Sequoia and Kings Canyon National Parks

National Park Service
U.S. Department of the Interior

Environmental Assessment:
Replace Big Stump Entrance Station
Kings Canyon National Park
Tulare County, California

October 2008

ENVIRONMENTAL ASSESSMENT

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SUMMARY

The National Park Service (NPS) proposes to construct a new entrance station to serve the Big Stump entrance to Kings Canyon National Park on California Highway 180. The Big Stump entrance station is the main entrance to Kings Canyon National Park and to the northern portion of Giant Sequoia National Monument in the Sequoia National Forest. Each year, Big Stump entrance station personnel are responsible for contacting more than 600,000 visitors entering the park in over 180,000 vehicles. The Big Stump entrance station is the primary point of contact where visitors pay entrance fees, receive maps and information on recreation, facilities, services, road conditions and resource protection. During the winter, the entrance station has been a critical location for visitors to receive updated road conditions and apply chains before proceeding into the park.

The NPS began looking at options for replacing the Big Stump entrance station with a new structure in late 2004. At that time, a number of operational shortcomings had become apparent including the repetitive springtime flooding of the fee office and the lack of a second lane and kiosk to manage the growing summer crowds. The idea was to construct an improved entrance station at the current location.

In October 2005, before the planning process to replace these structures was complete, the Big Stump entrance station was closed due to safety concerns caused by a hazardous giant sequoia tree. Based on evaluation of the giant sequoia by forestry professionals, it was determined that all or part of the tree might fall into the entrance station area, presenting a serious hazard to visitors and employees.

The tree underwent minor crown reduction to reduce but not eliminate the hazard and entrance station operations were moved to interim summer and winter locations. In summer from mid-May to October, the interim entrance station is located at the Big Stump picnic area, one-half mile east of the former entrance station. Visitors access the entrance kiosks by making a left hand turn into the parking lot, circling around to the kiosks and exiting at the same point from which they entered. In winter, a kiosk is placed in the parking lot in front of the Kings Canyon Visitor Center, approximately 2.5 miles east of the former entrance station location. Visitors access this kiosk by turning into the Kings Canyon Visitor Center parking lot, parking and walking to the kiosk window.

Re-establishing a fully operational entrance station in the Big Stump area would effectively support essential park operations, provide for employee and visitor health and safety, and reduce impact on the parks' natural and cultural resources. This environmental assessment describes the impacts associated with three alternatives, a no action alternative and two action alternatives that would provide a safe and operationally efficient entrance station.

ALTERNATIVE A: NO-ACTION ALTERNATIVE (CONTINUATION OF PRESENT MANAGEMENT)

This alternative would continue entrance station operations at the two interim locations. A winter chain up area would be signed and available near the former entrance station, out of the fall path of the giant sequoia and approximately 2.5 miles prior to reaching the entrance station at the Kings Canyon Visitor Center.

ALTERNATIVE B: CONSTRUCT NEW ENTRANCE STATION AT THE BIG STUMP LODGE SITE (PREFERRED ALTERNATIVE)

Under Alternative B, the park would construct a new entrance station at a site about 100 feet downhill (south/southwest) from the former entrance station site, along California Highway 180. The new site would be outside of the giant sequoia hazard tree target fall zone. The section of highway before and after the entrance station would be realigned for a total distance of about 2,000 feet. The winter tire chain up area would be expanded adjacent to the current location at the former Big Stump entrance station. Utilities would be trenched from the former entrance station, about 200 feet away.

ALTERNATIVE C: CONSTRUCT NEW ENTRANCE STATION BELOW THE JUNCTION OF HIGHWAY 180 AND THE GENERALS HIGHWAY

Under Alternative C, the park would construct a new entrance station at a site approximately 2,000 feet west of the junction of Highway 180 and the Generals Highway, farther into the park than the former or Alternative B entrance station locations. Due to the area topography, this is the only feasible building site along Highway 180 between the junction and the former Big Stump entrance station site that can accommodate an entrance station. This location is approximately 1.4 miles east of the former entrance station. The highway would be widened at the new entrance station location and the road realigned to accommodate this change. A separate area for vehicles to put on or adjust tire chains in winter would be constructed approximately 350 feet before reaching the proposed entrance station site. Utilities would be brought in from the nearest location, about 4,000 feet away.

NOTES TO REVIEWERS AND RESPONDENTS

If you wish to comment on the environmental assessment, you may mail comments to the name and address below or post comments online at http://parkplanning.nps.gov/. This environmental assessment will be on public review for 30 days. Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that your entire comment – including your personal identifying information – may be made available to the public at any time. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we would be able to do so. We would make all submissions from organizations, businesses, and from individuals identifying themselves as representatives or officials of organizations or businesses available for public inspection in their entirety.

Please address comments to: Sequoia and Kings Canyon National Parks; Replace Big Stump Entrance Station EA; 47050 Generals Highway, Three Rivers, CA 93271. E-mail: SEKI_planning@nps.gov.

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PURPOSE OF AND NEED FOR THE PLAN

INTRODUCTION

BACKGROUND

Sequoia and Kings Canyon National Parks are located in the eastern part of central California (Figure 1: Region Map: The Big Stump entrance is located in Kings Canyon National Park, approximately 55 miles east of Fresno, California). Although established by separate acts of Congress, the two parks share miles of boundary and are managed jointly. Both parks are located on the western slope of the Sierra Nevada mountain range. Combined acreage for the two parks is 865,952 acres, 83.6 percent of which is designated wilderness with an additional 12 percent managed as wilderness according to NPS policies.

There are two entrance stations for the parks. The former Big Stump entrance station (Figure 2: Big Stump Project Area) is located on Highway 180 near the boundary of Kings Canyon National Park. The second entrance station, Ash Mountain, is located on the Generals Highway at the foothills boundary to Sequoia National Park. These two entrance stations are the primary points of contact where visitors receive maps, information on road conditions, hazards, and resource protection. Visitors entering at either of these locations will generally travel through both parks and exit at the opposite location.

Kings Canyon National Park comprises just over half the acreage of the combined parks and is the northernmost of the two parks. While Sequoia National Park includes some of the largest giant sequoia trees and groves in the world including the world's largest tree, the General Sherman Tree. Kings Canyon National Park includes several groves of giant sequoia including the General Grant Grove and the famous General Grant Tree. Also in this area is Redwood Canyon, which is the home of the Redwood Mountain Grove, the largest remaining natural giant sequoia grove in the world. The remainder of Kings Canyon National Park, over 90 percent of the total acreage of the park, is located to the east of Grant Grove in the subalpine and alpine region that forms the headwaters of the South and Middle Forks of the Kings River and the South Fork of the San Joaquin River. It includes Kings Canyon itself and a small developed area at the end of Highway 180, Cedar Grove. The majority of the area beyond Road's End is accessible solely by foot or horse and is managed as designated wilderness.

Kings Canyon National Park is bordered to the west and south by the northern portion of Giant Sequoia National Monument managed by the Hume Lake Ranger District of the Sequoia National Forest. The monument comprises 327,769 acres of land and was established by Presidential Proclamation on April 15, 2000. Its creation mandated the protection of the historic and scientific "objects of interest" within the Monument. It provides trails for hiking and horseback riding, snowmobiling and skiing in winter, guided tours are offered in limestone caverns, fishing, hunting and other recreational opportunities. The Big Stump entrance station provides information and fee collection for visitors to this portion of Giant Sequoia National Monument and the Hume Lake Ranger District of Sequoia National Forest under a cooperative agreement with the United States Forest Service.

Former Entrance Station Configuration

The configuration of the former Big Stump entrance station was established in the late 1950s with one inbound lane, a two-person kiosk to collect fees and make visitor contacts, and a small office for storage and break room facilities (see Figure 2 for the location of the former site).

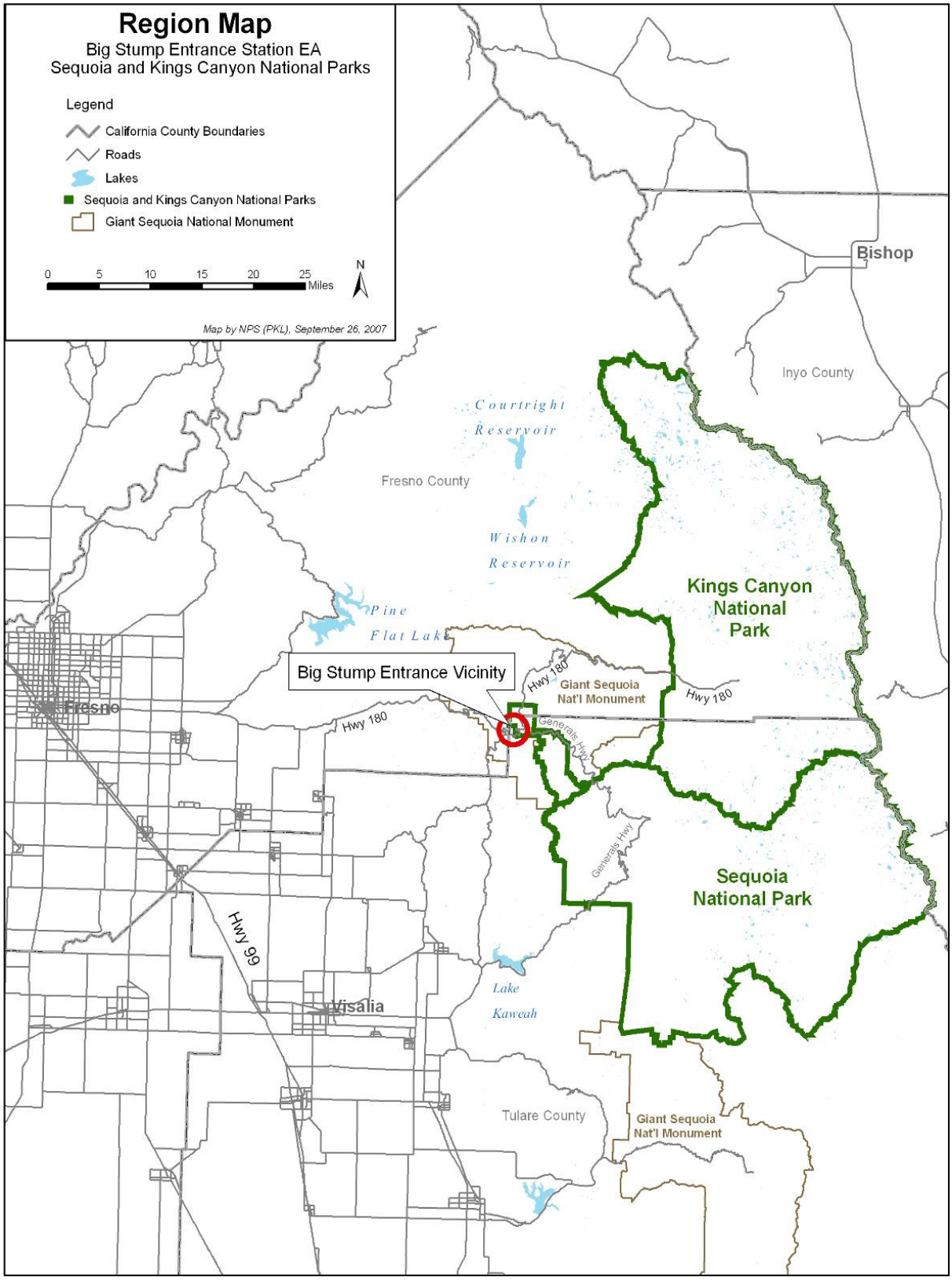

Figure 1: Region Map: The Big Stump entrance is located in Kings Canyon National Park, approximately 55 miles east of Fresno, California

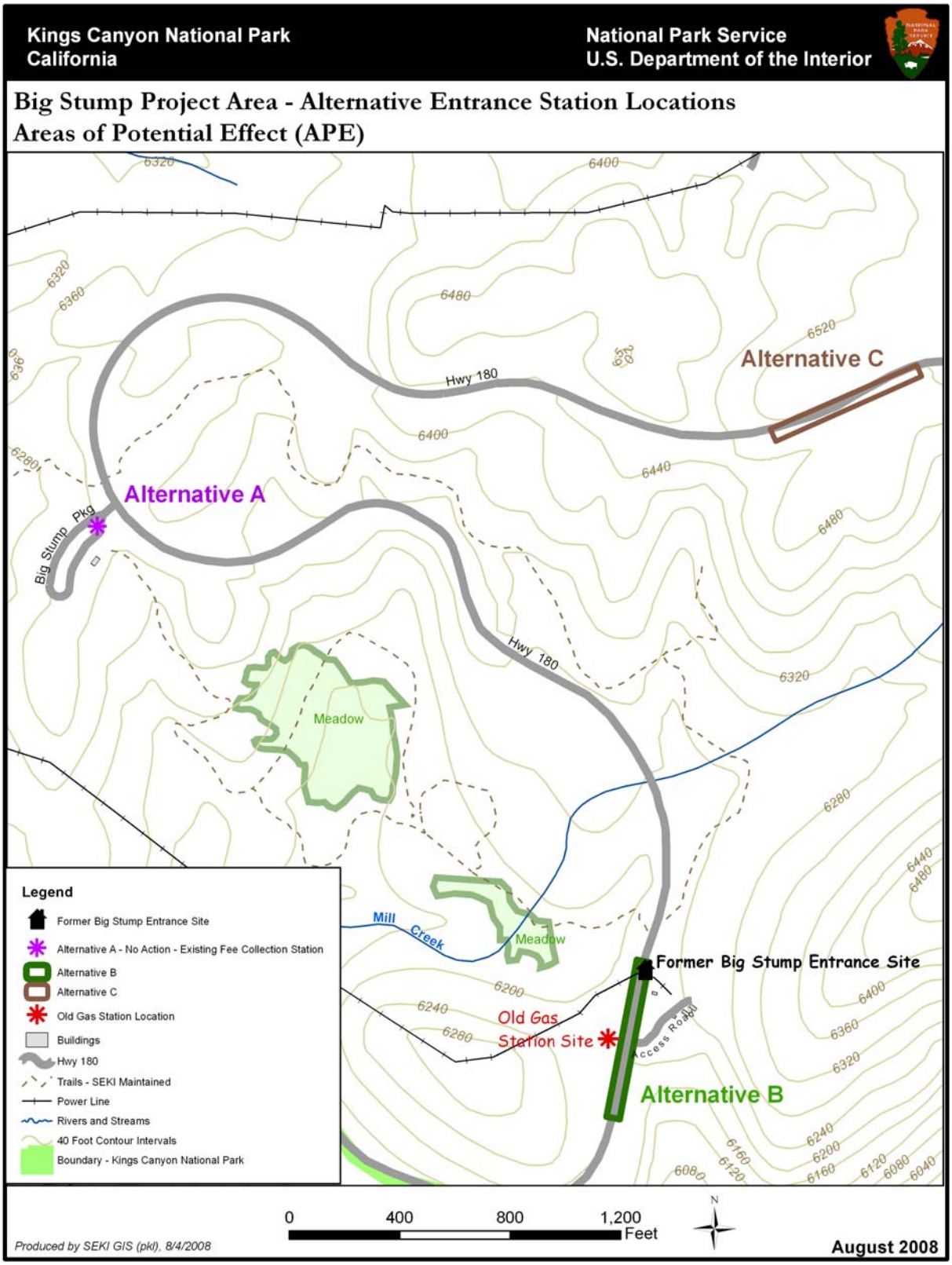

Figure 2: Big Stump Project Area

The park identified the station for replacement due to serious operational deficiencies including intermittent flooding, inadequate ventilation of exhaust fumes, and traffic congestion that caused unacceptable delays of emergency and operations vehicles. On busy days, the single kiosk at the former entrance station was inadequate to contact all visitors safely and efficiently. Lines of vehicles waiting to enter the park would sometimes extend as long as 1 mile from the entrance station. Official agency vehicles, commercial trucks making deliveries, snowplows, emergency vehicles and others not required to pay entrance fees were unable to bypass the congestion until they came to an administrative bypass lane about 100 feet from the entrance station. As a result, they could be delayed for as long as 20 minutes. Vehicles sometimes extended down the highway to locations with poor line of sight due to sharp curves.

In addition, the station was not ergonomically designed to meet the needs of personnel working in the kiosk. The ventilation system did not adequately mitigate employee exposure to harmful vehicle emissions, additional security measures were needed and the kiosk did not meet the requirements of federal accessibility laws (Section 504 of the 1973 Rehabilitation Act and the 1968 Architectural Barriers Act).

The cinder block office building is still in its former location at the entrance station. It was built below the road grade, and during heavy rains or snowmelt, water, sand and silt run into the office, clogging the drainpipe and flooding the office. Office staff would use cans and buckets to remove the water that threatened to damage office equipment, including the safe.

In addition, neither the kiosk nor the office met the parks' architectural character guidelines for rustic structures (Appendix D: Excerpts from Architectural Character Guidelines). The facilities were not designed to blend with and emphasize the historic and natural character of the surrounding areas. The kiosk, constructed in 1957, is not a Mission 66 structure. After over 50 years of use, the kiosk and office were examples of park architecture that park guidelines specifically seek to eliminate and replace, architecture that "weakens and cheapens the entire park experience, subtracting from the values and perceptions that allow a park to survive and prosper." (Architectural Character Guidelines, 1996).

In the winter of 2004-2005, Sequoia and Kings Canyon National Parks began developing design alternatives that would address these shortcomings. Proposed designs and road configurations were submitted to an interdisciplinary team of park personnel for review in April of 2005.

During the process of evaluating alternatives for a more efficient entrance station, safety concerns arose regarding a hazardous giant sequoia tree. This giant sequoia was carefully examined by professional foresters who determined the tree was severely defective and at risk for catastrophic failure under stressful circumstances such as heavy winds. By employing the park's tree hazard rating system, which follows regional protocols, the park managers decided that the tree presented a critical hazard to visitors and government employees stopping or working in the vicinity.

The park uses a seven-point rating system that provides a logical basis of judging relative degrees of tree hazard and assigns priorities for management actions. The rating is comprised of two components. The **tree value** (defect) represents an estimation of the tree's relative potential for imminent failure (tree condition) and its damage potential. Factors such as the structural soundness of tree parts and the size and height of the potentially hazardous portion of the tree are considered. The **target value** represents the possibility of a target being hit due to its proximity and accounts for the relative location and importance of a "target," which includes property and people. Both values can receive a rating of one to three, with three representing the highest value or hazard potential. An additional point can be added to the rating score if there is a severe lean, increasing the likelihood of failure.

Based on this system, on September 30, 2005, the tree was evaluated with the hazard rating of a three for tree value and a three for target value, totaling a ranking of six, or a high priority hazard which required management response to abate the risk or reduce the hazard (per PRW-062).[1] As a result, the entrance station was closed in October 2005 and the park moved to using two different interim stations in the summer and winter.

Interim Summer and Winter Configurations

As previously noted, after the hazard tree was identified, the former entrance station kiosk was temporarily relocated to a summer location and then to a different winter location. The park has been operating on this interim basis since 2005.

In summer, the entrance station is located at the Big Stump picnic area, approximately ½ mile east of the former Big Stump entrance station site. The summer entrance station location has two kiosks. Both are in the Big Stump picnic area parking lot during the summer. The entrance to the picnic area requires vehicles entering the park to stop on the highway and turn across opposing traffic into the parking lot where the kiosks are located. This set up does not guarantee that visitors will stop and turn into the parking lot in order to pay their entrance fees for the park and the USFS (as allowed by the cooperative agreement). In addition, the opportunity to provide useful and sometimes critical information to the visiting public is lost when visitors bypass the station.

As these are temporary, the kiosks are functional but do not comply with the parks' architectural character guidelines or federal accessibility standards. Although security measures in the former entrance station kiosk have been improved, both of the kiosks need increased reliability of security measures. Employee health and safety concerns include inadequate ventilation to mitigate vehicle exhaust fumes, and poor ergonomic design.

In winter, because icy roads make the turn into Big Stump picnic area a safety concern, the entrance station is moved to the parking lot adjacent to the Kings Canyon Visitor Center, approximately 2.5 miles east on Highway 180. Because visitors do not have to pass directly through either of these interim entrance stations, many continue through the park without being contacted by park staff or paying their entrance fee.

In winter, visitors must enter the often congested Grant Grove Village parking lot, park their car, and walk over to the single entrance station kiosk. The village complex includes a store, post office, lodging reservation office, restaurant, gift shop, and visitor center. The added entrance station traffic increases congestion and pedestrian traffic in the parking lot.

A critical function of the entrance station is to inform visitors of safety hazards and road conditions. In winter, it is especially important to inform visitors of, and ensure they are in compliance with chain requirements. Chain controls often first become necessary in the area of the former Big Stump entrance station. There, a large pullout was provided for installing tire chains. Visitors who did not have snow tires or chains were turned around for safety. The presence of the giant sequoia hazard tree required closing off much of this pullout. Visitors still use part of the pullout to put on chains, but limited space means vehicles often spill out into active traffic lanes, creating a hazard in icy conditions.

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1 Per Tom Warner, park forester, e-mail communication, August 29, 2007.

In the fall of 2005, after the entrance station was moved to the interim locations, the giant sequoia hazard tree was pruned to reduce the hazard to visitors driving through the area should any limbs or the bole of the tree fail. The decision process for the appropriate tree hazard mitigation is described in Appendix A: Big Stump Giant Sequoia Interim Tree Hazard Reduction Plan. The tree was reduced in height from about 180 feet to about 140 feet tall during this hazard reduction operation. As a result of moving the entrance station and pruning the giant sequoia, the hazard it presented to public and employee health and safety was reduced, but was not eliminated. The overall tree's hazard rating was reduced from a score of six to a five removing it as a high priority.

In its weakened state, the giant sequoia tree creating the hazard may still be subject to limb or bole failure as a result of natural processes such as fire, a heavy snow load, high winds or even increased loading of the branches in summer when water uptake increases. Stopping in the hazardous area is not allowed. The parking area that is within the fall path of the giant sequoia has been barricaded.

Park policy calls for evaluation and mitigation of tree hazards before their failure becomes imminent. The tree hazard will continue to be periodically monitored and evaluated per the park's tree hazard rating system by the park forester and his staff and other forestry professionals. Action would be taken following regional protocols should the risk presented to the public or employees become unacceptable.

PURPOSE AND NEED

The purpose of this project is to replace the former Big Stump entrance station with a fully functional entrance station, which safely and efficiently serves visitor and operational requirements at this gateway to Sequoia and Kings Canyon National Parks and Giant Sequoia National Monument. Importantly, the selected alternative must have the least impact on the parks' natural and cultural resources.

The project objective is to provide safe, effective and efficient service to the public. To achieve this objective the entrance station must provide for the following:

- Efficient and effective fee collection for Sequoia and Kings Canyon National Parks
- Serves year round as an initial point of contact with visitors near the park boundary, for Sequoia and Kings Canyon National Parks and the northern portion of the Giant Sequoia National Monument in the Hume Lake Ranger District of Sequoia National Forest
- Reduced vehicle wait times at the kiosks on normal summer weekends and minimized hazardous traffic backups
- The possibility for future expansion if warranted by future traffic demands
- Information, maps and brochures for visitors
- Timely information on road conditions
- Effective enforcement of winter chain requirements.
- Adequate space to safely apply or adjust chains near the park boundary
- Adequate space for snowplows to turn around

- Adequate office space for efficient entrance station operations
- Comply with all applicable laws for employee health and safety (federal accessibility laws - Section 504 of the 1973 Rehabilitation Act and the 1968 Architectural Barriers Act, has proper ventilation and ergonomics, meets Occupational Safety and Health Administration standards)
- Visitor and employee health and safety
- Minimal impacts on natural and cultural resources

An analysis of how each alternative meets these objectives is provided in Table 1.

There is a need to address the operational shortcomings of the former entrance station configuration and the safety challenges that developed from the hazardous giant sequoia.

Staffed entrance stations are critical to the park mission to offer visitor services and ensure safety by providing timely and important information to incoming visitors. Currently, visitors are able to easily bypass the interim summer and winter entrance station locations and many continue through the park without being contacted by park staff, therefore not receiving maps or information on visitor services, safety concerns or road conditions. In addition, the park is unable to collect entrance fees critical to projects that affect visitor experience at the park and the USFS monument. Fee compliance at the interim winter location at the Kings Canyon Visitor Center is estimated to be at about 40 percent of previous years' receipts, based on revenue numbers for October 2004 through December 2005.

Although some employee health and safety concerns have been improved with the interim sites, they still include inadequate ventilation to mitigate vehicle exhaust fumes and poor ergonomic design. There is no office space adjacent to either winter or summer fee operations, which are needed for administrative and financial accounting functions, which are central operational requirements for fee collection. There is no storage space for maps, brochures and other materials needed to provide visitors with basic resource and safety information.

Establishing a fully operational entrance station in the Big Stump area that effectively supports essential park operations, provides for employee and visitor health and safety, and has the least impact on the parks' natural and cultural resources, would meet the stated purpose and need for this proposed project.

PARK PURPOSE, SIGNIFICANCE, AND MISSION

An essential part of the planning process is to understand the purpose, significance, and mission of the park for which this EA is being prepared.

Park Purpose

Sequoia National Park was established as the nation's second national park on September 25, 1890, with the purpose of preserving the giant sequoias (*Sequoiadendron giganteum*). General Grant National Park was established a week later, also with the purpose of preserving the giant sequoias. Kings Canyon National Park was established by Congress in 1940 and includes the area that was General Grant National Park. The purposes of the parks are the reasons why Congress established the area as part of the national park system. The purpose statements are basic to all other assumptions about the parks and the ways in which the parks should be used and managed.

As defined by park managers, the following are the purposes of Sequoia and Kings Canyon National Parks, which incorporate the mission statement:

- Protect forever the greater Sierran ecosystem — including the sequoia groves and high Sierra regions of the park — and its natural evolution.
- Provide appropriate opportunities to present and future generations to experience and understand park resources and values.
- Protect and preserve significant cultural resources.
- Champion the values of national parks and wilderness.

Park Significance

Park significance statements capture the essence of the national park's importance to the natural and cultural heritage of the United States of America. Significance statements do not inventory park resources; rather, they describe the park's distinctiveness and help place the park within the regional, national, and international context. Defining park significance helps park managers make decisions that preserve the resources and values necessary to accomplish the purpose of the national park. Sequoia and Kings Canyon National Parks are special and unique places because they have:

- the largest giant sequoia trees and groves in the world, including the world's largest tree, the General Sherman Tree
- an extraordinary continuum of ecosystems arrayed along the greatest vertical relief (1,370 to 14,495 feet elevation) of any protected area in the lower 48 states
- the highest, most rugged portion of the high Sierra, which is part of the largest contiguous alpine environment in the lower 48 states
- magnificent, deep, glacially carved canyons, including Kings Canyon, Tehipite Valley, and Kern Canyon
- the core of the largest area of contiguous designated wilderness in California, the second largest in the lower 48 states
- the largest preserved southern Sierran foothills ecosystem
- almost 200 known marble caverns, many inhabited by cave wildlife that is found nowhere else
- a wide spectrum of prehistoric and historic sites documenting human adaptations in their historic settings throughout the Sierran environments

Sequoia and Kings Canyon National Parks have been designated as an international biosphere reserve, a program under the United Nations Educational, Scientific, and Cultural Organization that recognizes resources with worldwide importance. While this designation does not grant any form of control or ownership to the international body, it underscores the exceptional and singular qualities of the parks.

Park Mission

Park purpose describes the specific reason the park was established. Park significance is the distinctive features that make the park different from any other. Together, purpose and significance lead to a concise statement—the mission of the park. Park mission statements describe conditions that exist when the legislative intent for the park is being met.

The mission of Sequoia and Kings Canyon National Parks is based on the mission of the NPS, as defined by Congress in the 1916 Organic Act: to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations. The following mission statement for Sequoia and Kings Canyon National Parks articulates the broad ideals and vision that the NPS is striving to achieve: The mission of Sequoia and Kings Canyon Parks is to protect forever the greater Sierran ecosystem, including the sequoia groves and high Sierra regions of the parks and their natural evolution, and to provide appropriate opportunities to present and future generations to experience and understand park resources and values.

PLANNING HISTORY

A final General Management Plan was released in 2006 (NPS 2006 FGMP/FEIS) and the Record of Decision was signed in 2007. The parks will no longer operate under a master plan approved in 1971 (NPS 1971).

The next key planning document for the Grant Grove Village area of Kings Canyon National Park (including the Big Stump Entrance Station) is the *Grant Grove/Redwood Mountain Development Concept Plan* (DCP) that was approved in 1988 (NPS 1988). The DCP describes necessary improvements to visitor facilities and lays out a development plan for modernizing facilities to meet those needs, including recommended widening of the entrance station traffic lanes.

The *Sequoia and Kings Canyon Vegetation Management Plan* (1987) is the park-specific planning document that establishes policy and procedure for tree hazards in the park. The park's hazard tree rating system is consistent with regional protocols for evaluating and responding to hazard trees. (*Western Regional Directive #WR-093*, later titled *Pacific West Region Directive PWR-062*, and *1993 Guideline for Managing Tree Hazards*). The *Big Stump Giant Sequoia Interim Tree Hazard Action Plan* (2005) presented a plan for quickly dealing with the immediate hazard at the Big Stump entrance station on California Highway 180. Based on this plan, the tree underwent immediate crown reduction to reduce the likelihood of top, limb and even trunk failure. (Appendix A: Big Stump Giant Sequoia Interim Tree Hazard Action Plan).

