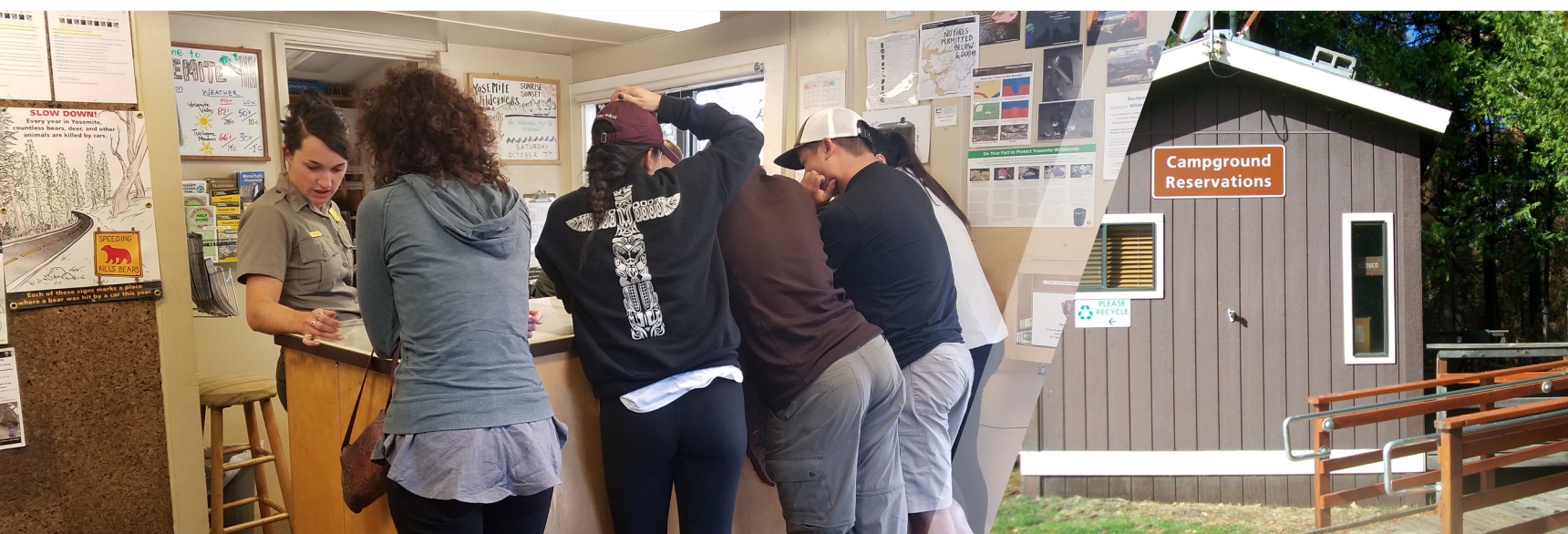




Replace the Big Oak Flat Welcome Center Complex Environmental Assessment



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CHAPTER 1: PURPOSE OF AND NEED FOR ACTION

INTRODUCTION

The National Park Service (NPS) is considering replacing the Big Oak Flat welcome center complex to enhance the quality of the visitor experience upon entering Yosemite National Park (the park) and improve existing park programs (Figure 1). This federal action would involve unifying the services of the visitor information station and the campground reservations office into one building, and updating and improving the operational efficiency of the welcome center complex's aging utility systems, parking configuration, and comfort station (public restroom). Existing park programs that would be improved under this action include visitor information and trip planning, campground reservations, wilderness permit services, bear canister rentals, and retail services.

This environmental assessment (EA) has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA), as amended, the 2015 *NEPA Handbook* and 2018 Department of Interior NEPA Streamlining Instructions (NPS 2015a, 2018a). Compliance with section 106 of the National Historic Preservation Act (NHPA) of 1966 has occurred in coordination with the NEPA process.

BACKGROUND

The Big Oak Flat Entrance welcomes about one million visitors annually, and the welcome center complex serves more than 50,000 visitors annually. The two main buildings and a comfort station (public restroom) compose the existing complex. The welcome center complex provides visitor information and trip planning, campground reservations, wilderness permit services, bear canister rentals, and a small retail space. In addition, the complex currently includes the Mather District Law Enforcement Office and space for campground, information and trip planning, and wilderness staff. The purpose of the welcome center complex is to welcome and quickly orient visitors to services in the park. The welcome center complex does not offer interpretive programs or extensive displays (as a visitor center would), and there are no day-use activities or recreational opportunities on-site. The typical visitor may use the restroom, seek camping or wilderness information, ask general questions of park staff, and/or purchase maps or other materials. Parking and use of the facility are intended to accommodate a quick turnover. During the winter season, the welcome center complex is not staffed and does not provide visitor services; law enforcement staff occupy their office year-round.

The existing visitor information station is not adequately sized or effectively organized to serve the volume of visitors arriving through this park entrance. This negatively affects visitor experience and park operations. Visitors often experience long lines and wait times to access services and restrooms. Motorists face insufficient parking during periods of heavy visitation, often leading to unsafe conditions (e.g. double-parking, blocking of NPS vehicles, road obstruction, and hazardous pedestrian crossing). Parking is inadequate for large vehicles, such as recreational vehicles and buses, which often block parking areas and the road. The comfort station is undersized (three stalls for each gender), causing long lines, and its septic tank and leach field is at the end of its useful life, causing malfunctions and unpleasant odors. The current layout of the visitor information station is confusing, which contributes to visitor congestion and operational inefficiency. The services provided are disjunct from one another, located in separate buildings with many awkwardly compartmentalized spaces (decks) that sever circulation. Visitors often wait in long lines for services, only to discover they are in the wrong line.

Park staff experience severe space constraints that create challenges to providing quality customer service; these include an inadequate number of workstations, limited space at service counters, and storage deficiencies. The existing facility also lacks private spaces for supervisory staff and sufficient designated employee break and restroom facilities. Crowding at public service counters causes high noise

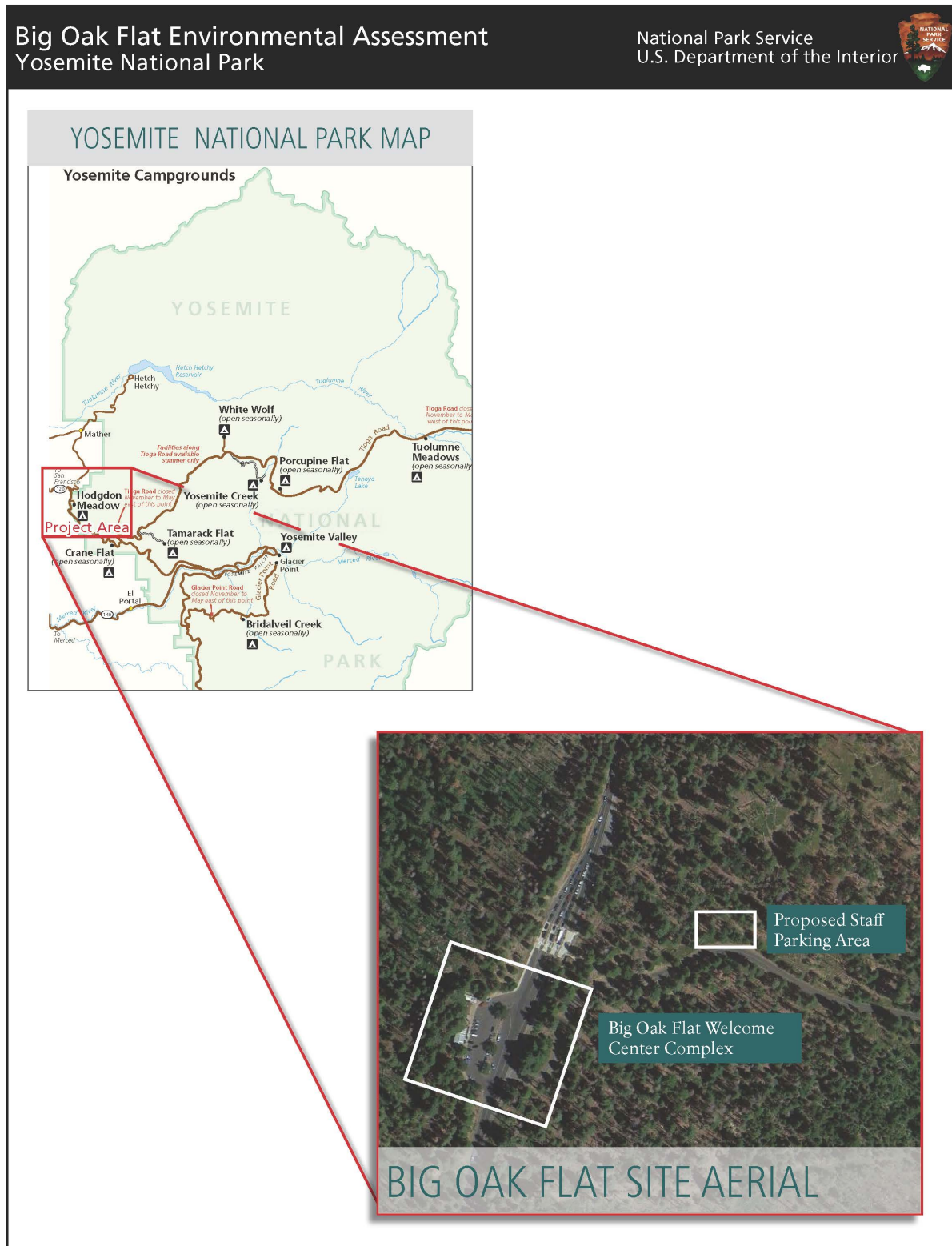


FIGURE 1. PROJECT AREA

levels that hamper the staff's ability to communicate effectively with visitors. Office space is inadequate, and staff find it challenging to operate effectively. For example, staff must drive to distant sites to gather for staff meetings, have difficulty planning daily activities because sufficient workstations are not available, and have no private spaces for sensitive conversations.

The utility systems at the welcome center complex are beyond their expected life and need upgrades or replacement to be reliable and functional. Outdoor lighting is insufficient for safety at night. Indoor heating and cooling systems do not provide effective temperature control during the hot summer and cold winter seasons, which is exacerbated when visitor queuing prevents doors from remaining closed.

PURPOSE OF AND NEED FOR FEDERAL ACTION

The purpose of taking action to replace the existing welcome center complex at the Big Oak Flat Entrance is to enhance the visitor experience and improve operational efficiency for existing park programs, including visitor information, campground reservations, wilderness permit services, bear canister rentals, as well as retail and office space.

Action is needed because the existing welcome center complex does not meet visitor demands, and NPS staff struggle to provide quality public service because of inadequately sized and ineffectively organized facilities. Space restrictions strain the delivery of informational and trip-planning services to the public, and aging utility systems require a high level of maintenance.

More specifically, this project would:

- Provide a sense of arrival and informational resources for clear orientation and wayfinding to visitors entering the park through the Big Oak Flat Entrance.
- Provide adequate comfort station facilities.
- Provide functional and modern utilities to the welcome center complex facilities.
- Improve visitor and employee safety by addressing vehicle congestion issues and traffic flow.

PROJECT AREA

The project area is the existing welcome center complex, on the west side of Big Oak Flat Road, immediately south of the entrance fee kiosks to the park. Figure 1 provides an aerial view of the location of the Big Oak Flat site within the park.

PUBLIC INVOLVEMENT

NPS initiated public scoping for the EA on May 5, 2018. More information on public involvement, including issues and concerns raised by the public that are addressed in this document as well as those beyond the scope of this project can be found in Chapter 4: Consultation and Coordination.

During the public scoping period, the preliminary alternatives included creating an emergency services space and moving the law enforcement functions to the maintenance area at Hodgdon Meadow. After the public scoping period ended, NPS determined that additional planning was necessary to analyze the full range of alternatives for the emergency services. In the interim, the Mather District Law Enforcement Office, which would be displaced by the new welcome center complex project, would operate out of a temporary location (e.g., a trailer) in the Hodgdon area. As a result, creation of the emergency services space is no longer a part of this proposed action. Additionally, public scoping documents referred to the existing complex as the visitor contact station. In order to be consistent with other similar facilities in the park, the visitor contact station is now referred to as the welcome center.

CHAPTER 2: ALTERNATIVES

The alternatives analyzed in this document are a result of internal scoping, agency scoping, public scoping, and tribal consultation. Alternatives and actions that were considered but dismissed from detailed analysis are not technically or economically feasible; do not meet the purpose of, and need for, the project; create unnecessary or excessive adverse impacts on resources; or conflict with the overall management of the park or its resources. These alternatives or alternative elements and their reasons for dismissal are discussed at the end of this chapter.

NPS explored and objectively evaluated two alternatives in this EA:

- No Action Alternative
- Proposed Action Alternative

NO ACTION ALTERNATIVE

The No Action Alternative would continue the present management and condition of the welcome center complex. Existing utilities or communications equipment would not be improved, with the exception of emergency repairs and routine and periodic maintenance activities. The No Action Alternative provides a basis for comparing the management direction and environmental consequences of the action alternatives.

Under the No Action Alternative, the welcome center complex would maintain the use of existing workstations and disjunct service counters to address visitor needs as they pertain to wilderness permits, campground reservations, and general park information and trip planning. The existing parking configuration would continue to provide 22 striped parking stalls with an inbound transit bus stop located at the median and an outbound stop across Big Oak Flat Road. The comfort station would continue to provide three restroom stalls for women and three stalls for men. No improvements would be made to the existing utilities. Law enforcement staff would continue to operate out of the Mather District Law Enforcement Office. The existing layout is provided in Figure 2, and a description of each element of the welcome center complex is provided below.

Visitor Information Station/Mather District Law Enforcement Office. The visitor information station (Figures 3 and 4), which includes the Mather District Law Enforcement Office, is a 1,080-square foot (SF) building that was moved to the Big Oak Flat site in 1970. It was previously used at a different location by another government entity, and the original construction date is unknown. The building sits at an elevation of 4,900 feet, surrounded by incense cedar, Ponderosa pine, sugar pine, and black oak trees. One service counter is available from which staff address visitor needs, issue wilderness permits, rent bear canisters, disseminate park information, and assist with trip planning. Retail sales are limited to a small corner of the building. A shaded wooden deck is used for returning bear canister, and during peak periods, for issuing wilderness permits.

Building staff share one, single-fixture restroom and a small office area with limited workstations. A portion of the existing building also provides office and administrative space for Mather District law enforcement staff.

Campground Reservations Office. A campground reservations trailer (Figure 5) is located directly north of the restroom. The 570-SF trailer was placed on-site in 2001 and includes a long desk for staff to issue permits, a small food preparation space, and additional workspace. There is no restroom in this building.

Comfort Station. The 627-SF comfort station (Figure 6) was constructed in 1966. It includes public restrooms, with vending machines available under an awning adjacent to the restrooms. Three stalls for each gender are available for public use. A water fountain is located between the restroom entrances and trash facilities in the surrounding area.

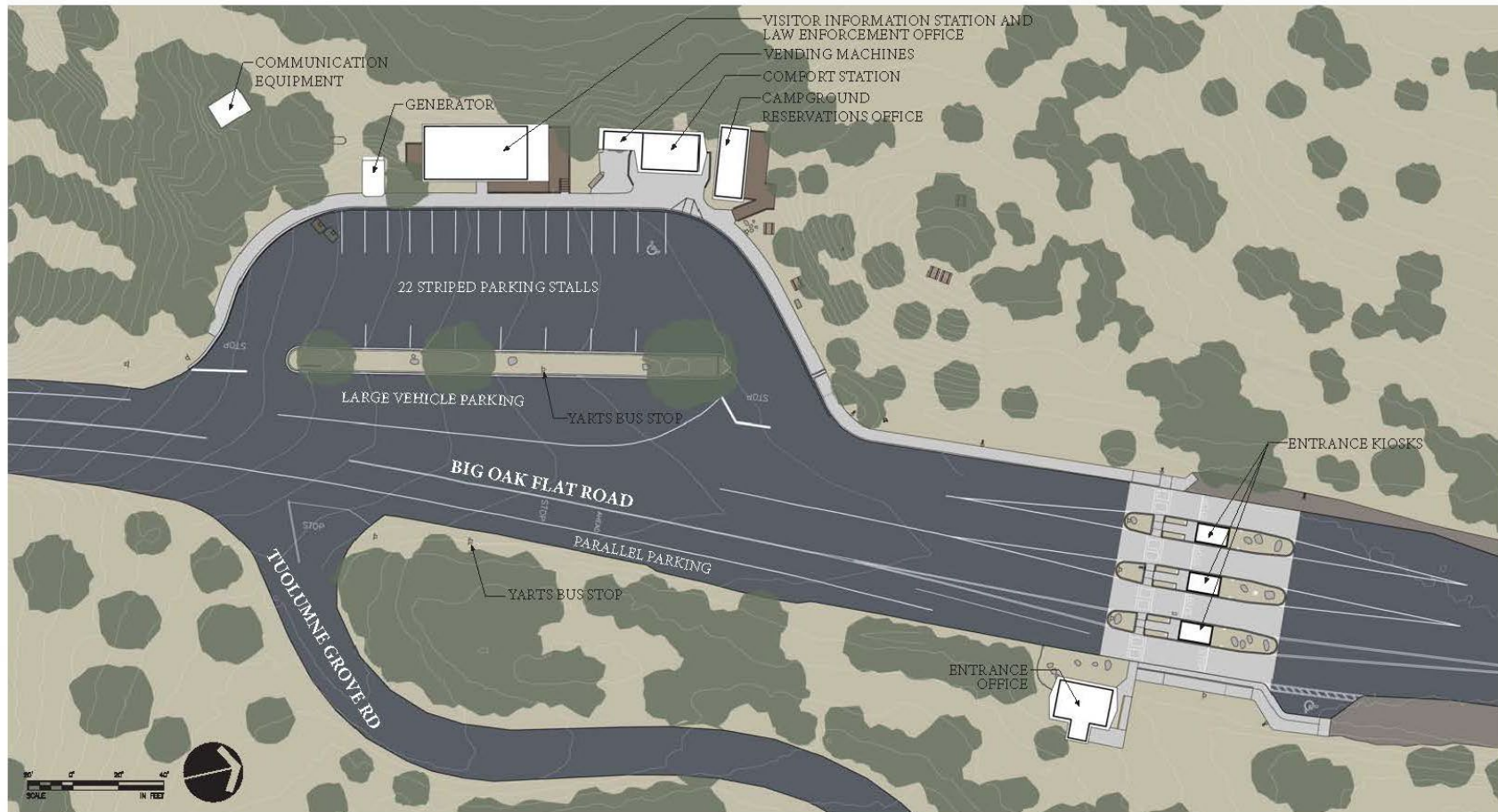


FIGURE 2: EXISTING BIG OAK FLAT WELCOME CENTER COMPLEX

Parking. After entering the park by way of the entrance kiosks, 22 parking stalls are available in a parking lot directly in front of the welcome center complex for visitor, NPS staff, and welcome center complex staff use. The parking stalls can accommodate small to mid-sized vehicles but are not designed for large vehicles, such as recreational vehicles and buses. Two of the stalls are accessible to persons with disabilities but do not meet current standards. A median hosts a public transit bus stop, and at times of high visitor volume, is used as informal parallel parking for approximately six large vehicles. Across Big Oak Flat Road, a second public transit stop provides transportation to existing visitors but is often used as additional parallel parking.

