 6 would accommodate the majority of peak use demand for visitation in the Valley.

Alternative 6 would include a phased-in progressive management plan for reducing overall congestion and creating a visitor-friendly traffic management program. This would include the implementation of transportation fees at entrance stations and could ultimately lead to a day use parking permit system for the East Yosemite Valley if day use visitation to the East Yosemite Valley from private vehicles exceeds the parking availability and formal traffic diversions at El Capitan Crossover are instituted for 14 days or more during the summer season for two consecutive years. Permits would be checked at on-site parking locations, and day use would be limited to 13,700 visitors per day. Both regional transit and Valley shuttle options would be expanded, the latter extended to the West Valley to serve the El Capitan crossover and Bridalveil Fall areas.

The amount of overnight lodging would increase from existing conditions under Alternative 6 in Segment 2, from 1,034 units to 1,248 units. The number of campsites in Segment 2 would increase from 462 to 739 sites.

About 261 parking spaces would be added in this segment, an 11% increase over the spaces currently available (including new visitor parking west of Yosemite Lodge [300 spaces] and in the West Valley at the El Capitan crossover [250 spaces]), which would reduce vehicles circulating through the Valley looking for parking. The above-mentioned roundabouts and pedestrian underpasses would result in less congestion and enhanced pedestrian safety.

Regional bus service into Yosemite Valley would be expanded during the peak summer season under Alternative 6. The regional transit service would accommodate both employees and visitors and would

add an additional stop at the El Portal remote day use parking area. Additionally, the Valley shuttle would be extended to the West Valley to serve the El Capitan crossover and Bridalveil Fall areas.

Although the total number of daily visitors to East Yosemite Valley would be slightly higher than existing peak-day numbers, the implementation of the day use capacity management system, additional parking spaces, and transportation system improvements would lessen traffic jams, and ensure that visitors entering the park have a place to park (thus eliminating unnecessary circling). These management actions would have segmentwide, moderate, long-term, beneficial impacts on transportation conditions.

Segment 2 Impact Summary: Actions to manage user capacities, land use, and facilities would have segmentwide, long-term, moderate, beneficial impacts on transportation and circulation within Segment 2.

Segments 3 and 4: Merced River Gorge and El Portal

Impacts of Actions to Protect and Enhance River Values

Under Alternative 6, in Segments 3 and 4, actions to protect and enhance river values would have segmentwide, short-term, minor, adverse transportation effects associated with restoration activities.

Impacts of Actions to Manage User Capacity, Land Use, and Facilities

Under Alternative 6, no significant changes to the kinds and amounts of use are proposed in Segment 3, and the only changes in Segment 4 would be the development of a new remote parking area and increased employee housing (added to replace the housing removed from the Valley). The total number of daily visitors to actively recreate in Segments 3 and 4 with Alternative 6 would not change from existing peak-day conditions.

A new remote 200-space visitor day parking area would be provided at the Abbieville/Trailer Court site in Segment 4, primarily to be used for visitor access to Yosemite Valley. The use associated with this parking area is accounted for in the Valley daily visitation levels reported above for Segment 2. Public transit options along Segments 3 and 4 would be expanded as described for Segment 2. Segment 3 is considered a “pass through” segment, and therefore, it does not contain any stops for passengers to enter or depart from transportation services that travel along this corridor. Regional transit buses in Segment 4 would stop at the new day parking area. These management actions would have corridorwide, moderate, long-term, beneficial impacts on transportation conditions.

Segments 3 & 4 Impact Summary: Actions to manage user capacities, land use, and facilities would have segmentwide, long-term, moderate, beneficial impacts on transportation and circulation within Segments 3 & 4.

Segment 7: Wawona

Impacts of Actions to Protect and Enhance River Values

Under Alternative 6, in Segment 7, actions to protect and enhance river values would have segmentwide, short-term, minor, adverse transportation effects associated with restoration activities, but would have no long-term impacts because increased traffic would cease with completion of the construction work.

Impacts of Actions to Manage User Capacity, Land Use, and Facilities

Under Alternative 6, in Segment 7, no significant changes to the kinds and amounts of use are proposed. The total number of daily visitors to Segment 7 under Alternative 6 would increase slightly over Alternative 1 peak-day levels, primarily due to increased transit use.

Segment 7 Impact Summary: Impacts of Alternative 6 actions would be similar to those of Alternative 1 (No Action), and result in segmentwide, long-term, minor, adverse impacts on transportation conditions in Segment 7.

Summary of Impacts from Alternative 6: Diversified Visitor Experiences and Selective Riverbank Restoration

Transportation conditions under Alternative 6 would be improved (reduced crowding and congestion) by changes to the roadway network (i.e., roundabouts and pedestrian underpasses) to improve traffic flow and reduce pedestrian/vehicle conflicts), visitor and parking management strategies, and expanded regional transit and Valley shuttle service. Alternative 6 would provide enough day parking in the river corridor to accommodate current peak use, and with circulation changes, the improvements would be clearly detectable (by 10% to 20% of visitors traveling in the Merced River corridor) during the peak season of visitation. Overall, with implementation of mitigation measures MM-TRA-1 through MM-TRA-5, as applicable (see Appendix C), Alternative 6 would have corridorwide, moderate, long-term, beneficial impacts on transportation conditions.

Cumulative Impacts from Alternative 6: Diversified Visitor Experiences and Selective Riverbank Restoration

The past, present, and foreseeable projects that would affect transportation in the Merced River corridor under Alternative 6 would be the same as those presented above for Alternative 2. Alternative 6, in combination with these cumulative projects, would result in a local, short-term, minor, adverse impact on transportation during construction periods. However, the improvements realized through current and reasonably foreseeable projects would further enhance the moderate, long-term, beneficial impacts on transportation that would result from implementation of Alternative 6.