SCOPING

Scoping is an effort to involve agencies and the general public in determining issues to be addressed in an EA. Scoping was used to determine or eliminate important issues to be given detailed analysis in this EA. Required permits, consultations and data requirements were ascertained, and a schedule was established. Scoping participants included interested agencies and any agency with jurisdiction by law or expertise including USFS, the California State Historic Preservation Officer (SHPO) and affiliated Indian tribes.

Staff of Sequoia and Kings Canyon National Parks and Sequoia National Forest conducted internal scoping. An interdisciplinary team (IDT) was established, including park managers, maintenance supervisors, ranger supervisors and resource specialists as well as supervisors and planners from the USFS. Planning staff from the National Park Service Denver Service Center were also involved in all aspects of planning and design. Before the park moved the Big Stump

entrance station because of safety concerns, a predesign and schematic design for the kiosks and traffic lanes were submitted for review to the park's interdisciplinary team for the project in April of 2005.

This interdisciplinary process defined the purpose and need, identified alternative actions to address the need, determined the likely issues and impact topics, and considered the relationship of the proposed action to other planning efforts at Sequoia and Kings Canyon National Parks. A range of alternatives designed to address the shortcomings of the former and interim entrance stations were evaluated by Sequoia and Kings Canyon National Parks during planning meetings held in December 2005 and February 2006. The IDT analyzed the advantages and disadvantages of each alternative. A number of alternatives were rejected because they did not meet the purpose and need or because they had potential to produce an unacceptable level of adverse environmental or visitor use impacts. The alternatives dismissed from consideration are addressed in the Alternatives Considered but Rejected section.

Public notice and request for comments began March 1, 2006, with a press release (Appendix E). The announcement was faxed and sent electronically to over 200 agencies, tribes, media sources (e.g., television, print, radio), local businesses (e.g., lodging, services), other government agencies, all park employees and other potentially interested parties. The comment period ended April 1, 2006 and no comments were received. The public and groups traditionally associated with the lands of Sequoia and Kings Canyon National Parks and Giant Sequoia National Monument will now have the opportunity to review and comment on the alternatives and impacts analyzed in this EA.

IMPACT TOPICS SELECTED FOR DETAILED ANALYSIS

Impact topics for this project have been identified based on federal laws, regulations, and orders and NPS knowledge of resources at the parks. Impact topics that are carried forward for further analysis in this EA are listed below along with a brief statement of why the impact topic is further analyzed. The resources that could be affected and the impacts that could occur under each topic are described in detail in the Affected Environment and Environmental Consequences chapters of this document.

Soil Resources

According to *National Park Service Management Policies 2006*, "The Service will actively seek to understand and preserve the soil resources of the parks, and to prevent, to the extent possible, the unnatural erosion, physical removal, or contamination of the soil or its contamination of other resources."

The action alternatives for this project involve the construction of new entrance station facilities, which would involve some soil disturbance. The amount and magnitude of disturbance will be documented and analyzed. Under the action alternatives, long term, minor adverse impacts to soil resources would occur due to the construction of entrance station facilities and the realignment of Highway 180 to accommodate these facilities.

Air Quality

The 1977 amendment to the Clean Air Act, (42 U.S.C. 7401, et seq.), requires federal land managers to protect park air quality, while the *National Park Service Management Policies 2006* address the need to analyze air quality during park planning. Sequoia and Kings Canyon National Parks were designated Class I under the 1963 Clean Air Act, as amended. A Class I area is subject to the most stringent regulations of any designation. Class I areas must not exceed the maximum

allowable increment over baseline concentrations of sulfur dioxide and particulate matter as specified in Section 163 of the 1963 Clean Air Act. Further, the 1963 Clean Air Act provides that the federal land manager (the Assistant Secretary for Fish and Wildlife and Parks and the Park Superintendent) have an affirmative responsibility to protect the parks' air quality related values (including visibility, plants, animals, soils, water quality, cultural and historic resources and objects, and visitor health) from adverse air pollution impacts. Section 118 of the 1963 Clean Air Act requires the parks to meet all federal, state, and local air pollution standards.

The proposed project falls within the San Joaquin Valley Air Pollution Control District (Ratliff, et al., 2005). The air district is currently extreme non-attainment for ozone (1 hour) and serious non-attainment for particulate matter (PM_{10}). This air district is susceptible to air pollution given its climate, topography, and human activities. Area (non-point) sources continue to be the major contributor of air pollutants in the district. Area sources include cars, trucks, farm equipment, and other agricultural activities. Most of the air pollution found in the parks originates outside park boundaries. However, emissions from construction equipment would produce particulate matter (PM), nitrogen oxides (NO_x), and hydrocarbons, precursors to the formation of ozone.

Soundscapes

Continued operation and potential construction of a new entrance station facility would impact the natural soundscape or quiet that the National Park Service is responsible for preserving, protecting, and restoring.

Vegetation and Non-Native Species

Construction activities proposed in the action alternatives involve some vegetation disturbance and revegetation mitigation.

Special Status Species

Although no special status species have been surveyed in the project area, there is the potential for such species to be found using the site for habitat.

Recreation and Visitor Use Experience

The Grant Grove portion of Kings Canyon National Park and surrounding sequoia groves are a popular destination for visitors and offer various recreational activities.

Cultural Resources

Adjacent to some alternatives are potentially eligible sites for listing in the National Register of Historic Places. The park is currently consulting with the State Historic Preservation Office.

Lightscapes

Light pollution is an issue in the California Central Valley and is evident from the Big Stump project area.

Giant Sequoia Groves

The Giant Sequoia Groves of Sequoia and Kings Canyon National Parks represent rare or unusual vegetation and unique ecosystems and are the primary purpose in the establishment of the original Sequoia and General Grant National Parks.

Health and Safety

Although some health and safety issues have been resolved by use of the interim entrance station locations, a safer, more ergonomic environment is needed for park employees. In addition, the giant sequoia tree hazard is addressed.

Scenic Values

The giant sequoia at Big Stump contributes to the area's scenic value as the park visitor's first view of such a tree entering the park.

Park and Other Agency Operations

The Big Stump entrance station plays a large role in affecting the parks' ability to collect fees used for park improvement projects. In addition, the Big Stump entrance station is a main access route to the northern portion of the Giant Sequoia National Monument in the Hume Lake Ranger District of Sequoia National Forest. The Park Service is under a cooperative agreement with the USFS to collect entrance fees at the Big Stump entrance station, which are used by both agencies to provide services such as protection, resource management, information and orientation, maintenance of park facilities, and interpretation to foster an understanding and appreciation of park resources. The entrance station also provides information to visitors on the condition of CalTrans roads.

IMPACT TOPICS DISMISSED FROM DETAILED ANALYSIS

Geology and Geologic Hazards

National Park Service Management Policies 2006 (NPS 2006) call for analysis of geological hazards should they be relevant. Although ground-disturbing activities would occur under each of the action alternatives, impacts to geology in the project area are not anticipated. Geologic hazards (e.g., faults and seismic activity such as earthquakes) are not anticipated to affect the project. Therefore, geologic hazards are dismissed from further analysis.

Water Quality or Quantity

The 1972 Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977, is a national policy to restore and maintain the chemical, physical, and biological integrity of the nation's waters; to enhance the quality of water resources; and to prevent, control, and abate water pollution. *National Park Service Management Policies 2006* provide direction for the preservation, use and quality of water in national park units. Water quality would not be affected by the proposed action since mitigation measures would be put in place to control stormwater runoff from construction areas that might carry sediment or construction debris and to ensure construction equipment is kept in good working order and not leaking oil or grease. Therefore, water quality is dismissed from further analysis.

Streamflow Characteristics

The sites for the action alternatives are not in the vicinity of any streams or rivers; therefore, streamflow characteristics are dismissed from further analysis.

Marine or Estuarine Resources

The sites for the action alternatives are not in the vicinity of any marine environments. Therefore, Marine or Estuarine Resources are dismissed from further analysis.

Floodplains and Wetlands

Executive Orders 11988 and 11990, Floodplains Management and Wetlands Management, respectively, require analysis of impacts on floodplains and regulated wetlands. Neither the action alternatives nor the no-action alternatives would occur within or affect a floodplain. There are no jurisdictional or NPS-defined wetlands within the project area. An unclassified and unnamed meadow is located near the proposed project area but outside the area of immediate impact. There are no wetlands regulated under the provisions of Section 404 of the Clean Water Act, or areas designated as wetlands using the classification system of Cowardin et al (1979), within the areas of potential effect. Therefore, wetlands and floodplains are dismissed from further analysis.

Land Use

None of the proposed alternatives would change local or regional land use. Regardless of the alternative selected, the land within the project area would continue to be used as a developed area of the park. Therefore, land use is dismissed from further analysis.

Wildlife and Unique Wildlife Habitat

NEPA calls for examination of the impacts on the components of affected ecosystems. NPS policy is to protect the natural abundance and diversity of park native species and communities, including avoiding, minimizing or mitigating potential impacts from proposed projects. Construction of the new entrance station could temporarily displace wildlife in the immediate vicinity. However, the action alternatives would occur along a previously disturbed road corridor, thus minimizing any new impacts to wildlife or unique wildlife habitat. Therefore, Wildlife and Unique Wildlife Habitat is dismissed from further analysis.

Socioeconomics (including Gateway Communities)

Neither the no-action alternative or the action alternatives would affect the long-term socioeconomic profile of the area, including employment, occupation, income changes, tax base, infrastructure, concessions, and transportation. The alternatives would not appreciably affect local businesses outside Sequoia and Kings Canyon National Parks. Implementation of an action alternative could provide a negligible and short-term, beneficial impact to the economies of the local area (e.g., increased employment opportunities for the construction work force and revenues for local businesses and government related to construction activity). Benefits to the local economy would be temporary, lasting only during construction, and negligible overall. Therefore, Socioeconomics is dismissed from further analysis.

Environmental Justice (Minority or Low Income Communities)

Executive Order 12898, General Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires that all federal agencies address the effects of policies on minorities and low-income populations and communities. None of the alternatives presented in this EA would have disproportionate effects on populations as defined by the U.S. Environmental Protection Agency's 1996 guidance on environmental justice.

Energy Resources

The no-action alternative and the action alternatives would not place an increased burden on local or regional energy resources. Therefore, Energy Resources is dismissed from further analysis.

Wilderness Resources

Wilderness areas of Sequoia and Kings Canyon National Parks were designated the Sequoia-Kings Canyon Wilderness by Congress in 1984 (PL 98-425). Wilderness is managed to preserve its natural condition, and is a place for a primitive type of recreation. The Big Stump area of Sequoia and Kings Canyon National Parks is defined as high-use front country in the parks' General Management Plan. The action alternatives presented in this EA would not occur in or directly adjacent to wilderness. Therefore, Wilderness Resources is dismissed from further analysis.

Prime and Unique Farmlands

The Council on Environmental Quality 1980 memorandum on prime and unique farmlands states that prime farmlands have the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. Unique agricultural land is land other than prime farmland that is used for production of specific high-value food and fiber crops. None of the alternatives presented in this EA would impact prime or unique farmlands.

Ecologically critical areas or other unique natural resources

The alternatives presented in this EA would not affect any designated ecologically critical areas, wild and scenic rivers, or other unique natural resources as referenced in the Wild and Scenic Rivers Act, *National Park Service Management Policies 2006,* 40 CFR, 1508.27, or the 62 criteria national natural landmarks.

Indian Trust Resources

Indian trust assets are owned by Native Americans but are held in trust by the United States. Requirements are included in the Secretary of the Interior's Secretarial Order 3206, American Indian Tribal Rites, Federal – Tribal Trust Responsibilities and the Endangered Species Act, and Secretarial Order 3175, Departmental Responsibilities for Indian Trust Resources. According to Sequoia and Kings Canyon staff's knowledge, no Indian Trust assets would be impacted by the alternatives presented in this EA. Tribes were contacted during the scoping process and no response was received.

Museum Objects (Collections)

The National Historic Preservation Act, Antiquities Act, Archeological Resources Protection Act, Archeological and Historic Preservation Act, *Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation*, Directors Orders 28 (NPS 1998), and *National Park Service Management Policies 2006* (NPS 2006) guide the analysis of effects on museum collections under NEPA. The preservation of museum collections is an ongoing process of preventive conservation, supplemented by conservation treatment when necessary. None of the alternatives presented in this EA are expected to impact the parks' museum collections.

Ethnographic Resources

Ethnographic resources as 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." (DO– 28: Cultural Resource Management Guideline, p. 191). Ethnographic resources are not known to exist in, or within proximity to, any sites in the action alternatives and thus they are dismissed from the impact analysis.

ALTERNATIVES, INCLUDING THE PREFERRED ALTERNATIVE

CHAPTER 2: ALTERNATIVES

This section describes three alternatives proposed for the Big Stump entrance station project at Kings Canyon National Park based on issues raised during scoping. (Figure 2: Big Stump Project Area and Figure 3: Satellite Image, Big Stump Project Area) Alternatives for this project were developed to meet the stated purpose and need. Agency internal scoping was conducted to examine a wide variety of solutions. This step meets the NEPA requirement that a range of reasonable alternatives be addressed and analyzed in an EA.

The no-action alternative describes the action of continuing the present management operation and condition; it does not imply or direct discontinuing the present action or removing existing uses, developments or facilities. The no-action alternative provides a basis for comparing the management direction and environmental consequences of the action alternatives. Should the no-action alternative be selected, the National Park Service would respond to future needs and conditions associated with the Big Stump entrance station without major changes in course.

The two action alternatives address the significant issues of the project by achieving the stated purpose and need. Both of the action alternatives have been determined to be feasible from an engineering, operational and safety perspective. All of these alternatives have adequate space to construct the required infrastructure. The action alternatives have impacts that will be analyzed in this document.

Additional alternatives were considered in internal agency scoping but after consideration, dismissed from detailed analysis. They are also discussed in this section. A summary table comparing the environmental consequences of each alternative is presented at the end of the alternatives section (Table 3: Summary of Environmental Consequences).

ALTERNATIVE A: NO-ACTION ALTERNATIVE

The no-action alternative provides a baseline to which action alternatives can be compared. The proposed changes can be evaluated and environmental impacts of those changes can be measured when compared to the no-action alternative.

Under the no-action alternative, no major construction work would occur. The entrance station operation would continue to be at Big Stump Picnic Area in summer and at the Grant Grove Village parking lot in winter (October to mid-May).

In the summer, the park would continue to use the original kiosk that was at the former Big Stump entrance location. It would continue to be used for fee collection and for entrance station personnel to disseminate maps, brochures and information to the public. The original kiosk measures approximately 12 feet long by 7 feet wide. A second kiosk would continue to be used as is currently at the summer location, measuring approximately 8 feet long by 7 feet wide. Each kiosk has two sliding windows on each side from which to contact visitors, as well as a window in front. In the original larger kiosk, the sliding windows are secured at night with a lock and prevented from opening with a stick in the sliding. There is space for one employee to operate within the smaller kiosk and two employees in the larger kiosk. The smaller kiosk does not have adequate space for storage of brochures and newspapers or cooling equipment.

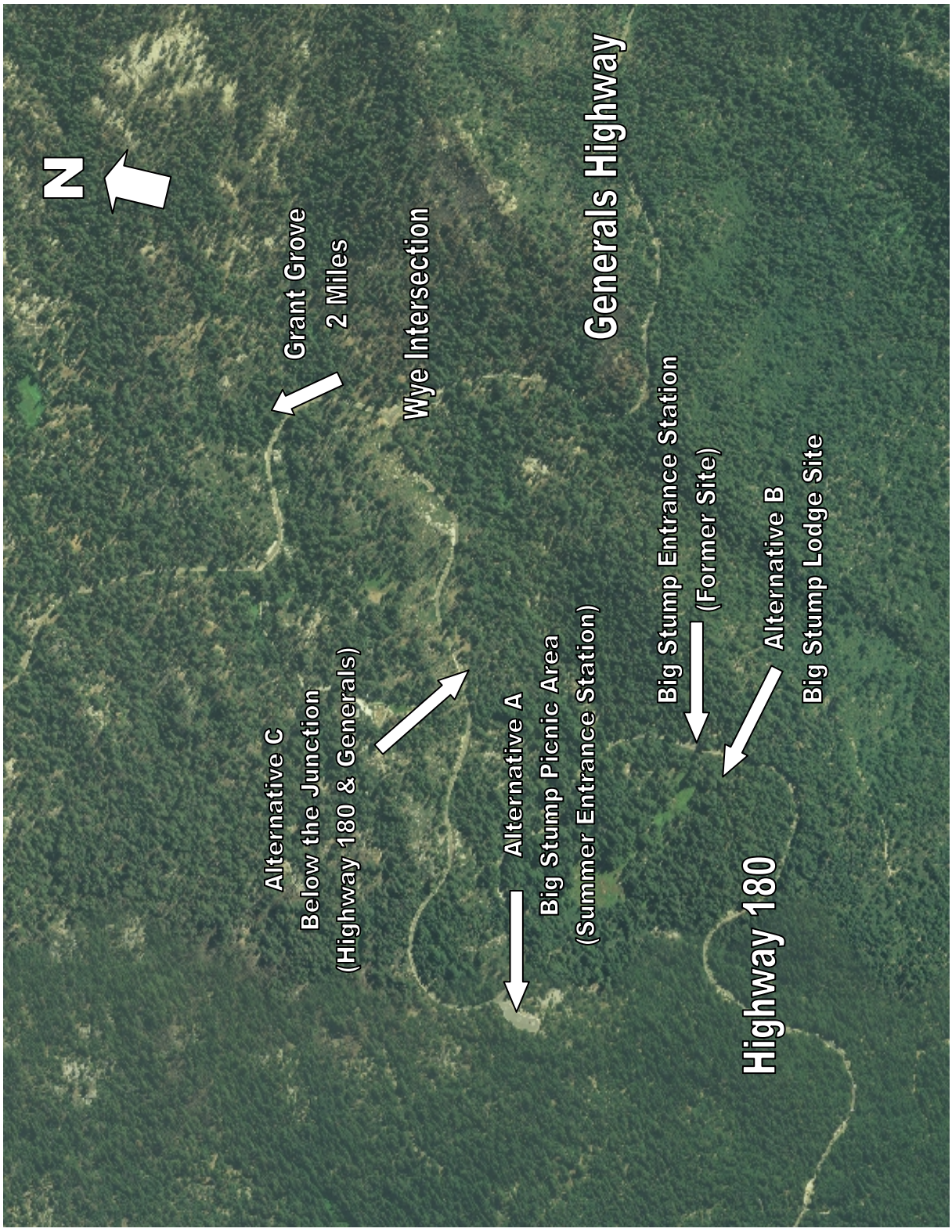

Figure 3: Satellite Image, Big Stump Project Area

A propane-powered ultra-quiet generator that turns on intermittently to charge a bank of 12-volt deep cycle batteries supplies power. Toilet facilities are located at the public restroom in the Big Stump picnic area. Employees take breaks in the picnic area where the public can see and contact them.

In the larger kiosk, a portable space heater provides heat and portable evaporative coolers are used for cooling. Each visitor service window has a fan that draws air from outside and blows it across the window to prevent exhaust fumes from entering the kiosk.

Under the no action alternative, all communication with the park is done by two-way radio. There is a satellite phone available for emergency communications. There is no alarm system available for fee collection staff to notify park dispatch when needed. Office space would not be available for personnel to conduct accounting and bookkeeping tasks, or to store office supplies, maps and brochures. The kiosks would continue to not meet the standards of federal accessibility laws (Section 504 of the 1973 Rehabilitation Act and the 1968 Architectural Barriers Act).

In winter, the larger kiosk would be moved from the summer location to the winter location in the Kings Canyon Visitor Center parking lot. The chain-up area would continue to be located at the site of the former Big Stump entrance station and would be limited to the area outside of the giant sequoia hazard tree target fall zone. There would continue to be a lack of space for snowplows to turn around.

In winter, employees use the break room in the Kings Canyon Visitor Center. Toilet facilities are located at the public and employee restrooms at the Kings Canyon Visitor Center. A utility line extending from the Kings Canyon Visitor Center supplies kiosk power.

In both the interim locations, visitors would continue to be able to avoid paying entrance fees, resulting in reduced revenue collections. Revenues collected in the winter of 2006 were estimated to be 40 percent less than for comparable periods in previous years, when all visitors passed through the entrance station.

ALTERNATIVE B: CONSTRUCT NEW ENTRANCE STATION AT THE BIG STUMP LODGE SITE (PREFERRED ALTERNATIVE)

Alternative B would construct a new entrance station at a site approximately 100 feet downhill (south/southwest) along California Highway 180 from the former Big Stump entrance station site (Figure 4: Alternative B Site View and Figure 5: Alternative B: Preliminary Design, Big Stump Entrance Station). Part of the proposed construction area is on the site previously occupied by the Big Stump Lodge, which operated from around the 1920s to the 1950s [Figure 6: Big Stump Lodge (1932)]. This location is outside of the hazard area for the giant hazard sequoia tree.

This previously disturbed site is estimated to be approximately one acre. The proposed entrance station facilities (preliminary design) would require a footprint of approximately 1.2 acres with a possibility of 20-25% more or less depending on further design development. Some soils would

Figure 4: Alternative B Site View

be partially excavated to construct the foundation for the new fee collection office. A park archeologist would be onsite during all ground disturbing activities. Should previously unknown archeological resources be uncovered during construction, all work would immediately cease in the discovery area and the parks' archeologist would be consulted. If an underground gas tank were discovered during construction, hazardous waste clean up would be done per applicable local, state and federal regulations using accepted procedures.

The facility would be comprised of one kiosk with a visitor service window, a secure office for processing fees collected, a storage room and an employee restroom. This kiosk would measure approximately 30 feet by 8 feet and be located on a traffic island approximately 60 feet long. There would be a second kiosk, parallel to the first, which would consist of a visitor service area plus storage for supplies and handout materials for use in that kiosk. This kiosk would measure approximately 10 feet by 8 feet and be on a traffic island approximately 60 feet long. (See Figure 7: Preliminary Design, Big Stump Entrance Station). Designs would accommodate the possible expansion to a third kiosk should one become necessary in the future due to increased visitation levels and traffic demands. A separate building to house a backup generator and to provide storage space would be constructed adjacent to the road and partially overlapping the site where the Big Stump Lodge area once was.

The entrance station would be designed to allow employees to efficiently and safely contact visitors, collect entrance fees and provide maps, brochures and safety information. An administrative bypass lane would be built in both directions to reduce delays for emergency vehicles, commercial delivery vehicles and administrative traffic. The kiosks would be designed to meet the ergonomic requirements of personnel as they move around the space: reaching for maps and brochures, extending from the kiosk to collect fees and hand out printed information, and using the cash register, phone and two way radio inside the kiosk.

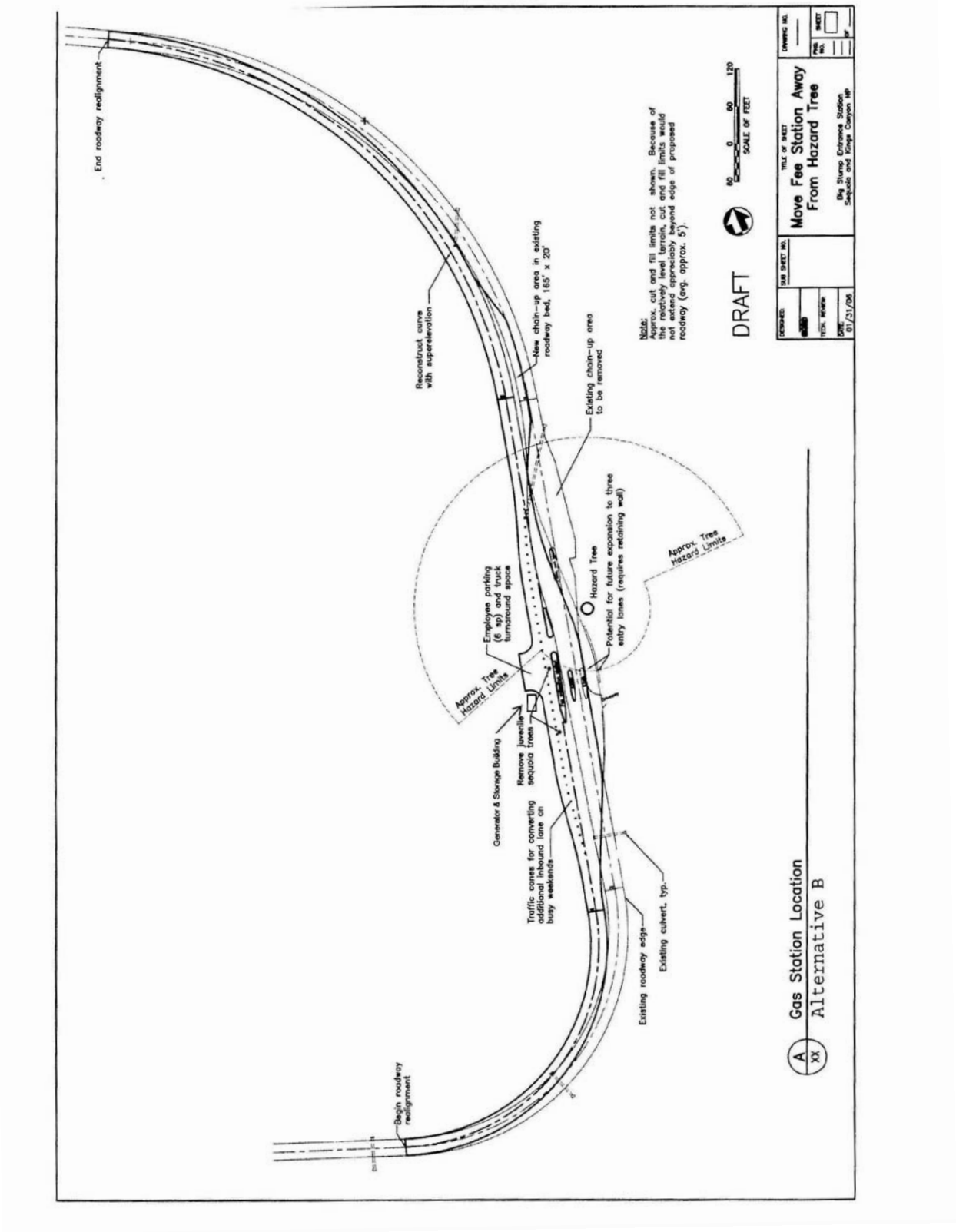

Figure 5: Alternative B: Preliminary Design, Big Stump Entrance Station

Figure 6: Big Stump Lodge (1932)

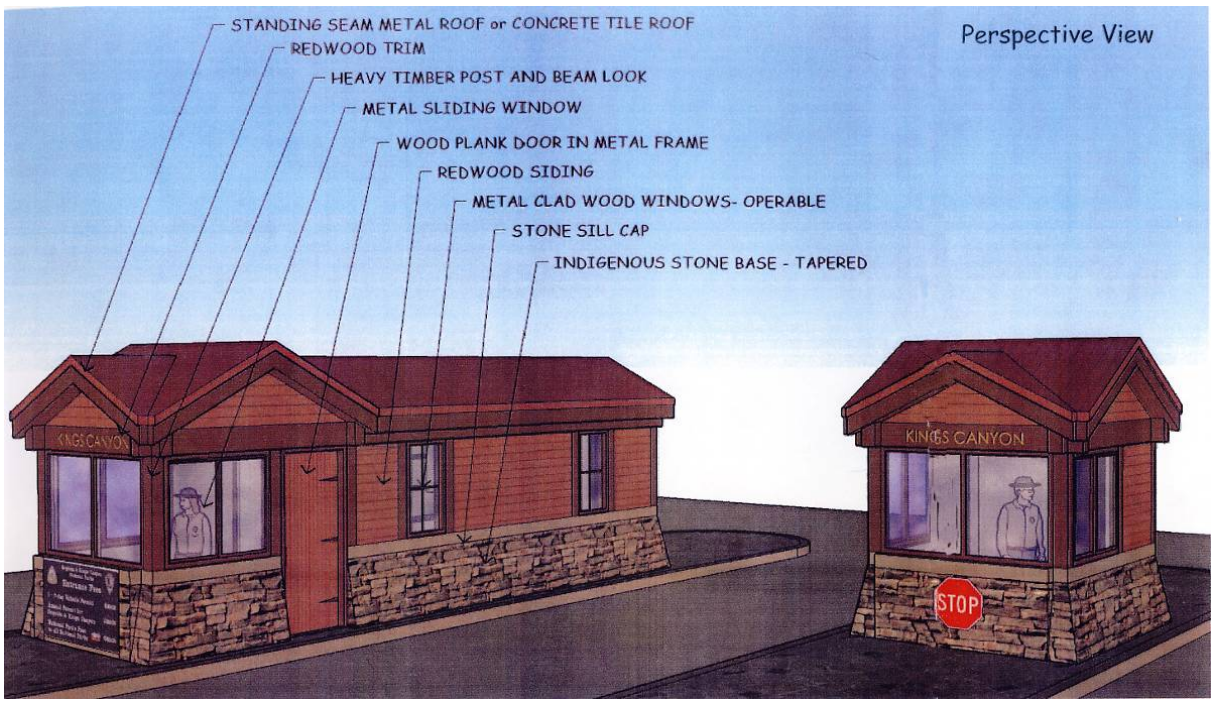

Figure 7: Preliminary Design, Big Stump Entrance Station

The kiosks would also be designed to comply with federal accessibility laws (Section 504 of the 1973 Rehabilitation Act and the 1968 Architectural Barriers Act). Design elements would include accessible paths between parking and kiosk, entry space without curbs or surface changes greater than ½ inch or with ramps provided where necessary, adequate wheelchair turning space and accessibility within the structure and restroom. The design would ensure that phones and station material meet accessibility standards and are within reach.