Utilities. A generator is located under a roof structure within a 150-SF fenced enclosure, directly south of the visitor information station. Slightly farther south, communication equipment is housed in a small structure. The existing welcome center complex uses a septic system that was installed around 1965 and is undersized to meet current usage. Measures were taken in the 1980s to increase sewage capacity. Since then, system failures have resulted in emergency repairs and mitigations, but the system remains inadequate to meet current demand, estimated at 6,250 gallons per day.



FIGURE 3: EXISTING VISITOR INFORMATION STATION



FIGURE 4: INTERIOR OF EXISTING VISITOR INFORMATION STATION



FIGURE 5: EXISTING CAMPGROUND RESERVATIONS OFFICE

**FIGURE 6: EXISTING COMFORT STATION**

PROPOSED ACTION ALTERNATIVE

Under the Proposed Action Alternative, the welcome center complex would be removed and replaced with a new welcome center complex and layout. The proposed site layout is provided in Figure 7.

Welcome Center. The welcome center would combine the core functions of the visitor information station and campground reservations office into one building that would include a visitor information counter; wilderness permit counter; campground reservations counter; retail space; private offices; work stations; and storage areas for park equipment, information technology, and mechanical equipment. The building would also include two staff restrooms, a kitchenette, and mail/copy area. The breakroom/meeting room would accommodate a table and seating for 12 people, and 3 workstations would be available for private workspace. The 2,200 to 2,500 SF, one-story building would be located on the west side of the parking area. Compliance with California Public Resources Code 4291 (Clearance Around Structures) would require removal of brush, flammable vegetation, or combustible growth within 100 feet of the building to create a reduced fuel zone and a defensible space sufficient to provide reasonable fire and life safety. This defensible space would serve as a buffer around buildings where wildland fire-protection practices and measures could be implemented. California Department of Forestry and Fire Protection (Cal Fire) guidance notes that measures should balance vegetation removal and the need to prevent soil erosion. NPS staff knowledgeable about the area's vegetative composition would be consulted during thinning and pruning activities. Within this defensible space of the project area, lower limbs of trees at least 6 feet up to 15 feet would be pruned. The understory vegetation and ladder fuels, or vegetation that can carry a fire vertically between or within a vegetated area, would be thinned to maintain a well-spaced and well-pruned defensible space (Cal Fire 2006).

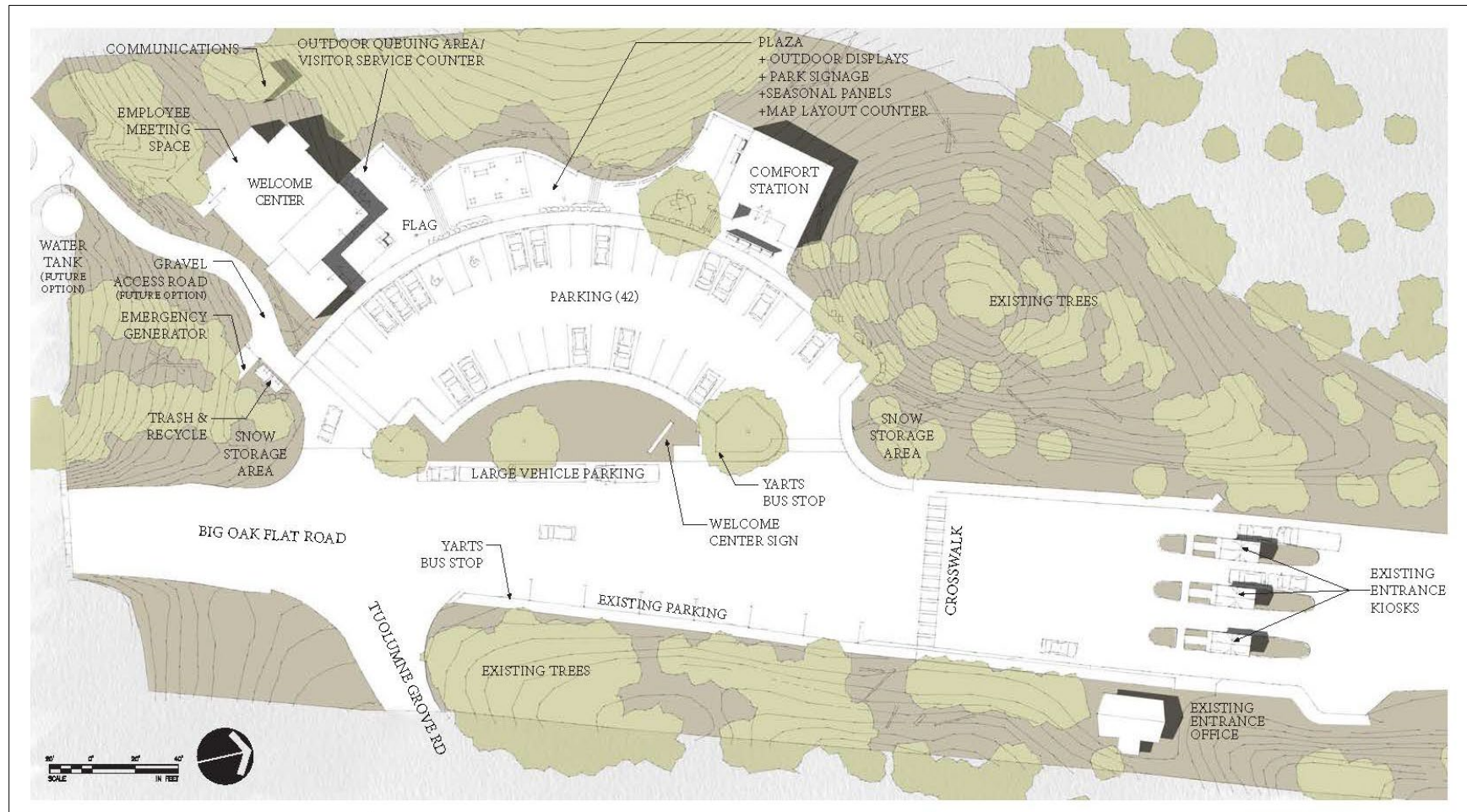


FIGURE 7: PROPOSED ACTION ALTERNATIVE LAYOUT

Plaza. The comfort station (described below) would be located 180 feet north of the welcome center, which would create a large plaza between the two buildings. This area would include a covered pavilion that could function as an outdoor greeting space as well as a flexible use area for service desks and touch tables. The plaza would be between 5,000 to 7,000 SF and would provide flexible space for educational and informational displays, maps, park signage, and seasonal panels. The functional use of this space would include an outdoor queuing area for visitors, an outdoor visitor service counter, bench seating, a map layout table, and space for sorting and packing.

Comfort Station. The 1,000-SF comfort station would contain a women's restroom with nine stalls and a men's restroom with four stalls and three urinals. A dedicated family restroom would also be provided. The existing leach field would be decommissioned, and the sewer flows from the welcome center and the comfort station would be accommodated by a new gravity sewer installed along an existing utility alignment. The Hodgdon Meadow septic system and leach field were designed to accommodate the anticipated flows from the welcome center and comfort station. Entry to the comfort station would be available through the plaza on the east side of the structure. A water and bottle refilling station and trash facilities would be provided for visitors and park staff.

Parking and Wayfinding. All vehicles would enter and exit the parking area from the each end of the lot. Parking would be provided for 42 vehicles. Additional large vehicle parking for approximately four vehicles would be available along the parking area frontage with Big Oak Flat Road. Three California black oak trees, all located on the median, would remain and would visually separate the parking area from the main road but allow views to the welcome center, plaza, and comfort station. The median would be expanded to provide pedestrian access from parking areas to the welcome center complex.

Curbs, gutters, and sidewalks would be provided along the western parking stalls to access the welcome center and comfort station along the sidewalk. The area between the island and the southbound lane would still be available to use as an area to install snow chains in the winter. A new crosswalk would be added for staff and visitors to cross Big Oak Flat Road, a main thoroughfare to the park, safely. Snow removed from the parking lot would be piled at the north and south ends of the proposed parking lot.

A staff parking lot (Figures 8 and 9) would be constructed along Tuolumne Grove Road about 800 feet east of the welcome center complex in an area that is currently forested. The gravel staff parking lot would be approximately 2,800 SF and would hold 10 additional cars for staff use.

Utilities. A new 2,520-linear-foot, 6-inch-diameter gravity sewer conveyance pipeline extension would be constructed to mostly follow Tuolumne Grove Road and/or the existing utility alignments from Hodgdon Meadow Campground to the welcome center. The pipeline extension would be installed with open-cut trenching at a maximum depth of 5 feet and approximately 10 feet horizontally from the existing water line in the utility alignment (where Tuolumne Grove Road hits a topographic peak, the pipeline would be installed using a horizontal directional bore to avoid excavation of 15 to 25 feet of material along the roadway).

The proposed action would fully comply with fire code regulations; however, after the construction period has ended, the option to install a water tank and access road south of the welcome center would increase fire protection measures in the area. The 250,000-gallon tank would provide increased water volume for fire suppression activities. The existing standby generator and propane tank would be relocated to the south end of the parking lot. The communications equipment would remain in place, and the power pole behind the welcome center would be relocated within the site.



FIGURE 8: PROPOSED LOCATION FOR STAFF PARKING AREA



FIGURE 9: STAFF PARKING AREA – EXISTING CONDITIONS

Construction. Construction is anticipated to last up to two years and would require the closure of the welcome center complex for up to two visitor seasons (May through mid-October). All efforts would be made to minimize closure time to one visitor season, although the exact construction period is unknown at this time, and factors like weather could affect the construction period. During the construction period, a temporary trailer may be placed in Hodgdon Campground to provide NPS campgrounds staff with operational and office space, though no public services would be hosted here. The Mather District Law Enforcement Office would be relocated to a temporary trailer on previously disturbed land within an administrative area just south of the Hodgdon maintenance yard for up to five years. The temporary trailer would likely be located near existing housing trailers and use existing utilities in the area. After the public scoping period ended, NPS determined that additional planning was necessary to analyze the full range of alternatives for the emergency services building; therefore, impacts would be discussed as a separate planning and construction effort. No new environmental impacts associated with a temporary relocation are anticipated. If vegetation clearing or trenching for utilities were required, additional NEPA analysis would be completed, if necessary. Critical visitor functions that occur at the welcome center complex, including campground reservations, interim restroom facilities, and wilderness permitting would be located in an alternative location during construction. The exact location of these functions is unknown, but they could be provided outside the park boundary. All construction staging activities would occur on the existing pavement or disturbed areas within the welcome center complex. Temporary facilities to provide critical visitor functions during the construction period are not anticipated to require additional construction.

RESOURCE PROTECTION MEASURES

NPS places strong emphasis on avoiding, minimizing, and mitigating potentially adverse environmental impacts. To protect natural resources and the quality of the visitor experience, the resource protection measures outlined in Appendix A would be implemented as part of the action alternative.

ALTERNATIVES CONSIDERED BUT DISMISSED FROM DETAILED ANALYSIS

Additional welcome center complex layout options were considered during the alternatives development, but no other alternatives beyond replacing the existing facilities was considered. Upgrading or renovating the current facilities would not meet the purpose and need to improve the existing space and layout constraints. Both the visitor information station and campground reservations buildings were constructed as temporary structures, and it would not be cost effective to renovate them. Additionally, upgrading the trailers would not solve accessibility issues or constraints posed by the layout or arrangement of existing facilities within the welcome center complex. The comfort station has reached the end of its useful life and needs to be rebuilt to meet the existing demand. No other locations for the welcome center complex were considered due to spatial and resource constraints. The current location is already part of the built environment, is optimal for meeting visitor needs as soon as they enter the park, and can provide visitor services (e.g., directions, reservations, and permits) in the Mather District without increasing congestion in Yosemite Valley. Locating the existing services in other locations would require significant rerouting by visitors and would extend the length of time that visitors would need to wait to use a restroom. Locating campground reservations services at Tuolumne Grove, approximately 15 minutes (8.5 miles) beyond the Big Flat Oak Entrance, could increase vehicle back-tracking because there is no camping nearby, and visitors may not know campgrounds are full until reaching this point in the park. Similarly, the last town prior to the Big Oak Flat Entrance is Groveland, which is more than an hour away from Yosemite Valley, and would extend the time visitors need to travel without restroom facilities or park information.

CHAPTER 3: AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The affected environment sections describe existing conditions for those elements of the human environment that would be affected by the implementation of the alternatives considered in this EA. Impacts for each resource topic are analyzed in the environmental consequences sections.

RESOURCE TOPICS CONSIDERED

Impact topics are resources or values analyzed for each of the alternatives and are discussed because issues have been identified. During internal, agency, and public scoping, NPS staff identified potential issues that could result from implementation of the action alternatives. Resource topics considered in this EA include vegetation and visitor use and experience.

RESOURCE TOPICS DISMISSED FROM FURTHER ANALYSIS

In accordance with Council on Environmental Quality regulations 1500.1(b) and the NEPA Handbook (NPS 2015a), NPS determines whether impact topics are dismissed from detailed analysis to concentrate on the issues of concern. This section evaluates and explains why some impact topics are not evaluated in more detail. In general, impact topics are dismissed from further evaluation in this EA if they:

- do not exist in the analysis area;
- would not be affected by the alternatives or the likelihood of impacts are not reasonably expected;
- would result in impacts that, through the application of mitigation measures, would be minimal; and
- there is no controversy on the subject or there are few reasons to include the topic.

Air Quality

Section 118 of the Clean Air Act requires NPS to meet all federal, state, and local air pollution standards (42 United States Code [USC] 7401 et seq.), and NPS *Management Policies 2006* address the need to analyze potential impacts on air quality during park planning. Construction activities associated with site preparation could result in minor emissions that may release a small amount of airborne particulates in the area. All emissions would cease after construction is complete. Because emissions would be minimal and temporary, air quality was dismissed from detailed analysis.

Socioeconomics

The forces that can affect the social and economic environments of the surrounding communities are primarily changes in visitor levels, visitor spending, park employment, concessioner employment, and park and concessioner spending in the regional economy. No measureable changes expected in park-wide annual visitation are expected because of the Proposed Action Alternative. Implementation of the Proposed Action Alternative would help accommodate current visitors entering the park from the west and north and improve park facilities to enhance the visitor experience. The welcome center complex would be closed for up to two visitor seasons; however, critical visitor services would still be provided nearby, potentially in the Groveland community. The Big Oak Flat Entrance would remain open year-round. Therefore, socioeconomics was dismissed from further analysis.

Cultural Resources

Section 106 of the National Historic Preservation Act of 1966, as amended (16 USC 470 et seq.), and its implementing regulations under 36 CFR Part 800, require all federal agencies to consider effects of federal actions on archeological resources and historic properties eligible for or listed in the National Register of Historic Places (National Register). NPS reviewed traditional cultural properties within the project area with all interested tribes. A full description of the tribal and section 106 consultation that was completed in conjunction with this proposed action is provided in chapter 4.

Historic Properties (Built Environment). The existing Big Oak Flat welcome center complex was recently assessed for its eligibility for listing in the National Register as part of the Mission 66 program. A consensus determination of eligibility (DOE) of this area was completed as part of the park's ongoing inventory and assessment of Mission 66-era resources in Yosemite. The Tuolumne Grove Road alignment is part of the Big Oak Flat Road and may be eligible as a Mission-66 property. The portion of Big Oak Flat Road within the project area, from the Big Oak Flat Entrance to its intersection with Tioga Road, was not included in the DOE, but is pending formal evaluation. The park assumes eligibility for this portion of the road within the project area; however, the proposed action would not alter the road's alignment.

The Hodgdon Meadow Campground was built in 1963–1964 and was part of the Mission-66 development in this area. It contains 109 sites and 2 comfort stations to serve campers year-round. Pending formal evaluation, the Hodgdon Meadow Campground is assumed to be eligible for listing in the National Register; however, the proposed action would not alter the functions or configuration of the campground. A 2014 investigation of the Big Oak Flat Entrance Station determined that the welcome center complex buildings, road, entrance station kiosks, and entrance office are not eligible under any criteria, either collectively or individually. Although the area is associated with the Mission 66 program, the complex has undergone several substantial alterations that have compromised its ability to convey this association. The park is requesting California State Historic Preservation Office (SHPO) concurrence with its finding of ineligibility.

Archeological Resources. During a preliminary archeological survey in 2017, park archeologists discovered remnants of a historic logging site in two areas immediately adjacent to the Big Oak Flat welcome center complex. The findings included logging chutes, an old roadbed, and scatter of historic artifacts. The park contracted surveys of the site to formally document the archeological resources in a California Department of Parks and Recreation Archeological Report and to prepare a DOE for California SHPO review and concurrence. Fieldwork for this effort commenced in early October 2018. The initial finding was the logging site is ineligible for listing on the National Register as an archeological resource. Consultation with the California SHPO is ongoing and will be documented in the decision document for this EA.

Resources of Religious and Cultural Significance to Traditionally Associated American Indians.

NPS has engaged traditionally associated American Indian Tribes in consultations regarding the project, and no adverse effects on historic properties with religious and cultural significance are anticipated because of project activities.

Soundscapes

In accordance with NPS *Management Policies 2006* and Director's Order 47: *Sound Preservation and Noise Management* (NPS 2000), an important part of the NPS mission is preservation of natural soundscapes associated with national park system units. Natural soundscapes exist in the absence of human-caused sound. Noise associated with construction activities would be short term, localized, and would cease after construction is complete. Noise from operations would be the same or less than existing conditions because even though the generator may have a larger capacity, it would be newer and therefore likely quieter than the existing generator. Soundscapes were therefore dismissed from detailed analysis.

Water Resources and Hydrologic Processes

The Clean Water Act was enacted to “restore and maintain the chemical, physical, and biological integrity of the Nation’s waters” (33 USC 1251 et seq.). Compliance with the Clean Water Act, along with an assessment of wetlands under Executive Order 11990, “Protection of Wetlands,” and NPS Director’s Order 77-1: *Wetland Protection*, is required if impacts on water resources are anticipated (NPS 2002).

Executive Order 11988, “Floodplain Management,” also requires an examination of impacts on floodplains and potential risk involved in placing infrastructure in floodplains. NPS *Management Policies 2006* and Director’s Order 77-2: *Floodplain Management* (NPS 2003) provide guidelines for proposals in floodplains. The project area does not contain wetlands or floodplains and is not adjacent to any water resources. Appropriate mitigation measures would be implemented to reduce any potential impacts on water quality from exposed soil or stormwater runoff during construction. Therefore, this impact topic was dismissed from detailed analysis.

National Park Service Operations and Facilities

NPS *Management Policies 2006* state that the design for “park facilities [...] will be harmonious with and integrated into the park environment, [with] sensitivity to cultural, regional, esthetic, and environmental factors.” Upgraded or new facilities would be sensitive to park resources and improve the efficiency of park operations by providing adequate space for visitor amenities and services. Construction activities and life-cycle maintenance of new facilities could temporarily disrupt traffic flow patterns and park access; however, long-term impacts on operations and facilities would be beneficial. Therefore, this topic was dismissed from detailed analysis.

Geology and Soils

NPS *Management Policies 2006* state the “Service will actively seek to understand and preserve the soil resources of parks, and to prevent, to the extent possible, the unnatural erosion, physical removal, or contamination of the soil or its contamination of other resources” (NPS 2006). The majority of the project area has been previously disturbed. While the Proposed Action Alternative would result in earth-moving activities from construction, no unusual or sensitive geological or soil resources occur in the project area. Best management practices, including developing a soil erosion and sediment plan, would reduce potential impacts on soils. Therefore, this topic was dismissed from further analysis.