The kiosks would have a ventilation system fully able to mitigate employee exposure to harmful vehicle emissions. In addition, indoor environmental design standards call for a carbon dioxide monitoring device, materials with low emissions would be used in construction, and thermal comfort controls would be installed. A security system would be installed that would immediately notify park dispatch of any security compromise during and after regular hours of operation.

In winter, Alternative B would allow entrance station personnel to contact visitors regarding vehicle compliance with chain or snow tire requirements necessary for driving through the park. The chain up area would be expanded out of the range of giant sequoia hazard tree target fall zone, approximately 250 feet east of the proposed entrance station. There would be six parking spaces for employees and sufficient space for a snowplow to safely turn around. Power, water and phone are available from the former Big Stump entrance station site, approximately 100 feet away.

The initial phase of entrance station construction would include construction of two inbound lanes. Designs would allow for a third inbound lane to be constructed in a later phase, if warranted by increased traffic demand.

The highway would require realignment and would be designed to accommodate the required infrastructure of the new entrance station in terms of width and lane placement. Sight distances would be examined by traffic engineers, and the potential danger from traffic backups reduced. Preliminary estimates are that approximately 2,000 feet of highway would be realigned: about 1,000 feet east and west of the proposed location. Signage would be added warning vehicles to observe safe speeds and be alert to possible congestion.

The road at the former Big Stump entrance station would be narrowed and the parking area removed in order to prevent vehicles from stopping in the giant sequoia hazard tree target fall zone. Highway 180 would be realigned at this location to minimize exposure to roadside tree hazards.

During construction, traffic would pass through the construction area in a single lane with flaggers alternating the movement of traffic up to a maximum wait of 20 minutes. Realignment of the road would be done by lane, always providing a thru lane for one direction of traffic. Traffic would be restored to two way traffic on the evenings, weekends, and holidays when possible. When not possible, one lane would be open with stop lights controlling traffic not to exceed 20 minute delay cycles. The exact length and locations would depend on the current stage of construction. Safe line-of-sight would be maintained.

In order to maximize the opportunity to complete work in one construction season (typically May to October), the hours of construction would be from dawn to dusk (approximately 0630 thru 2030).

The staging areas for construction equipment would be at the Big Stump seasonal housing area near the former entrance station and at the Grant Grove dry storage area. Neither of these areas are visitor use areas.

ALTERNATIVE C: CONSTRUCT NEW ENTRANCE STATION BELOW THE JUNCTION OF HIGHWAY 180 AND THE GENERALS HIGHWAY

Alternative C proposes to construct a new entrance station approximately 2,000 feet west of the junction of Highway 180 and the Generals Highway (Figure 8: Alternative C Site View and Figure 9: Alternative C: Preliminary Design, Big Stump Entrance Station).

Figure 8: Alternative C Site View

A major limiting factor to site selection is the topography of the area. The road between the park boundary and highway intersection is bounded in most areas by a steep upslope to the north and steep downslope to the south. There is limited room for expanding the highway or installing additional structures. The proposed entrance station site is an existing wide spot in the road with a pullout. A combined kiosk and office and second kiosk would be constructed in existing disturbed areas. A separate building to house a backup generator and to provide storage space would be constructed in the previously disturbed pullout. This is the only feasible building site along Highway 180 between its junction with the Generals Highway and the former Big Stump entrance station site that can accommodate an entrance station.

Construction and design of the entrance station facility would be approximately the same as for Alternative B (See Figure 9: Alternative C: Preliminary Design, Big Stump Entrance Station).

The chain-up area would be located 350 feet to the west of the proposed new entrance facility. This is the only nearby location where the surrounding topography would allow for expansion of the roadway to include the pullout. Vehicles would negotiate a section of steep curves before reaching the proposed chain-up location.

Utilities would be trenched in from their nearest location, approximately 4,000 feet to the south of Highway 180.

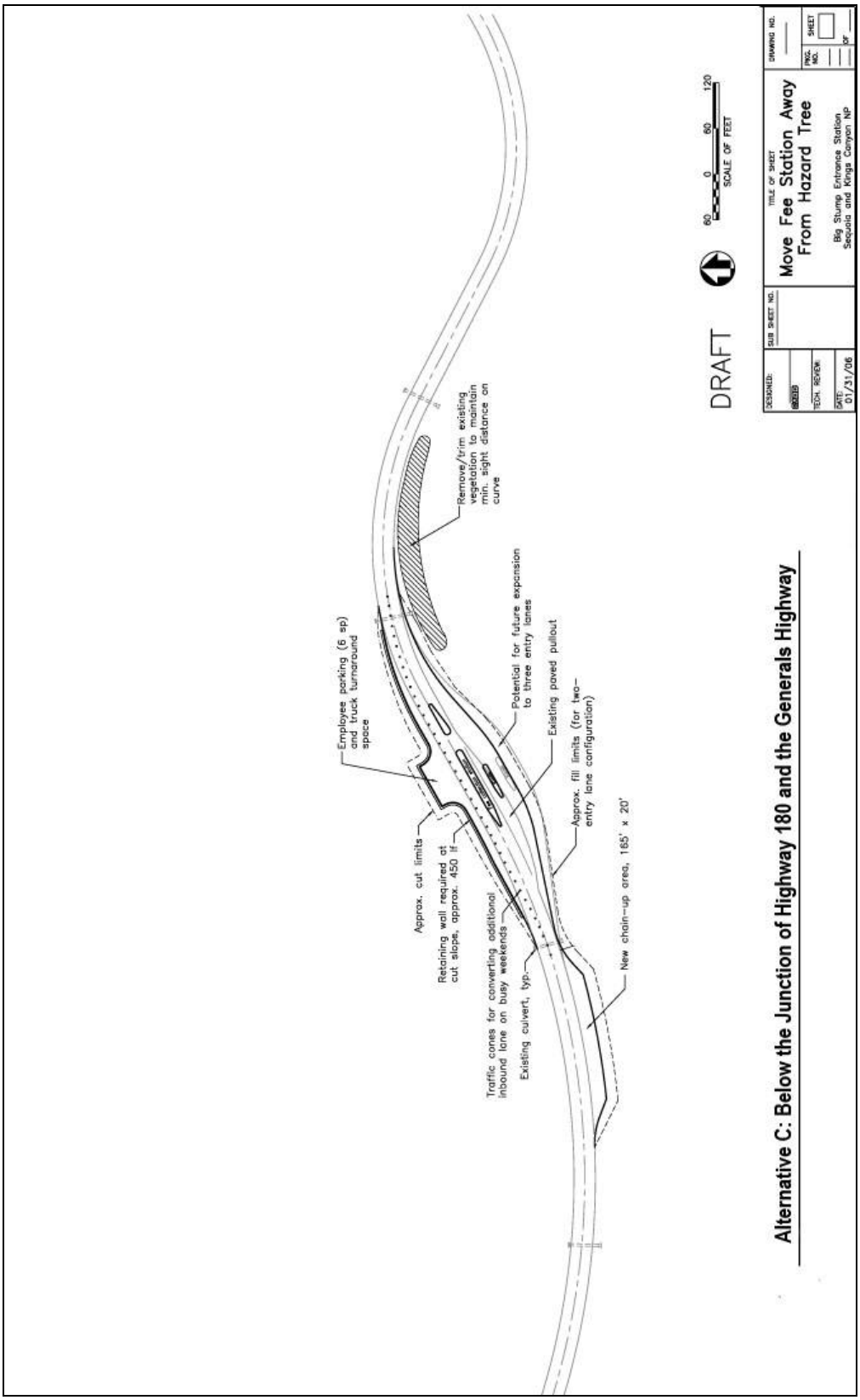

Figure 9: Alternative C: Preliminary Design, Big Stump Entrance Station

Highway realignment would be necessary near the proposed entrance station for approximately 400 feet west and 200 feet east in order to bring the road into alignment with the expanded entrance and exit lanes. An administrative bypass lane would be built in both directions to reduce delays for emergency vehicles, commercial delivery vehicles and administrative traffic. Vegetation would be trimmed or removed on the shoulder of the inside curve consistent with standard regulations for line of sight.

The road at the former Big Stump entrance station would be narrowed and the parking area removed in order to prevent vehicles from stopping in the giant sequoia hazard tree target fall zone. Highway 180 would be realigned in that area to reduce the exposure of passing vehicles to the hazard.

The construction phase would be handled in the same manner as Alternative B. During construction, traffic would pass through the construction area in a single lane with flaggers alternating the movement of traffic up to a maximum wait of 20 minutes. Realignment of the road would be done by lane, always providing a thru lane for one direction of traffic. Traffic would be restored to two way traffic on the evenings, weekends, and holidays when possible. When not possible, one lane would be open with stop lights controlling traffic not to exceed 20 minute delay cycles. The exact length and locations would depend on the current stage of construction. Safe line-of-sight would be maintained.

In order to maximize the opportunity to complete work in one construction season (typically May to October), the hours of construction would be from dawn to dusk (approximately 0630 through 2030).

The staging areas for construction equipment would be at the Big Stump seasonal housing area near the former entrance station and at the Grant Grove dry storage area. Neither of these areas are visitor use areas.

ACTIONS COMMON TO ALL ALTERNATIVES

Under all of the alternatives, the park forester and his staff and other forestry professionals would continue to periodically monitor and evaluate the tree hazard at the former Big Stump location per the park's tree hazard rating system. Action would be taken following regional protocols should the risk presented to the public or employees become unacceptable.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

The Council on Environmental Quality defines the environmentally preferred alternative as "the alternative that would promote the national environmental policy as expressed in the National Environmental Policy Act's Section 101." Under section 101(b) of the act, it is the continuing responsibility of federal agencies to:

1. fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;

2. assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings;

3. attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences;

4. preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity, and variety of individual choice;

5. achieve a balance between population and resource use which would permit high standards of living and a wide sharing of life's amenities; and

6. enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

Under Alternative A, the no-action alternative, in both summer and winter, visitors may bypass the kiosks without receiving safety and resource protection information or paying fees. Providing information to visitors is one of the park's strongest tools for meeting goals 1, 4, and 5, which address resource protection. In addition, the kiosks were not designed to current park architectural criteria and at their interim summer and winter location there is no landscaping to help blend with their surroundings. Thus, the design and location of the kiosks does not fully meet goals 2, 3, 4 or 6. In winter, entrance station personnel are not be able to check for chain compliance until vehicles have traveled two miles into the park on an often icy and curvy road therefore not meeting goals 2 and 3. Finally, inefficient ergonomic design of the kiosk calls for the selection of an action alternative in which this issue is addressed through better design.

Alternative B, Construct New Entrance Station at the Big Stump Lodge Site (preferred alternative) would locate the entrance station at a place where all visitors must pass by the kiosks and be contacted by park personnel to provide safety and resource information and to collect fees which partially meets goals 1, 2, 3, 4 and 5. Newly designed and energy efficient kiosks, sited and landscaped to current architectural criteria, would meet goals 2, 3, 4 and 6. Ergonomically designed kiosks with additional security measures and engineered traffic lanes would meet goals 2 and 3. In winter, this alternative would allow entrance station personnel to contact visitors and inform them of vehicle chain requirements and winter road hazards. The design provides sufficient room and a safe area for visitors to put on or adjust tire chains as well as a place for snowplows to turn around. Locating both contact point and chain-control at the same place meets goals 2, 3 and 5 more effectively than the other alternatives. This alternative does not have adverse impacts to the scenic resources or visitor use experience, which would be created as a result of cutting down a giant sequoia, thus it meets goals 1 and 4. Although Alternative B would overlap with a potential historic site, surveys have determined that no impact would occur as no remnants of the prior occupation remain at the site.

Alternative C, Construct New Entrance Station Below the Junction of Highway 180 and the Generals Highway, is located such that all visitors must pass by the kiosks and be contacted by park personnel to provide safety and resource information and to collect fees and would meet goals 1-5 but not as well as the preferred alternative. The preferred alternative provides a safer and effective location for providing information about enforcement of winter chain requirements to visitors at or before the chain-up area. In winter, this alternative would not meet goals 2, 3 and 5 as effectively as Alternatives B.

After careful review of potential resource and visitor impacts, and developing proposed mitigation for impacts to natural and cultural resources, the environmentally preferred alternative is Alternative B. Alternative B surpasses the other alternatives in realizing the full range of goals as stated in §101 of the National Environmental Policy Act. Alternative B meets goals 1-6 and more efficiently and effectively and with fewer impacts on the parks' natural environment than Alternatives A or C.

ALTERNATIVES CONSIDERED BUT DISMISSED

Eliminating the Entrance Station

Under this alternative, no entrance fees would be collected at any location in Kings Canyon National Park. The only structures providing visitor contact would be the Kings Canyon and Cedar Grove Visitor Centers. The road where the Big Stump entrance station was formerly sited would be narrowed to prevent visitors from stopping in the giant sequoia hazard tree fall zone. The interim chain-up area discussed in the no-action alternative would remain unchanged. No new chain-up area would be provided. This proposed alternative does not meet the stated need of contacting visitors to provide information on visitor safety and natural resource protection.

This alternative does not meet the stated need of collecting entrance fees for the parks. Sequoia and Kings Canyon National Parks are designated fee parks and as such, Congress expects the park to collect fees and to operate partially from this revenue source. Eliminating this fee revenue source would greatly impact the ability of managers to provide services to enhance visitors' experience and provide for their safety. There is also a cooperative agreement with USFS for the collection of fees. The park analyzed whether elimination of fee collection was a viable alternative and found that it was not. Therefore, this alternative was eliminated from further study.

Construct New Entrance Station at Happy Gap

This alternative would construct a new entrance station at Happy Gap near the Lake Sequoia turnoff, three miles west of the former entrance on Highway 180 and outside the park boundary. This is the first feasible site below the Big Stump Lodge site. The highway would be widened in order to provide an acceleration lane for uphill traffic to merge safely. This is technically feasible, but would require large, expensive fills and/or fill walls. The road where the Big Stump entrance station was formerly sited would be narrowed to prevent visitors from stopping in the giant sequoia hazard tree target zone. The interim chain-up area discussed in the no-action alternative would remain unchanged and would continue to be used as the chain-up area.

Since the proposed new entrance station site would be outside the park, agreements would be negotiated with the Forest Service, YMCA, and California Department of Transportation. This new entrance station would be located on the apex of a high-speed curve and would have insufficient sight distance. The operation of multiple entry lanes would have the potential to increase the risk of accidents because traffic would be making left turns onto the Sequoia Lake access road and simultaneously merging after the entrance station.

This proposed alternative did not meet the stated need of providing a safe and efficient entrance station; therefore, this alternative was eliminated from further study.

Construct New Entrance Station at the Junction of Highway 180 and the Generals Highway

This alternative would construct a new entrance station at the Junction of Highway 180 and the Generals Highway. The road at the former entrance station would be narrowed to prevent visitors from stopping in the giant sequoia hazard tree fall zone. The interim chain-up area discussed in the no-action alternative would remain unchanged. No new chain control area would be provided.

This site presented significant construction problems. To address these problems, a large amount of rock would have to be removed, the super-elevation of the existing road would have to be

eliminated, and large amounts of fill would be required. There is no local source for that fill, so it would have to be acquired from outside the park and would have potential to contain the seeds of exotic plants, which could spread into the protected ecosystem of the parks.

The construction of this alternative would result in significant natural resource impacts. Power and phone would have to be brought in from about 2,000 feet away, increasing expense and the environmental impact to park resources.

The cut and fill required under this alternative would be prohibitively expensive, and creates unnecessary environmental impacts. This alternative does not meet the stated need of providing a safe and efficient entrance station while having the least impact on park natural resources and values and was eliminated from further study.

Build Two New Entrance Stations beyond the Junction of Highway 180 and the Generals Highway

This alternative proposed two new entrances stations, one at Quail Flat on the Generals Highway and one near Grant Grove on Highway 180. These sites are located beyond the junction of Highway 180 and the Generals Highway; the Quail Flat site is 4 miles from the junction on the Generals Highway and the Grant Grove site is one mile from the junction on Highway 180.

The road where the former entrance station was sited would be narrowed to prevent visitors from stopping in the giant sequoia hazard tree fall zone. The interim chain-up area discussed in the no-action alternative would remain unchanged. No new chain control area would be provided. All traffic going to Grant Grove or toward Giant Forest would pass one of these entrance stations. Construction of two sites would potentially double construction operations costs.

This proposed alternative would increase the level of environmental impacts by constructing in two separate locations and would be prohibitively expensive; therefore, this alternative was eliminated from further study.

Build Two New Entrance Stations: One at Lost Grove, One at Cedar Grove

This alternative would construct two new entrance stations, one at Lost Grove on the Generals Highway and one at Cedar Grove near the end of Highway 180 in Kings Canyon National Park. All traffic going to Sequoia National Park would pass through the Lost Grove entrance station. However, only traffic going all the way to Cedar Grove would pass through the Cedar Grove station. Visitors going only to Grant Grove or the national monument would not be contacted to pay entrance fees or be given necessary information on resource protection or safety hazards. Operating two entrance stations significantly increases the costs to carry out operations.

The road where the Big Stump entrance station was formerly sited would be narrowed to prevent visitors from stopping in the giant sequoia hazard tree fall zone. The interim chain-up area discussed in the no action alternative would remain unchanged. No new chain-up area would be provided.

This proposed alternative would double the level of environmental impacts by constructing in two separate locations and would be prohibitively expensive; therefore, this alternative was eliminated from further study.

ALTERNATIVES INVOLVING THE FORMER BIG STUMP ENTRANCE STATION LOCATION

The NPS considered two alternatives that would allow for the entrance station to be located in its former location while mitigating for the safety hazard created by the giant sequoia. These alternatives included attempting to stabilize the hazardous giant sequoia or pruning and reducing the size of the hazardous giant sequoia. These alternatives were dismissed for the following reasons:

- Sequoia and Kings Canyon National Parks natural resource professionals and an independent consulting arborist concluded that stabilizing the bole of this tree is impossible due to its extreme size. Even if the bole could be stabilized, it would be impossible to stabilize the upper branches to prevent their failure.

- The park forester determined that pruning this giant sequoia would not adequately mitigate the risk to park personnel working at the former Big Stump entrance station site without jeopardizing the survival of the tree. Park policy calls for evaluation and mitigation of hazard trees before their failure becomes imminent. As such, once the tree dies, the park forester has determined that it should immediately be removed as a hazard.

ALTERNATIVES INVOLVING REMOVAL OF THE GIANT SEQUOIA

The NPS considered two alternatives that would involve the removal of the hazardous giant sequoia. These alternatives were dismissed for the fundamental reason that removing a prominent giant sequoia that is visible to and appreciated by tens of thousands of visitors entering the parks each year is contrary to the stated mission of Sequoia and Kings Canyon National Parks:

> Protect forever the greater Sierran ecosystem—including the ancient sequoia groves and high Sierra regions of the parks—and its natural evolution, and to provide appropriate opportunities to present and future generations to experience and understand park resources and values.

In addition, giant sequoias are part of the **stated significance of the parks:**

> Sequoia and Kings Canyon National Parks are special and unique places because they have the largest giant sequoia trees and groves in the world, including the world's largest tree…

The parks' mission and significance combined with the relative rarity of giant sequoias of the size and magnitude of the giant sequoia at Big Stump, make it impossible for the NPS to consider removing this tree in order to construct an entrance station at this location.

Furthermore, National Park Service Management Polices 2006 state:

> While Congress has given the service the management discretion to allow impacts within parks, that discretion is limited by the statutory requirement (generally enforceable by the federal courts) that the Park Service must leave park resources and values unimpaired unless a particular law directly and specifically provides otherwise.
>
> An impact would be more likely to constitute impairment to the extent that it affects a park resource whose conservation is:

- Necessary to fulfill specific purpose identified in the establishing legislation or proclamation of the park, or
- Key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or
- Identified in the park's general management plan of other relevant NPS planning document as being of significance

As giant sequoias are identified in the establishing legislation of these parks, and as they are among the central natural resources, which draw visitors to the park and are identified in the park's GMP, removal of a giant sequoia for the purpose of placing the entrance station at its original location would be impairment and therefore is unacceptable.

MITIGATION MEASURES

Mitigation measures are designed to prevent or minimize adverse impacts or to contain impacts within acceptable limits during and after project implementation. The following are mitigations that would be incorporated into project implementation. These mitigations and guidelines are specific to the project area and to the natural and cultural resource issues analyzed in this document. The following mitigation measures would be implemented to reduce the effects of the proposed project on natural, cultural, and social resources. Mitigation measures apply to all alternatives unless otherwise specified.

General Considerations

- Construction staging areas would be identified and limited to previously impacted areas. Invasive non-native plants in and around the staging areas would be controlled.
- Construction debris (i.e., demolition debris from former Big Stump station, excess mixed cement, saw dust and chips from treated wood, packaging of materials) would be disposed of at appropriate areas outside the park or stockpiled at approved locations within the park to be recycled in future projects.
- A Stormwater Pollution Prevention Plan would be developed to mitigate impacts from runoff.
- All disturbed areas would be restored as nearly as possible to pre-construction conditions shortly after construction activities are completed. Former road alignments would be regraded to match surrounding, natural topography.
- Prior to starting work each day, all combustion powered equipment would be inspected for leaks (fuel, oil, hydraulic fluid, etc) and all necessary repairs would be made before the commencement of work.
- Sustainable design principles would be used that meet all applicable Uniform Building Codes, National Fire Protection Association codes and Occupational Safety and Health Administration requirements.
- The proposed buildings and structures would comply with applicable regulations concerning fire safety and lighting.

- The new structure would use materials to comply with the parks' Architectural Character Guidelines.

- The project manager would ensure that all employees are instructed in safe work habits and in maintaining a clean and safe work site.

- A traffic control plan would be implemented.

- Spilled hazardous materials would be cleaned up immediately and would not be allowed to seep into the soil or reach open water sources.

Wildlife and Special Status Species

- No night work will be performed.

Visitor Experience

- During construction, traffic would pass through the construction area in a single lane with flaggers alternating the movement of traffic up to a maximum wait of 20 minutes.

- Realignment of the road would be done by lane, maintaining a thru lane for one direction of traffic at all times.

- Traffic would be restored to two way traffic on the evenings, weekends, and holidays when possible. When not possible, one lane would be open with stop lights controlling traffic not to exceed 20 minute delay cycles.

- Safe line-of-sight would be maintained throughout the construction project.

- Equipment will be staged in non-visitor use areas.

- Any trees that are cut would be flush cut and camouflaged to reduce visibility.

Lightscapes

- Facility would comply with park lighting guidelines in order to control light pollution.

- Determine and use the right amount of light for the task and no more.

- Design and/or install lighting that insures that glare is minimized.

- Shine lights downward so to minimize impact to night sky.

- Use energy efficient light sources (e.g., low pressure sodium lamps).

- Facility design would ensure that only the indirect glow from lighting is visible and not the point sources of the lights.

- Facility design would incorporate eaves and other architectural measure so light is not reflected up into the night sky.

Air Quality

- During construction, the contractor would be required to implement dust control procedures including watering down all active construction areas as necessary to prevent airborne dust. Watering would be sufficient to prevent most airborne dust from leaving the site. Increased watering frequency may be necessary whenever wind speeds exceed 15 MPH. Reclaimed water would be used whenever possible.

- Vehicles exceeding 10,000 lbs GVW not actively engaged in tasks would not be allowed to idle engines for longer than 5 minutes during construction activities (California Vehicle Code Section 2485).

Soundscapes

- Contractors would be required to install and maintain mufflers and sound attenuation devices on all equipment and vehicles.

- Portable wooden sound screens would be erected to minimize particularly noisy operations such as air compressors.

Cultural Resources

- Prior to any construction the site would be surveyed for the presence of cultural resources and allow for the recovery of potential museum objects.

- A park archeologist would be onsite during all ground disturbing construction activities as determined by the park's archeologist.

- A park archeologist would instruct work crews of the penalties for illegally collecting artifacts or intentionally damaging any archeological or historic property. Construction workers and supervisors would be advised of the laws and guidelines and special sensitivity to ensure protection of cultural resources.

- If previously unknown archeological resources are uncovered during construction, all work would immediately cease in the discovery area and the parks' archeologist would be contacted.

Vegetation and Non-Native Species

- Before construction begins, a qualified plant ecologist will survey the project site to look for non-native species of concern, which could be in the area. If any of these species were found, mitigation measures to reduce or eliminate impacts by these plants would be implemented under direction of the parks' restoration ecologist and non-native plant specialist.

- Sources of rock, sand, gravel, earth, soil, or other imported natural material would be inspected for invasive non-native plants prior to acceptance.

- The contractor would submit to the contracting officer a list of proposed sources for import materials 30 calendar days in advance of importing material.

- The list shall also include the end use and any temporary storage requirements of those materials.

- Natural Resources staff would inspect sources of materials that pose a risk, either by their end use or storage requirements, of allowing invasive non-native plants (also known as noxious weeds) to establish in the park. Supplier would certify the material does not contain non-native plants.
- At the discretion of the contracting officer, potentially contaminated materials may be accepted if mitigating measures are implemented. Mitigation might include stripping the top 12 inches of source material, requiring fresh material stored less than 1 month, or sterilizing the material.

- Contaminated materials that contain seeds and have an end-use on the surface, and cannot otherwise be mitigated, would require sterilization before importing to the park.

- Import material shall be shipped directly from the source to the park without intermediary storage or staging.

- Cover all trucks hauling soil, sand, and other loose materials.

- No imported hay or straw bales would be used during revegetation, silt protection, or erosion control efforts. Wood excelsior products and straw filter logs and blankets that are certified as fumigated and weed-free may be used.

- Materials must be protected from acquiring invasive non-native plant seeds from outside vegetation during transportation.

- Construction materials would be inspected for soil and plant debris. Dirty materials would be cleaned with pressure washing or other means. Construction materials that could acquire seeds from surrounding areas would be covered.

- Project manager would inspect equipment for compliance prior to entry into the park, and reject equipment that is not adequately cleaned.

- Approved staging areas would be surveyed for invasive non-native plants.

- All staging and construction sites would be surveyed for invasive non-native plants one to three years after project completion. Populations of invasive non-native plants would be removed.

- When trenching for utilities, the operator would make every effort to detect the presence of tree roots prior to damaging them.

    - When a root is detected, it would be hand excavated 2 feet around it to reveal its full extent prior to resuming excavation with equipment.

    - All live roots 6 inches diameter or larger in the entire excavated area shall be retained and remain undamaged. Roots that are to be retained shall be covered with wet burlap until the excavation is backfilled. Roots between 2 inches and 6

inches diameter shall be given a clean straight cut on the exposed end with a saw prior to backfilling.

- Individual trees would be tagged for removal.
- Litter and duff would be removed from project areas and stored for later replacement over topsoil.
- Topsoil would be removed from areas of construction; stored and replaced at the end of the project. The topsoil would be reapplied to the former location.
- A small number of conifer trees would be propagated from local seed stock and planted in groupings to interrupt the linearity of the old road alignment.
- If large roots are found during trenching operations, workers would hand dig around the root to preserve it.
- Once construction is completed, disturbed areas within the construction zone would, to the extent possible, be rehabilitated and landscaped to restore them to natural conditions.
- Following project completion, a qualified plant ecologist would continue to survey the site for one to three years for invasive non-native vegetation.

Health and Safety

- Hazards would be mitigated by instructing all workers in safe work habits and maintaining a clean and safe work site. Traffic hazards associated with construction activities would be mitigated by appropriate signs and personnel to safely warn visitors about hazards and direct them to safe areas.
- Should any hazardous material (e.g., abandoned gas tank from the old lodge) be found during construction, work would stop until the hazard is evaluated by qualified personnel. Hazardous waste clean-up would be done per applicable local, state and federal regulations using accepted procedures.

AFFECTED ENVIRONMENT

CHAPTER 3: AFFECTED ENVIRONMENT

This chapter describes the resources and values that could potentially be affected by the alternatives under consideration. This information is intended to provide the necessary background for evaluation of the alternatives in Environmental Consequences.