Wildlife

According to the NPS *Management Policies 2006*, NPS strives to maintain all components and processes of naturally evolving park unit ecosystems, including the natural abundance, diversity, and ecological integrity of native animal populations. Increased noise levels during construction activities could result in temporary increases in localized disturbances to wildlife. While the proposed action could result in minimal, temporary impacts, they would not affect the viability or population dynamics of wildlife in the park. Therefore, the topic was dismissed from further analysis.

Threatened and Endangered Species

The Endangered Species Act (1973), as amended, requires an examination of impacts on all federally listed threatened or endangered species. NPS *Management Policies 2006* requires examination of the impacts on federal candidate species, as well as state-listed threatened, endangered, candidate, rare, declining, and sensitive species. Section 7 of the Endangered Species Act requires all federal agencies to consult with the US Fish and Wildlife Service or the National Marine Fisheries Service to ensure that any

action authorized, funded, or carried out by the agency does not jeopardize the continued existence of listed species or critical habitats (16 USC 1531 et seq.).

NPS retrieved a list of species present at the park from the US Fish and Wildlife Service's Information for Planning and Conservation webpage. This list confirmed that while the Sierra Nevada yellow-legged frog (*Rana sierra*) and Yosemite toad (*Anaxyrus canorus*) have the potential to exist within the project area, neither species is known to occur in the park below 5,800 feet in elevation (the project area is at 5,900 feet). No suitable habitat for the California red-legged frog (*Rana draytonii*) is available within the project area, and none of the aforementioned species has been recorded in the vicinity. No aquatic habitat occurs within the project area; the nearest aquatic habitat is more than 400 meters away. The project area is not within the range of the Delta smelt (*Hypomesus transpacificus*) and will have no effect on the Tuolumne River or its tributaries. There is no critical habitat for any species in the project area. As a result, this topic was not carried forward for detailed analysis.

Wilderness

While designated wilderness does exist at the park, the project area is not within or adjacent to designated wilderness, and the nearest designated or potential wilderness boundary is located approximately 0.9 mile from the project area; therefore, this topic was dismissed from further analysis.

GENERAL METHODOLOGY FOR ESTABLISHING IMPACTS

In accordance with Council on Environmental Quality regulations, direct, indirect, and cumulative impacts are described (40 CFR 1502.16), and the impacts are assessed in terms of context and intensity (40 CFR 1508.27). Where appropriate, mitigation measures for adverse impacts are also described and incorporated into the evaluation of impacts.

Context: The context of an impact considers where impacts would occur and whether they would be site-specific (within the project area), local (beyond the project area within the park), regional (Sierra Nevada), or broader.

Duration: The duration of an impact considers the length of time an effect would last, either short term or long term.

- Short term is generally used for impacts lasting only for the project duration or during the construction period for an action.
- Long-term impacts occur beyond the date a project is considered fully implemented.

Type: Type describes impacts as direct, indirect, beneficial, or adverse.

- Direct: Impacts that would occur as a result of the proposed action at the same time and place of implementation (40 CFR 1508.8).
- Indirect: Impacts that would occur as a result of the proposed action but later in time or farther in distance from the action (40 CFR 1508.8).
- Beneficial: A positive change in the condition or appearance of the resource or a change that moves the resource toward a desired condition.
- Adverse: A change that declines, degrades, and/or moves the resource away from a desired condition or detracts from its appearance or condition.

CUMULATIVE IMPACTS

To assess cumulative impacts, it is necessary to identify other past, ongoing, or reasonably foreseeable future actions at and around the welcome center complex that would affect the resources evaluated in this EA. Cumulative impacts are defined as “the impact on the environment which results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (federal or nonfederal) or person undertakes such other actions” (40 CFR 1508.7). Cumulative impacts are determined for each impact topic by combining the impacts of the alternative being analyzed and other past, present, and reasonably foreseeable actions that also would result in beneficial or adverse impacts. Because some of these actions are in the early planning stages, the evaluation of cumulative impacts is based on a general description of the project. These actions were identified through the internal project scoping process. A list of all cumulative projects are provided below, and project summaries are provided in Appendix B.

- Hodgdon Meadow Entrance Complex Generator Installation (2007)
- Hodgdon Meadow Wastewater Improvements (2011)
- Big Oak Flat Road Chip Seal (El Portal Road to Hodgdon Meadow) (2011)
- The Yosemite Rush Creek Lodge (2016) [external action]
- Communications Data Network System Upgrades (Ongoing)
- Implementation of the 2008 *Yosemite Invasive Plant Management Plan Environmental Assessment* and 2010 update (Ongoing)
- Mather District Emergency Services and Law Enforcement Office (Planned: 2021–2022)
- Rehabilitate Hodgdon Meadow Water Distribution System to Restore Capacity and Reduce Failures (Planned)

VEGETATION

Affected Environment

The park encompasses approximately 747,985 acres (1,169 square miles) and sits on the western slope of the Sierra Nevada mountain range. The project area is situated at an elevation of 4,900 feet in a lower montane coniferous forest. This area includes a transitional community of low-elevation broadleaved forests and higher elevation coniferous forests as the elevation increases towards 6,000 feet (NPS 2015b). This west slope lower mixed conifer ecological zone fosters a vegetation composition of canyon live oak (*Quercus chrysolepis*), ponderosa pine (*Pinus ponderosa*), California black oak (*Quercus kelloggii*), Douglas fir (*Pseudotsuga menziesii*), incense cedar (*Calocedrus decurrens*), and sugar pine (*Pinus lambertiana*), with a shrub understory of Mariposa manzanita (*Arctostaphylos viscida* spp. *mariposa*) and deerbrush (*Ceanothus integerrimus*) (Keeler et al. 2012).

Specific tree species near the welcome center complex include black oak, incense cedar, Ponderosa pine, and sugar pine; each of these species is discussed further below. Drought conditions, bark beetle infestations, and root disease infections have increased tree mortality within the park and surrounding area, although forest density is higher than in prehistoric times due to fire suppression. During a limited survey in August 2018, one special-status plant species, Fresno mat (*Ceanothus fresnensis*), was found to occur in the project area. Resource protection measures would include a comprehensive special-status plant survey prior to construction activities (NPS, Demetry, pers. comm. 2018b). Additional species or individual trees may have no formal listing but are considered “high value” because they carry an ecological, historical, scenic, and/or cultural significance within the landscape due to biological

characteristics, their role and relationship in traditional cultural uses and symbolic significance, and their range and abundance in light of population decline. Species widely considered to be of natural beauty and inspiration to a landscape contribute to the overall scenic value of an area and young, vigorous trees that are well positioned provide for future functions of value, such as shade or screening. Great height or growth size and lifespan of a species contribute to a species' value, particularly in light of a decline in species abundance due to disease or drought. High value trees and plants were identified in the project area and include California black oak of any diameter at breast height (dbh), sugar pines with a dbh of 36 inches or more, and other large conifers that contribute shade and screening.

California black oak—The California black oak is a component of the lower montane broadleaf forest and grows at elevations from 200 to 8,000 feet, preferably in acidic soils. California black oak are highly drought tolerant and typically grow from 30 to 80 feet in height and 1 to 4.5 feet dbh. The lifespan of mixed-conifer-California black oak stands range from 58 to 356 years. The typical lifespan of individual California black oaks is 100 to 200 years. The lack of regeneration among oak species has been a biological and cultural concern since the early 1900s. Sprouting and regeneration post-fire are the primary reproduction methods of oaks, although in recent decades, the number of mature oaks outweigh seedlings and saplings. Commonly studied causes of this decline in regeneration are the arrival of European Americans to Yosemite Valley and the shift from traditional landscape management practices of American Indian groups to European-American development and management practices. Other factors observed to contribute to the decline in California black oak species abundance include increasing competition with nonnative species and heavy seedling browsing from overabundant deer populations. (USFS 2007) (Kuhn and Johnson 2008).

NPS recognizes California black oak trees in the park as a valued biological, cultural, and scenic resource. Historically, the Miwok actively managed the California black oak stands in the Yosemite Valley to support a successful acorn harvest by burning or hand pulling to discourage conifer encroachment and undergrowth, controlling the deer population, and planting selective species. California black oak acorns were an important part of American Indians diets. Federal government policy that favored the removal of American Indian residents from national park system lands and vegetation clearing for new development led to a decline in species abundance. The California black oak, a component of the Yosemite ecosystem, remains closely tied to contemporary and traditionally associated American Indians, as a unique and fundamental source of culture and heritage. The tree is a symbol of ancestral traditions, and its significance persists through multi-generational connections, ceremonial events, and gatherings (NPS 2014).

The California black oak acorn also plays a foundational role in the diets of various animals, including bears, deer, woodpeckers, and squirrels in the fall and winter when other food sources are not available. In addition, California black oaks provide an important habitat element for sensitive species, including the California spotted owl (*Strix occidentalis*) and the fisher (*Pekania pennanti*). California black oak stands are also associated with various fungi, including mycorrhizal species that help to exchange carbon, nitrogen, and water within soils and among plants. They also create heterogeneity of species and habitat and contribute to ecosystem resiliency (Hankins 2015).

Incense cedar—The incense cedar is an evergreen tree found in mixed forests throughout mid to high elevations from the Oregon Cascades, through California and western Nevada to Baja, California. Incense cedars in the Sierra Nevada grow best between 2,000 and 6,900 feet in elevation. They are well adapted to extreme temperatures, drought tolerant, and grow in a variety of soil types, although they also grow well in sandy loam and slightly acidic soils. The species is also shade tolerant, with seedlings able to establish and persist in a shaded understory as they grow. Incense cedars are able to reestablish quickly following fire. Mixed conifer communities have been observed to return after fire between 8 and 12 years (NPS 1990, 2014). Incense cedars grow to about 66 to 187 feet tall, up to 4 feet in diameter, and can typically live to 500 years old. Incense cedar bark is usually 2 to 3 inches thick, but can grow to 6 to 8 inches in older trees. The bark is thick, fibrous, and furrowed. Its root system is wide spreading, with new roots

branching laterally and downward, and sometimes growing upward within 1.2 inches of the soil surface (Tollefson 2008). Historically, the American Indian tribes and bands who occupied the Yosemite area used these trees as an integral part of their livelihood, culture, and traditions. These conifers provide shelter in the winter and nesting sites in the winter for wildlife (Tollefson, 2008; The Wild Garden 2016).

Ponderosa pine—The Ponderosa pine occurs in mixed forests at elevations of 3,000 to 9,000 feet and grows on dry mountain slopes throughout the western United States. Ponderosa pines typically grow from 60 to 130 feet tall in areas of nutrient-poor soils. They have been used in studies focused on climate variability and fire history because of their sensitivity to air pollution and fire resiliency (NPS 2015c).

Sugar pine—The sugar pine typically occurs in forests above 4,000 feet in Yosemite and grows in well-watered flats and cool and moist northerly slopes. The sugar pine grows between 98 and 164 feet tall and produces the longest cone of any conifer, at 9–20 inches when open. The tree is susceptible to a fungal disease known as white pine blister rust (*Cronartium ribicola*) and dwarf mistletoe (*Arceuthobium californicum*). The species has been studied since the late 19th century and has been used as valuable source of lumber. Logging and disease have been observed in the species, resulting in mortality outweighing regrowth rates (The Gymnosperm Database 2017). Sugar pines are in decline in the Sierra Nevada, which makes existing trees of particularly high value.

Nonnative plant species—Approximately 200 nonnative plant species identified in the park are primarily in the lower to mid-elevations forests. Previous invasive species mapping of the park's lower montane forests, where the welcome center complex is located, identified Himalayan blackberry, velvet grass (*Holcus lanatus*), black locust (*Robinia pseudocacia*), bull thistle (*Cirsium vulgare*), spotted knapweed (*Centaurea maculosa*), and cheatgrass (*Bromus tectorum*) (NPS 2010). The primary concern for these populations is their potential to spread. In 2011, NPS implemented a revision to the 2008 *Invasive Plant Management Plan* to detect and control or eradicate these and other invasive, nonnative plants (NPS 2011).

Special-status plant species—The park maintains a list of special-status plant species, also known as species of conservation concern. The list comprises 151 taxa that includes 4 state-listed species, 13 US Forest Service sensitive taxa, and 62 taxa listed by the California Native Plant Society, a non-governmental organization widely accepted as the standard source of information on the rarity and endangerment status within the California flora. The remaining species on the park list are included for reasons of distribution and their contribution to the biological diversity of the park (Moore et al. 2010). An initial survey of the entrance station vicinity found two individuals of Fresno mat, a California Native Plant Society list 4 species (a watch list of species of limited distribution or infrequent throughout a broader area in California). These individuals were in the median of the parking area and were likely planted. As a mitigation measure, a comprehensive survey including areas of utility line trenching would be conducted prior to construction in 2019.

High value trees were identified during an August 30, 2018, site visit among the vegetation surrounding the visitor information station, comfort station, and campground reservations office. These trees include four Ponderosa pines, seven sugar pines, three incense cedars, and seven black oaks. The majority of the high value sugar pines (>36-inch dbh) are dispersed on the west side of the buildings and along the southern portion of the project area. The east side of the buildings and the median contain the black oaks (8–10 inches dbh). Ponderosa pines (20–36 inches dbh) are found all along the project boundary. Incense cedars (14–48 inches dbh) are clustered on the west site of the buildings. Eight small diameter incense cedars were observed near the proposed staff parking area. A survey was not completed for the utilities alignment; however, a similar mix of trees, dominated by incense cedars, is likely present.

Environmental Consequences - Methodology

This analysis is based on an assessment of vegetation in the project area and the effects anticipated from construction and continued use of the area as a welcome center complex.

The essential qualities of plant communities include their spatial extent, integrity of species composition, association with other natural resources, and vigor in terms of growth and reproduction. Actions that reduce or degrade these qualities are considered to have adverse impacts; actions that preserve, restore, or enhance these qualities have beneficial impacts. Beneficial effects would cause no detrimental effect and would result in an increase in rare species or habitat components, native ecosystem processes, native species richness or diversity, or native habitat quantity and quality. Impacts can be direct (an immediate result of the action) or indirect (resulting from the action but occurring later in time or removed from the location of direct physical impacts). The duration of an impact considers whether the impact would occur in the short term (temporary) or over the long term (permanent).

Nonnative species can alter soil chemical and physical properties, hamper native species establishment, and ultimately affect native plant community structure and function. This impact analysis considers whether the alternatives would favor the establishment of nonnative species, as well as the ability to contain and reverse nonnative plant infestation.

Environmental Consequences of the No Action Alternative

Analysis. Under the No Action Alternative, the welcome center complex would remain in its current location and continue to use the existing buildings. The parking layout would not be reconfigured, and the footprint of the welcome center complex would remain the same. Existing utilities or communications equipment would not be improved, with the exception of emergency repairs and routine and periodic maintenance activities. No trees or vegetation would be removed or altered, outside routine maintenance or as hazard trees are identified. Overall, there would be continued localized adverse impacts as hazard trees are identified and removed; however, there would be no new impacts on vegetation under the No Action Alternative.

Cumulative Impacts. Because there would be no new impacts on vegetation under the No Action Alternative, there would be no cumulative impacts.

Environmental Consequences of the Proposed Action Alternative

Analysis. Construction activities under the Proposed Action Alternative at the welcome center complex would disturb up to 1 acre, much of which (i.e., approximately 0.7 acre) is previously disturbed and/or existing impervious surface.

There are currently 23 high value trees and 2 rare shrubs within the project area. Approximately 70 trees would need to be removed to accommodate the building footprint and staff parking area, but no more than 10 of these trees are high-value. NPS would strive to avoid as many high value trees wherever possible. To comply with fire safety requirements, surface fuels (loose litter on the soil surface, such as fallen leaves or needles, grasses, forbs, low and medium shrubs, tree seedlings, heavier branches, and downed logs) within a 10-foot buffer of the building would be removed. Ladder fuels would be thinned within a 100-foot buffer surrounding the welcome center complex, retaining high value trees. Design and construction of the welcome center complex may require the removal of a Ponderosa pine and a few incense cedars (>24-inch dbh). A black oak tree, located on the northern edge of the median, would likely be trimmed to improve visitor views of the welcome center and comfort station; this tree would not be removed. One small diameter black oak (8–10-inches dbh) would be removed with explicit approval of the park botanist and the cultural resources program manager. Construction of the staff parking lot would remove 8 small diameter (14–24-inches dbh) incense cedars; the 8 trees removed at this location are

included in the total of 70 trees that would need to be removed. NPS would consult with associated Tribes on use of any trees that may be removed as part of the project. Repurposing the wood (e.g., chipping for mulch, campfire wood, milled for timber) would be explored.

Installation activities (e.g. trenching) for a new gravity sewer conveyance pipeline extension along the existing utility alignment from Hodgdon Meadow Campground to the welcome center complex may affect tree roots. Areas of trenching outside Tuolumne Grove Road would be small and mostly follow the existing utility alignment. The pipeline extension would be installed about 10 feet from the existing water line (where Tuolumne Grove Road hits a topographic peak, the pipeline would be installed using a horizontal directional bore to avoid excavation of 15 to 25 feet of material along the roadway). Trees removed would not be of special status and would not alter forest structure or function in the project area.

Short-term impacts on vegetation during construction activities throughout the project area could include inadvertent vegetation crushing and soil compaction. Such impacts would be short term, and vegetation is expected to recover after construction activities. Adherence to resource protection measures described in Appendix A, including continued consultation with the park ecologist and forester, would minimize potential impacts on trees and understory vegetation and potential root damage from soil compaction.

Indirect effects of construction activities would include the potential for nonnative plant establishment and spread. Implementation of standard resource protection measures described in Appendix A would reduce the potential for nonnative plant dispersal.

Overall, while approximately 70 trees in the project area would be removed, the majority of those trees would be small diameter incense cedars that colonize and grow quickly. While no more than 10 trees that may be considered high value would be removed, the design of the welcome center complex would strive to avoid removing as many high value trees as feasible. The removal of approximately 70 trees would not noticeably alter the Big Oak Flat Entrance area or Mather District and would not alter or fragment habitat. Overall impacts on vegetation would be localized and would not alter the composition of plant species at the site.

Cumulative Impacts. Past and present projects that would affect vegetation in the project area include the 2011 Hodgdon Meadow wastewater improvements, implementation of the 2008 *Yosemite Invasive Plant Management Plan EA* and the 2010 update; ongoing communications data network system upgrades, future replacement and unification of the operations of Mather District Emergency Services and Law Enforcement Office; and future projects to rehabilitate the Hodgdon Meadow water distribution system to restore capacity and reduce failures. These actions would potentially result in temporary and permanent impacts on vegetation within the project area, including removal of trees in areas, where needed, for installation of new facilities and/or construction access. Relative to the total vegetation within and in the vicinity of the project area, and with adherence to mitigation measures specific to each project, these adverse impacts would be reduced. Potential actions under the park's 2010 *Invasive Plant Management Plan Update* would enhance and protect native vegetation in the project area and thus would have localized, long-term, beneficial impacts on vegetation. When combined with the adverse impacts associated with tree removal under the Proposed Action Alternative, cumulative impacts on vegetation would be long term and adverse, with the Proposed Action Alternative contributing a small adverse increment.

VISITOR USE AND EXPERIENCE

Affected Environment

Big Oak Flat is often one of the busiest entrances to the park and welcomes more than 1 million visitors traveling from the west and north each year (Otak 2017), more than a quarter of the 4.5 million people who visited the park in 2017 (NPS 2017a). Visitors entering through the Big Oak Flat Entrance often

originate from the Sacramento and San Francisco Bay areas. Some of these visitors continue their travels over the Tioga Pass to the eastern side of the park. Located approximately 24 miles from Yosemite Valley, a primary destination for most incoming park visitors, the welcome center complex allows visitors to exit their vehicles, use the facilities, and plan their next steps in enjoying the variety of recreational opportunities within the park, such as hiking, camping, sightseeing, photography, and rock climbing. In addition to wayfinding and orienting themselves in the park, visitors stop at the welcome center complex to ask general questions, reserve campgrounds, acquire wilderness permits, and inquire about camping in the park and the surrounding area. In contrast to operations of a visitor center, the welcome center complex does not provide interpretation and educational programs.

The welcome center complex offers four types of seasonal visitor services, including a wilderness permit program, campground reservations, park partner retail sales, and information and trip planning. The wilderness permit program, information and trip planning services, and the Yosemite Conservancy bookshop are operated by staff and volunteers in the welcome center. Campground reservations and information are provided in the campground reservations building, which is separate from the visitor information station. These services operate from May through mid-October from 8:00 a.m. to 5:00 p.m. The comfort station remains open for visitors throughout the year. Mather District Law Enforcement Office staff operate year round from the visitor information station. The entrance kiosks are staffed 365 days per year but not 24 hours per day. The majority of visitation through the Big Oak Flat Entrance occurs from May through October (NPS 2017b).

The current layout of the visitor information station does not provide adequate space for visitors and park staff to stand and discuss park information clearly and efficiently. The limited floor, desk, and service counter space have made it necessary to combine service work areas, such as information and trip planning or wilderness permits. During times of high visitation, park staff stand shoulder to shoulder when providing services to visitors. These constraints lead to crowding and long lines, which ultimately increase the amount of time it takes visitors to receive important park and recreation information. Lack of signage for these core functions often confuses visitors when determining where to go or which line to stand in to address their needs. Combining visitor services at one desk does not meet the park program needs but has occurred because of limited space and building arrangement. For example, a glass desktop and panel signage are necessary visual aids for staff issuing and discussing wilderness permits with visitors, but there is no additional space for these communication tools. Limited employee shared and private workspace in the building, as well as disjointed park operations across multiple buildings, impede park employees from efficiently servicing visitors and completing park interdepartmental functions. Offsite storage and lack of telecommunication technologies (high-speed internet and individual desk phones) further hinder park staff from quickly servicing the high number of visitors this entrance receives.

The campground reservations office is located just north of the visitor information station and comfort station. Park staff and volunteers of the campground reservations program help visitors by providing information about camping in the park and food storage to protect wildlife, as well as addressing general needs and questions. Staff workspace to process campground fees is confined and unsecure. Wayfinding for visitors is unclear, and the available office space cannot accommodate the high volume of visitors. The limited space creates a stressful and hectic environment for both visitors and staff.

Operation and performance of the comfort station septic tank and leach field system has been steadily decreasing. This decreasing performance causes malfunctions, including closure of individual stalls, and foul smells for visitors and park staff. The existing three stalls for each gender do not accommodate the frequency and number of visitors stopping at the welcome center complex. Long lines to use the facilities form, and crowding in the area increases during periods of high visitor use.

Traffic congestion is an important consideration for park visitors. In 2017, the majority of visitors to the park traveled by private vehicle (94%), while 6% traveled by bus service or commercial tour/school bus (NPS 2018c). A 2017 traffic count survey of the Big Oak Flat Entrance found that traffic counts peaked in

August at 72,143 vehicles, closely followed by June and July at 70,602 and 62,000 vehicles, respectively (NPS 2017c). Bus transportation within the park includes public transportation, charter and tour bus operators, concessioner-operated tours, and NPS shuttle bus services. The Yosemite Area Regional Transportation System (YARTS) is a transit system providing public transportation services in and out of the park. YARTS has an inbound and outbound stop at the Big Oak Flat Entrance median and across Big Oak Flat Road, allowing for an approximate 5-minute unload and load period, three times a day, during six months out of the year. YARTS is more often used by commuting park staff, although use by visitors is increasing because YARTS stops are established and encouraged at the surrounding area's lodges and hotels. The welcome center complex parking area is on a first come, first served basis. Cars entering the park often stop just before the median to decide whether to enter the welcome center complex, disrupting the flow of incoming traffic.

The welcome center complex parking area is located upslope of the Big Oak Flat Entrance kiosks, on the west side of the entrance road. As vehicles arrive, 22 parking spots are in front of the visitor information station and comfort station, including a single accessible space. Eight parallel spaces along the west side of the median are also available. The number of designated parking spots is inadequate at peak times relative to the high number of visitors entering from the Big Oak Flat Entrance. Frequent congestion at peak times in the parking area often causes visitors to park in unsanctioned areas along the east side of the median and along the paved sidewalk of the visitor information station. Illegal double parking and blocking of NPS vehicles contributes to the already congested parking area during peak visitation times. A paved sidewalk begins at the entrance kiosks and extends to the southern edge of the parking area. No paved sidewalks or pathways are available along the east side of the median or entrance road. Visitors and staff walking from the nearby campground and to and from the inbound and outbound YARTS stops create pedestrian traffic across the entrance road and parking lot. No painted crosswalk traversing Big Oak Flat Road exists for pedestrians to cross safely to access park services. The high number of visitors walking throughout the parking area and along the edges of the welcome center complex, combined with the congested overflow of parked vehicles and continuous stream of moving vehicles on the entrance road, creates a hazardous environment for pedestrians. The current parking area configuration does not provide adequate space for large recreational vehicles and buses. During brief stops, many of these large vehicles block designated parking areas, including partially blocking the entrance road itself. Current park permits for commercial buses allow a vehicle to stop at the welcome center complex but do not permit its riders to use the restrooms. Park staff and volunteers have observed bus passengers using the comfort station despite the fact that no designated bus service or commercial tour/school bus parking area is available.

Environmental Consequences - Methodology

The analysis of impacts on visitor experience is based on whether there would be a change in access to or availability of visitor complex services, a change in the quality of visitor experience, or a change in safety. This analysis considers the experience of visitors and park staff at the welcome center complex in terms of visitor density, crowding, efficiency of visitor services, adequate restrooms, parking availability and accessibility for all park visitors, traffic congestion, and safety. Impacts were evaluated in terms of whether they would be beneficial or adverse to visitor experience. Beneficial impacts would enhance visitor participation and the quality of the visitor experience. Adverse impacts reduce visitor participation or the quality of the visitor experience. The duration of an impact considers whether the impact would occur in the short term (temporary) or over the long term (permanent).

Environmental Consequences of the No Action Alternative

Analysis. Under the No Action Alternative, the welcome center complex would not be replaced and visitors and staff would continue to rely on a septic system that is past its useful life. The existing septic

system's reliability and function would decrease over time, and performing emergency repairs in response to sanitary sewer overflows and overloading of the septic tank and leach field would cause temporary, unplanned closure of restroom facilities until resolved. This would disrupt the flow of park services and negatively affect visitor experience until the Hodgon septic system is connected. Under the No Action Alternative, visitors would continue to experience crowding in the visitor information station and campground reservations building and unclear wayfinding throughout the welcome center complex. Traffic congestion and hazardous situations for pedestrian crossing would continue. Visitor experience, services, and safety would remain in their current condition, and the existing comfort station would continue to not meet current demand and require emergency maintenance. Overall, the No Action Alternative would continue long-term, adverse impacts on visitor experience but would result in no new impacts on visitor use and experience.

Cumulative Impacts. Because there would be no new impacts on visitor use and experience, there would be no cumulative impacts.

Environmental Consequences of the Proposed Action Alternative

Analysis. Constructing a new welcome center complex, reconfiguring the parking area, and updating the utility system would have a local, short-term, adverse impact on visitor experience because of construction noise, increased traffic from construction personnel, and full closure of the welcome center complex for up to two visitor seasons. During the construction period, visitor services provided at the Big Oak Flat welcome center complex would be provided in a different location, potentially in Groveland, outside the park boundary. The comfort station would be closed during this time, which could be an inconvenience to park visitors. Alternative restroom facilities or temporary toilets would be provided during the summer season. Under the Proposed Action Alternative, visitor services and experience would improve after construction of the welcome center complex, which would include a new comfort station with nine stalls for women, four stalls and three urinals for men, and a family restroom; a 5,000 to 7,000 SF plaza; a new welcome center building with increased wayfinding, park signage, and counter service space; and reconfigured parking areas for both visitors and park staff.

Under the Proposed Action Alternative, private vehicle parking spaces at the welcome center complex would increase from 22 to approximately 42, with 4 additional parking spaces for larger private vehicles. A separate dedicated parking lot for park employees with 10 spots would be constructed. This would free up more parking spaces for visitors that would otherwise be used by park staff at the welcome center complex. Providing additional parking space would reduce parking congestion in the parking area, reduce visitor parking in unsanctioned areas, and increase visitor and park staff safety by easing pedestrian and vehicle conflicts. More visitors would be able to easily access the welcome center complex for a more accommodating and efficient experience as they enter the park. Parking and pedestrian accessibility and safety would be improved by adding a crosswalk across the Big Oak Flat Road. Visitors would be able to cross the entrance road safely for easy access to the welcome center complex. Relative to the high number of visitors who visit the park, the Proposed Action Alternative would affect the use and experience of all visitors entering the park at this entrance, including visitors driving past the welcome center complex on the entrance road.

The comfort station would be connected to a modern leach field system that would centralize treatment at a larger capacity. Lines for the comfort station would be reduced, alleviating stresses during peak visitation times. The installation of a new gravity sewer conveyance pipeline extension to the sewer system at Hodgon Meadow would result in increased functionality and operation of the comfort station facilities. A water and bottle refilling station would create a convenient and efficient space for visitors to hydrate and refill their water bottles.

The plaza would be approximately 5,000 to 7,000 SF to provide flexible park and visitor use. Increased outdoor space and improved informational platforms would make park and outdoor self-service

information more readily available for visitor use at all times even when the building is closed and in the off-season. The plaza would include educational and informational displays; potentially host wilderness and wildlife safety information sessions; and provide information on recreational opportunities within the park, park points of interest, and orientation and wayfinding documents. The plaza would also provide covered areas for seasonal park and visitor uses. This action would improve visitor use and experience by creating clear paths to park services located inside the new welcome center and more open space for information and trip planning between the welcome center and comfort station. More walkable space would reduce crowding that occurs in the existing welcome center complex layout. Improved wayfinding and park signage would further contribute to easy visitor navigation for park services as visitors enter the complex. Design of the proposed welcome center would provide more standing and walking space, allowing staff to more easily communicate with visitors about important park information and increase the efficiency of park services, such as wilderness permitting and campground reservations.

Overall, impacts on visitor use and experience under the Proposed Action Alternative would be adverse and local in short term during the construction period and beneficial in the long term because of the overall improvements to circulation, accessibility, size, and design of the welcome center complex.

Cumulative Impacts. Past, present, and reasonably foreseeable future projects that would affect visitor use and experience within the project area include the 2007 Hodgdon Meadow entrance complex generator installation, 2011 Hodgdon Meadow wastewater improvements, 2011 Big Oak Flat Road Chip Seal (El Portal Road to Hodgdon Meadow), development of the 2015 Yosemite Rush Creek Lodge, and ongoing communications data network system upgrades. These actions have resulted in long-term, beneficial impacts on visitor use by enhancing park services with updated communication and network services, an additional private resort, improved road conditions, and power and wastewater system updates. The 2011 Hodgdon Meadow wastewater improvements provided an updated septic system and leach field designed to accommodate the high use needs of the area. Under the Proposed Action Alternative, installing a gravity sewer conveyance pipeline extension to a larger capacity, modern leach field system would contribute additional beneficial impacts to visitor use and experience by decreasing long lines and reducing foul smells. Redesigning the welcome center complex would contribute beneficially to the overall efficiency of park staff addressing visitor needs and questions. The Proposed Action Alternative would contribute noticeable beneficial impacts, resulting in overall beneficial cumulative impacts.

CHAPTER 4: CONSULTATION AND COORDINATION

This chapter describes the agency consultation and coordination process and public involvement. In addition to agency and public input, internal scoping helped guide NPS in developing alternatives and identifying issues discussed in this EA. This chapter provides a detailed list of consultation steps taken and outcomes of the consultation and coordination process thus far.

PLANNING AND PUBLIC INVOLVEMENT

Public Involvement

NPS initiated public scoping for the EA on May 5, 2018. Project information was posted to the park's Planning, Environment, and Public Comment (PEPC) website and sent to stakeholders by email. The public scoping meeting for the project was held on May 18, 2018, at the Rush Creek Lodge, 34001 Highway 120, Groveland, California, from 3:00 p.m. to 5:00 p.m.; 6 people signed in to the meeting. During the public scoping period, 16 pieces of correspondence were received. Fourteen correspondences were received through the PEPC system, and 2 were submitted via letter.

The EA will be open to formal public and agency review for 30 days. Interested individuals, agencies, and organizations will be notified of its availability, and a news release will be distributed. The document will be available for public review on the NPS PEPC website at <https://parkplanning.nps.gov/BigOakFlatEntrance>. After the park considers public comments and concludes agency consultation, it anticipates releasing a decision document for the project before February 2019.

ISSUES AND CONCERNS ADDRESSED IN THIS DOCUMENT

The following issues and concerns were identified during the public scoping process and are addressed in this document:

- Enlarge the campground office and include an employee restroom.
- Include adequate breakroom and/work/meeting space for staff and proper storage areas.
- Provide a trail from Hodgdon to the welcome center complex so employees can park at the maintenance area and walk to the welcome center complex.
- Include a longer counter in the visitor information station so multiple visitors can be served at once.
- Split up the location of services within the visitor information station to alleviate noise issues when talking with visitors.
- Include stations for smoking and water bottle filling.
- Include a designated location for trash and recyclables.
- Provide current fire information.
- Address initial questions before entering the visitor contact station (e.g., "Where am I?" "How far is it to the Valley?").
- Install an interactive map that can illuminate routes to various destinations with estimated drive times.
- Provide public transit information, including public transportation and park shuttle locations.

- Include appropriate signage for non-English speaking visitors, including space for staff and volunteers to help non-English speaking visitors find campground accommodations.
- Include an electronic messaging device.

ISSUES AND CONCERNS BEYOND THE SCOPE OF THIS EA

The planning team considered the following issues during public scoping, but determined they were outside the scope of this EA because they would not meet the purpose and need of the proposed action, including altering the existing entrance kiosks and flow of traffic inbound and outbound, or providing additional transportation options.

- Include an express lane for parks pass holders, groups, and buses.
- Use all three entrance lanes eastbound.
- Include more low-budget accommodations in Yosemite Valley.
- Provide express parking spots at all major visitor locations.
- Provide express buses from Sacramento.
- Automate the entrance system.
- Provide cell service at Big Oak Flat, including text message alerts.
- Expand the parking area near the park entrance sign.

AGENCY CONSULTATION

California State Historic Preservation Office

In accordance with 36 CFR Section 800.8(a)(1), NPS coordinated the NEPA compliance process with the section 106 process for the Big Oak Flat Welcome Center Complex Replacement Project. On April 23, 2018, the park initiated section 106 consultation with the California SHPO by providing a description of the undertaking and notifying the SHPO that the park was preparing an EA to replace the Big Oak Flat welcome center complex and intended to coordinate the NEPA and section 106 compliance processes consistent with 36 CFR Section 800.8(a)(1). The park updated the description of the undertaking and is requesting the California SHPO's comments on the park's identification of the area of potential effects and historic properties. The park is submitting two National Register DOEs with a finding of ineligibility for the Big Oak Flat Entrance Station as a Mission-66 resource and archeological remnants of historic logging operations. It is requesting concurrence on assumed eligibility for the Hodgdon Meadow Campground and the portion of the Big Oak Flat Road within the project area. Consultation with the California SHPO is ongoing and will be documented in the decision document for this EA.

Tribal Consultation

Tribal consultation is ongoing throughout the EA and design process. The park hosted a meeting in Mariposa on June 25, 2018, to present the project and solicit comments from the tribes and groups traditionally associated with the project area. The meeting was attended by representatives from the Tuolumne Band of Me-Wuk Indians, the American Indian Council of Mariposa County, Inc., North Fork Rancheria of Chukchansi Indians, and Tuolumne Band of Me-Wuk Indians. Tribes in attendance were supportive of the project but encouraged the park to avoid developing undisturbed lands as part of this project. They expressed the desire to continue consultation on the project, participate in a site visit, and remain informed of progress in the project planning process. A site visit with representatives from the

Tuolumne Band of Me-Wuk Indians and the American Indian Council of Mariposa County, Inc. occurred on October 11, 2018. Representatives were supportive of the project and suggested providing park visitors with information on tribes, ecology, and ecosystem health, including information on the forest surrounding the project area. The representatives did not have an issue with tree removal associated with the project, including removal of one black oak in the project area, noting that it is small and unhealthy. One representative noted that Wahoga may be able to use any incense cedars that would be removed. NPS confirmed that it will consult with all tribes on the use of any trees removed as part of the project.

US Fish and Wildlife Service

In accordance with 16 USC 1531 et seq., the park generated a species list for the project from the US Fish and Wildlife Service's Information for Planning and Conservation webpage on October 22, 2018. There is no designated critical habitat in the project area. On November 8, 2018, the park provided an internal draft copy of the EA for review and notified the US Fish and Wildlife Service of the determination that the proposed action would have no effect on the species listed for the project: California red-legged frog, Sierra Nevada yellow-legged frog, Yosemite toad, or Delta smelt.

CHAPTER 5: REFERENCES

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APPENDIX A: RESOURCE PROTECTION MEASURES

To help ensure that field activities protect natural, cultural, and social resources and the quality of the visitor experience, mitigation measures have been developed. The following section discusses mitigation measures that would occur prior to, during, and after construction of specific management actions.