Additional information on resources of Sequoia and Kings Canyon National Parks can be found in the parks' *2006 General Management Plan and Final Environmental Impact Statement (FGMP/FEIS),* the *1988 Grant Grove / Redwood Mountain Development Concept Plan (NPS 1988),* and the *1999 Natural and Cultural Resources Management Plan.*

SOIL RESOURCES

Potential entrance station sites under consideration are well to moderately-well drained with soils of sand and gravel, with some clay and organic material derived primarily from granite rocks mixed with coniferous forest humus. Soils are formed from erosion of the underlying granite rock, glacial debris or alluvium and tend to be shallow and young with little development of soil horizons. Soils tend to have high infiltration rates with low surface erosion. Underlying rock units are a Biotite-Feldspar-Quartz Schist of Mesozoic age and accreted terrain origin of the Redwood Mountain Pendant and Cretaceous dark granite. The general area is comprised of steep slopes on either side of the highway with small sections of moderate slopes. The proposed project area has moderate slopes.

AIR QUALITY

Sequoia and Kings Canyon National Parks are in a mandatory Class I area under the Clean Air Act (1977). Class I areas are afforded the highest degree of protection under the Act. This designation allows very little additional deterioration of air quality. The Clean Air Act states that park managers have an affirmative responsibility to protect park air quality-related values (including visibility, plants, animals, soils, water quality, cultural resources and visitor health) from adverse air pollution impacts. Special visibility protection provisions of the Clean Air Act also apply to Class I areas, including new federal rules to prevent and remedy regional haze affecting these areas. Under existing visibility protection regulations, NPS identified "integral vistas" that are important to the visitor's visual experience in Class I areas, and it is NPS policy to protect these scenic views.

The proposed construction sites fall within the San Joaquin Valley Air Pollution Control District (SJVAPCD). Geographic, social and meteorological conditions make this air district especially susceptible to air pollution. Area (non-point) sources continue to be the major contributor of air pollutants in this air district. Area sources include cars and trucks, farm equipment and other agricultural activities. Stationary (point) sources including oil and gas production, manufacturing, and cogeneration plants contribute less than 40 percent of the emissions responsible for the production of ozone. Almost all of the air pollution found in these parks originates outside park boundaries. However, emissions from construction vehicles would produce nitrogen oxides (NO_X) and hydrocarbons, which are precursors to the formation of ozone and also particulate matter ($PM_{2.5}$ and PM_{10}).

Within the SJVAPCD is an atmospheric phenomenon known as the "Fresno Eddy." In addition to generating pollutants from sources within the district, large amounts of pollutants are carried in on prevailing winds from cities along the central California coast. These pollutants collect and circulate in the eddy that forms from approximately Visalia to Fresno. Rising daytime currents carry the concentrated air pollutants to the Sierra Nevada. As a result, these parks regularly

exceed both state and federal health standards during the summer months (approximately May to October) and rank as one of the worst air polluted park units in the country. The San Joaquin Valley air district is currently in extreme non-attainment for ozone (1 hr.) and serious non-attainment for particulate matter (PM_{10}). In 2006, stricter PM standards for $PM_{2.5}$ were approved by the U.S. Environmental Protection Agency and will be adopted by the local air district.

SOUNDSCAPES

A key part of the National Park Service mission is to conserve, protect and restore natural soundscapes, also referred to as natural quiet. The natural soundscapes are the unimpaired sounds of nature. Natural sounds are major resources of parks and are valued by visitors. Soundscapes are inherent components of "the scenery and the natural and historic objects and the wildlife" as stated in the NPS Organic Act.

The soundscape of the Big Stump entrance historically was dominated by the quiet that is typical of sequoia groves and coniferous forests. Audible, naturally occurring sounds include wind in the branches of trees, squirrel chatter, and the vocalizations of woodland birds such as robins, jays and warblers. The proximity of California Highway 180 contributes automobile and truck noise to the project area. Additional man-made noises include those of aircraft, which originate from commercial or military jets flying overhead. Natural sounds are integral to the park experience for visitors; there is congressional direction to protect and manage soundscapes.

VEGETATION AND NON-NATIVE SPECIES

The vegetation associated with the Big Stump project area is typical of the southern Sierra mid-elevation mixed coniferous forest, which includes ponderosa pine (*Pinus ponderosa*), white fir (*Abies concolor*), incense cedar (*Calocedrus decurrens*), sugar pine (*Pinus lambertiana*), and giant sequoia (*Sequoiadendron giganteum*).

Surveys for special status plants were conducted on each of the proposed project sites during June of 2006 (Appendix C: Big Stump Entrance Station Plant Survey). No populations of rare, endangered or threatened vascular plant species are known to occur in the proposed project sites. Both sugar pine and giant sequoia are considered species of local concern in the parks. Scattered individuals of both species are found adjacent to the highway corridor.

The Big Stump Lodge Site (Alternative B) is a relatively dry upland site dominated by mid-elevation mixed coniferous forest. The disturbed area where the historic development was located has since been colonized by a thick stand of ponderosa pine. Beneath the pines are scattered mature shrubs of greenleaf manzanita (*Arctostaphylos patula*), mountain whitethorn (*Ceanothus cordulatus*), and bush chinquapin (*Chrysolepis sempervirens*). Where the canopy is closed, the understory is dominated by a dense carpet of white fir seedlings, scattered shrubs of littleleaf ceanothus (*Ceanothus parvifolius*) and gooseberry (*Ribes* sp.). The surrounding forest is characterized by a mix of white fir, incense cedar, sugar pine, and scattered giant sequoia with a relatively sparse understory of littleleaf ceanothus, gooseberry, wild rose (*Rosa* sp.), and various herbaceous species.

Below the Junction of Highway 180 and the Generals Highway Site (Alternative C) is a gently sloping, dry upland site that supports an open post-fire coniferous forest. The forest is composed of white fir, incense cedar, and sugar pine with scattered ponderosa pine and canyon live oak (*Quercus chrysolepis*). The dense shrub layer consists of a mixture of greenleaf manzanita and mountain whitethorn over scattered patches of mountain misery (*Chamaebatia foliolosa*).

During the springtime, this site supports a diverse complement of annual herbs in the understory. The dense shrubs and emergent dead conifer snags indicate that this site has experienced a hot fire during the last ten years.

Former Big Stump Entrance Station Site is located just east of and adjacent to the Big Stump Lodge site. This site is also characterized by mature mid-elevation mixed coniferous forest. Along the road, the canopy is dominated by a mix of white fir, incense cedar, sugar pine, and a scattering of giant sequoia including the hazard giant sequoia tree leaning over the road corridor. Scattered shrubs of greenleaf manzanita, mountain whitethorn, and bush chinquapin characterize the understory.

Introduction of non-native invasive species is a concern for park managers because these species compete with native plant communities for available resources. Non-native species thrive in disturbed areas and prevent native plants from re-colonizing these areas. This often results in reduced native plant density, biomass and diversity. Non-native species can permanently alter ecosystem processes and can impact fire, hydrology, wildlife, and ecosystem structure.

Resource specialists are particularly concerned about the following non-native invasive species which are not currently present in the park, but could be imported with equipment or fill dirt: yellow star thistle (*Centaurea solstitialis*), spotted knapweed (*Centaurea maculosa*), Russian knapweed (*Acroptilon repens*), Canada thistle (*Cirsium arvense*), milk thistle (*Silybum marianum*), perennial pepperweed (*Lepidium latifolium*), and medusa head (*Taeniatherum caput-medusae*). Species already present in the area that could invade newly-disturbed soils include bull thistle (*Cirsium vulgare*), cheatgrass (*Bromus tectorum*), wooly mullein (*Verbascum thapsus*), lamb's quarters (*Chenopodium album*), Jerusalem oak (*Chenopodium botrys*), prickly lettuce (*Lactuca serriola*), and salsify (*Tragopogon dubius*).

Standard mitigation measures would be employed to prevent and minimize damage of non-native and invasive species (see Mitigation Measures).

SPECIAL STATUS SPECIES

The 1973 Endangered Species Act, as amended, requires an examination of impacts to all federally listed threatened or endangered species. NPS policy requires examination of the impacts to state-listed threatened or endangered species and federal candidate species.

Sequoia and Kings Canyon National Parks support diverse species of plants and animals. The parks have over 1,500 taxa of vascular plants. Of these, 136 taxa have been identified as potentially sensitive. The parks also support over 262 taxa of terrestrial vertebrates and 46 aquatic vertebrates. Of these, 47 taxa are considered sensitive. The term sensitive is applied generally here to include those species that are state or federally listed, are rare or endemic in California, or have a limited distribution. Little is known about the status and habitat requirements of many sensitive species within the parks.

The U.S. Fish and Wildlife Service (USF&WS) provided a list of special status species that may be within the project area or depend on it for critical habitat. (Appendix F: United States Fish and Wildlife Service, Customized Letter) Additionally, park natural resource staff searched park records and conducted field surveys of the project site for listed species that may live in or depend on the project site for habitat. No such species were found. There would be no known or foreseeable impacts to designated critical or essential habitats from any of the alternatives.

Wildlife species of concern that could be in the project area include California spotted owl, Northern goshawk, Cooper's hawk, sharp-shinned hawk, golden eagle, Vaux's swift, pallid bat, long-eared myotis bat, fringed myotis bat, long-legged bat, western mastiff bat, small-footed

myotis bat, martin, and fisher. The fisher is a candidate species for federal listing. The California spotted owl was proposed, but denied, for federal listing. These species could potentially use the hazardous giant sequoia for nesting, roosting, or denning. The giant sequoia could potentially serve as a maternity roost for some of the sensitive bat species, but no survey has been done.

Due to the heavy use of the area by people, the former entrance station site is unlikely to be more than an incidental use area for any of the sensitive raptors or the fisher. The hazard giant sequoia is probably used by other non-sensitive wildlife species that are tolerant of developed areas.

No endangered, threatened or rare plant species were identified by the USF&WS or the National NPS for the Big Stump Entrance Station project. The areas of potential effect were surveyed for all plant species by Park Service personnel and the survey results were evaluated and included in Appendix B: Plant Species Evaluated. Field surveys of the project areas to locate any sensitive plant populations were conducted in June 2006. (Appendix C: Big Stump Entrance Station Plant Survey)

RECREATION AND VISITOR USE EXPERIENCE

National parks seek to provide visitors with recreational experiences that "will foster an understanding of and appreciation for park resources and values, or will promote enjoyment through a direct association with, interaction with, or relation to park resources" (NPS 2006, section 8.2 Visitor Use). National parks allow visitors to enjoy the solitude of nature, natural scenery and the sounds of water and wind.

Approximately 1.5 million people visit Sequoia and Kings Canyon National Parks each year. Visitation is heavily seasonal with most visits occurring in the summer months. The overall average summer length of stay in the park is 2.6 days.

Sequoia and Kings Canyon National Parks and the adjacent northern portions of Giant Sequoia National Monument in the Hume Lake Ranger District of the Sequoia National Forest offer opportunities to experience a wide variety of recreational activities in a natural setting. Recreational opportunities include photography, nature study, exploring historic sites, hiking, horseback riding, swimming, wading, fishing, camping, rock climbing, and cross-country skiing. The Giant Sequoia National Monument also offers dog sledding, snowmobiling, and all terrain vehicle travel on approved roads.

Recreational facilities in the immediate area of the proposed project area include the Big Stump picnic area and the Big Stump Basin Trail, where visitors can hike to many cut down giant sequoias. This area serves as a reminder of this area's history before the National Park Service took over management and protection of the area in 1958. The Big Stump area is frequently used in the winter months for snowplay including sledding, snowshoeing, skiing and other winter activities. The Big Stump entrance station is an access and visitor information point for visitors en route to the Grant Grove Village area, Cedar Grove, recreation areas of northern portions of Giant Sequoia National Monument in the Hume Lake Ranger District of the Sequoia National Forest, and Sequoia National Park.

Grant Grove and the surrounding groves of ancient giant sequoias are a popular destination for visitors. The Grant Grove Village offers services to support a number of visitor activities, including NPS-operated campgrounds and picnic areas. The Kings Canyon Visitor Center offers interpretive exhibits on the human and natural history of the parks, books and pamphlets on natural history for all ages, ranger guided walks, and a place to request emergency services. Concessionaire-operated facilities at the village include lodging, a restaurant, gift shop, market, showers, horseback riding, and a post office.

The entrance station can be the first and only contact point visitors have with park personnel. It is critical for giving timely and effective information on destination directions, road conditions, safety considerations, and resource protection information.

Also, see the Scenic Values impact topic for a discussion of the hazard giant sequoia.

CULTURAL RESOURCES

Cultural Resources can include prehistoric sites, historic sites, and ethnographic sites (also known as Traditional Cultural Properties; these latter properties can be either prehistoric or historic in their association). Individual districts, buildings, structures, and objects can also qualify as cultural resources.

Cultural resources of concern for the alternatives considered in this project include historic era sites and features associated with a potentially significant 19th century logging district. Park archeologists conducted subsurface testing in the area of Alternative B and a systematic survey in the area of Alternative C. Results found no evidence that other cultural resources (e.g., prehistoric or ethnographic Native American sites) are present within the Areas of Potential Effect beyond the sites and features associated with the logging district.

ARCHEOLOGY

Questions about human history can be answered through archeological evidence, including evidence associated with the districts, sites, buildings, structures, and objects (e.g., artifacts) recognized in the language of the NHPA. 36 CFR 60.4(d) is used to guide park managers in identifying National Register eligibility for cultural resources that have yielded, or may be likely to yield, information important in prehistory or history.

There are no known prehistoric or ethnographic resources in the Area of Potential Effect associated with any of the proposed alternatives. The Area of Potential Effect for Alternative B (Big Stump Lodge site) has had systematic, subsurface testing that was conducted in late 2005. The proposed location for Alternative C, below the junction of the Highway 180 and the Generals Highway, has been surveyed in recent years in advance of prescribed burning projects. At all of the proposed action alternative sites, the Areas of Potential Effect have previously been subject to some level of ground disturbance. Based on these surveys, the parks' archeologist has found it unlikely that subsurface prehistoric resources would be affected by the alternatives included in this EA.

In the case of all alternatives, construction workers would be trained by the park archeologist to recognize archeological or cultural resources. Should previously unknown archeological or cultural resources be uncovered during construction at any of the sites, all work would immediately cease in the discovery area and the National Park Service would consult according to 36 CFR 800.11 and, as appropriate, provisions of the Native American Graves Protection and Repatriation Act (1990).

HISTORIC STRUCTURES AND DISTRICTS

Project planning is guided by The National Historic Preservation Act as amended in 1992, NEPA, National Park Service Organic Act, *National Park Service Management Policies 2006*, Director's Order 12: *Conservation Planning*, *Environmental Impact Analysis, and Decision-making* (2001), and Director's Order 28: *Cultural Resources Management Guidelines*. All require that project planning consider impacts on cultural resources, including historic structures and districts, either listed in or eligible to be listed in the National Register of Historic Places (NRHP). This environmental

assessment will also be used to comply with Section 106 of NHPA, in accordance with section 800.8(3) (c) of the Advisory Council on Historic Preservation's regulations (36 CFR Part 800). The final document will be submitted to the California State Historic Preservation Officer (SHPO) for review and comment.

The General Grant Grove was initially protected by the four-square-mile General Grant National Park in legislation passed on October 1, 1890; one week after Sequoia National Park was established. In 1940, General Grant National Park was absorbed into the newly designated Kings Canyon National Park. Big Stump Basin was added to this park in 1958 and its addition allows visitors to see remnants of logged sequoia trees, a reminder of the 19th Century Smith Comstock logging activities. Potentially eligible sites and features associated with this logging include fallen sequoias and their stumps, cut and stacked posts and rails, blocks of sequoia wood used to manufacture shingles, skid roads, sawdust piles, remnants of cable, and can and glass scatters. A potential National Register District can be identified for the Smith Comstock Mill Site and associated sites and features.

Alternative C and the no action alternative would not affect historic structures and districts. Adjacent to the former Big Stump entrance station, within the general proximity of Alternative B, is the location of the former Big Stump Lodge and store (part of the Big Stump Lodge complex). The area is currently treated as potentially eligible for listing in the NRHP, pending a determination of eligibility. The Big Stump Lodge site was part of a larger recreation complex that existed from the 1920s to the 1950s and was known as The Big Stump Silver Fox Lodge [Figure 6: Big Stump Lodge (1932)]. The complex included a small roadside gas station, store, hotel with dining room, fox pens for public viewing, and a downhill ski area with rope tow. There is little surface evidence today of the Big Stump Lodge complex. The site was surveyed for cultural resources in advance of a prescribed burn in 2005 (Hamm, personal communication 2007). No significant subsurface features or artifacts were found. The Big Stump Lodge complex has been abandoned for several decades and, park archaeologists believe the remaining features do not meet any of the NHRP eligibility criteria. Systematic subsurface testing was conducted within the area of the gas station and store in December of 2005.

NIGHT SKY AND LIGHTSCAPE MANAGEMENT

National parks, especially the wilderness parks of the West, have traditionally been thought of as places where pristine views of the night sky abound. Yet, over the last four decades, this resource has been rapidly degraded in many parks by the widespread growth of light pollution as an unintended byproduct of human population and land development. Most of this light pollution of the night sky comes from nearby communities. As light scatters in the atmosphere, it diminishes the view of the night sky – the stars and planets – an important and inspirational part of the national park experience.

Although Grant Grove and Big Stump visitor areas are locally known as good places to see the stars of the night sky, significant light pollution from the central valley originates from the cities of Fresno and Visalia and is evident from the Big Stump area. Distance to these light sources provides some lessening of their effect on night sky visibility in the Big Stump area. However, on clear nights, a glow from these light sources is quite distinct in the western sky. From many vantage points, the actual point sources of lights from the central valley are clearly visible.

Existing artificial lights are present in the nearby Grant Grove Village but are not obvious at any of the proposed Big Stump project areas. When the entrance station was located at Big Stump, lights were kept on at night for security. A light is kept on all night when the interim station is located at Big Stump picnic area during summer. The construction of a new entrance station would involve some lighting that, for the purposes of security and safety, would be required to

operate 24 hours. Eaves would mitigate light pollution from this source, as would the location of the lights, type of lights, and orientation of the facilities.

GIANT SEQUOIA GROVES

Giant sequoia groves encompass rare or unusual vegetation and unique ecosystems and are only found in a narrow band of elevation in the Sierra Nevada, between about 5,000 and 9,000 feet above sea level. There are fewer than 90 known groves of giant sequoias. A third of these groves are in Sequoia and Kings Canyon National Parks, which contain the most extensive old growth forests in the southern Sierra Nevada. Giant sequoias typically grow only in geographically isolated groves and are known to reach an estimated age of over 2,500 years. Such ancient or monarch trees are massive, often reaching a height of over 300 feet and a girth of over 30 feet in diameter.

The primary purpose in the establishment of the original Sequoia and General Grant National Parks was to protect giant sequoia groves from logging activity, which was threatening their existence. As further recognition of the uniqueness and importance of sequoia groves, Sequoia and Kings Canyon National Parks are designated as UNESCO (United Nations Educational Scientific and Cultural Organization) International Biosphere Reserves.

The project area for this EA is located in and adjacent to the Big Stump Grove, which was heavily logged in the 1880s. The hazardous giant sequoia tree at the former Big Stump entrance is estimated to be over 2,000 years old. Before it was pruned for hazard reduction, it stood at a height of 170 feet and has a diameter at breast height of 17 feet. It now stands at a height of about 140 feet. The park forester has found only two instances in the century-long history of Sequoia and Kings Canyon National Parks management where an ancient giant sequoia has been cut down because it presented a hazard. As a standard practice, park management actions remove visitors from traditional activity locations to improve protection for sequoia groves and to ensure visitor safety relating to hazard trees.

There are no other unique ecosystems within the zone impacted by any of the alternatives.

HEALTH AND SAFETY

In 2005, forestry professionals evaluated the giant sequoia located about 150 feet east of the entrance station. They recommended:

> that the fire-scarred, giant sequoia at Big Stump Entrance Station, Kings Canyon National Park, undergo immediate crown reduction to reduce the likelihood of top, limb or even bole failure. (Appendix A: Big Stump Giant Sequoia Interim Tree Hazard Action Plan)

On their recommendation, the former Big Stump entrance station was moved in the fall of 2005, because of the risk to visitors and government employees from a falling limb or catastrophic failure of the entire bole of the giant sequoia tree. In addition, crown reduction of the tree was carried out to reduce the hazard of limb or bole failure. Removing some upward growing branches ("leader" branches) reduced the tree in height from about 180 feet tall to its current height of approximately 140 feet tall. Moving the entrance station minimized the time spent within the hazard tree fall zone by both government employees and visitors, and minimized, but did not eliminate, the risk of injury if branches or the tree fall. Highway 180 still passes through the fall zone of the tree (Figure 10: View of Potential Hazard Target Zone from Giant Sequoia Tree). However, roads, since they are transitory in nature, receive a lower target value in the tree hazard rating process than facilities that allow for longer exposure (e.g., overnight). Stopping in the hazardous area is no longer allowed and the area where parking was allowed has been barricaded.

In addition, removal of the kiosk and tree pruning performed in November 2005 reduced the hazard potential to moderate priority.

Prior to the administrative closure of the former entrance station in October 2005, the facilities were determined to be inadequate to meet current occupational health and safety standards. The office was below the grade of the road and this allowed runoff to flow under the door of the office. Often during early spring, employees would work in several inches of standing water. Traffic volume and limited parking space created problems at all times of the year. Vehicle traffic could not be processed quickly enough to prevent long lines of vehicles forming before entering the park.

At the interim summer entrance station location, on busy holiday weekends traffic can back up into active traffic lanes on the highway creating hazardous driving conditions. The kiosks used at the interim sites are extremely cramped and not designed to current ergonomic standards.

Employees who collect fees while working in entrance stations and kiosks are exposed to vehicle emissions over long periods of time. Although the existing kiosks have fans installed to mitigate this hazard, employees report they are not effective. Ventilation systems are now routinely installed in new kiosks and entrance stations that fully mitigate exposure to harmful emissions.

The existing kiosks, employee parking and approach paths do not comply with federal accessibility laws (Section 504 of the 1973 Rehabilitation Act and the 1968 Architectural Barriers Act). There is also the need for increased reliability of security measures. This project provides an opportunity to improve the overall working environment of entrance station employees and to provide a safe environment for the public to stop and receive necessary park and monument information and pay entrance fees.

The current interim entrance station locations have the potential to cause traffic control problems due to forced entry and exit at the Big Stump Picnic Area interim site. The current entrance kiosk location also allows park visitors to continue past the fee collection area; missing the opportunity to obtain park maps, current safety and road information. Finally, fee collection staff are not able to enforce chain restrictions, which creates safety hazards for all drivers using the park roads.

VIEWSHED AND SCENIC VALUES

A viewshed comprises the limits of the visual environment associated with the proposed action. All of the proposed alternatives are located on California Highway 180, which ends at Cedar Grove in Kings Canyon National Park, 40 miles to the east. This highway is not classified as a Scenic Highway by CalTrans.

Figure 10: View of Potential Hazard Target Zone from Giant Sequoia Tree

Figure 11: Forester (center) Examining Giant Sequoia Tree Hazard

Figure 12: Giant Sequoia Tree Hazard, Hollow Bole

Figure 13: Giant Sequoia Tree Hazard Reduction Operation

The scenic qualities of the Big Stump entrance give visitors their first view and impression of Sequoia and Kings Canyon National Parks. The location of Alternative B is near or at the former Big Stump entrance station. Alternative C is located approximately one mile east with the chain-up area located about 350 feet before the proposed entrance station location.

The giant sequoia hazard tree itself contributes substantially to the area's scenic value, as it is the first tree of that size that park visitors see when entering the parks (see cover figure). Visitors frequently use a pullout just before the former Big Stump entrance station to take a photograph of the "Kings Canyon National Park" sign with the giant sequoia hazard tree in the background. It is one of the most photographed individual trees in the parks and one of the few in Kings Canyon where the entire tree can be framed within a photograph.

How park buildings blend in with the natural setting of a National Park also contributes or detracts from scenic values and viewshed that affect visitors' impression of their visit. Park policy emphasizes architecture that supports the perception of parks as "special, significant places. And one way to bring this about is to create a human environment that is different from the daily urban environment" (Appendix D: Excerpts from Architectural Character Guidelines). A new entrance station would comply with the parks' architectural character guidelines and be designed to blend with and emphasize the historic and natural character of the surrounding areas.

PARK AND OTHER AGENCY OPERATIONS

The Big Stump Entrance station plays an important role in park and other agency operations. This impact topic refers to the potential of the alternatives to interfere with or benefit from the activities relating to park or other agency management. Staffed entrance stations are critical to the park mission to offer visitor services and ensure safety by providing timely and important information. The interim summer and winter entrance locations are the only entrance access points in Kings Canyon National Park that allow the park to provide information to visitors as they enter the park. Although the amount of staffing would not change under any alternative, the location of the entrance station is essential for park staff to be able to provide resource and safety information, park maps and other materials as visitors enter the park.

In addition, the interim summer and winter entrance locations play a large role in operations in terms of fee collection. The fee program plays an important role in resource stewardship, education, and visitor use management by generating non-appropriated revenues, which supplement appropriated funds used directly to benefit visitors and protect parks. Services include protection, resource management, information and orientation, maintenance of park facilities, and interpretation to foster an understanding and appreciation of park resources. In addition, the park has fee collection obligations to the U.S. Forest Service under a cooperative agreement. Fee compliance at the interim winter location at the Kings Canyon Visitor Center is estimated to be at about 40% of previous years' receipts, based on revenue numbers for October 2004 through December 2005.

The presence of the entrance station also impacts park staffing and operational duties performed by the park. It is the responsibility of the Division of Fire and Visitor Management to provide for fee collection and information services at the entrance station. In addition, the presence of the entrance station affects duties performed by the park's maintenance staff, law enforcement, and information technology duties.

Finally, the proposed action alternatives would have potential effects on park operations, including concessionaire services, in terms of transportation and access during construction.

Since replacement of the Big Stump entrance station would have long-term impacts on the effectiveness of park operations and the quality of the entrance station infrastructure, this topic is included in the EA.

ENVIRONMENTAL CONSEQUENCES

CHAPTER 4: ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This section describes the potential environmental consequences associated with the no action and the two action alternatives. The methodologies and assumptions for assessing environmental consequences are discussed, including consideration of context, intensity, and duration of impacts; cumulative impacts; and measures to mitigate impacts. As mandated by NPS policy, resource impairment is explained and then assessed for each impact topic and alternative. Subsequent subsections in this section are organized by impact topic, first for the no action alternative and then for the NPS preferred alternative and one additional action alternative.

METHODOLOGY

Overall, the NPS based these impact analyses and conclusions on the review of existing literature and Sequoia and Kings Canyon National Parks studies, information provided by experts at the parks and in other agencies, professional judgments and park staff insights, the CA SHPO, and public input.

CONTEXT, DURATION AND INTENSITY, AND TYPE OF IMPACT

Potential impacts (direct, indirect, and cumulative effects) are described in terms of type (beneficial or adverse), context (site-specific, local, or regional), duration (short term, long term, or permanent), and intensity (negligible, minor, moderate, or major). Because definitions of intensity and duration vary by impact topic, intensity definitions and duration are provided separately for each impact topic analyzed in this EA.

Context

Context is the setting within which an impact may occur, such as local, parkwide, or regional. The CEQ requires that impact analyses include discussions of context. For this EA, local impacts would occur within the general vicinity of Highway 180 between the Big Stump Lodge site and approximately ½ mile before or to the east of the intersection with the Generals Highway, while park wide impacts would affect a greater portion of the parks, and regional impacts would extend outside the boundaries of the parks.

Duration

The duration of an impact is the time period for which the impacts are evident and are expressed as short term or long term. A short term impact would be temporary in duration and would be associated with construction activities, as well as the period of site restoration. Depending on the resource, impacts may last as long as construction takes place, or a single year or growing season, or longer. Impact duration for each resource is unique to that resource. Impact duration for each resource is presented in association with impact intensities in the following section.

Intensity

Impact intensity is the degree to which a resource would be beneficially or adversely affected. The criteria that were used to rate the intensity of the impacts for each resource topic is presented later in this section under each topic heading.

Type of Impact

Impacts can be beneficial or adverse. Beneficial impacts would improve resource conditions while adverse impacts would deplete or negatively alter resources.

Direct versus Indirect Impacts

Both direct and indirect impacts are analyzed, consistent with CEQ regulations (40 CFR 1502.16 and D.O. 12). The following definitions of direct and indirect impacts are used during analysis but not specifically identified in the environmental analysis:

> **Direct** – an effect that is caused by an action and occurs at the same time and in the same place.
>
> **Indirect** – an effect that is caused by an action that is later in time or farther removed in distance, but is still reasonably foreseeable.

Cumulative Effects

The CEQ regulations, which implement NEPA (1969) (42 USC 4321, et seq.), require assessment of cumulative impacts in the decision making process for federal projects. 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, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative impacts are considered for all alternatives, including the no action alternative.

Cumulative impacts were determined by combining the impacts of the alternatives with other past, present, and reasonably foreseeable future actions. Therefore, it was necessary to identify other ongoing or reasonably foreseeable future projects at Sequoia and Kings Canyon National Parks and, if applicable, the surrounding region.