Topic	Resource Protection Measures	Responsibility
A. General Construction Management Measures		
A.1 General Construction Management	<p>All Contractor and subcontractor employees shall receive a brief orientation about working in Yosemite National Park (park) prior to actually performing work. The orientation describes the efforts to be taken by the Contractor and subcontractor employees to protect the natural, cultural, and physical resources of the park while working on this and other projects. This orientation also describes mitigation and other environmental protection measures that must be adhered to at all times while in the park.</p> <p>All Contractor and subcontractor employees shall view a government-provided orientation video to ensure each is fully aware of the natural and cultural resource protection and mitigation requirements of work at the park. Government staff will provide the initial orientation. Subsequent ongoing awareness orientation for new employees and when site conditions change shall be performed by the Contractor and integrated into construction operation procedures.</p> <p>The Contractor shall maintain a manifest tracking all contractor personnel, when they received their orientation training, and when they started work. Contractor personnel shall be field identifiable as having received their orientation training by means of a readily visible sticker on their hard hat.</p> <p>Prior to entry into the park, Contractor shall steam-clean heavy equipment to prevent importation of non-native plant species, tighten hydraulic fittings, ensure hydraulic hoses are in good condition and replace if damaged, and repair all petroleum leaks. Inspect the project to ensure that impacts stay within the parameters of the project area and do not escalate beyond the scope of the environmental assessment, as well as to ensure that the project conforms to all applicable permits or project conditions. Store all construction equipment within the delineated work limits.</p> <p>If deemed necessary, demolition/construction work on weekends or federal government holidays may be authorized, with prior written approval of the Superintendent.</p> <p>Contractor shall remove all tools, equipment, barricades, signs, surplus materials, and rubbish from the project work limits upon project completion. Contractor shall repair any asphalt surfaces that are damaged due to work on the project to original condition and remove all debris from the site, including all visible concrete, timber, and metal pieces.</p>	Yosemite National Park; Contractor

Topic	Resource Protection Measures	Responsibility
A.1 General Construction Management (Continued)	<p>The park shall develop a Communications Strategy Plan to alert necessary park and Concessioner employees, park partners, residents and visitors to pertinent elements of the construction work schedule.</p> <p>Contractor shall verify utility locations by contacting the Underground Services Alert prior to the start of construction.</p> <p>The Contractor shall provide protective fencing enclosures around construction areas, including utility trenches to protect public health and safety.</p> <p>NPS will apply for and comply with all federal and state permits required for construction-related activities.</p> <p>Contractor and NPS shall implement compliance monitoring to ensure that the project remains within the parameters of National Environmental Policy Act (NEPA) and National Historic Preservation Act (NHPA) compliance documents.</p> <p>Develop an emergency notification plan that complies with park, federal, and state requirements and allows contractors to notify park, federal, and/or state personnel in the event of an emergency during construction. This plan will address notification requirements related to fire, personnel, and/or visitor injury, releases of spilled material, evacuation processes, etc. and will be submitted to the park for review/approval prior to construction activities.</p> <p>Notify utilities prior to construction activities and identify locations of existing utilities prior to construction to prevent damage to utilities. The Underground Services Alert and NPS maintenance staff will be informed 72 hours prior to any ground disturbance. Construction-related activities will not proceed until the process of locating existing utilities is completed (water, wastewater, electric, communications, and telephone lines). An emergency response plan will be required of the Contractor.</p>	Yosemite National Park; Contractor
A.2 Design	In accordance with the NPS Denver Service Center's Workflows, the standard business practices outlining the requirements for general, predesign, schematic design, design development, and construction documents shall be followed (www.nps.gov/dscw/design.htm).	National Park Service
A.3 Construction	In accordance with the most current version of the park's Division 1 Specifications (also referred to as General Requirements for Construction), the standard business practices outlining the requirements for Summary of Work; Seismic Requirements; Definition of Bid Items; Project Meetings; Critical Path Method Construction Schedule; Project Schedules (small and large projects); Submittal Procedures; Submittals; Natural, Cultural, and Physical Resources Protection; Storm Water Pollution Prevention Measures; Accident Prevention; Reference Standards; Contractor Quality Control; Temporary Services and Controls; Field Support Offices; Traffic Control; Product Substitutions and Variations; Material and Equipment Handling and Storage; Field Engineering; Project Closeout; Operation and Maintenance Data; and, System Start, Demonstration and Training shall be incorporated into all construction requirements documents (plans and specifications).	National Park Service

Topic	Resource Protection Measures	Responsibility
A.4 Design Guidelines	<i>A Sense of Place: Design Guidelines for Yosemite National Park</i> shall be followed to ensure that park facilities are designed to be compatible with the existing resources.	National Park Service
A.5 Design Approvals	All final construction documents (plans and specifications) will be approved by the Park Superintendent prior to implementation.	National Park Service
A.6 Pre- Construction	In accordance with the NPS Denver Service Center's Workflows, the standard business practices outlining the requirements for a SharePoint Project Website, Permits, Accident Prevention & Blasting Safety Plans, Division 01 Management Plans, Baseline Construction Schedule, the Schedule of Values and the Pre-Construction Conference shall be followed (www.nps.gov/dscw/design.htm).	National Park Service
A.7 Construction	In accordance with the NPS Denver Service Center's Workflows, the standard business practices outlining the requirements for Submittals, Coordination, Documentation, Tracking, Modifications, Beneficial Occupancy & Milestone Inspections, Closeout Submittals, and Substantial Completion shall be followed (www.nps.gov/dscw/design.htm).	National Park Service
A.8 Post- Construction	In accordance with the NPS Denver Service Center's Workflows, the standard business practices outlining the requirements for the Construction Contractor's Performance Evaluation, Draft Completion Reports (Fixed Assets), and Demobilizing Field Office (s) shall be followed (www.nps.gov/dscw/design.htm).	National Park Service
A.9 Pre- Construction and Construction	Design the utility trench and directional drilling to allow subsurface flows to continue unimpeded, without creating an underground dam. Do not allow asphalt as backfill material.	National Park Service
A.10 Construction timing	NPS will limit the operating period for construction to daylight hours. No on-site work shall be performed between the hours of 7:00 p.m. and 7:00 a.m., unless approved by the Contracting Officers Representative (COR) or other designee and park wildlife biologist. No machinery shall be operated in visitor use areas before 9:00 a.m. without prior approval of the COR (or other designee). Visitor Use Areas shall be indicated on Contractor drawings.	Yosemite National Park; Contractor

Topic	Resource Protection Measures	Responsibility
A.11 Construction Vehicles and Equipment	<p>Construction vehicles will be confined to established roadways and pullouts, pre-approved access roads and turnouts, and project work areas. All construction vehicles, equipment, and materials shall be parked or stored in designated staging areas or parking areas. Park resources staff (natural and cultural) shall review and approve proposed staging areas prior to use for construction equipment and materials.</p> <p>Construction vehicles and passenger vehicles transporting construction personnel to work sites will observe a 25 mile per hour (mph) speed limit on all roads and access routes in the project area. No off-road travel will be permitted except for equipment and vehicles necessary to carry out the specific construction activities required in the construction footprint.</p> <p>All equipment will be maintained to avoid leaks of automotive fluids, such as fuels, solvents, or oils. Staging and storage areas for equipment, materials, fuels, lubricants, and solvents shall be located more than 100 feet from stream channel and banks. All equipment and fuel stored on-site shall be bermed to contain any spilled material and shall be protected from rain. Berms shall consist of plastic covered dirt or sand bags.</p>	Contractor
B. Soils and Geohazards		
B.1 Soils Management	<p>The Contractor shall confine all earth-moving activities to within the work limits as defined in the site plans. The displacement of soil or other materials outside the defined limits shall be approved by the COR (or other designee).</p> <p>Landscape: Landforms and other landscape features indicated and defined on the drawings to be preserved shall be clearly identified by marking, fencing, or other approved techniques. The Contractor shall restore landscape features damaged or destroyed during construction operations outside the limits of the approved work area.</p> <p>Topsoil shall be salvaged and placed in a separate location from sub-soils and replaced on top of other soils as the trench is backfilled. The location for stock piling soils and other woody materials shall be approved by the contracting officer.</p> <p>Fungal Pathogens In Soil (Root Rot): Soil infected with fungal pathogens shall not be imported into areas that are free of the pathogens. Soils at work sites for this project are assumed to be infected with fungal pathogens; the following procedures must be followed:</p> <ul style="list-style-type: none"> ▲ Any plant material used on the project must be approved by Vegetation and Ecological Restoration to prevent the introduction of non-native invasive plants, phytophthora or other pathogens. The Contractor will present NPS with data, protocols, and testing procedures relating to the prevention of Phytophthora contamination for their proposed plant material (sod, seed, etc.) supplier in advance of purchasing any materials by at least 30 days for approval by NPS botanists or restoration ecologists. 	Yosemite National Park; Contractor

Topic	Resource Protection Measures	Responsibility
B.1 Soils Management (Continued)	<ul style="list-style-type: none"> ▲ Ensure that soil is stored within the construction zone. Should soils be stockpiled outside of the construction zone, ensure that stockpiles are placed outside of areas that do not have the fungal pathogen. Protect stockpiles of infected soil to prevent transport by wind, water, animal, or human traffic. ▲ Clean equipment buckets and tires or hand tools used in areas containing fungal pathogens before moving to or working in unaffected areas. Sterilize saws with a 10% bleach solution or ethanol before using on the project to prevent introduction of root borne pathogens. ▲ Whenever possible, all stumps shall be removed from excavations and disposed of in a legal manner outside of the park boundary. ▲ Stump Treatment when stumps cannot be removed: The treatments following tree removal must be universal throughout the park to avoid inadvertently spreading infection. Eradication of the disease is not possible, but its' spread can be managed. ▲ Conifers: Treat all stumps (>6 inches in diameter in recreational use areas, >12 inches diameter in undeveloped areas) with Sporax within a few days of felling the tree. If a stump is ground, it still must be treated with Sporax, and then covered with soil. If the stump is removed, no chemical treatment is required. Remove all of the root material >3 inches in diameter. Standing trees that have been dead for less than one year must have stumps treated with Sporax once they are removed. ▲ Deciduous: Oaks should be left whenever possible, if the tree must be cut, the entire stump and root system must be removed from the park. Black oak trees may not be removed, except where specifically defined on the drawings, and without explicit approval from the COR (or other designee), the cultural resources program manager, and the park botanist. If a black oak removal is planned for removal, it will be replaced by either the planting of black oak seedlings or acorns at the discretion of the park botanist (see D.4 of this document for mitigation details). ▲ Disturb no more than 15% of the roots for any given tree. ▲ Do not over-water oak trees. ▲ Do not compact soil within drip lines of the tree. ▲ Treatment of infected soils: Remove root material by sifting or sorting soil before backfilling. ▲ Treatment of soils in an annosus zone. Only infected HA areas need to be treated for removal of root material. Standard specification for roots to be removed from disturbed soil: >3 inches diameter or >20 inches in length. Remove ALL stumps from excavation. 	Yosemite National Park; Contractor

Topic	Resource Protection Measures	Responsibility
B.1 Soils Management (Continued)	<ul style="list-style-type: none"> ▲ Do not move soil from infected areas. ▲ Topsoil shall be salvaged and reused in the same place from which it was excavated. If the soil is to be windrowed and used later, it should be sorted for root chunks prior to storage. ▲ Conserve and salvage topsoil for reuse. Materials will be reused to the maximum extent possible ▲ All disturbed soil and fill slopes shall be stabilized in a manner consistent with other provisions of this document. 	Yosemite National Park; Contractor
C. Hydrology and Water Quality		
C.1 Stormwater Pollution Prevention Plan	<p>Contractor shall prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) that designates construction best management practices to be used to control the sources of fine sediment and to capture and filter it before entering the river. The SWPPP shall define the characteristics of the site, identify the type of construction that will be occurring, and describe the practices that will be implemented to control erosion and the release of pollutants in stormwater. At a minimum, the SWPPP shall address the following, as applicable</p> <p>Straw Bales</p> <p>Straw bales are not authorized for use in storm water control at the park. They have the potential to introduce exotic species into the park environment.</p> <p>Diversion Dikes</p> <p>Diversion dikes shall have a maximum channel slope of 2% and shall be adequately compacted to prevent failure. The minimum height measured from the top of the dike to the bottom of the channel shall be 18 inches. The minimum base width shall be 6 feet and the minimum top width shall be 2 feet. The Contractor shall ensure that the diversion dikes are not damaged by construction operations or traffic. Diversion dikes shall be located as shown on the drawings or as needed based on Contractor operations. Location of diversion dikes shall be fully coordinated with cultural and natural environmental protection requirements described in Section 01355, Natural, Cultural, and Physical Resources Protection.</p> <p>Filter Fabric</p> <p>The geotextile shall comply with the requirements of ASTM D 4439, and shall consist of polymeric filaments that are formed into a stable network such that filaments retain their relative positions. The filament shall consist of a long-chain synthetic polymer composed of at least 85% by weight of ester, propylene, or amide, and shall contain stabilizers and/or inhibitors added to the base plastic to make the filaments resistance to deterioration due to ultraviolet and heat exposure. Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected usable construction life at a temperature range of 0 to 120 degrees Fahrenheit (°F). The filter fabric shall meet the following requirements:</p>	Contractor

Topic	Resource Protection Measures	Responsibility																					
C.1 Stormwater Pollution Prevention Plan (continued)	<table><tr><th colspan="3">Filter Fabric for Silt Screen Fence</th></tr><tr><th>Physical Property</th><th>Test Procedure</th><th>Strength Requirement</th></tr><tr><td>Grab Tensile</td><td>ASTM D 4632</td><td>100 lbs. min.</td></tr><tr><td>Elongation (%)</td><td></td><td>30 % max.</td></tr><tr><td>Trapezoid Tear</td><td>ASTM D 4533</td><td>55 lbs. min.</td></tr><tr><td>Permittivity</td><td>ASTM D 4491</td><td>0.2 sec-1</td></tr><tr><td>AOS (U.S. Std Sieve)</td><td>ASTM D 4751</td><td>20-100</td></tr></table> <p>Silt Fence Stakes and Posts</p> <p>The Contractor may use either wooden stakes or steel posts for fence construction. Wooden stakes utilized for silt fence construction, shall have a minimum cross section of 2 inches by 2 inches when hardwood is used and 4 inches by 4 inches when softwood is used, and shall have a minimum length of 5 feet. Steel posts (standard "U" or "T" section) utilized for silt fence construction, shall have a minimum weight of 1.33 pounds per linear foot and a minimum length of 5 feet.</p> <p>Identification Storage and Handling</p> <p>Filter fabric shall be identified, stored and handled in accordance with ASTM D 4873.</p> <p>Maintenance</p> <p>The Contractor shall maintain the temporary and permanent vegetation, erosion and sediment control measures, and other protective measures in good and effective operating condition by performing routine inspections to determine condition and effectiveness, by restoration of destroyed vegetative cover, and by repair of erosion and sediment control measures and other protective measures. The following procedures shall be followed to maintain the protective measures.</p>	Filter Fabric for Silt Screen Fence			Physical Property	Test Procedure	Strength Requirement	Grab Tensile	ASTM D 4632	100 lbs. min.	Elongation (%)		30 % max.	Trapezoid Tear	ASTM D 4533	55 lbs. min.	Permittivity	ASTM D 4491	0.2 sec-1	AOS (U.S. Std Sieve)	ASTM D 4751	20-100	Contractor
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Topic	Resource Protection Measures	Responsibility
C.1 Stormwater Pollution Prevention Plan (continued)	<p>Silt fences shall be inspected in accordance with the below paragraph, Inspections. Any required repairs shall be made promptly. Close attention shall be paid to the repair of damaged silt fence resulting from end runs and undercutting. Should the fabric on a silt fence decompose or become ineffective, and the barrier is still necessary, the fabric shall be replaced promptly. Sediment deposits shall be removed when deposits reach one-third of the height of the barrier. When a silt fence is no longer required, it shall be removed with approval of COR (or other designee). The immediate area occupied by the fence and any sediment deposits shall be shaped to an acceptable grade.</p> <p>Diversion dikes shall be inspected in accordance with the below paragraph, Inspections. Close attention shall be paid to the repair of damaged diversion dikes and necessary repairs shall be accomplished promptly. When diversion dikes are no longer required, they shall be shaped to an acceptable grade.</p> <p>Concrete wash areas shall be located so they do not drain directly into water bodies. If a concrete wash area drains into a water body, catch basins shall be constructed to intercept sediment before it reaches the channels. Concrete wash areas shall be graded, if necessary to avoid the potential for erosion.</p> <p>Inspections</p> <p>The Contractor shall inspect disturbed areas of the construction site, areas used for storage of materials that are exposed to precipitation that have not been finally stabilized, stabilization practices, structural practices, other controls, and area where vehicles exit the site at least once every 7 calendar days and within 24 hours of the end of any storm that produces 0.5 inches or more rainfall at the site. Where sites have been finally stabilized, such inspection shall be conducted at least once every month.</p> <p>Disturbed areas and areas used for material storage that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the SWPPP shall be observed to ensure that they are operating correctly. Discharge locations or points shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles exit the site shall be inspected for evidence of offsite sediment tracking.</p> <p>For each inspection conducted, the Contractor shall prepare a report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the SWPPP, maintenance performed, and actions taken. The report shall be furnished to the COR (or other designee) within 24 hours of the inspection as a part of the Contractor's daily CQC Report. A copy of the inspection report shall be maintained on the job site.</p>	Contractor

Topic	Resource Protection Measures	Responsibility
C.2 Non-Hazardous Liquid Waste Management	<p>Wastewater from construction activities, such as onsite material processing, concrete curing, foundation and concrete clean up, water used in concrete trucks, forms, etc. shall not be allowed to enter waterways or to be discharged prior to being treated to remove pollutants. The Contractor shall dispose of the construction related wastewater off Government property in accordance with all federal, state, regional and local laws and regulations.</p> <p>Water contaminated with silt, grout, or other construction by-product must be pumped to a holding tank. Location of the holding tank will be proposed by Contractor and approved by COR (or other designee).</p>	Contractor
C.3 Hazardous Materials/ Wastes	<p>Identify potentially hazardous substances to be used on the job site.</p> <p>Identify handling procedures to ensure that hazardous substances are not released into the air, water, or ground.</p> <p>Comply with Federal, State, and local laws and regulations for storage, handling, and disposal of these materials.</p> <p>Storage of hazardous or flammable chemicals in the staging area or elsewhere on the site is prohibited except as approved by the COR (or other designee).</p> <p>Hazardous materials shall not be discarded into the jobsite debris or waste-disposal facilities.</p> <p>Empty containers shall be removed from the site and disposed of in a manner prescribed by law.</p> <p>Used lubricants and used oil to be discarded shall be stored in marked corrosion-resistant containers and recycled or disposed in accordance with 40 CFR 279, State, and local laws and regulations.</p> <p>A copy of the Material Safety Data Sheets (MSDS) and the maximum quantity of each hazardous material to be on site at any given time is to be maintained on site and submitted to the COR (or other designee).</p> <p>Before new hazardous materials are brought on site or removed from the site, the MSDS file shall be updated and submitted to the COR (or other designee).</p>	Contractor

Topic	Resource Protection Measures	Responsibility
C.4 Hazardous Materials Spill Prevention and Response Plan	<p>Contractor shall provide a Hazardous Materials Spill Prevention and Response Plan to address spill prevention and response measures for hazardous substances used on site, including fuels. Prior to the start of work, the Contractor shall submit a plan that complies with park, federal, and state requirements and allows contractors to properly notify officials in the event of an emergency occurring during construction activities. Park requirements include, and the plan shall state, at a minimum:</p> <ul style="list-style-type: none"> ▲ During non-work operations, stationary equipment shall be parked over specially prepared containment pads designed to trap any leaking oil, fuel, or hydraulic fluids. ▲ Inspect construction site daily for proper storage of hazardous materials, proper parking of equipment on containment pads, and for hydraulic and oil leaks of equipment, tighten hoses, and ensure they are in good condition. ▲ Routine oiling and lubrication shall be conducted in areas with secondary containment using best management practices (BMPs) at all times. Refueling of equipment in wetlands or stream channel areas is not allowed at any time. ▲ Contractor shall maintain secondary containment for all equipment operating with fluids (such as drilling) or when direct discharge of leakage, spills, or other source of construction or equipment fluids can flow directly to any streambed, whether flowing with water or dry. Containment shall be designed and installed to prevent accidental spills into streambeds in the event of mechanical failure or hose breakage. ▲ Contractor shall maintain spill response materials on the project site when using heavy equipment to ensure rapid response to small spills. These materials shall include absorbent pads, booms, or other materials as appropriate to contain oil, hydraulic fluid, solvents, and hazardous material spills. A list of the spill response materials to be kept on site shall be submitted to the COR (or other designee). ▲ Contractor shall provide names and phone numbers of appropriate contractor's personnel to be contacted at any time (24 hours per day) regarding accidental release of hazardous substances to air, soil or water. This list shall be submitted to the COR (or other designee) and a copy visibly displayed in work areas on site. ▲ Contractor shall have the COR's (or other designee) and other appropriate Government emergency numbers posted and shall immediately notify the COR (or other designee) or other Government representative on any accidental release of hazardous substances to air, soil or water. ▲ Hazardous or flammable chemicals shall be prohibited from storage in the staging area, except for those substances identified in the Oil and Hazardous Materials Spill Prevention, Control, and Countermeasure Plan. Hazardous waste materials shall be immediately removed from project site in approved containers. 	Contractor