Projects that Make Up the Cumulative Impact Scenario

To determine potential cumulative impacts, projects in the area surrounding Sequoia and Kings Canyon National Parks were identified. The area included lands administered by the USFS, non-profit organization landowners, and private landowners. Potential projects identified as cumulative actions included any planning or development activity that was currently being implemented or that would be implemented in the reasonably foreseeable future. Past actions were also included in the analysis.

These cumulative actions are evaluated in the cumulative impact analysis in conjunction with the impacts of each alternative to determine if they would have any additive effects on a particular natural resource, cultural resource, visitor use, or the socioeconomic environment. Because some of these cumulative actions are in the early planning stages, the evaluation of cumulative effects was based on a general description of the project.

Past Actions

The following past actions could contribute to cumulative effects:

- **Generals Highway Cut Slope Repair Route 10(7A).** The project removed unstable rock and stabilized the remaining portions of the cut slope above the roadway at mile 0.8 as measured from the southwest park boundary. Stabilization was accomplished by

excavating and removing additional soil and rock so that the finished slope was less than the destabilized slope. The project was completed in 2006.

- **Generals Highway Halstead Meadow Erosion Repair.** The project stabilized a failing section of Generals Highway from hydrologic action caused from the outfall at two 36" metal culverts in Halstead Meadow of Sequoia National Park. Approximately 400 cubic yards of rock and earthen fill were placed in a 25' deep chasm formed from the culverts discharge. During the project the creek flow was diverted to existing culverts approximately 100-feet north of the chasm.

- **Generals Highway Rehabilitate Route 10(1 – 6).** The reconstruction of the historic Generals Highway has been going on since the 1980s, starting near Three Rivers. This project is being phased over many years. Work has been completed from Ash Mountain to Amphitheater Point. The most recent section was completed in 2007.

- **Rehabilitation of the Lodgepole Campground.** Campgrounds are being gradually renovated throughout the parks. At Lodgepole, campsites are being renovated in phases. Sites within the 100-year floodplain are being relocated out of the floodplain, and an internal circulation system is likely to be redesigned.

- **Giant Forest Development Area Removal.** A 1980 Development Concept Plan (NPS 1980) and the 1996 Interim Management Plan (NPS 1996) called for removing concession and NPS facilities from the Giant Forest and relocating them to Wuksachi, so the giant sequoia forest could be restored to more natural conditions. During 1998–99, hundreds of structures in two historic districts were removed in accordance with an agreement with the CA SHPO. The project has also included removal of hundreds of concession lodging buildings, roads, and 18 parking lots. Historic buildings that are being adaptively reused include the market, which is now the Giant Forest Museum (opened in 2002) and the Beetle Rock Assembly Hall, which is being reused as a community building and education center. Other historic buildings (ranger residence and restrooms) have been rehabilitated. Museum exhibits, waysides, and trail centers have been built. Area trails are being improved and comfort stations replaced. Replacement parking is located outside the Giant Forest, and visitation to the area would depend on a shuttle system. The shuttle system is currently in its second year of a three year testing phase. Utility system replacements have occurred in Giant Forest to bring aging systems up to state standards.

- **Construction of the Wuksachi, Clover Creek, and Red Fir Development Areas.** Facilities were constructed in the 1980s and 1990s in a red fir forest to replace those removed from Giant Forest, based on the 1980 Development Concept Plan (NPS 1980). Recent NPS facilities include the Red Fir maintenance building, wastewater treatment plant, seasonal housing, bathhouse for concession use, road system, utilities, permanent staff housing, parking lots, propane fuel area / distribution system, and a firehouse. Concession facilities already built include three lodges with 102 rooms, a restaurant/store/administration building, a bathhouse, and staff cabins. Concession contracts call for 312 additional lodging units plus employee housing.

- **Reconstruction of the Crescent Meadow / Moro Rock Road.** This repaving project was recently completed and involved improving the uniformity of road width and installing additional devices to prohibit the further development of social pull outs.

- **Replacement of Comfort Stations at Crescent Meadow and Moro Rock.** This project involved replacing the existing comfort stations at Crescent Meadow trailhead parking lot and Moro Rock parking lot with waterless, vault comfort stations. This project occurred in early 2008. One component of the project remains to be complete which is the removal and rehabilitation of the former Crescent Meadow comfort station. This portion of the project is on hold pending consultation with the California State Historic Preservation Officer (CA SHPO).

Current and Future Actions

Current actions and those projected for the future could also contribute to cumulative effects. These include:

- **Rehabilitate Generals Highway from Amphitheatre Point to Deer Ridge Pullout and Wolverton Road to Little Baldy Pullout.** Work would entail improving road geometry, replacing guardrails, retaining walls, cut walls, drainage structures, base material, and asphalt. Existing signs and interpretive waysides would be upgraded and replaced as necessary. Revegetation would occur where disturbed areas were adjacent to the road. Lower Halstead Meadow will be restored in conjunction with a bridge that will be constructed across the meadow. Work will occur in three to four phases. The first stage will occur between Wolverton Road and Little Baldy Pullout and is scheduled to begin in the spring of 2009.

- **Rehabilitate 10.7 km of Generals Highway.** Rehabilitate 10.7 km of the historic Generals Highway between Deer Ridge Pullout and Wolverton Road intersection. Work would entail replacing guardrails, retaining walls, cut walls, drainage structures, base material, and asphalt. The existing grade and alignment would be retained as much as possible. Existing signing and interpretive waysides would be upgraded and replaced as necessary. Revegetation would occur where disturbed areas were adjacent to the road. This project would most likely be phased over several years with an unknown start year.

- **Replace Cedar Grove Bridge in the Cedar Grove District of Kings Canyon National Park.** This bridge leads from Kings Canyon Highway (180) to the Cedar Grove Village. The bridge is a two span 142' x 27' steel stringer structure with a laminated timber deck. The substructure consists of reinforced concrete walls on spread footings. This structure is in poor condition and must be replaced due to the deficient condition, volume of traffic, and reduced load capacity. The original design of the bridge had a Normal Traffic Rating of 15 tons; however due to degradation, a limit of 9 tons has been assigned. The railing does not meet safety and design standards. The estimated remaining life was determined to be 7 years in 1989. This project is tentatively scheduled to occur in 2013.

- **Replace Wolverton Corrals.** The project would develop a plan to offer pack station facilities in the Wolverton area. The pack station would serve the needs of stock animals used by the NPS for trail maintenance, a concession packer, as well as private pack stock users. This project is currently in the planning phase and an implementation date has yet to be determined.

- **Lodgepole and Grant Grove - Replace Water Distribution Systems.** The project consists of reconstructing major components of the water distribution systems in the Grant Grove and Lodgepole areas of the parks, which involves all work associated with

removal and replacement of approximately 33,100 linear feet of water line ranging in size from ¾" to 10" in diameter. Work includes excavation, demolition and disposal of old piping and valves, installation of new piping, valves and appurtenances, backfill and compaction, and revegetation of areas disturbed by construction activities.

- **Restoration of Big Meadow.** A watershed improvement project on the Hume Lake District of Sequoia National Forest to restore 6,100 ft of degraded stream.

- **Address the Deterioration of Three Wilderness Ranger Stations.** This project proposes to replace the deteriorated structures at Le Conte, Rae Lakes, and Crabtree with new structures. The materials would be brought in on pack stock and helicopter as necessary and would be assembled onsite by crews, which would be stationed onsite throughout construction. Work will likely occur over the course of three summers and is tentatively scheduled to begin in the summer of 2009.

Impairment of Sequoia and Kings Canyon National Parks Resources or Values

In addition to determining the environmental consequences of the preferred and other alternatives, the *National Park Service Management Policies 2006* and D.O. 12, require analysis of potential effects to determine if actions would impair Sequoia and Kings Canyon National Parks resources.

The fundamental purpose of the national park system, established by the 1916 Organic Act and reaffirmed by the 1970 General Authorities Act, as amended, begins with a mandate to conserve park resources and values. NPS managers must always seek ways to avoid or minimize, to the greatest degree practicable, adverse impacts on park and monument resources and values. However, the laws do give NPS management discretion to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, as long as the impact does not constitute impairment of the affected resources and values. That discretion is limited by statutory requirements that the NPS must leave park resources and values unimpaired, unless a particular law directly and specifically provides otherwise. The prohibited impairment is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including opportunities that otherwise would be present for the enjoyment of those resources or values. An impact to any park resource or value may constitute impairment. However, an impact would more likely constitute impairment to the extent that it affects a resource or value whose conservation is:

- necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park

- key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park

- identified as a goal in the Sequoia and Kings Canyon National Parks final general management plan or other relevant NPS planning documents

Impairment may result from NPS activities in managing the park, visitor activities, or activities undertaken by concessioners, contractors, and others operating in the park. In this "Environmental Consequences" section, a determination on impairment is made in the conclusion statement of each impact topic under each alternative. Impairment is generally applied to impacts on natural and cultural resources and is not applied to visitor experience (unless impacts are resource based), health and safety, or park operations for impairment.

ENVIRONMENTAL ANALYSIS

Soil Resources

The *National Park Service Management Policies 2006*, Section 4.8.2.4 Soil Resource Management states:

> 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.

The two action alternatives would involve construction of new structures and realignment of the highway, which would entail soil disturbance. While most soil disturbance would occur within the current roadbed, there would be construction outside of the existing road prism for road realignment, construction of the fee office and generator building, parking, and construction or expansion of a chain up area adjacent to the roadway. Impacts from these activities are analyzed under the two action alternatives below.

The thresholds of change for the intensity of an impact are defined as follows:

- Negligible: The impact would be at the lower levels of detection or not measurable.
- Minor: The impact would be detectable, and there could be changes in soil characteristics (e.g., soil profile, productivity) in a relatively small area, but the change would not increase the potential for erosion of additional soil.
- Moderate: The impact would be clearly detectable and could have an appreciable effect on the resource. Topsoil characteristics in a small area could be lost or altered. The change would increase the potential for erosion to remove small quantities of additional soil.
- Major: The impact would be severely adverse or exceptionally beneficial. Impacts would have a substantial, highly noticeable, or widespread influence. The action would result in a permanent loss or alteration of soils in a relatively large area.

Alternative A: No-Action Alternative

The interim entrance stations are located in the parking area of the Big Stump Picnic Area (summer) and the parking area of the Kings Canyon Visitor Center (winter). These parking areas existed before the interim use was introduced. No impacts to soil resources would be expected from continued use of the winter and summer interim entrance station plan.

Cumulative Impacts

Past, present and reasonably foreseeable future projects with the potential to impact soil resources include all other road and infrastructure projects [e.g., the rehabilitation of Generals Highway Route 10(1 - 6); the Emergency Cut Slope Repair Route 10(7A); the Halstead Meadow Erosion Repair; the Rehabilitation of the Lodgepole Campground; Giant Forest Development Area Removal; Construction of the Wuksachi, Clover Creek, and Red Fir Development Areas; Rehabilitation of Generals Highway from Amphitheatre Point to Deer Ridge and Wolverton Road to Little Baldy Pullout; Replace Water Distribution Systems at Lodgepole and Grant Grove; Replacement of the Cedar Grove Bridge; Replacement of Wolverton Corrals; and Reconstruction of the Crescent Meadow/Moro Rock Road]. The no action alternative would contribute no additional impact to soil resources.

Conclusion

The no-action alternative would have no impact on soil resources in the Big Stump area of Kings Canyon National Park.

Alternative B: Construct New Entrance Station at the Big Stump Lodge Site (Preferred Alternative)

Alternative B proposes to construct new entrance station facilities at the Big Stump Lodge Site approximately 100 feet to the southwest of the former entrance site. A generator building and expanded lanes and parking space would be constructed on an area previously disturbed by the lodge and gas station complex, which existed there from the 1930s to approximately the mid 1950s. A preliminary survey estimated that the previously disturbed area at the site is approximately one acre. A chain-up area would be expanded on existing road surface extending the existing chain-up area uphill to the east of the former Big Stump entrance station.

The proposed entrance station facilities, including vehicular circulation, would require a developed footprint of approximately 1.2 acres with a possibility of 20-25% more or less depending on final design development. Additional disturbance would result from the realignment of approximately 2,000 linear feet of road and from 100 linear feet of trenching for utilities. Most of the clearing and grading, utility and realignment work will take place in previously disturbed areas. Total new soil disturbance would be approximately 1 acre with a possibility of 20-25% more or less depending on final design development.

Impacts on soils from construction include the use of heavy vehicle equipment, trampling, digging foundations, grading work, and minor cuts and fills. Soils would be covered with impermeable materials such as asphalt in some areas. Surface soil horizons would be altered, topsoil would be removed, and some soil would be compacted and compressed. These consequences would result in a localized decrease in soil permeability to water and air, alteration of soil regime, and an increase in localized runoff.

Mitigation would include establishing staging areas in previously impacted areas; implementing an erosion control plan; inspecting equipment to ensure that fluids do not leak onto soils; and any that do spill would be cleaned up immediately.

Once construction is completed, disturbed areas within the construction zone would be, to the greatest extent possible, rehabilitated and landscaped to restore them to natural conditions. Approximately 3 acres will be revegetated. Revegetation would facilitate soil stability, help reduce runoff and erosion and restore soil to more natural conditions. Mitigations for soil disturbing activities are summarized in the Mitigation Measures section in Chapter 2.

Cumulative Impacts

Past, present and reasonably foreseeable future projects with the potential to impact soil resources include all other road and infrastructure projects [e.g., the rehabilitation of Generals Highway Route 10(1 - 6); the Emergency Cut Slope Repair Route 10(7A); the Halstead Meadow Erosion Repair; the Rehabilitation of the Lodgepole Campground; Giant Forest Development Area Removal; Construction of the Wuksachi, Clover Creek, and Red Fir Development Areas; Rehabilitation of Generals Highway from Amphitheatre Point to Deer Ridge and Wolverton Road to Little Baldy Pullout; Replace Water Distribution Systems at Lodgepole and Grant Grove; Replacement of the Cedar Grove Bridge; Replacement of Wolverton Corrals; and Reconstruction of the Crescent Meadow/Moro Rock Road]. The preferred alternatives would contribute minor, long term adverse impacts to soil resources.

Conclusion

Site disturbance as a result of construction activity would cause minor, localized and short-term adverse impacts to soil resources. Permanent construction of buildings, foundations and impermeable and compacted areas would cause minor, localized long-term adverse impacts to soil resources.

Alternative C: Construct New Entrance Station Below the Junction of Highway 180 and the Generals Highway

Under this alternative, soil resources would be impacted at the location of the entrance station site and chain-up area. The types of construction activities considered in Alternative C are similar to the other action alternative. The chain control area would be located 350 feet to the west of the proposed entrance station. Impacts would include

The construction of the kiosks, offices, installation of utilities and transportation infrastructure would result in a total area of disturbance of approximately 8 acre. Of the total area of disturbance, 0.4 acres will take place in areas that were previously undisturbed. This alternative would differ from Alternative B due to the difference in needs for highway realignment at each location.

Some highway realignment would be necessary to bring the roadway into alignment with the expanded entry and exit lanes. Soil disturbance would result from a trench required to carry utilities from approximately 4,000 feet away. Rehabilitation of disturbed soil resources following construction would be approximately the same as in Alternatives B, but would occur in two distinct locations (at the entrance station area and chain-up area).

Impacts on soils from construction include the use of heavy vehicle equipment, trampling, digging foundations, grading work, and minor cuts and fills. Soils would be covered with impermeable materials such as asphalt in some areas. Surface soil horizons would be altered, topsoil would be removed, and some soil would be compacted and compressed. These consequences would result in a localized decrease in soil permeability to water and air, alteration of soil regime, and an increase in localized runoff.

Mitigation would include establishing staging areas in previously impacted areas; implementing an erosion control plan; inspecting equipment to ensure that fluids do not leak onto soils; and any that do spill would be cleaned up immediately.

Once construction is completed, disturbed areas within the construction zone would be, to the greatest extent possible, rehabilitated and landscaped to restore them to natural conditions. Revegetation would facilitate soil stability, help reduce runoff and erosion and restore soil to more natural conditions. Mitigations for soil disturbing activities are summarized in the Mitigation Measures section in Chapter 2.

Cumulative Impacts

Past, present and reasonably foreseeable future projects with the potential to impact soil resources include all other road and infrastructure projects [e.g., the rehabilitation of Generals Highway Route 10(1 - 6); the Emergency Cut Slope Repair Route 10(7A); the Halstead Meadow Erosion Repair; the Rehabilitation of the Lodgepole Campground; Giant Forest Development Area Removal; Construction of the Wuksachi, Clover Creek, and Red Fir Development Areas; Rehabilitation of Generals Highway from Amphitheatre Point to Deer Ridge and Wolverton Road to Little Baldy Pullout; Replace Water Distribution Systems at Lodgepole and Grant Grove; Replacement of the Cedar Grove Bridge; Replacement of Wolverton Corrals; and Reconstruction

of the Crescent Meadow/Moro Rock Road]. Alternative C would contribute minor, adverse impacts to soil resources.

Conclusion

Site disturbance as a result of construction activity would cause minor, localized and short-term adverse impacts to soil resources. Permanent construction of buildings, foundations and compaction and paving would cause minor, localized long term adverse impacts to soil resources.

Impairment Analysis for Soil Resources (All Alternatives)

Based on the determination that soil resources would undergo not more than minor and localized adverse effects, there would be no impairment to the natural integrity of resources and values for which SEKI was established.

AIR QUALITY

The *National Park Service Management Policies 2006*, section 4.7.1, states:

> The National Park Service has a responsibility to protect air quality under both the 1916 Organic Act and the Clean Air Act (CAA). Accordingly, the Service will seek to perpetuate the best possible air quality in parks to (1) preserve natural resources and systems; (2) preserve cultural resources; and (3) sustain visitor enjoyment, human health, and scenic vistas. Vegetation, visibility, water quality, wildlife, historic and prehistoric structures and objects, cultural landscapes, and most other elements of a park environment are sensitive to air pollution and are referred to as "air quality-related values." The Service will actively promote and pursue measures to protect these values from the adverse impacts of air pollution. In cases of doubt as to the impacts of existing or potential air pollution on park resources, the Service will err on the side of protecting air quality and related values for future generations.

Section 118 of the 1963 Clean Air Act requires the park to meet all federal, state, and local air pollution standards. Section 176(c) of the 1963 Clean Air Act requires all federal activities and projects to conform to state air quality implementation plans to attain and maintain national ambient air quality standards.

Sequoia and Kings Canyon National Parks are classified as Class I air sheds under the Clean Air Act (1977 amendment). This most stringent air quality designation is aimed at protecting park and wilderness areas from air quality degradation. The National Park Service is required to do all it can to ensure that air quality related values are not adversely affected by air pollutants.

The thresholds of change for the intensity of an impact are defined as follows:

- Negligible: No changes to existing air quality from the alternative would occur or effects would be below or at the lower levels of detection. Any effects would be considered slight and short-term.

- Minor: Effects to air quality would be detectable to some visitors; they would be localized and would have only a transitory impact. If mitigation were needed, they would be relatively simple, short-term and likely to be successful.

- Moderate: Effects to air quality would be readily detectable, long-term, and localized. These effects would result in a change noticeable to many visitors. Mitigation measures would be needed might be long-term and would likely be successful.

- Major: Effects to air quality would be readily apparent to a large number of visitors, long-term, and result in substantial changes to the parks' character or important viewpoints. The parks' Class I air quality rating would be threatened. Extensive mitigation would be needed and success would not be guaranteed.

Alternative A: No-Action Alternative

During summer, all traffic entering or exiting the park along Highway 180 encounters a three way stop in front of the Big Stump picnic area. To pay fees or obtain park or monument information, inbound vehicles make a left turn, crossing oncoming traffic to enter the Big Stump picnic area. Vehicles waiting to pay their fees at the two kiosks often idle their vehicles for 15 minutes or more on busy summer days increasing auto and truck emissions. The entrance station would continue to use a propane generator to charge a bank of deep-cycle batteries supplying power for entrance station operations. This combined with vehicle emissions from increased wait times at the entrance kiosk would create negligible, localized and long term adverse impacts on air quality in the Big Stump area.

There would be no construction, use of heavy equipment, or other mechanical disturbance associated with this alternative therefore there would be no separate short term impacts from construction activities.

Cumulative Impacts

Past, present and reasonably foreseeable projects which utilize motorized equipment and may add particulate matter to the air would be any other projects involving ground disturbance, the use of heavy equipment or the use of emission producing vehicles [e.g., the rehabilitation of Generals Highway Route 10(1 - 6); the Emergency Cut Slope Repair Route 10(7A); the Halstead Meadow Erosion Repair; the Rehabilitation of the Lodgepole Campground; Giant Forest Development Area Removal; Construction of the Wuksachi, Clover Creek, and Red Fir Development Areas; Rehabilitation of Generals Highway from Amphitheatre Point to Deer Ridge and Wolverton Road to Little Baldy Pullout; Replace Water Distribution Systems at Lodgepole and Grant Grove; Replacement of the Cedar Grove Bridge; Replacement of Wolverton Corrals; and Reconstruction of the Crescent Meadow/Moro Rock Road].

In addition, campfire smoke and wood stoves in residential housing affects the parks' air quality. These sources are located approximately five to six miles away at Grant Grove and in the private community of Wilsonia. Several prescribed fire projects are planned for Kings Canyon in the coming years. These fires will produce smoke.

Finally, the parks, including the Big Stump area, will continue to be impacted by external sources of air pollution. These sources will continue to produce long term, region-wide, adverse impacts on air quality. The cumulative impact of these independent actions would be long term, region-wide and adverse. The no action alternative would continue to contribute negligible, adverse impacts to air quality.

Conclusion

There would be negligible, localized and long-term adverse impacts to air quality from the no action alternative due to increased vehicle and generator emissions. There would be no impact to the parks' Class 1 air quality designation.

Alternative B: Construct New Entrance Station at the Big Stump Lodge Site (Preferred Alternative)

Local air quality would be affected in the short term by dust and vehicle emissions as a result of construction activity. Hauling material and operating equipment during the construction period would result in increased vehicle exhaust and emissions. Hydrocarbons, nitrogen oxide, and sulfur dioxide emissions would be expected to rapidly dissipate. There would be a negligible, short term impact on local air quality due to dust generated from construction activities and emissions from construction equipment. These affects would last as long as construction occurred.

Mitigation measures during construction would include requiring the contractor to implement dust control procedures. In addition, the contractor would be required to ensure that diesel vehicles over 10,000 lbs. GVW are not allowed to stand with engines idling for more than five minutes to comply with California Vehicle Code 2485. Additional mitigations for air quality are summarized in the Mitigation Measures section of Chapter 2.

There would be one construction zone, which would limit impacts to air quality as a result of construction activity to one area.

As is the case for all of the action alternatives, the entrance station would have a propane generator located in a separate building to charge a bank of deep-cycle batteries supplying power for entrance station operations should power fail. Emissions as a result of this generator would be negligible.

By minimizing wait times and thus reducing emissions from autos and truck entering the parks, Alternative B would have a beneficial long term impact on air quality.

Cumulative Impacts

Past, present and reasonably foreseeable projects which utilize motorized equipment and may add particulate matter to the air would be any other projects involving ground disturbance, the use of heavy equipment or the use of emission producing vehicles [e.g., the rehabilitation of Generals Highway Route 10(1 - 6); the Emergency Cut Slope Repair Route 10(7A); the Halstead Meadow Erosion Repair; the Rehabilitation of the Lodgepole Campground; Giant Forest Development Area Removal; Construction of the Wuksachi, Clover Creek, and Red Fir Development Areas; Rehabilitation of Generals Highway from Amphitheatre Point to Deer Ridge and Wolverton Road to Little Baldy Pullout; Replace Water Distribution Systems at Lodgepole and Grant Grove; Replacement of the Cedar Grove Bridge; Replacement of Wolverton Corrals; and Reconstruction of the Crescent Meadow/Moro Rock Road].

In addition, campfire smoke and wood stoves in residential housing also affect the parks' air quality. These sources are located approximately five to six miles away at Grant Grove and in the private community of Wilsonia. Several prescribed fire projects are planned for Kings Canyon in the coming years. These fires will produce smoke.

Finally, the parks, including the Big Stump area, will continue to be impacted by external sources of air pollution. These sources will continue to produce long term, region-wide, adverse impacts on air quality. The cumulative impact of these independent actions would be long term, region-wide and adverse. Alternative B would continue to contribute short term negligible, adverse impacts and long term beneficial impacts to air quality.

Conclusion

Alternative B would cause minor and short-term adverse impacts on air quality as a result of construction activity. There would be minor long term beneficial impacts to air quality as a result of increased efficiency in reducing wait times for idling vehicles at the entrance station. There would be no impact to the parks' Class 1 air quality designation.

Alternative C: Construct New Entrance Station Below the Junction of Highway 180 and the Generals Highway

Impacts to air quality from construction activities would be approximately the same as for Alternative B. Mitigation measures for air quality as a result of construction activities would be the same as for Alternative B.

The entrance station would have a propane generator located in a separate building to charge a bank of deep-cycle batteries supplying power for entrance station operations should power fail. Emissions as a result of this generator would be negligible.

Cumulative Impacts

Past, present and reasonably foreseeable projects which utilize motorized equipment and may add particulate matter to the air would be any other projects involving ground disturbance, the use of heavy equipment or the use of emission producing vehicles [e.g., the rehabilitation of Generals Highway Route 10(1 - 6); the Emergency Cut Slope Repair Route 10(7A); the Halstead Meadow Erosion Repair; the Rehabilitation of the Lodgepole Campground; Giant Forest Development Area Removal; Construction of the Wuksachi, Clover Creek, and Red Fir Development Areas; Rehabilitation of Generals Highway from Amphitheatre Point to Deer Ridge and Wolverton Road to Little Baldy Pullout; Replace Water Distribution Systems at Lodgepole and Grant Grove; Replacement of the Cedar Grove Bridge; Replacement of Wolverton Corrals; and Reconstruction of the Crescent Meadow/Moro Rock Road].

In addition, campfire smoke and wood stoves in residential housing also affect the parks' air quality. These sources are located approximately five to six miles away at Grant Grove and in the private community of Wilsonia. Several prescribed fire projects are planned for Kings Canyon in the coming years. These fires will produce smoke.

Finally, the parks, including the Big Stump area, will continue to be impacted by external sources of air pollution. These sources will continue to produce long term, region-wide, adverse impacts on air quality. The cumulative impact of these independent actions would be long term, region-wide and adverse. Alternative C would continue to contribute short term negligible, adverse impacts and long term beneficial impacts to air quality.

Conclusion

Alternative C would cause minor and short term adverse impacts on air quality as a result of construction activities. There would be minor and long term beneficial impacts to air quality as a result of increased efficiency in reducing wait times for idling vehicles at the entrance station. There would be no impact to the parks' Class 1 air quality designation.

Impairment Analysis for Air Quality (All Alternatives)

There would be no more than minor impacts to air quality and no impact to the park's Class 1 air quality designation from any of the alternatives, therefore there would be no impairment to the natural integrity of resources and values for which the parks' were established.

SOUNDSCAPES

NPS Policy

The *National Park Service Management Policies 2006*, Section 4.9 Soundscape Management states:

> Park natural soundscape resources encompass all the natural sounds that occur in parks, including the physical capacity for transmitting those natural sounds and the interrelationships among park natural sounds of different frequencies and volumes. Natural sounds occur within and beyond the range of sounds that humans can perceive, and they can be transmitted through air, water, or solid materials. The National Park Service will preserve, to the greatest extent possible, the natural soundscapes of parks.

The thresholds of change for the intensity of an impact are defined as follows:

- Negligible: No changes to existing soundscapes from the alternative would occur or effects would be below or at the lower levels of detection. Any effects would be considered slight and short-term.

- Minor: Effects to soundscapes would be detectable to some visitors; they would be localized and would not affect the visitor's long-term experience of a natural soundscape.

- Moderate: Effects to soundscapes would be readily detectable, long term, and localized. These effects would result in a change noticeable to many visitors but would not result in substantial changes to long term experience of a natural soundscape.

- Major: Effects to soundscape would be readily apparent to a large number of visitors, long-term, and would result in substantial changes to a visitor's long-term experience of a natural soundscape.

Alternative A: No-Action Alternative

No new soundscape disturbing activities are proposed in association with the no-action alternative. The low-level sounds of vehicle engines and human voices would continue to be heard in the immediate area of the Big Stump picnic area in summer and the Kings Canyon Visitor Center in winter. The entrance station would continue to use an ultra-quiet propane generator, which cycles on intermittently to charge a bank of deep-cycle batteries supplying power for entrance station operations. The sound of the generator is similar to an idling car. Idling vehicles delayed at the entrance station would continue to produce long term, negligible and adverse impacts to soundscapes.

Cumulative Impacts

Past, present and reasonably foreseeable projects that may impact soundscapes would be any projects, which would produce short or long sounds that are above the ambient sounds heard at that location. These projects would include any project requiring the use of heavy equipment or a helicopter (e.g., Generals Highway Cut Slope Repair Route 10(7A); Generals Highway Halstead Meadow Erosion Repair; Generals Highway Rehabilitate Route 10(1 – 6); Rehabilitation of the Lodgepole Campground; Giant Forest Development Area Removal ; Construction of the Wuksachi, Clover Creek, and Red Fir Development Areas; Reconstruction of the Crescent Meadow / Moro Rock Road; Replacement of Comfort Stations at Crescent Meadow and Moro Rock; Rehabilitate Generals Highway from Amphitheatre Point to Deer Ridge Pullout and Wolverton Road to Little Baldy Pullout; Rehabilitate 10.7 km of Generals Highway; Replace

Cedar Grove Bridge; Replace Wolverton Corrals; Lodgepole and Grant Grove - Replace Water Distribution Systems; and Address the Deterioration of Three Wilderness Ranger Stations). The no action alternative would contribute long term, negligible, adverse impacts from increased vehicle wait times at the entrance kiosk.

Conclusion

The no-action alternative would continue to have long term negligible and adverse impacts on soundscapes.

Alternative B: Construct New Entrance Station at the Big Stump Lodge Site (Preferred Alternative)

There would be minor and short term intrusions on the natural quiet of local soundscapes due to noise generated from construction activities. The natural quiet that is typical of mixed conifer forest and giant sequoia groves would be disrupted during these activities. These impacts would short in duration, lasting as long as construction occurred.

The presence of an entrance station at the Big Stump Lodge Site would mean that the natural soundscape of the area would experience continuous and low levels of unnatural sounds associated with vehicles and other human activity in the immediate area. These adverse impacts would be intermittent (e.g., a vehicle entering or leaving the parking lot, a vehicle approaching, waiting or accelerating away).

The entrance station would have an ultra-quiet propane generator, which cycles on intermittently to charge a bank of deep-cycle batteries supplying power for entrance station operations. The generator would be located in a separate building away from the kiosks. The sound of the generator is similar to an idling car.

A new entrance station designed to efficiently process incoming traffic would have a long term and beneficial impact on local soundscapes by minimizing wait times and therefore reducing prolonged vehicle idle noise for autos and truck waiting to enter the parks. Sound created by idling engines would be reduced as a result. Adequate space to put on or adjust chains in winter also means greater efficiencies and shorter times that visitors and vehicles spend in the immediate area of the entrance station. Noise levels of engines idling and human voices would be reduced as a result.

Cumulative Impacts

Past, present and reasonably foreseeable projects that may impact soundscapes would be any projects, which would produce short or long sounds that are above the ambient sounds heard at that location. These projects would include any project requiring the use of heavy equipment or a helicopter (e.g., Generals Highway Cut Slope Repair Route 10(7A); Generals Highway Halstead Meadow Erosion Repair; Generals Highway Rehabilitate Route 10(1 − 6); Rehabilitation of the Lodgepole Campground; Giant Forest Development Area Removal ; Construction of the Wuksachi, Clover Creek, and Red Fir Development Areas; Reconstruction of the Crescent Meadow / Moro Rock Road; Replacement of Comfort Stations at Crescent Meadow and Moro Rock; Rehabilitate Generals Highway from Amphitheatre Point to Deer Ridge Pullout and Wolverton Road to Little Baldy Pullout; Rehabilitate 10.7 km of Generals Highway; Replace Cedar Grove Bridge; Replace Wolverton Corrals; Lodgepole and Grant Grove - Replace Water Distribution Systems; and Address the Deterioration of Three Wilderness Ranger Stations). Alternative B would contribute short term, minor impacts during construction and long term,

minor, adverse and beneficial impacts from the presence of the entrance station in an area, which does not currently contain other human development, and the reduction of vehicle wait time.

Conclusion

There would be minor, localized and short-term adverse impacts to soundscapes as a result of construction. There would be minor, localized, long term adverse impacts to soundscapes as a result of the presence of an entrance station. There would be minor, localized and long term beneficial impacts as a result of more efficiently contacting visitors entering the parks, reducing the time spent idling vehicles in the immediate area.

Alternative C: Construct New Entrance Station Below the Junction of Highway 180 and the Generals Highway

This proposed entrance station site is on a hill with a moderately open exposure to the south and is not as heavily forested as Alternatives A or B. Sounds of construction and the vehicle sounds associated with an entrance station may carry farther because of the exposure and without the sound-dampening effects of denser forest found at the sites of the other alternatives.

During work hours, the construction area would experience continuous unnatural sounds associated with construction vehicles. These associated sounds would be the same as for all of the alternatives, but they may carry a greater distance because of the forest density at the proposed site.

The entrance station would use an ultra-quiet propane generator, which cycles on intermittently to charge a bank of deep-cycle batteries supplying power for entrance station operations. The sound of the generator is similar to an idling car.

A new entrance station designed to efficiently process incoming traffic would have a beneficial impact on local soundscapes. Alternative C would have a local beneficial impact on soundscapes by minimizing wait times and therefore reduce vehicle idle times for autos and truck entering the parks. Sound created by idling engines would be reduced as a result. Adequate space to put on or adjust chains in winter also means greater efficiencies and shorter times that visitors and vehicles spend in chain-up area. Noise levels of engines idling and human voices would be reduced as a result.

Cumulative Impacts

Past, present and reasonably foreseeable projects that may impact soundscapes would be any projects that would produce short or long sounds that are above the ambient sounds heard at that location. These projects would include any project requiring the use of heavy equipment or a helicopter (e.g., Generals Highway Cut Slope Repair Route 10(7A); Generals Highway Halstead Meadow Erosion Repair; Generals Highway Rehabilitate Route 10(1 – 6); Rehabilitation of the Lodgepole Campground; Giant Forest Development Area Removal ; Construction of the Wuksachi, Clover Creek, and Red Fir Development Areas; Reconstruction of the Crescent Meadow / Moro Rock Road; Replacement of Comfort Stations at Crescent Meadow and Moro Rock; Rehabilitate Generals Highway from Amphitheatre Point to Deer Ridge Pullout and Wolverton Road to Little Baldy Pullout; Rehabilitate 10.7 km of Generals Highway; Replace Cedar Grove Bridge; Replace Wolverton Corrals; Lodgepole and Grant Grove - Replace Water Distribution Systems; and Address the Deterioration of Three Wilderness Ranger Stations). Similar to Alternative B (the preferred alternative), Alternative C would contribute short term, minor impacts during construction and long term, minor, adverse and beneficial impacts from

the presence of the entrance station in an area, which does not currently contain other human development, and the reduction of vehicle wait time.

Conclusion

There would be minor, short term and adverse impacts to soundscapes as a result of construction. There would be minor, long term and adverse impacts to soundscapes as a result of the presence of an entrance station. There would be minor, long term and beneficial impacts as a result of improved efficiency allowing vehicles to exit the area more quickly.

Impairment Analysis for Soundscapes (All Alternatives)

As impacts to soundscapes would not exceed minor and adverse and while both action alternatives propose to have beneficial impacts on soundscapes, no impairment of park soundscapes or the natural integrity of resources and values for which the parks' were established, would occur.

VEGETATION AND NON-NATIVE SPECIES

The *National Park Service Management Policies 2006*, Section 4.1 states:

> Natural resources will be managed to preserve fundamental physical and biological processes, as well as individual species, features, and plant and animal communities. The Service will not attempt to solely preserve individual species (except threatened or endangered species) or individual natural processes; rather, it will try to maintain all the components and processes of naturally evolving park ecosystems, including the natural abundance, diversity, and genetic and ecological integrity of the plant and animal species native to those ecosystems.

In addition, per section 4.4.4.1 Introduction or Maintenance of Exotic Species:

> In general, new exotic species will not be introduced into parks.

Executive Order 13112 of February 3, 1999 Invasive Species states:

> (i) prevent the introduction of invasive species; (ii) detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound manner; (iii) monitor invasive species populations accurately and reliably; (iv) provide for restoration of native species and habitat conditions in ecosystems that have been invaded; (v) conduct research on invasive species and develop technologies to prevent introduction and provide for environmentally sound control of invasive species; and (vi) promote public education on invasive species and the means to address them;

Impacts to special status plant species will be discussed in the Special Status Species section. Impacts to sequoia trees will be discussed in the Giant Sequoia Groves section. This section will deal with impacts to all other plant species and will include impacts associated with the introduction of non-native plants.

The thresholds of change for the intensity of an impact are defined as follows:

- Negligible: The impact for native vegetation would be at the lower levels of detection or not measurable. Non-native species would be unlikely to be introduced and the few that might be would not survive. Mitigation would not be necessary.

- Minor: The impact to native vegetation would be detectable and could affect the abundance or distribution of individuals in a localized area, but it would not affect the viability of the local population or overall community size, structure, or composition. Non-native species might be introduced, but mitigation measures to eradicate them would be simple and successful.

- Moderate: The impact would be clearly detectable and could have an appreciable effect on the resource. This would include impacts that affect the abundance or distribution of local populations, but not the viability of the regional population. Localized changes to community size, structure, or composition and ecological processes could occur. Non-native species might be introduced. Mitigation to offset all adverse effects could be extensive, but would likely be successful.

- Major: The impact would be severely adverse or exceptionally beneficial. Impacts would have a substantial, highly noticeable, or widespread influence, affecting the abundance or distribution of a local or regional population to the extent that the population would not likely to recover (adverse) or would return to a sustainable level (beneficial). Community size, structure, or composition and ecological processes would be highly altered, and landscape level changes could be expected. Non-native species would almost certainly be introduced. Mitigation measures to offset all adverse effects would be required, extensive, and success of the mitigation measures would not be guaranteed.

Alternative A: No-Action Alternative

No vegetation disturbing activities are proposed in association with the no-action alternative. The no-action alternative would not change impacts to vegetation. No additional impacts to vegetation would be expected from continued use of the winter and summer interim plan.

Cumulative Impacts

Past, present and reasonably foreseeable projects which may impact vegetation and propagate non-native species would be any projects which involves the permanent removal of vegetation of any project which involves ground disturbance and the use of equipment from outside of the park (e.g., Generals Highway Rehabilitate Route 10(1 – 6); Rehabilitation of the Lodgepole Campground; Giant Forest Development Area Removal; Construction of the Wuksachi, Clover Creek, and Red Fir Development Areas; Reconstruction of the Crescent Meadow / Moro Rock Road; Replacement of Comfort Stations at Crescent Meadow and Moro Rock; Rehabilitate Generals Highway from Amphitheatre Point to Deer Ridge Pullout and Wolverton Road to Little Baldy Pullout; Rehabilitate 10.7 km of Generals Highway; Replace Cedar Grove Bridge; Replace Wolverton Corrals; and Lodgepole and Grant Grove - Replace Water Distribution Systems). The no action alternative would not contribute to impacts on vegetation or the propagation of non-native plant species

Conclusion

The no-action alternative would have no additional impact on vegetation in Sequoia and Kings Canyon National Parks.

Alternative B: Construct New Entrance Station at the Big Stump Lodge Site (Preferred Alternative)

Most of the proposed construction area has been previously disturbed with the existence of Big Stump Lodge and the present Highway 180. There would be some adverse impacts to native vegetation in both previously disturbed and undisturbed areas and native vegetation would be displaced.

This proposal also requires that approximately 2,000 feet of highway be realigned. This would necessitate removing some vegetation along one side of the highway. This vegetation consists of shrubs and small conifers along the road corridor.

Affected vegetation for the entrance station site would include removal of patches of shrubs adjacent to the existing asphalt surfaces. Mitigation to protect vegetation would include tagging individual trees for removal, protection of root zones during excavation, and salvage and replacement of seed-containing topsoil, litter, and duff. A small number of conifer trees would be propagated from local seed stock and planted in groupings to interrupt the linearity of the old road alignment, but in general, topsoil salvage and replacement would be the primary revegetation strategy. If large roots are found during trenching operations, workers would hand dig around the root to preserve it. Additional mitigation measures for vegetation disturbing activities and other impacts as a result of construction are summarized in the Mitigation Measures section in Chapter 2.

Due to the relatively rapid growth of vegetation in the mixed conifer zone of the southern Sierra Nevada, construction and siting of the entrance station would result in minor, short and long adverse effects on vegetation within the project area.

Non-Native Species

Non-native species thrive in disturbed areas and they often prevent native plants from re-colonizing disturbed areas. This alternative would disturb approximately 1.2 acres (+/- 20-25%) of which 75% will be paved road bed. The remaining area will consist of the former road bed, which will be subject to revegetation with native plants. There is a risk of introducing non-native species transported on construction vehicles or in fill material. Long term adverse impacts from non-native species would depend on the success of mitigation techniques.

The realignment of the road would require significant quantities of fill dirt to be imported. Fill dirt is often a source of non-native or invasive species seeds. Contaminated construction vehicles and equipment may also be sources of mud and seeds. Resource specialists are especially concerned about non-native invasive species that are not currently present in the park but could be imported with equipment or fill dirt.

Mitigation measures described in Chapter 2 would be employed to prevent and minimize introduction by non-native and invasive species. Before construction begins, a qualified plant ecologist would survey the project site to look for non-native species of concern, which could be in the area. If any of these species were found, mitigation measures to reduce or eliminate impacts by these plants would be implemented under direction of the parks' restoration ecologist and non-native plant specialist.

The construction contractor would be required to thoroughly pressure-wash all vehicles and equipment, to remove dirt and seeds, before entering the park. Park staff would inspect sources of fill dirt used onsite for the presence of invasive plants; contaminated material would be rejected or adequately mitigated. At project completion, the site would be restored using revegetation techniques that would prevent the invasion of non-native invasive plants. Following project

completion, a qualified plant ecologist would continue to survey the site for one to three years for invasive non-native vegetation.

Cumulative Impacts

Past, present and reasonably foreseeable projects which may impact vegetation and propagate non-native species would be any project which involves the permanent removal of vegetation of any project which involves ground disturbance and the use of equipment from outside of the park (e.g., Generals Highway Rehabilitate Route 10(1 − 6); Rehabilitation of the Lodgepole Campground; Giant Forest Development Area Removal; Construction of the Wuksachi, Clover Creek, and Red Fir Development Areas; Reconstruction of the Crescent Meadow / Moro Rock Road; Replacement of Comfort Stations at Crescent Meadow and Moro Rock; Rehabilitate Generals Highway from Amphitheatre Point to Deer Ridge Pullout and Wolverton Road to Little Baldy Pullout; Rehabilitate 10.7 km of Generals Highway; Replace Cedar Grove Bridge; Replace Wolverton Corrals; and Lodgepole and Grant Grove - Replace Water Distribution Systems).

In addition, conifers in the Grant Grove area were killed by a Douglas fir tussock moth outbreak. As a result, there was extensive removal of trees in and around campgrounds to remove the hazard created by dead trees. This alternative would contribute minor, short and long term adverse impacts on vegetation.

Conclusion

With successful mitigation measures taken to protect against the introduction of non-native and invasive plant species, there would be minor, short and long term adverse impacts to native vegetation.

Alternative C: Construct New Entrance Station Below the Junction of Highway 180 and the Generals Highway

Impacts as a result of construction activity for siting of the new entrance station and chain-up area would be approximately the same as for Alternative B. No extensive vegetation disturbance or removal as a result of highway realignment would be necessary. The total area of disturbance anticipated from the proposed action is approximately 0.8 acre (+/-20-25%). Additional vegetation would be removed or trimmed on the inside curve to improve sight distance for approximately 2,500 feet. Exact amount of vegetation removed would depend on a site survey and final engineering studies and design development. Vegetative communities that would be disturbed would be reclaimed with native vegetation of local stock once the project is complete. Overall, a total of approximately 0.4 acre would end up as new hard surfaces under this alternative.

Long term adverse impacts to native vegetation would be minor when mitigated with successful re-vegetation techniques.

Non-Native Species

A preliminary design survey estimates that this alternative would disturb approximately 0.4 acres that would need to be revegetated. Impacts and mitigation measures for non-native species would be approximately the same as for Alternatives B.

Cumulative Impacts

Past, present and reasonably foreseeable projects that may impact vegetation and propagate non-native species would be any project that involves the permanent removal of vegetation of

any project which involves ground disturbance and the use of equipment from outside of the park (e.g., Generals Highway Rehabilitate Route 10(1 – 6); Rehabilitation of the Lodgepole Campground; Giant Forest Development Area Removal; Construction of the Wuksachi, Clover Creek, and Red Fir Development Areas; Reconstruction of the Crescent Meadow / Moro Rock Road; Replacement of Comfort Stations at Crescent Meadow and Moro Rock; Rehabilitate Generals Highway from Amphitheatre Point to Deer Ridge Pullout and Wolverton Road to Little Baldy Pullout; Rehabilitate 10.7 km of Generals Highway; Replace Cedar Grove Bridge; Replace Wolverton Corrals; and Lodgepole and Grant Grove - Replace Water Distribution Systems).

In addition, conifers in the Grant Grove area were killed by a Douglas fir tussock moth outbreak. As a result, there was extensive removal of trees in and around campgrounds to remove the hazard created by dead trees. Alternative C would contribute minor and short and long term adverse impacts on vegetation.

Conclusion

With successful mitigation measures taken to protect against the introduction of non-native and invasive plant species, there would be minor, short and long term adverse impacts to native vegetation.

Impairment Analysis for Vegetation and Non-Native Species (All Alternatives)

With the application of techniques and mitigations for preventing the introduction of non-native plant species and because the action alternatives would occur substantially within the existing road corridors, impacts to vegetation will not exceed minor and adverse, therefore there would be no impairment to the natural integrity of resources and values for which the parks' were established.

SPECIAL STATUS SPECIES

National Park Service Management Policies 2006, Section 4.4.2.3 Management of Threatened or Endangered Plants and Animals states:

> The Service will survey for, protect, and strive to recover all species native to national park system units that are listed under the Endangered Species Act. The Service will fully meet its obligations under the NPS Organic Act and the Endangered Species Act to both proactively conserve listed species and prevent detrimental effects on these species. To meet these obligations the service will cooperate with both the U.S. Fish and Wildlife Service and the NOAA Fisheries to ensure that NPS actions comply with both the written requirements and the spirit of the Endangered Species Act. This cooperation should include the full range of activities associated with the Endangered Species Act, including consultation, conferencing, informal discussions, and securing all necessary scientific and/or recovery permits.

The thresholds of change for the intensity of an impact are defined as follows:

- Negligible: The proposed actions would not affect special status species or critical habitat.

- Minor: The effects on special status species would be extremely unlikely to occur and could not be meaningfully measured, detected, or evaluated or they would be completely beneficial.

- Moderate: Any adverse effects to listed species that might occur as a direct or indirect result of proposed actions, and the effect would not be discountable or would be completely beneficial.

- Major: Is likely to jeopardize proposed species or adversely modify proposed critical habitat (impairment). The appropriate conclusion when the NPS or USF&WS identifies situations in which an action could jeopardize the continued existence of a proposed species or adversely modify critical habitat to a species within or outside park boundaries.

Alternative A: No-Action Alternative

There would be no change in impacts to special status species. No additional impacts to special status species would be expected from continued use of the winter and summer interim entrance station plan. Short term adverse impacts to special status species, especially for transient species, would continue to be negligible. This alternative would have no impact on any of the listed species with potential to occur in Sequoia and Kings Canyon National Parks. This project would not impact any of the listed species' primary food stocks, their prey species, or foraging areas. This alternative would not have any impact on designated critical habitats.

Cumulative Impacts

Past, present and reasonably foreseeable projects which may impact special status species include any projects that would impact the primary food stocks, prey species, foraging areas, nesting or denning areas of special status species (e.g., Generals Highway Cut Slope Repair Route 10(7A); Generals Highway Halstead Meadow Erosion Repair; Generals Highway Rehabilitate Route 10(1 – 6); Rehabilitation of the Lodgepole Campground; Giant Forest Development Area Removal ; Construction of the Wuksachi, Clover Creek, and Red Fir Development Areas; Rehabilitate Generals Highway from Amphitheatre Point to Deer Ridge Pullout and Wolverton Road to Little Baldy Pullout; Replace Cedar Grove Bridge in the Cedar Grove District of Kings Canyon National Park; Replace Wolverton Corrals; Restoration of Big Meadow; and Address the Deterioration of Three Wilderness Ranger Stations).

In addition, housing development throughout the foothills region will continue to create short and long term region-wide adverse impacts as a result of habitat loss and actions that affect natural movements of special status species and access to food sources. In the parks and monument, special status species populations and habitat would continue to be influenced to varying degrees by existing facilities and visitor use that affect natural movement of wildlife, habitat, and food sources. The no action alternative would not contribute to cumulative impacts on special status species.

Conclusion

Long term adverse impacts to transient special status species would continue to be negligible.

Alternative B: Construct New Entrance Station at the Big Stump Lodge Site (Preferred Alternative)

Incidence of transient special status species traveling through the proposed project site is expected to be infrequent. The proposed project site is a previously disturbed major highway area with a high degree of vehicle traffic. Given the small footprint of the project and availability of extensive suitable habitat outside the project area (anywhere off of the highway), short term adverse impacts associated with the construction and operation of the Big Stump entrance station

(e.g., increased noise, human activity) would be negligible to special status species possibly traveling through the area.

The new entrance station facilities would cause a small loss of potential habitat (standing and dead and down conifer trees), for special status species (e.g., fisher or California spotted owl), estimated to be approximately 0.16 acre. The impact would be negligible because the area of disturbance would be small and within a large area of suitable habitat that would not be affected. No known special status species occupy the proposed project site. There are no designated critical habitats in the vicinity of the proposed action, nor would the proposed project have any indirect impact on distant critical habitats.

This alternative would have no impact on any of the listed species with potential to occur in Sequoia and Kings Canyon National Parks. This project would not impact any of the listed species' primary food stocks, their prey species, or foraging areas.

Cumulative Impacts

Past, present and reasonably foreseeable projects which may impact special status species include any projects that would impact the primary food stocks, prey species, foraging areas, nesting or denning areas of special status species (e.g., Generals Highway Cut Slope Repair Route 10(7A); Generals Highway Halstead Meadow Erosion Repair; Generals Highway Rehabilitate Route 10(1 – 6); Rehabilitation of the Lodgepole Campground; Giant Forest Development Area Removal ; Construction of the Wuksachi, Clover Creek, and Red Fir Development Areas; Rehabilitate Generals Highway from Amphitheatre Point to Deer Ridge Pullout and Wolverton Road to Little Baldy Pullout; Replace Cedar Grove Bridge in the Cedar Grove District of Kings Canyon National Park; Replace Wolverton Corrals; Restoration of Big Meadow; and Address the Deterioration of Three Wilderness Ranger Stations).

In addition, housing development throughout the foothills region will continue to create short and long term region-wide adverse impacts as a result of habitat loss and actions that affect natural movements of special status species and access to food sources. In the parks and monument, special status species populations and habitat would continue to be influenced to varying degrees by existing facilities and visitor use that affect natural movement of wildlife, habitat, and food sources. On a cumulative basis, Alternative B would contribute negligible short and long term impacts.

Conclusion

The short term construction and long term presence of an entrances station would cause negligible, short and long term adverse impacts to special status species traveling through the area.

Alternative C: Construct New Entrance Station Below the Junction of Highway 180 and the Generals Highway

Alternative C proposes construction of entrance facilities at a new location. Short and long term adverse impacts to special status species as a result of construction activity and site selection would be negligible because occupancy by special status species is expected to be negligible at the proposed project site. There may be additional impacts from this Alternative due to the need to trench utilities from approximately 4,000 feet off of the highway. Impacts would be short term and occur during construction. No special status species are known to inhabit the area of the utility trench but transient species may be affected while moving through the area.

There are no designated critical habitats in the vicinity of the site, nor would the proposed project have any indirect effects on distant critical habitats. This alternative would have no effect on the listed species with potential to occur in Sequoia and Kings Canyon National Parks. This project would not affect the listed species' primary food stocks, their prey species, or foraging areas. Alternative C would not have an effect on designated critical habitats.

Cumulative Impacts

Past, present and reasonably foreseeable projects which may impact special status species include any projects that would impact the primary food stocks, prey species, foraging areas, nesting or denning areas of special status species (e.g., Generals Highway Cut Slope Repair Route 10(7A); Generals Highway Halstead Meadow Erosion Repair; Generals Highway Rehabilitate Route 10(1 – 6); Rehabilitation of the Lodgepole Campground; Giant Forest Development Area Removal ; Construction of the Wuksachi, Clover Creek, and Red Fir Development Areas; Rehabilitate Generals Highway from Amphitheatre Point to Deer Ridge Pullout and Wolverton Road to Little Baldy Pullout; Replace Cedar Grove Bridge in the Cedar Grove District of Kings Canyon National Park; Replace Wolverton Corrals; Restoration of Big Meadow; and Address the Deterioration of Three Wilderness Ranger Stations).

In addition, housing development throughout the foothills region will continue to create short and long term region-wide adverse impacts as a result of habitat loss and actions that affect natural movements of special status species and access to food sources. In the parks and monument, special status species populations and habitat would continue to be influenced to varying degrees by existing facilities and visitor use that affect natural movement of wildlife, habitat, and food sources. On a cumulative basis, Alternative C would contribute negligible short and long term impacts.

Conclusion

The short term construction and long term presence of an entrances station would cause negligible, short and long term adverse impacts to special status species traveling through the area.

Impairment Analysis for Special Status Species (All Alternatives)

Because there are no resident special status species in this part of the park, impacts to special status species would be limited to those that may be traveling through the area and would not exceed negligible levels. Therefore no impairment of special status species and the natural integrity of resources and values for which the parks' were established would occur.

RECREATION AND VISITOR USE EXPERIENCE

The National Park Service Organic Act of 1916 states that the NPS:

> …shall promote and regulate the use of the federal areas known as national parks, monuments, and reservations hereinafter specified…by such means and measures as conform to the fundamental purpose of the said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.

The *National Park Service Management Policies 2006*, Section 8.2 states:

> To provide for enjoyment of the parks, the National Park Service will encourage visitor activities that:
>
> - are appropriate to the purpose for which the park was established; and
> - are inspirational, educational, or healthful, and otherwise appropriate to the park environment; and
> - will foster an understanding of and appreciation for park resources and values, or will promote enjoyment through a direct association with, interaction with, or relation to park resources; and
> - can be sustained without causing unacceptable impacts to park resources or values.

In addition, section 9.3.1.2 states:

> Entrance and fee collection stations will be harmonious with the park environment, and these stations should reflect the architectural character of the park. Entrance and fee collection stations should (1) reasonably accommodate the average peak season visitor traffic, (2) incorporate best available technology, and (3) use best management practices to minimize delays—thus reducing vehicle emissions at the entrance station and enhancing the visitor experience.

The thresholds of change for the intensity of an impact are defined as follows:

- Negligible: The impact would be barely detectable, would not occur in primary resource areas, or would affect few visitors.
- Minor: The impact would be slight but detectable, would not occur in primary resource areas, or would affect few visitors
- Moderate: The impact would be readily apparent, would occur in primary resource areas, or would affect many visitors and could have an appreciable effect on visitor experience.
- Major: The impact would be severely adverse or exceptionally beneficial, would occur in primary resource areas, or would affect the majority of visitors.

Alternative A: No-Action Alternative

The Big Stump picnic area is the first recreational facility that visitors encounter upon entering Sequoia and Kings Canyon National Parks. It is a popular rest and relaxation spot for both inbound and outbound visitors. Visitors frequently utilize the picnic area for its barbeque grills, picnic tables, and restroom facilities and as a rest stop to becoming oriented with the park and plan their visit. A trail through the Big Stump Basin can also be accessed from the picnic area parking lot. The no-action alternative limits the area's intended recreational purpose with the presence of the entrance station in the picnic area, associated traffic lanes and congestion from vehicles waiting at the entrance station.

In winter, the Big Stump picnic area is returned to its intended recreational use as a snow play area. The location of the kiosk in front of the Kings Canyon Visitor Center affects recreational

opportunities for visitors because of the traffic congestion created in the Grant Grove Village parking area as some visitors stop to pay fees and receive park and forest information. Associated traffic congestion in the area makes it more difficult for visitors to easily access the visitor center to view or participate in educational programs and activities. In summer, the Grant Grove Village parking area is returned to its intended recreation use as parking for the visitor center and surrounding concessions.

Cumulative Impacts

Past, present and reasonably foreseeable projects which may impact recreation and visitor use experience would include any projects which involve limiting access to certain areas, traffic delays or road and trail closures, (e.g., Generals Highway Cut Slope Repair Route 10(7A); Generals Highway Rehabilitate Route 10(1 – 6); Rehabilitation of the Lodgepole Campground; Giant Forest Development Area Removal; Reconstruction of the Crescent Meadow / Moro Rock Road; Replacement of Comfort Stations at Crescent Meadow and Moro Rock; Rehabilitate Generals Highway from Amphitheatre Point to Deer Ridge Pullout and Wolverton Road to Little Baldy Pullout; Rehabilitate 10.7 km of Generals Highway; and Replace Cedar Grove Bridge in the Cedar Grove District of Kings Canyon National Park).

Other types of impacts to visitor experience like impacts on scenery or air quality are analyzed under those impact topics.

The no action alternatives would contribute negligible to minor adverse impacts to recreation and visitor use experience.