Topic	Resource Protection Measures	Responsibility
C.4 Hazardous Materials Spill Prevention and Response Plan (Continued)	<ul style="list-style-type: none"> ▲ Comply with all applicable regulations and policies during the removal and remediation of asbestos, lead paint, and polychlorinated biphenyls. ▲ Place drip pans under construction vehicles and all parked equipment. ▲ Check construction equipment for leaks regularly. ▲ Refuel vehicles and equipment no less than 100 feet from adjacent creeks, drainages, and storm drains to minimize the risk of run-on, runoff, and spills that could affect water bodies. Conduct fueling in paved and curbed areas to contain spills if this is possible; if not, refuel over drip pans or absorptive mats. ▲ Cover all storm drain inlets when paving or applying seals or similar materials to prevent the offsite discharge of these materials. ▲ Equipment and materials shall be stored at least 100 feet from waterways. No debris (such as trash and spoils) shall be deposited within 100 feet of creeks. Staging and storage areas for equipment, materials, fuels, lubricants, and solvents shall be located outside of the stream channel and banks. 	Contractor
D. Vegetation and Wetlands		
D.1 Protection from Exotic Plant Species	<p>The park and Contractor shall undertake measures to prevent the introduction of exotic species in the project area and staging areas. All earth moving equipment must enter the park free of dirt, dust, mud, seeds, or other potential contaminant. Equipment exhibiting any dirt or other material attached to frame, tires, wheels, or other parts shall be thoroughly cleaned by the Contractor before entering the park. All heavy equipment shall be steam-cleaned or pressure washed to prevent importation of non-native plant species prior to entry to the project area. Wash heavy equipment prior to moving between sites or phases of the project to prevent further spread of invasive plants between sites.</p> <p>All equipment must be inspected prior to commencing work. Areas inspected shall include, but not be limited to, tracks, track guard/housings, belly pans/under covers, buckets, rippers, and other attachments. Plant inspection shall be arranged with the park botanist (or other designee) at least one week prior to the equipment entering the park.</p> <p>Equipment that does not pass inspection will be turned around to the nearest cleaning facility outside the park. If vehicles are unable to drive to El Portal due to size or load restrictions, vehicles will be inspected at a mutually agreed site by the Contracting Officer or other designee prior to entering the park. The Contractor shall notify the COR (or other designee) at least two work days (not including weekends) prior to bringing any equipment into the park. Equipment found to have entered the park with potential contaminants will be removed from the park at the direction of the COR (or other designee) at Contractor's sole expense.</p> <p>Contractor shall minimize ground disturbance to the greatest extent possible.</p>	Yosemite National Park; Contractor

Topic	Resource Protection Measures	Responsibility
D.1 Protection from Exotic Plant Species (continued)	<p>The Contractor shall get approval in writing from the COR (or other designee) for fill material that must be used in a way or stored in a location not clearly specified in the contract.</p> <p>Fill materials used within the top 12 inches of finished grade are required to be free of exotic and noxious weed species and shall have the source locations approved by the COR (or other designee). The Contractor shall submit to the COR (or other designee) a list of proposed sources for imported fill materials requiring certification 30 calendar days in advance of importing material; materials will only be imported from NPS certified weed-free sources. The presence of noxious weed species is grounds for rejection of the source.</p> <p>If exotic weed species are found or suspected, the Contractor may be required to strip the top 12 inches of source material and only import sub-surface material and/or sterilize the material, at the COR's (or other designee) discretion. The presence of the following particularly noxious weed species are grounds for rejection of the source: spotted knapweed, yellow star thistle, perennial pepperweed, broom species, and other species on the California State List of Noxious Weeds. If spraying is required, the Contractor shall provide a licensed operator to spray according to applicable state regulations and park management guidelines (e.g., the Invasive Species Management Plan). The Contractor shall not spray any herbicides until approved in writing by the COR (or other designee).</p> <p>Survey for invasive plants in subsequent years following construction and treat any plants found to prevent the establishment of new infestations. Treat medium and high priority invasive plants prior to and after construction to prevent spread and establishment of new populations in disturbed areas</p> <ul style="list-style-type: none"> ▲ Drain and flush all pumps, tanks, live wells, buckets and other containers that might carry water contaminated with exotic plants and animals, such as the zebra mussel, prior to bringing equipment into the park. Thoroughly wash all hauling tanks and equipment using a hard spray from a garden hose. If equipment was used in infested waters, use the following steps to clean the equipment: ▲ Wash with hot water (140°F or 40°C) or a high-pressure washer (250 pounds per square inch). Remove all aquatic weeds—they can carry zebra mussels. ▲ Disinfect equipment. Recent research shows that disinfection of nets and equipment with benzalkonium chloride at typical treatment rates (10 milligrams per liter for 24 hours, 100 milligrams per liter for 3 hours, or 250 milligrams per liter for 15 minutes) will effectively eliminate most exotic animals. Two other commonly used disinfectants, calcium hypochlorite and iodine, are ineffective against zebra mussels. ▲ Adult zebra mussels can live more than a week out of water in moist, shaded areas. Dry pumps, nets and other equipment used in infested waters in the sun for two to four days after cleaning. If adult mussels are present, dry equipment for two weeks. 	Yosemite National Park; Contractor

Topic	Resource Protection Measures	Responsibility
D.2 Vegetation Inventory and Assessment	<p>The project will supply a NPS natural resource monitor to consult on vegetation protection periodically throughout construction.</p> <p>Plant Condition Inventory: The Contractor and the COR (or other designee) or designated representative, shall perform an on-site inventory of trees and other overall vegetation features within or near to the work limits. A print of the contract drawings showing tree locations and a photo record will be used to note condition of trees and vegetation. This annotated drawing will be retained by the COR (or other designee) for use during the final walk-through and tree/vegetation assessment. This walk through shall be a part of the project closeout requirements (see Section 01770, Project Closeout). On-site inventory shall be scheduled in coordination with the pre-construction conference.</p> <p>Avoid construction, trenching, grading, paving, and staging within the drip line of black oaks (<i>Quercus kelloggii</i>). If removal, damage or such activity cannot be avoided, Contractor shall consult the COR (or other designee), the cultural resources program manager, and the park botanist to develop a mitigation strategy prior to construction in addition to the measures outlined below. Mitigation can include replacement by either the planting of black oak seedlings or acorns at the discretion of the park botanist. Access to work sites requiring travel through undeveloped areas outside the work limits must be approved by the COR (or other designee).</p> <p>Contractor should consult with a natural resource specialist when removal or damage of black oaks, Sugar Pine, or large diameter (>36-inch dbh) trees cannot be avoided. Adjust trenches and excavations to keep them beyond tree drip lines where possible. Provide temporary barriers (e.g., orange construction fence) to protect existing trees, plants and critical root zones that are designated to remain, but are: (1) within the construction limits; 2) on or just outside the construction limits; (3) within the clearing limits (i.e., the zone extending 5 feet beyond the staked construction limits); or (4) on, or just outside the clearing limit line. Barriers shall be in place before construction begins.</p> <p>Trees, shrubs, vines, grasses, and other vegetation features indicated and defined on the construction drawings to be preserved shall be clearly identified by marking, fencing, or any other approved techniques. The Contractor shall restore vegetation features damaged or destroyed during construction operations outside the limits of the approved work area.</p> <p>Except in areas indicated on the drawings or specified to be cleared, the Contractor shall not remove, cut, deface, injure, or destroy vegetation resources including trees, shrubs, vines, grasses, topsoil, and landforms without approval. No ropes, cables, or guys shall be fastened to or attached to any trees for anchorage unless specifically authorized.</p> <p>Removal of trees will be performed by the Contractor, after the appropriate approvals from park botanist and wildlife biologists. Should it be determined during the course of work that additional trees or tree roots require removal, Contractor shall notify the COR (or other designee) who will coordinate an inspection and determination by the appropriate authorities whether to remove the tree or not.</p>	Yosemite National Park; Contractor

Topic	Resource Protection Measures	Responsibility
D.2 Vegetation Inventory and Assessment (continued)	<p>After tree removal, large roots may remain in the ground. Contractor shall be responsible for carefully removing in-ground tree roots of removed trees to permit excavation, drilling, or other ground penetrating construction activities. During tree root removal, do not use backhoes, chains, or other equipment in a manner that will harm roots of adjacent trees.</p> <p>Minimize disturbance to tree trunks and root zones to prevent damage to trees; avoid disturbance of more than 15% of a tree's roots. Avoid soil compaction within drip lines of trees and do not pile soil against tree trunks.</p> <p>Maintain original soil topography</p> <p>Adjust trenches and other excavations to keep them beyond the drip line wherever possible. If trenching is proposed with the dripline, it will be done with on-site consultation of a natural resource monitor.</p> <p>Adjust the survey line, as necessary to maintain required clearances.</p> <p>Notify the COR (or other designee) and consult with NPS natural resource monitor on implementing tree and root protections of any proposed trenches or other excavations within the drip line of trees.</p> <p>Steps to Mitigate Damage to Roots Due to Excavation:</p> <p>Take steps (as called for below) to mitigate damage to tree roots due to excavation, wherever the following circumstances apply:</p> <ul style="list-style-type: none"> ▲ Wherever excavation must take place within the drip line of oak trees regardless of diameter. ▲ Wherever excavation must take place within the drip line of trees other than oaks, for all trees 12 inches or larger in diameter. ▲ Trees that are anticipated to meet these criteria and therefore require steps to mitigate damage to roots due to excavation are shown on the drawings. Adjustments in trench alignment or other factors may result in variations in which trees are affected. The Contractor shall accommodate these variations at no additional expense to the government. <p>Following are the steps which are required to mitigate damage to roots due to excavation:</p> <ul style="list-style-type: none"> ▲ Excavate carefully where tree roots might be encountered. Where roots 2 inches and larger are encountered, hand excavate as required to prevent damage to roots. Tunnel under roots to be saved, hand excavating as necessary. ▲ Do not cut roots over 2-inch-in-diameter without approval of COR (or other designee). 	Yosemite National Park; Contractor

Topic	Resource Protection Measures	Responsibility
D.2 Vegetation Inventory and Assessment (continued)	<ul style="list-style-type: none"> ▲ Cleanly saw-cut roots between 1-inch and 2-inch-in-diameter where they interfere with work; do not cut roots except as necessary. Roots between 1-inch and 2-inch-in-diameter that must be cut shall be cleanly saw-cut near the edge of trench closest to the tree to prevent roots from being dislodged from soil by equipment. ▲ Avoid soil compaction within plant root zones with heavy equipment and vehicles within the project work limits. ▲ Do not cut wheels or make sharp turns with wheeled or tracked equipment in root zones. ▲ Do not pile excavated soil against tree trunks. ▲ Do not mechanically compact soils in undeveloped areas except to meet minimum compaction requirements as approved by the COR (or other designee). ▲ Maintain original soil topography in plant root zones whenever possible. ▲ Preserve tree snags where feasible as potential bat or bird habitat 	Yosemite National Park; Contractor
D.3 Plant Damage	<p>If the Contractor destroys or injures trees and vegetation designated for protection or outside the work limits, the Contractor will be required to undertake mitigation activities.</p> <p>Mitigating actions for damaged vegetation will be prescribed by the park botanist.</p> <p>This damage mitigation process will be triggered by any of the following types of damage to vegetation outside the work limits or unauthorized disturbance of vegetation within the work limits:</p> <ul style="list-style-type: none"> ▲ Removal of any tree or shrub. ▲ Pruning or removal of more than 30% of a tree or shrub canopy. ▲ Removal or fracture of any limb or trunk that is one of the major structural entities of the damaged plant. ▲ Removal or fracture of any limb greater than 12 inches in diameter. ▲ Bark damage or removal around more than 30% of the trunk circumference. ▲ Trenching or soil disturbance within the critical root zone that is deeper than 1-foot unless shown on the Drawings. ▲ If the damaged vegetation is protected under the Endangered Species Act or other special legislation, additional penalties may be assessed as per consultation with the U.S. Fish & Wildlife Service. 	Yosemite National Park; Contractor

Topic	Resource Protection Measures	Responsibility
D.3 Plant Damage (continued)	<p>▲ Pruning or removal of vegetation shall be supervised by COR (or other designee). The designated personnel may designate plant species for salvage. When authorized and supervised by the COR (or other designee), the Contractor is exempted from any penalties that might be assessed due to damage to vegetation.</p> <p>Acceptable disturbance to roots is limited to 15% of the area under the drip line being either cut or filled. Any tree with more than 50% of its roots disturbed should be removed during construction at the direction of the COR (or other designee).</p> <p>Wounds occurring from construction activity may be possible entry sites for disease spores. If a tree is accidentally injured during construction, it may need to be removed at the direction of the COR (or other designee).</p> <p>Trench alignments or other factors may result in variations in which trees are affected. The Contractor shall accommodate these variations at no additional expense to the government.</p> <p>Minor cuts and damaged areas shall be assessed by the COR (or other designee). Repair to the plant will be at the recommendation of park personnel and approval of the COR (or other designee).</p>	Yosemite National Park; Contractor
D.4 Special Status Plant Species	<p>Schedule a site-specific sensitive plant survey by qualified botanist in the growing season in advance of soil disturbing activities.</p> <p>Park natural resources staff will flag avoidance zones around special status plant species prior to work. If special-status plant species are identified within the construction disturbance zone, in particular within restoration and revegetation areas, avoid special-status plant populations to the extent feasible during construction activities.</p> <p>If it is not feasible for construction activities to avoid special status plant species, species conservation measures will be developed in coordination with park natural resources staff. Measures may include salvage of special-status plants for use in revegetating disturbed areas and transplantation of special-status plants wherever possible using methods and monitoring identified in the revegetation plan, monitoring to ensure successful revegetation, protection of plantings, and replacement of unsuccessful plant materials if practicable.</p> <p>California black oak trees may only be removed with the explicit approval of the park botanist and the cultural resources program manager. If a black oak is planned for removal, it will be replaced by either the planting of black oak seedlings or acorns at the discretion of the park botanist. The seedlings will be caged above- and below-ground to prevent herbivore-related mortality. Costs for planting, caging, and maintaining these plants will be supported by project funds in coordination with the COR (or other designee).</p>	Yosemite National Park; Contractor

Topic	Resource Protection Measures	Responsibility
D.5 Ecological Restoration	<p>Areas of soil disturbance should be revegetated as prescribed by the direction of the park botanist.</p> <p>Topsoil shall be salvaged and placed in a separate location from sub-soils and replaced on top of other soils as the trench is backfilled. Topsoil shall be salvaged and reused in the same place from which it was excavated. If the soil is to be windrowed and used later, it should be sorted for root chunks prior to storage.</p> <p>Natural areas and marking lot edges where open cut trenching or other soil disturbances are planned to occur shall be backfilled and have their topsoil replaced. They will also be restored by mulching with forest duff in lieu of active re-vegetation, as approved on a case-by-case basis by the park botanist.</p>	Yosemite National Park; Contractor
E. Wildlife and Special-Status Species		
E.1 General Fish and Wildlife Protection	<p>The Contractor and Contractor's employees shall not feed any animals within the park.</p> <p>Contractor shall schedule construction activities with seasonal consideration of wildlife lifecycles (see below sections) to minimize impacts during sensitive periods (i.e., after bird nesting seasons, when bats are neither hibernating nor have young, etc.); limit the effects of light and noise on adjacent habitat through controls on construction equipment; and provide adequate education and enforcement to limit construction worker activities that are destructive to wildlife and habitats.</p> <p>Tree removal shall occur between August 15 and October 31 if at all feasible. If this is infeasible, consult with the terrestrial ecologist.</p> <p>Nighttime work is not permitted.</p> <p>To avoid impacting reptile and amphibian species, only tightly woven netting or similar material (such as natural fiber rolls and geotextiles) or durable/reusable materials (such as Animex or Ertec fencing) will be used for erosion control. No plastic monofilament netting will be used.</p> <p>Special Status Species:</p> <p>The Contractor shall make all reasonable efforts in accordance with the plans and specifications for the protection of threatened or endangered or candidate species including their habitat in accordance with federal, state, regional, and local laws and regulations.</p> <p>If a special status species is encountered within work areas, work crews will stop all activities in the surrounding area with the potential to harass, injure, or cause death of the individual, and contact the Branch Chief of Wildlife or the park aquatic or terrestrial ecologist to select a course of action that will avoid adverse effects to the individual.</p>	Yosemite National Park; Contractor

Topic	Resource Protection Measures	Responsibility
E.1 General Fish and Wildlife Protection (continued)	<p>Contractor Training:</p> <p>NPS will brief the Contractor regarding wildlife concerns at project initiation and periodically throughout the project to avoid activities that are destructive to wildlife and habitats</p> <p>Excavated Pits:</p> <p>Contractor shall maintain routes of escape from excavated pits and trenches for animals that might fall in. During construction activities, Contractor personnel shall maintain vigilance for animals caught in excavations and take appropriate action to free them.</p> <p>Excavation pits shall have a ramp or incline at either end to allow for human and wildlife escape.</p> <p>Each morning prior to commencing work activities, Contractor shall inspect the site for trapped wildlife in excavation pits and carefully remove the animal. If the animal cannot be easily or safely removed, contact NPS wildlife staff immediately at (209)372-0322.</p>	Yosemite National Park; Contractor
E.2 Bear Precautions, Human-Wildlife Conflict	<p>Bears may be present at any location within the park's boundaries, including at the project site. The Contractor shall incorporate the following precautions in all activities within the park boundary.</p> <p>All food, toiletries, and scented items (i.e., bug spray) shall be placed in bear-proof food lockers (also known as, "bear boxes") at the construction site provided by the Contractor. Bear-proof food lockers must remain closed and latched at all times, unless items are being retrieved. No food, toiletries, or scented items shall be stored in vehicles or left out.</p> <p>All food waste and food-related waste shall be disposed of in accordance with Non-Hazardous Solid Wastes requirements described elsewhere within this section.</p> <p>All windows and doors in recreational vehicles or trailers used for lodging or office space shall be closed and latched when not occupied.</p> <p>All vehicles shall be checked daily to ensure that no items that may attract bears remain inside an unattended vehicle. Items that shall not be left in vehicles include canned food, drinks, soap, cosmetics, toiletries, domestic trash, recyclable food containers, ice chests, grocery bags, and unwashed items used for preparing or eating meals.</p> <p>The Contractor shall walk the job site at the end of each day and check for trash, food, and food-related items remaining at the site and dispose of the items in a bear-proof receptacle.</p> <p>Proper food storage is important to the welfare of the Yosemite bear population and is required by law. The Contractor shall receive and all Contractor personnel shall read a brochure entitled, The Bears are not to Blame, provided by NPS staff as a courtesy. Contractor staff shall call the Save-a-Bear hotline (209) 372-0322 to report overflowing trash containers, improperly stored food, or bear sightings.</p>	Contractor

Topic	Resource Protection Measures	Responsibility
E.3 Bat Protection Guidelines	<p>A qualified bat biologist will conduct surveys prior to construction to evaluate whether habitat that will be affected by the proposed action provide hibernacula or nursery colony roosting habitat for bat species.</p> <p>If bats are detected during reproduction May 15 to August 15 or hibernation periods: October 31 to April 15, disturbance of potential habitat will be delayed until the bats can be excluded from the area in a manner that does not adversely affect their survival or that of their young.</p> <p>If surveys conducted immediately prior to construction do not reveal any bat species present within the project area, then the action will begin within three days to prevent the destruction of any bats that could move into the area after the survey.</p> <p>Within 30-days prior to initiating ground disturbance (e.g., grading, trenching, and excavation) or vegetation removal, a qualified bat biologist shall conduct surveys to evaluate whether habitat that will be affected by the proposed construction activity provides hibernacula or maternity roost habitat for bats. Generally, the survey area shall include the project area plus a 50-foot buffer. Surveys shall be conducted in the fall to determine if roost sites are used as hibernacula and in spring and/or summer to determine if they are used as maternity or day roosts. Surveys shall consist of evening emergence surveys to note the presence or absence of bats and could consist of visual surveys at the time of emergence. If evidence of bat use is observed, the number and species of bats using the roost shall be determined. Bat detectors may be used to supplement survey efforts, but are not required. If no bat roosts are found, then no further study is required.</p> <p>Tree removal shall occur between August 15 and October 31 if at all feasible. If this is not feasible, consult with the park terrestrial ecologist. The park terrestrial ecologist will conduct bat surveys before any tree removal occurs during this sensitive time period involving roosting/hibernating. If the park terrestrial ecologist deems tree removal acceptable, then the ecologist might recommend actions to reduce bat mortality that may include, but not be limited to:</p> <p>Limb trees the day before felling them (or make some other loud noises).</p> <p>Limb and fell trees later in the day when temperatures are above 55°F and the weather forecast for the night is clear. This will allow bats that are not hibernating or that are not in a maternity roost to depart that night and find another roost.</p> <p>If snags can remain in the project site, top snags to ~20 ft. so they can still serve as a bat roost sites.</p>	Yosemite National Park; Contractor

Topic	Resource Protection Measures	Responsibility
E.4 Bird and Bird Habitat Protection	<p>Beginning in early spring, a park terrestrial ecologist will conduct bird surveys and review current owl reports to determine whether special status species are present and may be mating, nesting, or foraging in the project vicinity. If nesting birds are observed (e.g., discovered by workers) that are not special status species, the project manager will notify the park terrestrial ecologist who will recommend steps to avoid undesirable impacts to the nest or young.</p> <p>Great Gray Owls, California Spotted Owl, and other Raptors:</p> <p>No construction work shall occur at dawn, dusk, or nighttime hours.</p> <p>Construction or staging activities within 0.25 miles of Hodgdon Meadow that could disrupt owl nesting shall be implemented outside of the nesting season (March 1 to July 31); if this is for some reason unavoidable, the park terrestrial ecologist will be contacted for consultation well ahead of work commencing.</p> <p>All construction fencing along or adjacent to any roadway shall be outfitted with spikes or other devices that prevent large or raptorial birds from using the structure as a perch.</p> <p>Other Birds:</p> <p>For any project activity that would occur during the songbird nesting season (May 15–June 30), the park Terrestrial Ecologist shall conduct preconstruction nesting bird surveys. The preconstruction surveys shall be conducted before any activity occurring within 500 feet of suitable nesting habitat for any special-status bird species. Nesting surveys shall be timed to maximize the potential to detect special-status nesting birds, and should be repeated within 10 days of the start of project-related activity.</p> <p>If an active bird nest is found during preconstruction surveys, an appropriate no-disturbance buffer shall be determined by the park terrestrial ecologist based on site-specific conditions, the species of nesting bird, nature of the project activity, noise level of the project activity, visibility of the disturbance from the nest site, and other relevant circumstances.</p> <p>Monitoring of active nests by the park terrestrial ecologist during construction activities will be required if the activity has potential to adversely affect the nest. If construction activities cause the nesting bird to vocalize, make defensive flights at intruders, get up from a brooding position, or fly off the nest, then the no-disturbance buffer shall be increased until the agitated behavior ceases. The exclusionary buffer will remain in place until the chicks have fledged or as otherwise determined by the park terrestrial ecologist.</p>	Yosemite National Park, Project Manage

Topic	Resource Protection Measures	Responsibility
E.5 Fisher Protection	<p>In construction or staging zones, conduct remote camera surveys targeting fishers (<i>Pekania pennati</i>) to inform proper mitigation actions that would reduce impacts to wildlife as directed by the park terrestrial ecologist.</p> <p>Culverts shall not be blocked during construction activities, as they are important for Fisher dispersal and movement through the area.</p> <p>Park biologists will survey the area and designate a buffer around essential habitat elements (e.g., downed logs, hollow trees, etc.) or sign of fisher, and may conduct more intensive surveys if appropriate to determine the presence or absence of active dens or place protective barriers around areas adjacent to the project area that requires special attention as identified by the park, such as sensitive wildlife habitats.</p> <p>The park forester, fire management, and design contractor will consult with the park terrestrial ecologist to retain key habitat features for fisher including overhead cover, large diameter snags, large diameter down logs, large diameter live conifer and oak trees with decadence such as broken tops or cavities, root masses, live branches, and multi-layered vegetation.</p> <p>No night work shall occur.</p> <p>Project activities and staging shall not occur during the sensitive period of March 17 to June 24 (sensitive denning and mating periods) in sensitive habitats designated as avoidance areas as directed by the park terrestrial ecologist.</p> <p>Adaptively manage for fishers through continued targeted surveys during key periods during construction as directed by the park terrestrial ecologist. This will include camera monitoring for fisher in sensitive habitat locations as designated by the park terrestrial ecologist.</p>	Yosemite National Park; Contractor
F. Lightscapes		
F.1 Yosemite Lighting Guidelines	All new sources of lighting, or substantial modifications to structures with existing sources of exterior lighting, shall conform to the standards set forth in the Yosemite Lighting Guidelines, available on the park's website at: http://www.nps.gov/yose/naturescience/dark-night-sky.htm .	Yosemite National Park; Contractor

Topic	Resource Protection Measures	Responsibility
G. Soundscapes		
G.1 Construction Work Plan and Noise	<p>Contractor shall submit to the park for review and approval prior to commencement of construction a construction work plan/schedule that specifies the ways in which the Contractor will minimize construction-related noise in noise-sensitive areas. At a minimum, the plan shall state the following:</p> <ul style="list-style-type: none"> ▲ Ensure that all construction equipment has functional exhaust muffler systems. ▲ Use hydraulically or electrically powered construction equipment, when feasible. ▲ Locate stationary noise sources as far from sensitive receptors as possible. ▲ Limit the idling of motors except as necessary (e.g., concrete mixing trucks). ▲ A construction schedule that minimizes impacts to adjacent noise-sensitive activities. ▲ Engine braking ("jake" brakes) shall not be used in lodging, camping or residential areas. Engine brakes that are used shall be muffled. ▲ Continuous noise abatement is required to prevent disturbance and nuisance to park visitors and workers and to the occupants of adjacent premises and surrounding areas. ▲ If the COR (or other designee) determines excessive noise is emanating from the construction site, the COR (or other designee) may be required to provide sound barriers to deflect noise transmission from visitor areas or other areas impacted by noise. ▲ Ensure that noise barriers, if needed are not located in sensitive habitats. ▲ Construction noise shall be minimized through use of best available noise control techniques wherever feasible. Sound levels must be kept to a minimum at all times. Equipment and machinery shall not exceed 85 db when measured at 100 linear feet distance. Contractor shall use sound attenuated compressors and generators that comply with the most recent California Department of Transportation standards. 	Contractor

Topic	Resource Protection Measures	Responsibility																																																	
G.2 Noise Management	Contractor shall ensure that all construction equipment and practices adhere to the following noise limitations: <div> ▲ Repetitive and/or intermittent, high-level noise: Permitted only during Daytime.</div>	Contractor																																																	
	Do not exceed the following dB(A) limitations at 50 feet:																																																		
	<table><tr><th>Sound Level in dB(A)</th><th>Time Duration of Impact Noise</th></tr><tr><td>70</td><td>More than 12 minutes in any hour</td></tr><tr><td>80</td><td>More than 3 minutes in any hour</td></tr></table>		Sound Level in dB(A)	Time Duration of Impact Noise	70	More than 12 minutes in any hour	80	More than 3 minutes in any hour																																											
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Topic	Resource Protection Measures	Responsibility
G.2 Noise Management (continued)	<p>Ambient Noise:</p> <p>Maximum noise levels (dB) for receiving noise area at property line shall be as follows:</p> <p>Residential receiving area:</p> <ul style="list-style-type: none"> ▲ Daytime: 65 dB ▲ Nighttime: 45 dB <p>Commercial/Industrial receiving area:</p> <ul style="list-style-type: none"> ▲ Daytime: 67 dB ▲ Nighttime: 65 dB <p>In the event the existing local ambient noise level exceeds the maximum allowable receiving noise level (dB), the receiving noise level maximum for construction operations shall be adjusted as follows:</p> <ul style="list-style-type: none"> ▲ Residential receiving area: Maximum 3 additional dB above the local ambient as measured at property line. ▲ Commercial/Industrial receiving area: Maximum 5 additional dB above the local ambient as measured at the property line. 	Contractor
G.3 Field Quality Control	<p>Contractor shall assess potential effects of construction noise on adjacent neighbors or facility occupants in accordance with ASTM E1686 and as follows:</p> <p>Ambient noise measurement: Measure at the property line at a height of at least four (4) feet above the immediate surrounding surface. Average the ambient noise level over a period of at least 15 minutes.</p> <p>Ambient noise measurement at urban sites: Conduct during morning peak traffic hour between 7 a.m. and 9 a.m. and afternoon peak traffic hour between 4 p.m. and 6 p.m. In addition, conduct a 24-hour measurement at the proposed project site to document the noise pattern throughout the day. Adjust and weight for seasonal and climatic variations.</p> <p>Monitor noise produced from construction operations in accordance with ASTM E1780.</p>	Contractor

Topic	Resource Protection Measures	Responsibility
H. Air Quality		
H.1 Dust Abatement Program	Park and/or the Contractor (as appropriate) shall prepare, implement, and comply with a dust abatement program during construction. Measures include, but are not limited to, the following: <ul style="list-style-type: none"> ▲ water or apply soil stabilizers to disturbed areas; ▲ when hauling dry materials, securely cover truck beds to prevent blowing dust or loss of debris; ▲ limit speeds to a maximum of 15 mph within construction areas; slower speeds shall be maintained if necessary to reduce dust formation. ▲ minimize vegetation clearing; ▲ revegetate disturbed areas post construction; ▲ at construction zone access points, prevent paved areas from accumulating mud, soil, and other organic materials. 	Yosemite National Park; Contractor
H.2 Equipment Exhaust Controls	Park and/or the Contractor (as appropriate) shall prepare, implement, and comply with equipment exhaust controls program during construction. Measures include, but are not limited to, the following: <ul style="list-style-type: none"> ▲ idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to two minutes. Clear signage shall be provided for construction workers at all access points; ▲ require that all construction equipment, diesel trucks, and generators be equipped with Best Available Control Technology for emission reductions of NO_x and PM; ▲ require all contractors use equipment that meets CARB's most recent certification standard for off-road heavy-duty diesel engines; ▲ require all equipment operations to occur during daytime hours to minimize effects of local inversions; ▲ equipment operations shall be in accordance with all Federal and State air emission and performance laws and standards; and ▲ vehicles or equipment with excessive emissions or discharging black smoke will be removed from operation immediately and may not be used until maintenance/repairs have corrected the emissions problem. 	Yosemite National Park; Contractor

Topic	Resource Protection Measures	Responsibility
I. Visitor Experience		
I.1 Non-Hazardous Solid Waste Management Measures	<p>Waste, trash, and debris shall be controlled at all times and disposed in authorized containers in the staging area.</p> <p>All sanitary waste (garbage) must be disposed of in approved, bear-proof disposal bins. Provide lockable, bear-proof dumpsters with lids for waste (garbage) storage. Lids shall be equipped with carabineers/heavy wire lid locks. Verify that dumpster lids are secure at close of work each day.</p> <p>Construction debris (rubbish) may be stored in unlidded dumpsters or construction debris truck/trailers and removed on a regular basis. Do not mingle sanitary or green waste with construction debris.</p> <p>All large, normally open top, waste bins or dumpsters shall be lidded and clearly marked "No Food or Trash".</p> <p>All construction personnel shall adhere to park regulations concerning food storage and refuse management.</p> <p>The Contractor shall designate an employee to police the work site daily for waste, wrappers, food packaging and the like. All waste shall be picked up and disposed of in lidded bear-proof dumpsters.</p> <p>Green waste shall be segregated from other non-green waste for processing at disposal site.</p> <p>Burying or burning of trash and debris on-site is not permitted. All un-used materials, trash, and debris shall be the property of the Contractor and shall be transported outside of the park boundary for disposal in accordance with law.</p> <p>Remove debris from permanently closed spaces prior to enclosing them.</p> <p>Properly secure trash during the workday and remove all trash from site at the end of each workday</p>	Yosemite National Park; Contractor
I.2 Scenic Resource Protection	<p>Fence construction staging areas and construction activity areas to visually screen construction activity and materials.</p> <p>Consolidate construction equipment and materials to the staging areas at the end of each work day to limit the visual intrusion of construction equipment during non-work hours.</p>	Yosemite National Park; Contractor
I.3 Campsite Closures	<p>Work requiring the closure of camping areas should be scheduled, if at all feasible, out of the busy season. If work must occur during the busy season, the park campground manager will be informed of the closure at least 6 months ahead of the first date of planned closure period. Construction activities in camping areas will be planned to minimize campground or campsite closure periods. Hodgdon Campground is generally open year-round.</p>	Contractor

Topic	Resource Protection Measures	Responsibility
J. Transportation		
J.1 Traffic Control Plan	<p>Contractor shall prepare a Traffic Control Plan. This plan shall include but not be limited to the following:</p> <ul style="list-style-type: none"> ▲ Maps showing how any detour routes will be signed and controlled. ▲ Submission of specific street closure and detour plans for each segment of the project no less than 3 weeks prior to beginning construction on any segment. ▲ Description of how Contractor shall provide for the protection of pedestrians and bicyclists, and safe vehicle passage through the use of signs and flagpersons. In addition, address how access for emergency vehicles, chain-up areas and snow plow turn around areas, police, rangers, fire and disaster units shall be maintained at all times. ▲ Show how any detour routes will be signed and controlled. Furnish and install all signs. Provide flagpersons as required. ▲ Revise and update the Traffic Control Plan to reflect changes in the project schedule or sequence of work, as required. ▲ Show measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Plan shall include measures to minimize the amount of mud and dust transported onto paved public roads by vehicles or runoff. ▲ Revise and update specific Traffic Control Plan to reflect changes in the project schedule as required, or to accommodate the traffic control plans of other projects concurrently under construction in the project vicinity or the Yosemite Valley. ▲ The park's project manager will provide temporary traffic routing and control information from other on-going or planned projects that may affect the Contractor's Traffic Control Plan. The Contractor shall accommodate the information from these other traffic control plans as necessary and bring any conflicts to the attention of the COR (or other designee) immediately. ▲ Show measures to reduce erosion of temporary roadbeds by construction traffic, especially during wet weather. Plan shall include measures to minimize the amount of mud and dust transported onto paved public roads by vehicles or runoff. ▲ Revise and update specific Traffic Control Plan to reflect changes in the project schedule as required, or to accommodate the traffic control plans of other projects concurrently under construction in the project vicinity or the Yosemite Valley. ▲ The park's project manager will provide temporary traffic routing and control information from other on-going or planned projects that may affect the Contractor's Traffic Control Plan. The Contractor shall accommodate the information from these other traffic control plans as necessary and bring any conflicts to the attention of the COR (or other designee) immediately. 	Contractor

Topic	Resource Protection Measures	Responsibility
J.2 Road Closure Traffic Control and Detour Plans contents	<p>Prepare and submit specific Road Closure Traffic Control and Detour Plans for each area of the project not less than 3 weeks before beginning construction on any segment. Provide for the following:</p> <ul style="list-style-type: none"> ▲ Temporary closure of both lanes of traffic (subject to the requirements listed herein) shall be limited to periods of 20 minutes maximum. Requests for additional closure periods shall be submitted in writing to the COR (or other designee) a minimum of 7 days prior to any planned road closures. ▲ Single lane traffic diversions shall comply with the detail in "Traffic Control System for Two Lane Conventional State Highways" in California Department of Transportation Standard Specifications, Section 02201, Paragraph 1.1 D. 	Contractor
J.3 Traffic Control Devices	<p>Traffic control devices shall be provided in sufficient quantities and types as required to provide safe and adequate traffic control.</p> <p>During hours of darkness, approved lights and/or flares shall be included, in proper working order, to illuminate signs and hazards and alert approaching traffic.</p> <p>Barricades shall be furnished and maintained along all open trenches in contact with traffic.</p> <p>No work may begin on any day or at any time before traffic control devices have been placed, test driven and, if required, adjusted and revised.</p> <p>All traffic control devices shall be placed in accordance with the Manual of Traffic Controls and favorably reviewed Traffic Control Plan.</p> <p>Locations of devices shall be adjusted to suit the conditions and circumstances of each detour situation. In all cases, signs shall be placed to most effectively convey their messages to approaching traffic.</p> <p>Immediately after traffic control devices have been placed, the detour shall be test driven by the COR (or other designee) and Contractor's representative.</p> <p>Test drive shall include approach to the detour from each possible direction and traversing full length of each detour route.</p> <p>The Contractor shall adjust and revise all traffic control devices as determined to be required by test drive through and shall repeat test drive if determined necessary by the COR (or other designee).</p> <p>The Contractor shall provide additional traffic control devices if required to maintain flow of traffic through construction operation.</p> <p>The Contractor shall maintain all traffic control devices, at proper locations and in proper working order, at all times during construction operations and whenever a hazard resulting from Contractor's operations exists.</p>	

Topic	Resource Protection Measures	Responsibility
J.3 Traffic Control Devices (continued)	<p>The Contractor shall adjust and revise traffic control devices, placement, etc., to suit changing conditions around construction operations.</p> <p>Traffic control devices shall remain in place at all times required to alert approaching traffic of upcoming hazards.</p> <p>After hazard has been removed, all traffic control devices shall be removed. Signs shall be removed or their messages covered.</p> <p>The Contractor shall maintain all traffic control devices, at proper locations and in proper working order, at all times during construction operations and whenever a hazard resulting from Contractor's operations exists.</p> <p>The Contractor shall adjust and revise traffic control devices, placement, etc., to suit changing conditions around construction operations.</p> <p>Traffic control devices shall remain in place at all times required to alert approaching traffic of upcoming hazards.</p> <p>After hazard has been removed, all traffic control devices shall be removed. Signs shall be removed or their messages covered.</p>	Contractor
J.4 Traffic Control Flaggers	<p>The Contractor shall employ flaggers:</p> <ul style="list-style-type: none"> ▲ As required for each specific detour. ▲ At all locations on a construction site where barricades and warning signs cannot control the moving traffic. ▲ Where flaggers are required, they shall be logically placed in relation to the equipment or operation so as to give adequate warning and shall be placed approximately 100 feet ahead of impact point. ▲ A warning sign shall be placed ahead of the flagger reading: "Flagger Ahead." The distance between the sign and the flagger should be based on the average traffic speed, allowing approximately 50 feet for each 10 miles per hour. ▲ During hours of darkness, flagger stations shall be illuminated such that the flagger will be clearly visible to approaching traffic. Lights for illuminating the flagger station shall receive favorable review by the COR (or other designee). ▲ The flagger shall be provided with and wear a red or orange warning garment when flagging. Flaggers shall be provided with approved hand signs and two-way radios for communication. 	Contractor