Conclusion

In summer, there would continue to be minor, long term adverse impacts to recreation and visitor use experience. In winter, there would be negligible long term adverse impacts to recreation and visitor use experience.

Alternative B: Construct New Entrance Station at the Big Stump Lodge Site (Preferred Alternative)

Construction activities would have short term adverse impacts on recreational opportunities. At least one lane of traffic would be open during most of the construction. Flaggers and stop lights would be used for traffic control in the construction area. Visitor traffic may be temporarily stopped for up to 20 minutes to allow construction vehicles to safely work. Trailheads and parking areas would not be obscured by construction equipment or materials. The Big Stump Trail would be the primary recreational trail that would be impacted. Noise and fumes from heavy equipment and possible detours or trail closures as a result of construction would make the trail less appealing to visitors and would impact their recreation options and visitor use experience. These adverse impacts would be temporary and would end when construction is completed.

Alternative B would have a long term beneficial impact on recreational opportunities by restoring normal summer recreational use of the Big Stump picnic area. In winter, congestion would be reduced at the Grant Grove Village parking lot and visitor use experience would be enhanced. An entrance station that is designed and built for efficiently contacting large numbers of visitors reduces wait times to enter the parks. Visitor frustration and a negative park experience are minimized as a result. Additionally, all visitors will be contacted by park personnel when they pass through the entrance station, which enhances user and recreational experiences by providing maps, directions and essential safety information.

Cumulative Impacts

Past, present and reasonably foreseeable projects which may impact recreation and visitor use experience would include any projects which involve limiting access to certain areas, traffic delays or road and trail closures, (e.g., Generals Highway Cut Slope Repair Route 10(7A); Generals Highway Rehabilitate Route 10(1 − 6); Rehabilitation of the Lodgepole Campground; Giant Forest Development Area Removal; Reconstruction of the Crescent Meadow / Moro Rock Road; Replacement of Comfort Stations at Crescent Meadow and Moro Rock; Rehabilitate Generals Highway from Amphitheatre Point to Deer Ridge Pullout and Wolverton Road to Little Baldy Pullout; Rehabilitate 10.7 km of Generals Highway; and Replace Cedar Grove Bridge in the Cedar Grove District of Kings Canyon National Park).

Other types of impacts to visitor experience like impacts on scenery or air quality are analyzed under those impact topics.

Alternative B would contribute negligible short term impacts to visitor experience from delays and limited access to recreation areas that may occur during construction.

Conclusion

There would be negligible, localized and short term adverse impacts to recreation and visitor use experience as a result of construction activity. There would be minor, localized and park-wide long term beneficial impacts to recreation and visitor use experience once construction is complete.

Alternative C: Construct New Entrance Station Below the Junction of Highway 180 and the Generals Highway

Construction activity impacts to recreation and visitor experience would be approximately the same as for Alternative B. There would be short-term adverse impacts to recreation as a result of construction activity. Local recreational opportunities would be temporarily affected by construction activities. The entrance station construction site has no trails nearby, so there would be no direct impact to recreational opportunities at its location. Some disruption to visitor use experience would occur at the entrance station construction site as a result of temporarily stopping visitor traffic to allow construction vehicles to safely work.

Beneficial impacts as a result of a newly designed and more efficient entrance station in terms of reduced wait times would be similar to those for Alternative B.

Cumulative Impacts

Past, present and reasonably foreseeable projects which may impact recreation and visitor use experience would include any projects which involve limiting access to certain areas, traffic delays or road and trail closures, (e.g., Generals Highway Cut Slope Repair Route 10(7A); Generals Highway Rehabilitate Route 10(1 − 6); Rehabilitation of the Lodgepole Campground; Giant Forest Development Area Removal; Reconstruction of the Crescent Meadow / Moro Rock Road; Replacement of Comfort Stations at Crescent Meadow and Moro Rock; Rehabilitate Generals Highway from Amphitheatre Point to Deer Ridge Pullout and Wolverton Road to Little Baldy Pullout; Rehabilitate 10.7 km of Generals Highway; and Replace Cedar Grove Bridge in the Cedar Grove District of Kings Canyon National Park).

Other types of impacts to visitor experience like impacts on scenery or air quality are analyzed under those impact topics.

Alternative C would contribute negligible short term impacts to visitor experience from delays and limited access to recreation areas that may occur during construction.

Conclusion

There would be negligible, localized and short term adverse impacts to recreation and visitor use experience as a result of construction activity. There would be minor, localized and park-wide long term beneficial impacts to recreation and visitor use experience once construction is complete.

Impairment Analysis for Recreation and Visitor Use Experience (All Alternatives)

Impacts to Recreation and Visitor Use Experience with the no- action alternative will be long term and negligible. In contrast, impacts generated by both action alternatives would be short term, negligible, and localized; there would be minor, localized and park-wide long term beneficial impacts to recreation and visitor use experience once construction is complete.

CULTURAL RESOURCES

The *National Park Service Management Policies 2006*, Section 5.3.1 states:

> The National Park Service will employ the most effective concepts, techniques, and equipment to protect cultural resources against theft, fire, vandalism, overuse, deterioration, environmental impacts, and other threats without compromising the integrity of the resources.
>
> **5.3.5 Treatment of Cultural Resources**
> The Park Service will provide for the long-term preservation of, public access to, and appreciation of the features, materials, and qualities contributing to the significance of cultural resources.

The National Historic Preservation Act of 1966 (NHPA) and its implementing regulations (36CFR800) require federal agencies to address impacts on "significant" cultural resources only.

Significant cultural resources are those that meet one of the criteria found at 36 CFR 60.4:

> National Register criteria for evaluation. The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and
>
> (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> (b) that are associated with the lives of persons significant in our past; or
>
> (c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
>
> (d) that have yielded, or may be likely to yield, information important in prehistory or history.

The application of the criteria is done through a *Determination of Eligibility* (DOE), with significant sites, buildings, structures, etc., being identified as eligible for listing in the *National Register of Historic Places* (NRHP). The National Register Nomination process leads ideally to an actual *listing* in the National Register. Resources that have been formally determined eligible, but that are not yet listed, are nevertheless managed the same as are listed resources. Similarly, cultural resources that have not yet been evaluated for National Register eligibility are treated as "*potentially eligible*" pending their evaluation. No further efforts are required for those cultural resources that do not meet any of the significance criteria.

Mitigation options are addressed according to the pertinent laws and policies governing cultural resources, using management methods that are consistent with the preservation of historic character and values. These laws include the Antiquities Act and the Historic Sites Act, as well as subsequent historic preservation legislation, including NHPA, ARPA, and NAGPRA.

The thresholds of change for the intensity of an impact are defined as follows:

- Negligible: The impact would be at the lowest levels of detection, with neither adverse nor beneficial consequences. The determination of effect under Section 106 would be no effect.

- Minor: The alteration of a feature or features would not diminish the integrity of the resource. The determination of effect under Section 106 would be no adverse effect.

- Moderate: The alteration of a feature or features would diminish the integrity of the resource. The determination of effect under Section 106 would be adverse effect. A memorandum of agreement would be executed among the NPS and the applicable state or tribal historic preservation officer and, if necessary, the Advisory Council on Historic Preservation in accordance with 36 CFR 800.6(b). Measures identified in the agreement to minimize or mitigate adverse impacts would reduce the intensity of impact under the National Environmental Policy Act from major to moderate.

- Major: The alteration of a feature or features would diminish the integrity of the resource. The determination of effect under Section 106 would be adverse effect. Measures to minimize or mitigate adverse impacts cannot be agreed upon, and the NPS and the applicable state or tribal historic preservation officer and/or the Advisory Council are unable to negotiate and execute a memorandum of agreement in accordance with 36 CFR 800.6(b).

Alternative A: No-Action Alternative

No new activities are proposed in association with the no-action alternative, which would have any additional impacts to cultural resources. The no-action alternative would not change impacts to cultural resources. No additional impacts to cultural resources would be expected from continued use of the winter and summer interim plan.

Cumulative Impacts

Past, present and reasonably foreseeable projects which may impact cultural resources include projects on historic roads, near archeological sites or which may impact historic structures (e.g., Generals Highway Rehabilitate Route 10(1 – 6); Rehabilitation of the Lodgepole Campground; Giant Forest Development Area Removal; Reconstruction of the Crescent Meadow / Moro Rock Road; Replacement of Comfort Stations at Crescent Meadow and Moro Rock; Rehabilitate Generals Highway from Amphitheatre Point to Deer Ridge Pullout and Wolverton Road to Little

Baldy Pullout; Rehabilitate 10.7 km of Generals Highway; and Address the Deterioration of Three Wilderness Ranger Stations). The no action alternative would contribute no additional impact to the cumulative effects of projects on park cultural resources.

Conclusion

The no-action alternative would have no impact on the cultural resources in the Big Stump area of Kings Canyon National Park.

Alternative B: Construct New Entrance Station at the Big Stump Lodge Site (Preferred Alternative)

Pending a determination of eligibility, the Big Stump Lodge area is currently determined to be potentially eligible for listing in the NRHP. This means that it would be managed as if it were eligible. The area of potential affect of this project would encroach into the Big Stump Lodge complex and would primarily overlap with the area that was previously the Big Stump gas station. In December of 2005, the park archeologist conducted systematic subsurface testing within the area of potential effect of the former Lodge site. No significant subsurface features or artifacts were found. There is very little surface evidence today of the prior existence of the Big Stump Lodge complex. For this reason, it was determines that Alternative B would have no adverse effect on cultural resources within the Big Stump area.

Mitigation measures would be enacted during construction to ensure the protection of any archeological artifacts that may be discovered in the course of excavation. An archeologist would be onsite during any ground disturbing construction activities. Construction workers and supervisors would be advised on the recognition of archeological materials and on the laws and guidelines and special sensitivity to ensure protection of cultural resources. Should previously unknown archeological resources be uncovered during construction, all work would immediately cease in the discovery area and the parks' archeologist would survey the finding.

Upon the discovery of any buried archeological materials, all ground disturbing activities would be stopped immediately and appropriate actions undertaken to protect and evaluate such finds. The NPS would consult according to 36 CFR 800.11 and, as appropriate, in compliance with provisions of the Native American Graves Protection and Repatriation Act. Evaluation might entail a data recovery effort by park archeologists. Archeological artifacts that are recovered, catalogued and studied would have a beneficial impact on the historical knowledge of the parks' culture and history. Mitigations for activities that may disturb cultural resources are summarized in Chapter 2.

Cumulative Impacts

Past, present and reasonably foreseeable projects which may impact cultural resources include projects on historic roads, near archeological sites or which may impact historic structures (e.g., Generals Highway Rehabilitate Route 10(1 – 6); Rehabilitation of the Lodgepole Campground; Giant Forest Development Area Removal; Reconstruction of the Crescent Meadow / Moro Rock Road; Replacement of Comfort Stations at Crescent Meadow and Moro Rock; Rehabilitate Generals Highway from Amphitheatre Point to Deer Ridge Pullout and Wolverton Road to Little Baldy Pullout; Rehabilitate 10.7 km of Generals Highway; and Address the Deterioration of Three Wilderness Ranger Stations). Alternative B would contribute negligible adverse impacts to the cumulative affects of projects on park cultural resources. On the other hand, many of these same projects have enabled park archeologists to discover, catalogue and or recover a number of previously unknown archeological artifacts. Alternative B may contribute to the cumulative beneficial impact of project work on cultural resources.

Conclusion

There would be negligible, long term adverse impacts to cultural resources as a result of construction activities, which would partially overlap a historic site. Impacts would be negligible as there is no surface evidence of the historic site that would be disturbed. There could be negligible, localized long term beneficial impacts as a result of data gathering activities should any cultural artifacts be found, recovered and studied.

Alternative C: Construct New Entrance Station Below the Junction of Highway 180 and the Generals Highway

There are no known archeological or cultural resources in the proposed entrance station and chain-up area construction zone. The area of potential affect for this alternative was recently surveyed in preparation for a prescribed fire (Burge 2007). No cultural resources of significance were found. If this alternative is selected, prior to any ground disturbing construction activities, the site would be re-surveyed by a park archeologist.

Alternative C would have no effect on cultural resources within the Big Stump area.

Cumulative Impacts

Past, present and reasonably foreseeable projects which may impact cultural resources include projects on historic roads, near archeological sites or which may impact historic structures (e.g., Generals Highway Rehabilitate Route 10(1 − 6); Rehabilitation of the Lodgepole Campground; Giant Forest Development Area Removal; Reconstruction of the Crescent Meadow / Moro Rock Road; Replacement of Comfort Stations at Crescent Meadow and Moro Rock; Rehabilitate Generals Highway from Amphitheatre Point to Deer Ridge Pullout and Wolverton Road to Little Baldy Pullout; Rehabilitate 10.7 km of Generals Highway; and Address the Deterioration of Three Wilderness Ranger Stations). Alternative C would contribute no additional impacts to the cumulative affects of projects on park cultural resources.

Conclusion

There would be negligible, long term adverse impacts to cultural resources as a result of construction activities within the site location. There could be negligible, localized, long term beneficial impacts as a result of data gathering activities should any previously undiscovered cultural artifacts be found, recovered and studied through the course of ground disturbing construction.

Impairment Analysis for Cultural Resources (All Alternatives)

Impacts to cultural resources in the area would not exceed negligible. There is a potentially significant historic site, which may be overlapped by the preferred alternative but as no surface evidence of the site remains, no more than negligible impacts would occur. Therefore no impairment of cultural resources or values would occur.

LIGHTSCAPE MANAGEMENT

NPS Policy

The *National Park Service Management Policies 2006*, Section 4.10 states:

The Service will preserve, to the greatest extent possible, the natural lightscapes of parks, which are natural resources and values that exist in the absence of human-caused light.

The Service will:

- restrict the use of artificial lighting in parks to those areas where security, basic human safety, and specific cultural resource requirements must be met;
- use minimal-impact lighting techniques;
- shield the use of artificial lighting where necessary to prevent the disruption of the night sky, natural cave processes, physiological processes of living organisms, and similar natural processes.

The thresholds of change for the intensity of an impact are defined as follows:

- Negligible: No changes to existing lightscape resources from the alternative would occur or effects would be below or at the lower levels of detection. Any effects would be considered slight and short-term.
- Minor: Effects to lightscape resources would be detectable to some visitors; they would be localized and would not affect night sky character or important viewpoints.
- Moderate: Effects to lightscape resources would be readily detectable, long-term, but localized. These effects would result in a change noticeable to many visitors but would not result in substantial changes to lightscape or night sky character or important viewpoints.
- Major: Effects to lightscape resources would be readily apparent to a large number of visitors, long-term, and result in substantial changes to night sky character or important viewpoints.

Alternative A: No-Action Alternative

No new impacts to lightscapes or night sky are proposed in association with the no-action alternative. The no-action alternative would not change design elements of the existing kiosks that would impact lightscape management. In summer and winter, the entrance station kiosks would continue to operate with lighting and structural design not lacking modern minimal-impact lighting. No additional impacts to lightscape management would be expected from continued use of the winter and summer interim plan.

Cumulative Impacts

Past, present and reasonably foreseeable projects which may impact park-wide lightscapes include projects that would involve the installation of new lighting or the replacement of lighting with improved fixtures created to minimize impacts or the removal of unnecessary lights which may affect lightscapes (e.g., Rehabilitation of the Lodgepole Campground; Giant Forest Development Area Removal; Construction of the Wuksachi, Clover Creek, and Red Fir Development Areas; Replacement of Comfort Stations at Crescent Meadow and Moro Rock; Replace Wolverton Corrals; and Address the Deterioration of Three Wilderness Ranger Stations). The no action alternative would contribute continued negligible adverse impacts to park lightscapes.

Conclusion

The no-action alternative would continue to have long term negligible and adverse impact on night sky and lightscape management.

Alternative B: Construct New Entrance Station at the Big Stump Lodge Site (Preferred Alternative)

Construction activity would create short term impacts on lightscape management. During construction, equipment and work areas would require some warning lights at night to ensure visitor safety and equipment security. These impacts would be short term and would last for the duration of construction.

The new entrance station facilities would incorporate minimal-impact lighting techniques and fixtures that provide for a safe employee and visitor environment and which more effectively preserve the night sky.

Artificial lights are associated with the entrance station, with the potential to affect night sky and lightscape management in the evenings, when a variety of lights would be required for interior and exterior operational lighting. When the entrance station is closed at night, fewer lights would be required, but some would be necessary for visitor safety and station security. Lights would be locally visible to visitors passing by on the highway at night. Lights would not be visible beyond the immediate vicinity of the entrance station. Facility design would ensure that only the indirect glow from lighting is visible and not the point sources of the lights. Facility design would incorporate eaves and other architectural measure so light is not reflected up into the night sky.

Cumulative Impacts

Past, present and reasonably foreseeable projects which may impact park-wide lightscapes include projects that would involve the installation of new lighting or the replacement of lighting with improved fixtures created to minimize impacts or the removal of unnecessary lights which may affect lightscapes (e.g., Rehabilitation of the Lodgepole Campground; Giant Forest Development Area Removal; Construction of the Wuksachi, Clover Creek, and Red Fir Development Areas; Replacement of Comfort Stations at Crescent Meadow and Moro Rock; Replace Wolverton Corrals; and Address the Deterioration of Three Wilderness Ranger Stations). Alternative B would contribute negligible, park-wide, long term beneficial impacts as the new facility would incorporate minimal-impact lighting.

Conclusion

There would be short and long term negligible and localized adverse impacts on night sky and lightscape management during construction and from the resulting entrance station. Alternative B would also have negligible, long term beneficial impacts on nightsky and lightscape management from the use of improved, lightscape protection at the entrance station.

Alternative C: Construct New Entrance Station Below the Junction of Highway 180 and the Generals Highway

Construction activity would create negligible, short term, adverse impacts on lightscape management. During construction, equipment and work areas would require some warning lights at night to ensure visitor safety and equipment security. Security and safety lights would be necessary in the area at night. Compared to all the other alternatives the proposed entrance station site has greater visibility to the south and lights would be visible from several points on the Generals Highway. These impacts would occur only during construction.

Design would be similar to Alternative B in the lights would be placed to minimize impacts on visitors but still provide for safety. Lights at the entrance station facility would be locally visible to visitors passing by on the highway at night. The entrance station site has greater visibility to the south and lights that would remain on for security reasons at night, would be visible from several points on the Generals Highway and perhaps from nearby peaks.

Cumulative Impacts

Past, present and reasonably foreseeable projects which may impact park-wide lightscapes include projects that would involve the installation of new lighting or the replacement of lighting with improved fixtures created to minimize impacts or the removal of unnecessary lights which may affect lightscapes (e.g., Rehabilitation of the Lodgepole Campground; Giant Forest Development Area Removal; Construction of the Wuksachi, Clover Creek, and Red Fir Development Areas; Replacement of Comfort Stations at Crescent Meadow and Moro Rock; Replace Wolverton Corrals; and Address the Deterioration of Three Wilderness Ranger Stations). Alternative C would contribute negligible, park-wide, long term beneficial impacts as the new facility would incorporate minimal-impact lighting.

Conclusion

There would be short term, minor adverse impacts on night sky and lightscape management as a result of construction and long term, minor adverse impacts as a result of the new entrance station. There would be negligible, long term beneficial impacts on nightsky and lightscape management as a result of the use of lights and fixtures specifically designed to protect against light pollution.

Impairment Analysis for Night Skies and Lightscape Management (All Alternatives)

Impacts to lightscapes would not exceed minor and would be localized, therefore effects would not lead to impairment of park lightscapes or the natural integrity of resources and values for which SEKI was established.

GIANT SEQUOIA GROVES

NPS Policy

The *National Park Service Management Policies 2006,* Section 4.1 states:

> Natural resources will be managed to preserve fundamental physical and biological processes, as well as individual species, features, and plant and animal communities.

The mission statement for Sequoia and Kings Canyon National Parks articulates the broad ideals and vision that the National Park Service is striving to achieve:

> The mission of Sequoia and Kings Canyon National Parks is to protect forever the greater Sierran ecosystem – including the sequoia groves and high Sierra regions of the parks – and its natural evolution, and to provide appropriate opportunities to present and future generations to experience and understand park resources and values.

The Sequoia and Kings Canyon National Parks enabling legislation states:

> The preservation from injury of all timber in their natural condition.
>
> The giant sequoia groves — particularly Giant Forest — and the ecosystems they occupy are restored, maintained, and protected.

The thresholds of change for the intensity of an impact are defined as follows:

- Negligible: The impact would be at the lower levels of detection or not measurable.
- Minor: The impact would be detectable, but would not affect the viability of the local population or overall community size, structure or composition.
- Moderate: The impact would be clearly detectable and could have an appreciable effect on the resource. This would include impacts that affect the abundance or distribution of local populations, but not the viability of the regional population. Localized changes to community size, structure, or composition and ecological processes could occur.
- Major: The impact would be severely adverse or exceptionally beneficial. Impacts would have a substantial, highly noticeable, or widespread influence, affecting the abundance or distribution of a local or regional population to the extent that the population would not likely to recover (adverse) or would return to a sustainable level (beneficial). Community size, structure, or composition and ecological processes would be highly altered, and landscape level changes could be expected.

Alternative A: No-Action Alternative Analysis

No new sequoia grove or unique ecosystem disturbing activities are proposed in association with the no action alternative. No additional construction to disturb or impact giant sequoia groves in the Big Stump or Kings Canyon Visitor Center area would occur. The Big Stump grove ecosystem would continue to function as an example of an ecosystem that was disturbed by logging in the 1880s. There would be no additional impacts at this location. There would be no change in impacts to sequoia groves or unique ecosystems. No additional impacts to giant sequoia groves would be expected from continued use of the winter and summer interim entrance station plan.

Cumulative Impacts

Historic use patterns of visitors walking and skiing in and around sequoia groves would continue as they have in the past in the Big Stump area. Visitors would continue to walk near individual sequoia trees causing compaction of soil around roots and creating use trails as a result of walking off of the constructed trails.

The implementation of the 1980 Giant Forest/Lodgepole Development Concept Plan, which encompassed the Giant Forest Development Area Removal, was enacted for the primary purpose of the preservation of the Giant Forest sequoia grove and has had long term, beneficial impacts on giant sequoia groves.

In addition, historically, naturally occurring fires have been integral to the ecology of sequoia groves. Due to fire suppression during the last century, there are many standing trees and downed fuels that would not be there under natural conditions. The parks' fire program is planning to restore a natural fire regime to this part of the park. It is anticipated that fire will be restored to this area within the foreseeable future and would result in the reduction in the amount of standing trees and downed fuels, which will have a beneficial impact on the giant sequoia groves.

The no action alternative would not contribute to cumulative impacts on giant sequoia groves.

Conclusion

There would be no impacts on sequoia groves from the continuation of the no action alternative.

Alternative B: Construct New Entrance Station at the Big Stump Lodge Site (Preferred Alternative)

Although most of the construction zone is within the footprint of the area previously disturbed by the lodge site, approximately three juvenile sequoias would have to be removed during construction of the entrance station. The juvenile sequoias that would have to be removed are located immediately adjacent to the road bed. Resource managers have examined the individual sequoia trees and found that they have no historical or resource significance. The park forester aged the largest juvenile sequoia that would have to be removed and established that the tree is no older than 60 years and began growing after the lodge site was removed. Construction activity would also cause compaction of root zones and localized damage and mortality to some trees and shrubs. No other unique ecosystems or sequoia groves would be impacted by this activity. Construction activity would not impact, any ancient or significantly large giant sequoias in the area. The Big Stump Grove ecosystem would have no additional impacts as an example of an ecosystem that was disturbed by logging in the 1880s.

Cumulative Impacts

Historic use patterns of visitors walking and skiing in and around sequoia groves would continue as they have in the past in the Big Stump area. Visitors would continue to walk near individual sequoia trees causing compaction of soil around roots and creating use trails as a result of walking off of the constructed trails.

The implementation of the 1980 Giant Forest/Lodgepole Development Concept Plan, which encompassed the Giant Forest Development Area Removal, was enacted for the primary purpose of the preservation of the Giant Forest sequoia grove and has had long term, beneficial impacts on giant sequoia groves.

In addition, historically, naturally occurring fires have been integral to the ecology of sequoia groves. Due to fire suppression during the last century, there are many standing trees and downed fuels that would not be there under natural conditions. The parks' fire program is planning to restore a natural fire regime to this part of the park. It is anticipated that fire will be restored to this area within the foreseeable future and would result in the reduction in the amount of standing trees and downed fuels, which will have a beneficial impact on the giant sequoia groves.

The removal of three juvenile sequoias under this alternative, would contribute a negligible impact to the cumulative impacts of past or reasonably foreseeable future projects.

Conclusion

There would be negligible and localized long term adverse impacts to giant sequoia groves from the preferred alternative.

Alternative C: Construct New Entrance Station Below the Junction of Highway 180 and the Generals Highway

Construction activity and siting of structures would not require the removal of any sequoia trees. There are none near the proposed location of this alternative.

Cumulative Impacts

Historic use patterns of visitors walking and skiing in and around sequoia groves would continue as they have in the past in the Big Stump area. Visitors would continue to walk near individual

sequoia trees causing compaction of soil around roots and creating use trails as a result of walking off of the constructed trails.

The implementation of the 1980 Giant Forest/Lodgepole Development Concept Plan, which encompassed the Giant Forest Development Area Removal, was enacted for the primary purpose of the preservation of the Giant Forest sequoia grove and has had long term, beneficial impacts on giant sequoia groves.

In addition, historically, naturally occurring fires have been integral to the ecology of sequoia groves. Due to fire suppression during the last century, there are many standing trees and downed fuels that would not be there under natural conditions. The parks' fire program is planning to restore a natural fire regime to this part of the park. It is anticipated that fire will be restored to this area within the foreseeable future and would result in the reduction in the amount of standing trees and downed fuels, which will have a beneficial impact on the giant sequoia groves.

Conclusion

Alternative C would not contribute to cumulative impacts on giant sequoia groves.

Impairment Analysis for Giant Sequoia Groves (All Alternatives)

Impacts to giant sequoia groves would be limited to negligible, localized impacts from the removal of three juvenile sequoias under the preferred alternative. These limited effects would result in no impairment of the natural integrity of resources and values for which these parks' were created.

HEALTH AND SAFETY

NPS Policy

This impact topic covers both public and employee health and safety. The *National Park Service Management Policies 2006*, Section 8.2.5.1 Visitor Safety states:

> The saving of human life will take precedence over all other management actions as the Park Service strives to protect human life and provide for injury-free visits. The Service will do this within the constraints of the 1916 Organic Act. The primary—and very substantial—constraint imposed by the Organic Act is that discretionary management activities may be undertaken only to the extent that they will not impair park resources and values.
>
> While recognizing that there are limitations on its capability to totally eliminate all hazards, the Service and its concessioners, contractors, and cooperators will seek to provide a safe and healthful environment for visitors and employees.

The thresholds of change for the intensity of an impact are defined as follows:

- Negligible: Public and employee health and safety would not be affected or the effects would be at the lowest levels of detection and would not have an appreciable effect on health or safety.

- Minor: Affects would be detectable, but would not have an appreciable effect on public or employee health or safety. If mitigation were needed it would be relatively simple and would likely be successful.

- Moderate: Affects would be readily apparent and would result in substantial, noticeable effects to public or employee health and safety on a local scale. Mitigation would probably be needed and would likely be successful.

- Major: Affects would be readily apparent and would result in substantial, noticeable effects to public or employee health and safety on a regional scale. Extensive mitigation would be needed and success would not be guaranteed.

Alternative A: No-Action Alternative

Traffic hazards would continue under the no-action alternative. In summer, the traffic configuration of the entrance station would continue to require vehicles entering to pay fees to stop and turn across opposing traffic. The turn lane would continue to be inadequate to hold all vehicles waiting to turn and traffic would back up into active traffic lanes. Vehicles exiting the Big Stump picnic area would continue to be required to stop, and then continue with either a right or left turn across traffic to continue on their trip creating a negligible traffic safety hazard.

On holiday weekends in summer, vehicles have occasionally backed up into active traffic lanes. This would continue to cause congestion and a hazard for approaching vehicles. Inadequate sight distance would continue to create hazards for vehicles coming too suddenly on stopped traffic with the potential of causing rear-end collisions.

In winter, there would continue to be no permanent park service presence to ensure vehicles are in compliance with winter tire chain requirements at the place where these restrictions are often put into effect and most needed. This would result in the potential for vehicle accidents from non-compliant vehicles losing control on icy or snowy road surfaces.

In winter and summer, employees would continue to work in kiosks not ergonomically designed for repetitive tasks as they move around the space. Repetitive stress and strain injuries may result as a consequence.

The giant sequoia hazard tree would remain intact in the area of the former Big Stump entrance station. It would still present a hazard to visitors and employees driving or walking in the area. The roadway would be altered and signed so as to minimize lengthy exposure to the giant sequoia hazard tree target fall zone.