Topic	Resource Protection Measures	Responsibility
J.4 Traffic Control Flaggers (continued)	<p>▲ When flagging during hours of darkness, the flagger shall signal with a red light or flare and shall have a belt and suspender harness outside his garment fitted with reflectors or made from reflectorized cloth, unless the garment is well reflectorized in one of these ways.</p>	Contractor
J.5 Traffic Control and Maintenance	<p>Traffic control and construction operations shall conform to the requirements of California Department of Transportation Standard Specifications, Section 12, except as modified herein.</p> <p>The Contractor shall provide, install, and maintain all necessary signs, lights, flares, barricades, markers, cones, flagmen, and other protective facilities and shall take all necessary precautions for the protection and for the convenience and safety of park employees, public traffic, and Yosemite Concession Service operations. All such protective facilities and precautions to be taken shall conform to the U. S. Department of Transportation, Federal Highway Administration Manual on Uniform Traffic Control Devices for Streets and Highways, Part VI-Traffic Control for Highway Construction and Maintenance Operations, latest edition, and as amended.</p> <p>Provide for the protection of pedestrians, bicyclists, and equestrians at all times. Provide adequate, safe, non-skid bridging material over trenches, including shoring when trenching in pavement areas to handle all types of vehicular traffic.</p> <p>Whenever the Contractor's operations create a hazardous condition, the Contractor shall furnish flagpersons and guards as necessary to give adequate warning of any dangerous conditions to be encountered, and shall furnish, erect, and maintain such fences, barricades, lights, signs, and other devices as necessary to prevent accidents and avoid damage or injury to persons. Employ flagpersons to direct traffic as required to ensure safe vehicular travel. While on duty, flagpersons and guards shall be equipped with orange safety wearing apparel and a paddle-type signal, which shall be clean and in good repair.</p> <p>Provide two-way programmable radios to flagpersons if they are not in sight of each other at all times, or if necessary to ensure safe passage of vehicles.</p> <p>Provide, install, and maintain all signs, barricades, posts, guards and notices whenever a road or trail must be completely closed. Note that if posts are installed in ground, Contractor must contact USA-Dig and archeological monitor for clearance to avoid culturally sensitive areas. Remove or cover signs in conflict with traffic control requirements.</p> <p>Provide for passage and access of emergency vehicles, police, rangers, fire and disaster units at all times. Contractor assumes any and all liability for any damages resulting from failure to provide said access.</p> <p>Replace permanent pavement markings and traffic signs upon completion of each phase of work.</p>	Contractor

Topic	Resource Protection Measures	Responsibility
J.5 Traffic Control and Maintenance (continued)	<p>At the end of each day's work or as soon as the work is completed, remove all traffic control devices no longer needed to permit free and safe passage of traffic. Removal shall be in reverse order of installation. The traveled way shall not be obstructed with material, bedding, trench soil, nor with barricades or excavations. Excavations shall be backfilled, covered with steel traffic plate covers, or otherwise suitably protected so that traffic can pass unobstructed, as required, at night or over weekends and holidays. Temporary road repairs shall include road base and cold mix as specified to maintain a smooth, hard surface. The Contractor shall provide weekend and holiday road maintenance and repairs as necessary.</p> <p>All roads shall be kept open for public travel at all times unless specific written permission to close or restrict the use of a particular road is given by the COR (or other designee). The Contractor is responsible for snow and ice control within the project limits utilizing NPS approved methods. Permission shall be granted upon approval of the specific Street Closure Traffic Control and Detour Plan for the intended closure. In the event that closing of a particular road is approved, it shall be the responsibility of the Contractor to notify the COR (or other designee) to reconfirm the hours and dates of the street closure and routes of detours at least 7 calendar days in advance of their occurrence, and again to notify the COR (or other designee) when the travel restriction is discontinued.</p> <p>No materials or equipment shall be stored where it will interfere with the free and safe passage of public traffic, and at the end of each day's work and at other times when construction operations are suspended for any reason, the COR (or other designee) shall remove all equipment and other obstructions from that portion of the roadway to be opened for use by public traffic. No material or other obstructions shall be placed within 20 feet of fire hydrants, which shall at all times be readily accessible to the fire department, nor within 10 feet of United States mailboxes. Off-loading of materials at staging area shall be coordinated with the COR (or other designee) as necessary</p> <p>Traffic delays due to Contractor's activities and associated traffic control shall not exceed 20 minutes, unless prior written approval has been received from the COR (or other designee).</p> <p>Alternative access for park visitors to all major features and facilities in the park shall be maintained using the existing road system.</p> <p>Full access shall be provided year-round to the public for all operating park facilities (hotels, campgrounds, bike paths, trails, stores, restaurants, museums, restrooms), unless the project includes closing, rehabilitating, or reconstructing those facilities, except trail closures for equipment and material transfer or transport described in Section 01110, Summary of Work.</p>	Contractor

Topic	Resource Protection Measures	Responsibility
K.1 General Historic Resource Protection	Contractor shall undertake the following historic resource protection measures: <ul style="list-style-type: none"> ▲ Ensure that construction supervisors and crews view the Yosemite video “Working in Yosemite” (https://www.youtube.com/watch?v=CuRn-tZ8SL4&feature=youtu.be), to familiarize crews with the importance of resource protection responsibilities while working within the park. ▲ Ensure that supervisory personnel are present when work begins and during its progress. ▲ If specific construction areas/phases will be subject to archeological and/or tribal monitoring, Contractor will notify COR (or other designee) at least 7 days in advance of work to schedule on-site monitoring. ▲ Protect landscape work adjacent to or within work areas as follows: ▲ Provide barrier to protect tree trunks. ▲ Provide a method to prevent solids including stone or mortar residue from entering the drains or drain lines. Clean out drains and drain lines that become blocked or filled by sand or any other solids because of work performed on corresponding project. ▲ Protect storm drains from pollutants. Block drains or filter out sediments, allowing only clean water to pass. 	Yosemite National Park; Contractor
K.2 Archeological Resources	<p>Train all members of the restoration/construction teams in proper handling of inadvertent discovery of archeological resources. Training would involve information regarding the types of archeological materials that are likely present in the specific project area, how to identify archeological materials, and the procedures for contacting the appropriate parties in the event that archeological materials are encountered during restoration/construction activities.</p> <p>Inadvertent discoveries would be treated in accordance with 36 CFR 800.13 (Protection of Historic Properties: Post-review discoveries). The archeological resource would be assessed for its eligibility for listing on the National Register in consultation with the SHPO and representatives of traditionally associated American Indian tribes and groups (if it is an American Indian archeological site), and a determination of the project effects on the site would be made. If the site would be adversely affected, a treatment plan would also be prepared as needed during the assessment of the site’s significance. Assessment of inadvertent discoveries may require archeological excavations and/or archival research to determine resource significance. Treatment plans would fully evaluate avoidance, project redesign, and data recovery alternatives before outlining actions proposed to resolve adverse effects.</p>	Yosemite National Park; Contractor

Topic	Resource Protection Measures	Responsibility
K.2 Archeological Resources (continued)	If human skeletal remains were encountered, protocols under federal and state law would apply. All work shall stop in the vicinity of the discovery, and the find would be secured and protected in place. The appropriate county coroner (Mariposa or Merced) and park archeologist would both be immediately notified. If an analysis determines that the remains are American Indian, and that no further coroner investigation of the cause of death is required, the coroner would then be required to contact the NAHC (pursuant to Section 7050.5[c] of the California Health and Safety Code) and the County Coordinator of Indian Affairs. The remains would also be treated in accordance with the Native American Graves Protection and Repatriation Regulations at 43 CFR 10.4 (Inadvertent discoveries).	Yosemite National Park; Contractor

APPENDIX B: CUMULATIVE PROJECT LIST

Action or Project / Status	Brief Description	Impact Topics
Hodgdon Meadow Entrance Complex Generator Installation Past (2007)	This project replaced a portable generator with a larger generator (placed in the existing generator enclosure and expanded with a 6 foot x 7 foot enclosed concrete pad). Underground conduit was run through a trench (170 feet of trenching, 12 inches wide x 36 inches deep). A new propane tank with underground piping was installed next to the generator on a new concrete pad (10 feet x 24 feet). The tank was relocated to the generator shed. This project was located within the Big Oak Flat welcome center complex.	Visitor use
Hodgdon Meadow Wastewater Improvements Past (2011)	The Hodgdon Meadow area consists of residences, maintenance buildings, a campground, and entrance facilities. All area facilities, except the entrance facilities, are treated by a summer and a winter wastewater treatment system. Following a 2011 winter leach field failure, this project replaced the septic tank and leach field with a new septic tank, dosing chamber, and leach field. The new system accommodates the summer and winter needs of Hodgdon Meadow and was designed to receive current and projected future sewer flows of the area. This was the first step to consolidate the area to a single year-round system.	Vegetation and visitor use
Big Oak Flat Road Chip Seal (El Portal Road to Hodgdon Meadow) Past (2011)	This project chip sealed 19-miles of Big Oak Flat Road (patch holes, fill cracks, repair curbs, and apply chip seal). Patch cutouts were kept to a maximum depth of 12 inches within the existing road prism. Failed material was removed and replaced. The cracks in the road were filled and the asphalt curb was repaired; work occurred within the existing paved surface. The project limits included Big Oak Flat Road (19-miles, excluding turnouts) from El Portal Road to the Northern Park Boundary (Hodgdon).	Visitor use
The Yosemite Rush Creek Lodge Past (2016)	A new resort, the Yosemite Rush Creek Lodge, was developed 1.5-miles north of the Big Oak Flat Entrance (outside the park). The resort comprises 143 rooms, suites, and villas. It is located on 20 acres adjacent to Highway 120.	Visitor use

Action or Project / Status	Brief Description	Impact Topics
<p>Communications Data Network System Upgrades</p> <p>Ongoing</p>	<p>The project is facilitating a parkwide telecommunications system for computer LAN data, Narrowband P25 Land Mobile Radio (LMR), video surveillance, systems, telephony, alarm systems, traffic data, and telemetry. Park-wide improvements to existing communication sites and development of new sites would occur, including installing new microwave facilities at Big Oak Flat and the Hodgdon Maintenance Complex. Near Big Oak Flat area, a repeater would be installed in a forest area (not in/adjacent to designated Wilderness); it would entail creating an access route, grading, foundation construction, and installation of an 85-foot steel tower with two antennas to provide microwave connectivity between the Hodgdon and Crane Flat sites. It would include removal or trimming of three conifers. The project also proposes mounting a microwave antenna on the Hodgdon maintenance building and transitioning an existing shed to use as an equipment room. Implementing this portion required 4,500 feet of trenched fiber cable from the Hodgdon Maintenance site to the Big Oak Flat Entrance, along Tuolumne Grove Road. One approximately 70-foot pine tree was removed.</p>	<p>Visitor use and vegetation</p>
<p>Implementation of the 2008 <i>Yosemite Invasive Plant Management Plan Environmental Assessment</i> and 2010 update</p> <p>Ongoing</p>	<p>This plan defines a program to manage invasive plants (approximately 10% of the park's flora), which includes education, research, prevention, monitoring, ecosystem restoration, and control. Work plans are posted annually on the park website for public review. Prior to the 2013 Rim Fire, invasive plant treatment was minimal in the Big Oak Flat area, despite their known presence. After the fire, plant infestations spread, and extensive treatment of velvet grass and bull thistle has been ongoing at Hodgdon Meadow. Treatments for oxeye daisy, hops, Himalayan blackberry, and other invasive plants have occurred at the Carlon Falls Trail area. Treatment of invasive plants in the area continues but is contingent on funding. Treatment of high priority invasive species follows procedures in the plan and EA 2010 update. Targeted species have been treated through a combination of mechanical and chemical means, depending on the species and phenology.</p>	<p>Vegetation</p>
<p>Mather District Emergency Services and Law Enforcement Office</p> <p>Future (Planned 2021–2022)</p>	<p>The project would replace and unify law enforcement, emergency services, and wildland fire operations for the Mather District Visitor Protection staff to a new location. The facility would include an ambulance bay, a fire-truck bay, and parking for Law Enforcement vehicles. It would also include a multi-purpose meeting room and offices for Mather District visitor protection staff. Further planning, design, and compliance will determine the proposed suitable location/range of alternatives.</p>	<p>Vegetation</p>

Action or Project / Status	Brief Description	Impact Topics
Rehabilitate Hodgdon Meadow Water Distribution System to Restore Capacity and Reduce Failures Future	The project would upgrade the water distribution system in the Big Oak Flat area and Hodgdon Meadow community. Improvements are required to maintain compliance with state and federal regulations regarding public health and safety and to protect the natural environment. This project will replace 14,275 linear feet of water line in Hodgdon Meadow, and rehabilitate the distribution mains, laterals to all facilities, and the campground. It would place water meters at unmetered facilities, replace eight fire hydrants, and construct a booster pump or split zone pressure system to address system pressure loss (to maintain fire suppression flow pressure). Recent pH adjustments for the system have reduced pipe corrosion, but it remains in poor condition and beyond its service life. Interruption or failure of the system affects visitors, park staff, and facilities that support the developed area.	Vegetation

APPENDIX C: GLOSSARY AND ACRONYMS

GLOSSARY

Affected environment: Existing natural, cultural, and social conditions of an area that are subject to change, both directly and indirectly because of a proposed human action.

Archeological resources: Historic and prehistoric deposits, sites, features, structure ruins, and anything of a cultural nature found within, or removed from, an archeological site.

Best management practices: Effective, feasible (including technological, economic, and institutional considerations) conservation practices and land- and water-management measures that avoid or minimize adverse impacts on natural and cultural resources. Best management practices may include schedules for activities, prohibitions, maintenance guidelines, and other management practices.

Critical habitat: The area of land and water with physical and biological features essential to the conservation of federally listed threatened and endangered species and which may require special management considerations or protection.

Cultural resources: The broad category of socio-cultural resources and historic properties that reflect the relationship of people with their environment.

Endangered Species Act (16 USC 1531 et seq.): An Act that provides a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved and which provides a program for the conservation of such endangered species and threatened species.

Environmental assessment (EA): A public document required under the National Environmental Policy Act that identifies and analyzes activities that might affect the human and natural environment. An EA is considered a concise public document, which provides sufficient evidence and analysis for determining whether to prepare an environmental impact statement (EIS), aids an agency's compliance with NEPA when no EIS is necessary, and it facilitates preparation of an EIS when one is necessary.

Environmental consequences: This section of an environmental assessment describes the impacts a proposed action would have on resources. Direct, indirect, and cumulative impacts, both beneficial and adverse area analyzed. Facilities: Buildings, communications support structures, and the associated supporting infrastructure such as roads, trails, and utilities.

Finding of no significant impact (FONSI): A document prepared by a federal agency showing why a proposed action would not have a significant impact on the environment and thus would not require preparation of an EIS. A FONSI is based on the results of an EA.

Historic and cultural resources: Under NEPA, culturally valued pieces of real property (not historic properties) and non-tangible values such as cultural use of the biophysical and built environments, and sociocultural attributes such as social cohesion, lifeways, religious practice and other social institutions (40 CFR 1508.27(b)(3)).

National Environmental Policy Act: The federal act that sets national environmental policies and requires preparation of an EIS for major federal actions that may significantly affect the quality of the human environment (USC 432 1-4347).

National Historic Preservation Act of 1966 (16 USC 470 et seq.): An Act to establish a program for the preservation of historic properties throughout the nation, and for other purposes, approved October 15, 1966 [Public Law 89-665; 80 STAT.915; 16 USC 470 as amended by Public Law 91-243, Public Law 93-54, Public Law 94-422, Public Law 94-458, Public Law 96-199, Public Law 96-244, Public Law 96-515, Public Law 98-483, Public Law 99-514, Public Law 100-127, and Public Law 102-575].

National Register of Historic Places (National Register): The official list of the nation’s historic places worthy of preservation. Authorized by the National Historic Preservation Act of 1966, the NPS’s National Register is part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect America’s historic and archeological resources.

National Park Service management policies: A policy is a guiding principle or procedure that sets the framework and provides direction for management decisions. NPS policies are guided by and consistent with the Constitution, public laws, executive proclamations and orders, and regulations and directives from higher authorities. Policies translate these sources of guidance into cohesive directions. Policy direction may be general or specific. It may prescribe the process by which decisions are made, how an action is to be accomplished, or the results are to be achieved. The primary source of NPS policy is the publication *Management Policies 2006*. The policies contained therein are applicable Service-wide. They reflect NPS management philosophy. Director's Orders supplement and may amend Management Policies. Unwritten or informal “policy” and people’s various understandings of NPS traditional practices are never relied on as official policy.

National Park Service Organic Act: In 1916, the Organic Act established NPS to “promote and regulate use of parks...” and defined the purpose of the national parks as “to conserve the scenery and natural and historic objects and wild life therein and to provide for the enjoyment of the same in a manner and by such means as will leave them unimpaired for the enjoyment of future generations.” This law provides overall guidance for the management of NPS units.

No Action Alternative: The alternative in a NEPA document that proposes to continue current management direction. “No action” means the proposed activity would not take place, and the resulting environmental effects from taking no action would be compared with the effects of permitting the proposed activity or an alternative activity to go forward.

Nonnative species: Species of plants or wildlife that are not native to a particular area and often interfere with natural biological systems.

Threatened and endangered species: Species of plants that receive special protection under state and/or federal laws. Also referred to as “listed species,” “endangered species,” or “special-status species.”

Traditional cultural properties: A resource to which American Indian tribes attach cultural and religious significance that is eligible for listing or listed in the NRHP and includes structures, objects, districts, geological and geographical features, and archeology. *National Register Bulletin 38* provides guidance for identifying and evaluating such properties for eligibility.

Traditional cultural resource: Any site, structure, object, landscape, or natural resource feature assigned traditional, legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it.

Visitor experience: The perceptions, feelings, and reactions a park visitor has in relationship with the surrounding environment.

ACRONYMS AND ABBREVIATIONS

Cal Fire	California Department of Forestry and Fire Protection
CFR	Code of Federal Regulations
dbh	diameter at breast height
DOE	determination of eligibility
EA	environmental assessment

National Register	National Register of Historic Places
NEPA	National Environmental Policy Act of 1969, as amended
NPS	National Park Service
park	Yosemite National Park
PEPC	Planning, Environment, and Public Comment
SHPO	State Historic Preservation Office
USC	United States Code
YARTS	Yosemite Area Regional Transportation System



As the nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering wise use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historic places, and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people. The department also promotes the goals of the Take Pride in America campaign by encouraging stewardship and citizen responsibility for the public lands and promoting citizen participation in their care. The department also has major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

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