Cumulative Impacts

Past, present and reasonably foreseeable projects which may contribute to both beneficial and adverse cumulative impacts on employee and visitor health and safety include projects that improve road conditions, replace failing critical infrastructure and improve visitor services (e.g., Generals Highway Cut Slope Repair Route 10(7A); Generals Highway Halstead Meadow Erosion Repair; Generals Highway Rehabilitate Route 10(1 – 6); Rehabilitation of the Lodgepole Campground; Reconstruction of the Crescent Meadow / Moro Rock Road; Replacement of Comfort Stations at Crescent Meadow and Moro Rock; Rehabilitate Generals Highway from Amphitheatre Point to Deer Ridge Pullout and Wolverton Road to Little Baldy Pullout; Rehabilitate 10.7 km of Generals Highway; Replace Cedar Grove; Replace Wolverton Corrals; Lodgepole and Grant Grove - Replace Water Distribution Systems; and Address the Deterioration of Three Wilderness Ranger Stations). The no action alternative would contribute minor, adverse impacts to employee and visitor health and safety.

Conclusion

The no-action alternative would continue to have negligible to minor, localized long term adverse impacts on employee and visitor health and safety.

Alternative B: Construct New Entrance Station at the Big Stump Lodge Site (Preferred Alternative)

Construction activity would create hazards and adverse impacts to visitors, park and monument employees, and contracted construction workers. Visitors and government employees would be exposed to hazards as a result of temporarily stopping traffic to allow construction vehicles to safely work. There would be hazards associated with debris from falling trees or limbs as a result of construction. Construction workers would also be exposed to hazards of exposed sharp objects or uneven terrain on the construction site as well as exposure to toxics such as fuels, paints and wood preservatives used in construction.

Hazards would be mitigated by instructing all employees in safe work habits and maintaining a clean and safe work site. Traffic hazards associated with construction activities would be mitigated by appropriate signs and personnel to safely warn visitors about hazards and direct them to safe areas. Mitigation for employee and visitor health and safety and other impacts as a result of construction are summarized in Chapter 2. These adverse impacts would be temporary and end when construction is completed.

An entrance station and traffic lanes designed for safe and efficient contact with visitors would have beneficial impacts to employee and visitor health and safety. Vehicles would no longer be required to turn across opposing traffic when entering or leaving the entrance station. Entrance lanes would be designed with adequate sight distance to minimize the possibility of rear-end collisions as traffic approaches the station. The site would be designed to allow for expansion to include a third entry lane should visitor use increase beyond current capacity. Kiosks and office space would be designed to allow personnel to safely and efficiently carry out their tasks with minimal risk of repetitive stress injuries or harm from breathing vehicle fumes. Kiosks and offices would have more reliable security measures to notify law enforcement in the event of a break-in or robbery.

In winter, entrance station personnel would be able to contact all vehicles and check them for compliance with winter chain or snow tire requirements at the site where chains are most often necessary when entering the park. Adequate space would be built for visitors to safely put on or adjust snow chains and as a place for snow plows to safely turn around.

The giant sequoia hazard would be minimized since the entrance station and chain-up area would be outside the giant sequoia hazard tree target zone. The giant sequoia hazard tree would be examined periodically by the park forester. Further pruning would occur if, in the opinion of subject matter experts, it is necessary to further mitigate risk; otherwise, the giant sequoia hazard tree would remain in its current mitigated state. The roadway would be altered to minimize lengthy exposure to the tree hazard zone.

Should any hazardous material (e.g., abandoned gas tank from the old lodge) be found during construction, work would stop until the hazard is evaluated by qualified personnel. A hazardous waste clean-up would be done per applicable local, state and federal regulations using accepted procedures.

Cumulative Impacts

Past, present and reasonably foreseeable projects which may contribute to both beneficial and adverse cumulative impacts on employee and visitor health and safety include projects that improve road conditions, replace failing critical infrastructure and improve visitor services (e.g., Generals Highway Cut Slope Repair Route 10(7A); Generals Highway Halstead Meadow Erosion Repair; Generals Highway Rehabilitate Route 10(1 – 6); Rehabilitation of the Lodgepole Campground; Reconstruction of the Crescent Meadow / Moro Rock Road; Replacement of Comfort Stations at Crescent Meadow and Moro Rock; Rehabilitate Generals Highway from Amphitheatre Point to Deer Ridge Pullout and Wolverton Road to Little Baldy Pullout; Rehabilitate 10.7 km of Generals Highway; Replace Cedar Grove; Replace Wolverton Corrals; Lodgepole and Grant Grove - Replace Water Distribution Systems; and Address the Deterioration of Three Wilderness Ranger Stations). Alternative B would contribute minor, adverse impacts to employee and visitor health and safety.

Conclusion

There would be short-term and minor adverse impacts to health and safety as a result of construction activity. There would be minor, localized and long-term beneficial impacts to employee health and safety as a result of a well-ventilated, more efficient and ergonomically designed entrance station facility. There would be negligible, long term adverse impacts to employee and visitor health and safety as a result of the giant sequoia hazard tree remaining.

Alternative C: Construct New Entrance Station Below the Junction of Highway 180 and the Generals Highway

Impacts to employee, contractor and visitor health and safety as a result of construction activities would be approximately the same as for Alternative B.

An entrance station and traffic lanes designed for safe and efficient contact with visitors would have similar beneficial impacts to employee and visitor health and safety as Alternative B. In winter, there is the potential for adverse impacts because the entrance station and chain-up areas would be located after the steep curves on the road. Signage would be used to inform visitors and mitigate for unsafe road conditions ahead.

Cumulative Impacts

Past, present and reasonably foreseeable projects which may contribute to both beneficial and adverse cumulative impacts on employee and visitor health and safety include projects that improve road conditions, replace failing critical infrastructure and improve visitor services (e.g., Generals Highway Cut Slope Repair Route 10(7A); Generals Highway Halstead Meadow Erosion Repair; Generals Highway Rehabilitate Route 10(1 – 6); Rehabilitation of the Lodgepole Campground; Reconstruction of the Crescent Meadow / Moro Rock Road; Replacement of Comfort Stations at Crescent Meadow and Moro Rock; Rehabilitate Generals Highway from Amphitheatre Point to Deer Ridge Pullout and Wolverton Road to Little Baldy Pullout; Rehabilitate 10.7 km of Generals Highway; Replace Cedar Grove; Replace Wolverton Corrals; Lodgepole and Grant Grove - Replace Water Distribution Systems; and Address the Deterioration of Three Wilderness Ranger Stations). Alternative C would contribute minor, adverse impacts to employee and visitor health and safety.

Conclusion

There would be short-term and minor adverse impacts to health and safety as a result of construction activity. There would be minor, localized and long term beneficial impacts to

employee health and safety as a result of a well-ventilated, more efficient and ergonomically designed entrance station facility.

SCENIC VALUES

NPS Policy

The National Park Service Organic Act of 1916 states that the NPS:

> The service … shall promote and regulate … national parks, monuments, and reservations … by such means and measures as conform to the fundamental purposes of the said parks, monuments, and reservations, which purpose is to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.

Sequoia and Kings Canyon National Parks have developed aesthetic guidelines for park buildings. The parks' Architectural Character Guidelines for building design stipulate that:

> …new construction must be sensitive to its context. It must defer to and respect the natural setting. It should not be overly sophisticated nor should it create a sense of human domination over the landscape.
>
> National Parks should have an architecture that contributes to the understanding that they are special places that require special attitudes and behavior on the part of Visitors….
>
> Ultimately, Park architecture has a significant impact on how visitors perceive and use the Park. At its best, good architecture provides a special human setting in which the values of the Park are clarified and reinforced. At its worst, it weakens and cheapens the entire Park experience, subtracting from the values and perceptions that allow a park to survive and prosper. (*Architectural Character Guidelines, Sequoia and Kings Canyon National Parks*).

The thresholds of change for the intensity of an impact are defined as follows:

- Negligible: The impact would be barely detectable, would not occur in primary resource areas, or would affect few visitors.
- Minor: The impact would be slight but detectable, would not occur in primary resource areas, or would affect few visitors.
- Moderate: The impact would be readily apparent, would occur in primary resource areas, or would affect many visitors and could have an appreciable effect on visitor experience.
- Major: The impact would be severely adverse or exceptionally beneficial, would occur in primary resource areas, or would affect the majority of visitors.

Alternative A: No-Action Alternative

No new scenic values disturbing activities are proposed in association with the no-action alternative. The no-action alternative would not change impacts to scenic values. One kiosk, designed and built in the 1950s, and used for both summer and winter entrance station operations would continue to not be in compliance with the parks' Architectural Character Guidelines. A

second kiosk was built with approximately the same design as the original and is used in summer. This kiosk would continue to not be in compliance with the parks' Architectural Character Guidelines. In both winter and summer placement, the kiosks would not be designed to blend with their surroundings. They would continue to present the appearance of an aging and temporary structure to visitors as they enter Sequoia and Kings Canyon National Parks and Giant Sequoia National Monument. As such, they would continue to be an example of architecture, which "weakens and cheapens the entire Park experience, subtracting from the values and perceptions that allow a park to survive and prosper" (Architectural Character Guidelines, 1996). This would continue to have a long-term adverse impact on scenic values.

The scenic view presented by the giant sequoia hazard tree would remain and continue to inspire visitors with their first view of a giant sequoia upon entering Sequoia and Kings Canyon National Parks. The pullout just before the former Big Stump entrance station would remain and visitors would continue to have the opportunity to stop and photograph the tree at the "Kings Canyon National Park" entrance sign.

Cumulative Impacts

Past, present and reasonably foreseeable projects, which may contribute cumulative impacts to park scenic values, include projects that would rehabilitate roads and structures in compliance with the parks' architectural, character guidelines. (e.g., Generals Highway Rehabilitate Route 10(1 – 6); Rehabilitation of the Lodgepole Campground; Giant Forest Development Area Removal; Construction of the Wuksachi, Clover Creek, and Red Fir Development Areas; Replacement of Comfort Stations at Crescent Meadow and Moro Rock; Rehabilitate Generals Highway from Amphitheatre Point to Deer Ridge Pullout and Wolverton Road to Little Baldy Pullout; Rehabilitate 10.7 km of Generals Highway; Replace Cedar Grove Bridge; Replace Wolverton Corrals; Address the Deterioration of Three Wilderness Ranger Stations). The no action alternative would contribute continued minor adverse impacts to park scenic values.

Conclusion

There would be continued minor long term adverse impact from kiosks not meeting parks' architectural character guidelines. The continued presence of the giant sequoia hazard tree would provide moderate long term beneficial impacts to scenic values.

Alternative B: Construct New Entrance Station at the Big Stump Lodge Site (Preferred Alternative)

There would be minor, localized and temporary impacts on the parks' scenic values as a result of construction activity. Heavy equipment would be present in a natural area as well as other activities not part of a natural and scenic setting (e.g., exposed soil and trenches required for foundations, cutting of trees and other vegetation, exposed concrete, lumber and other materials, and the ongoing movement of people and equipment in the construction zone). These adverse impacts would be short-term and last as long as construction occurred.

Compared to the no-action alternative, an entrance station designed using architectural methods and materials that comply with the parks' Architectural Character Guidelines would enhance visitors' experience as they enter the park. An architecturally designed and landscaped entrance station facility would have a beneficial impact on visitors' experience and expectation of park scenic values by emphasizing they are entering a special place where nature is the dominant experience; and where behavior and experience while in a national park is guided by that philosophy.

The scenic view presented by the giant sequoia hazard tree would remain and continue to inspire visitors with their first view of a giant sequoia upon entering Sequoia and Kings Canyon National Parks. The pullout just before the former Big Stump entrance station would remain and visitors would continue to have the opportunity to stop and photograph the tree at the "Kings Canyon National Park" entrance sign.

Cumulative Impacts

Past, present and reasonably foreseeable projects, which may contribute cumulative impacts to park scenic values, include projects that would rehabilitate roads and structures in compliance with the parks' architectural, character guidelines. (e.g., Generals Highway Rehabilitate Route 10(1 – 6); Rehabilitation of the Lodgepole Campground; Giant Forest Development Area Removal; Construction of the Wuksachi, Clover Creek, and Red Fir Development Areas; Replacement of Comfort Stations at Crescent Meadow and Moro Rock; Rehabilitate Generals Highway from Amphitheatre Point to Deer Ridge Pullout and Wolverton Road to Little Baldy Pullout; Rehabilitate 10.7 km of Generals Highway; Replace Cedar Grove Bridge; Replace Wolverton Corrals; and Address the Deterioration of Three Wilderness Ranger Stations).

The cumulative impacts to scenic values of the new entrance station location along with past and future development of the communities along the Highway 180 corridor approaching the parks would be negligible. However, as new park construction replaces older facilities it incorporates designs that enhance scenic values. In addition, future projects under the park's fire management plan would continue to provide a beneficial impact to scenic values.

Conclusion

There would be short term, negligible localized adverse impacts to scenic values as a result of construction activity. There would be long term, minor and localized beneficial impacts as a result of an entrance station designed to meet the parks' architectural character guidelines. The continued presence of giant sequoia tree would provide moderate long term beneficial impacts.

Alternative C: Construct New Entrance Station Below the Junction of Highway 180 and the Generals Highway

Construction impacts would be approximately the same as for Alternative B. Any adverse impacts would be short term and would occur during construction.

Beneficial impacts to scenic values as a result of an architecturally improved facility and landscaping measures would be approximately the same as for Alternatives B.

Cumulative Impacts

Past, present and reasonably foreseeable projects, which may contribute cumulative impacts to park scenic values, include projects that would rehabilitate roads and structures in compliance with the parks' architectural, character guidelines. (e.g., Generals Highway Rehabilitate Route 10(1 – 6); Rehabilitation of the Lodgepole Campground; Giant Forest Development Area Removal; Construction of the Wuksachi, Clover Creek, and Red Fir Development Areas; Replacement of Comfort Stations at Crescent Meadow and Moro Rock; Rehabilitate Generals Highway from Amphitheatre Point to Deer Ridge Pullout and Wolverton Road to Little Baldy Pullout; Rehabilitate 10.7 km of Generals Highway; Replace Cedar Grove Bridge; Replace Wolverton Corrals; and Address the Deterioration of Three Wilderness Ranger Stations).

The cumulative impacts of the new entrance station location along with past and future development of the communities along Highway 180 corridor approaching the parks would be

negligible. However, as new park construction replaces older facilities it incorporates designs that enhance scenic values. In addition, future projects under the park's fire management plan would continue to have a beneficial impact on scenic values.

Conclusion

There would be short term, negligible and localized adverse impacts as a result of construction activity. There would be long term, minor and localized beneficial impacts as a result of an entrance station designed to meet parks' architectural character guidelines. The continued presence of giant sequoia tree would provide moderate long term beneficial impacts.

Impairment Analysis for Scenic Values (All Alternatives)

Effects on scenic values would not exceed minor and adverse (from the no action alternative) which would mean that impairment of scenic values and the integrity of park resources for which the parks' were created would not occur.

PARK AND OTHER AGENCY OPERATIONS

Fee collection is an activity included in park operations and is covered in the *National Park Service Management Policies 2006,* Section 8.2.6, which states:

> The National Park Service may charge a recreation entrance or expanded amenity recreation (use) fee at parks when authorized by law. Although these fees may provide for the support of the overall management and operation of parks, as set forth in the Federal Lands Recreation Enhancement Act and other relevant statutes, they are not intended to off set the operational costs associated with a park.

The *General Agreement G8552030039 between Sequoia and Kings Canyon National Parks and Sequoia National Forest Management of Joint Fee Collection System* states:

> A. Both parties agree:
>
> 7. To work together at the Big Stump Entrance Station to jointly collect entrance fees from visitors. These funds will be distributed as defined by the Financial Operating Plan and will be processed upon collection by the Park Service and transferred as defined below to the Forest Service on a quarterly basis (see annual operations plan).
>
> 8. To distribute funds for the duration of this agreement between the two agencies according to a mutually agreed-upon percentage (see Annual Financial Operating Plan) based on the best available knowledge of how visitors who pass through Big Stump are using federal recreation facilities east of that point. This percentage will be reviewed annually and will take into account visitor use surveys, cost of collection, expenses for current and future infrastructure and services provided by each agency to visitors to the forest and the parks.

The thresholds of change for the intensity of an impact are defined as follows:

- Negligible: Impacts would have no discernible effect on park or other agency operations.
- Minor: Impacts would be slightly detectable but are not expected to have an overall effect on park or other agency operations.

- Moderate: Impacts would be clearly detectable and could have an appreciable effect on park or other agency operations.

- Major: Impacts would have a substantial influence on park or other agency operations and could reduce the staff's ability to provide adequate services and facilities to visitors as well as staff.

Alternative A: No-Action Alternative

Under this alternative, the park would continue to operate the interim entrance stations in the parking areas of the Big Stump Picnic Area (summer) and the Kings Canyon Visitor Center (winter). The locations would continue to be located such that visitors can continue to bypass the station and avoid paying fees or receiving information about Sequoia and Kings Canyon National Parks (NPS) or Giant Sequoia National Monument (USFS.). The NPS and USFS would continue to lose operational revenues as a result. Visitors who bypass the entrance station would also continue to not receive timely information on road conditions, including those under the jurisdiction of the California Department of Transportation.

Revenues collected in the winter of 2006 were estimated to be 40 percent less than for comparable periods in previous years, when all visitors passed through the entrance station. The loss of fee collection would result in a long-term, minor adverse impact to both NPS and USFS operations. Fees are primarily used to fund park projects that benefit visitors by enabling the NPS to undertake deferred maintenance, resource protection, and new programs and services.

In summer, occasional traffic congestion would continue to occur when lanes are blocked by traffic waiting to enter the entrance station area, causing short-term, minor adverse impacts to park and concession operations, as park staff are needed for traffic control.

Law enforcement personnel would continue to need to provide support or safety measures at the chain-up area since it would not be adjacent to the entrance station as proposed in the action alternatives. No other additional impacts to park or other agency operations or plans would be expected from continued use of the winter and summer interim plan. The park forester would continue to monitor the giant sequoia hazard tree at the former Big Stump location.

Cumulative Impacts

Past, present and reasonably foreseeable projects which may contribute to both beneficial and adverse cumulative impacts on park and other agency operations include projects that may involve additional traffic delays (e.g., Generals Highway Rehabilitate Route 10(1 − 6); Rehabilitate Generals Highway from Amphitheatre Point to Deer Ridge Pullout and Wolverton Road to Little Baldy Pullout; Rehabilitate 10.7 km of Generals Highway; and Replace Cedar Grove Bridge). The no action alternative would contribute minor adverse impacts to park and other agency operations

Conclusion

The no-action alternative would have a long-term, minor, adverse impact on park and other agency operations.

Alternative B: Construct New Entrance Station at the Big Stump Lodge Site (Preferred Alternative)

Compared to the no-action alternative, the placement of the entrance station under this alternative would allow entrance station personnel to contact all vehicles entering the parks and

accessing the monument during the hours that the station is staffed. This would have a long-term moderate beneficial impact on park and other agency operations.

Entrance station personnel would be able to collect fees and provide necessary safety and park and USFS information to visitors. Alternative B would restore fee revenues collected to normal levels due to increased numbers of visitors contacted at the established entrance station.

This would improve funding for projects that are funded by recreation fee revenue include repair, maintenance and facility enhancement related directly to visitor enjoyment, visitor access and health and safety projects; interpretation, visitor information, visitor service needs assessments and signs; habitat restoration related directly to wildlife-dependent recreation; and the direct operating or capital costs associated with the recreation fee program.

The location of the station under this alternative would reduce traffic congestion that occasionally occurs at the interim summer site and thus minimizing staff time needed for traffic control. The proposed location would also alleviate parking and congestion concerns that occur at the Kings Canyon Visitor Center during the interim winter use.

The chain-up area would be adjacent to the entrance station under this alternative, allowing entrance station staff to directly contact visitors as they first enter the park, providing safety and winter vehicle requirements information. This would potentially make time available for other law enforcement duties given the adjacent location of the entrance station to the chain-up area.

The impact for the facility management staff would be long term and beneficial, because the need to move kiosks from the summer and winter location, consisting of approximately 4 to 5 days of work, would be eliminated.

The action alternatives would have negligible short term impacts on concession operations in Sequoia and Kings Canyon National Parks associated with temporary road delays for construction activities. Twenty-minute delays of through traffic including concessionaire employees and deliveries may occur for construction. These impacts are considered negligible and are not different from temporary delays experienced by vehicles on other roads in the region or state.

The park forester would continue to monitor the tree hazard at the former Big Stump location. The entrance station and chain-up areas would be outside the hazard zone.

Cumulative Impacts

There would be short-term minor impacts to park and concession operations due to construction of the new entrance station. These impacts when added to other park projects that could be occurring at the same time would be short-term and noticeable but not substantial (e.g., Generals Highway Rehabilitate Route 10(1 – 6); Rehabilitate Generals Highway from Amphitheatre Point to Deer Ridge Pullout and Wolverton Road to Little Baldy Pullout; Rehabilitate 10.7 km of Generals Highway; and Replace Cedar Grove Bridge). It is possible that other agency projects (including CalTrans, USFS and other park road projects) would cause additional traffic delays due to construction in different areas. There have been previous instances where visitors encountered several delays of short duration in the course of their park visit. There were only negligible, short-term adverse impacts to concession or park operations at such times.

Conclusion

As with the other action alternatives, this alternative would have short-term adverse impacts associated with construction, but a long-term, negligible, beneficial impact on park and other agency operations.

Alternative C: Construct New Entrance Station Below the Junction of Highway 180 and the Generals Highway

Impacts to park and other agency operations for this alternative would be the same as those described under Alternative B or D.

Cumulative Impacts

The cumulative impact of this alternative would be the same as described in Alternative B (negligible, short-term and adverse).

Conclusion

As with the other action alternatives, this alternative would have short-term adverse impacts associated with construction, but a long-term, negligible, beneficial impact on park and other agency operations.

TABLE 1: ANALYSIS OF HOW ALTERNATIVES MEET PROJECT OBJECTIVES

	Alternative A *No-action*	**Alternative B** *Construct New Entrance Station at the Big Stump Lodge Site*	**Alternative C** *Construct New Entrance Station Below the junction of Highway 180 and the Generals; Construct chain-up area at Big Stump Lodge site*
Provides efficient and effective fee collection.	No. Entrance station located so visitors may bypass it in both summer and winter.	Yes. Kiosk located so all visitors entering park must pass through it.	Yes. Kiosk located so all visitors entering park must pass through it.
Reduce visitor wait times.	No. Kiosks and traffic lanes inadequate to efficiently process vehicles.	Yes. Multiple lanes and 2 kiosks allow faster visitor access.	Yes. Multiple lanes and 2 kiosks allow faster visitor access.
Allows for future expansion if traffic increases.	No. Neither winter nor summer location can be expanded.	Yes. Designed for future expansion if necessary.	Yes. Designed for future expansion if necessary.
Provides timely information to visitors on road conditions.	No. Not located to contact all visitors to provide information.	Yes. Kiosk located at park boundary so all visitors must pass through it.	Yes. Kiosk located close to park boundary so all visitors must pass through it.
Provides resource information to visitors.	No. Winter and summer kiosks located off highway so not all visitors are contacted to provide resource information.	Yes. Kiosks located on highway so all are provided resource information.	Yes. Kiosks located on highway so all are provided resource information.
Provides effective information and enforcement of winter chain requirements.	No. Winter location is beyond where chains are usually necessary.	Yes. Kiosk located before usual area where chains or snow tires become necessary. All visitors must pass kiosk.	No. The kiosk and chain-up area are located beyond the area where chains are often required and road hazards exist.
Provides adequate space to safely apply or adjust chains.	No. Chain-up area too small for peak winter need.	Yes. Chain-up area designed to meet peak winter need.	Yes. Chain-up area designed to meet peak winter need.
Provides adequate space for snowplows to turn around.	No. No area is large enough to provide safe turnaround place.	Yes. Area designed for safe turn radius for snowplows.	Yes. Area designed for safe turn radius for snowplows.
Provides adequate office space for efficient operations.	No. No office space available onsite.	Yes. Office adjacent to kiosk.	Yes. Office adjacent to kiosk.
Provides for employee health and safety.	No. Kiosks not designed to ergonomic standards. Ventilation not effective to mitigate auto exhaust fumes. No insulation or adequate heating in winter. Increased security is needed.	Yes. All facilities designed with effective heating source, insulation, ventilation, and to meet ergonomic efficiencies of the space. Adequate security measures installed.	Yes. All facilities designed with effective heating source, insulation, ventilation, and to meet ergonomic efficiencies of the space. Adequate security measures installed.
Provides for visitor health and safety.	No. Traffic congestion creates road hazard in both winter and summer location.	Yes. Traffic lanes and signage reduce traffic hazard during peak visitor periods.	Yes. Traffic lanes and signage reduce traffic hazard during peak visitor periods.
Minimizes impact on natural and cultural resources.	Yes. Site located on previously impacted area.	Yes. Site located on previously impacted area.	Yes. Site located on previously impacted area.

TABLE 2: SUMMARY OF ENVIRONMENTAL CONSEQUENCES, POTENTIAL ENVIRONMENTAL IMPACTS

Impacts	**Alternative A** *No-action*	**Alternative B** *Construct New Entrance Station at the Big Stump Lodge Site*	**Alternative C** *Construct New Entrance Station Below the junction of Highway 180 and the Generals*
Soil Resources	No impact from construction activity. No impact from continued presence of kiosks and approach lanes.	Site disturbance as a result of construction activity would cause minor, localized and short-term adverse impacts to soil resources. Permanent construction of buildings, foundations and covering areas with asphalt would cause minor, localized long-term adverse impacts to soil resources.	Site disturbance as a result of construction activity would cause minor, localized and short-term adverse impacts to soil resources. Permanent construction of buildings, foundations and covering areas with asphalt would cause minor, localized long-term adverse impacts to soil resources.
Air Quality	No impacts as a result of construction activity. In summer: Continued negligible, localized adverse impact as a result of vehicle engines idling in long lines. In winter: No impact. No impact to the parks' Class 1 air quality designation.	Minor, localized, and short-term adverse impacts as a result of construction activity. In winter and summer: Minor, localized and long-term beneficial impacts as a result of reducing wait times for idling vehicles. No impact to the parks' Class 1 air quality designation.	Minor, localized, and short-term adverse impacts as a result of construction activity. In winter and summer: Minor, localized and long-term beneficial impacts as a result of reducing wait times for idling vehicles. No impact to the parks' Class 1 air quality designation.
Soundscapes	No impacts as a result of construction activity. Continued negligible localized short and long-term adverse impact on soundscapes as the result of the presence of an entrance station. Continued negligible, localized short and long-term adverse impacts as a result of less efficiently contacting visitors entering the parks, creating long wait times.	Minor, localized and short-term adverse impacts to soundscapes as a result of construction in two different areas. Minor, localized, short and long-term adverse impacts to soundscapes as a result of the presence of an entrance station. Compared to the no-action alternative, there would be minor, localized and short and long-term beneficial impacts as a result of more efficiently contacting visitors entering the parks, reducing the time they spend in the immediate area.	Minor, localized and short-term adverse impacts as a result of construction. Minor, localized, short and long-term adverse impacts to soundscapes as a result of the presence of an entrance station. Compared to the no-action alternative, there would be minor, localized and short and long-term beneficial impacts as a result of more efficiently contacting visitors entering the parks, reducing the time they spend in the immediate area.
Vegetation and Non-Native species	No impact.	Minor, localized and short and long-term adverse impacts.	Minor, localized and short and long-term adverse impacts.

Impacts	**Alternative A** *No-action*	**Alternative B** *Construct New Entrance Station at the Big Stump Lodge Site*	**Alternative C** *Construct New Entrance Station Below the junction of Highway 180 and the Generals*
Special Status Species	Short-term adverse impacts to special status species, especially for transient species, would be negligible. This alternative would have no impact on any of the listed species with potential to occur in Sequoia Kings Canyon National Parks. Would not impact any of the listed species' primary food stocks, their prey species, or foraging areas. No impact on designated critical habitats.	Negligible, localized short and long-term adverse impacts to special status species. This alternative would have no impact on any of the listed species with potential to occur in Sequoia Kings Canyon National Parks. Would not impact any of the listed species' primary food stocks, their prey species, or foraging areas. No impact on designated critical habitats.	Negligible, localized short and long-term adverse impacts to special status species. This alternative would have no impact on any of the listed species with potential to occur in Sequoia Kings Canyon National Parks. Would not impact any of the listed species' primary food stocks, their prey species, or foraging areas. No impact on designated critical habitats.
Recreation and Visitor Use Experience	In summer, there would continue to be minor, localized short and long-term adverse impacts to recreation and visitor use experience. In winter, there would be negligible, localized short and long-term adverse impacts to recreation and visitor use experience.	Negligible, localized and short-term adverse impacts to recreation and visitor use experience as a result of construction activity. Minor, localized and park-wide long-term beneficial impacts to recreation and visitor use experience once construction is complete.	Negligible, localized and short-term adverse impacts to recreation and visitor use experience as a result of construction activity. Minor, localized and park-wide long-term beneficial impacts to recreation and visitor use experience once construction is complete.
Cultural Resources	No impact as a result of construction activities and site location.	Long-term, negligible and localized adverse impacts as a result of construction activities and site location. Short and long-term, negligible and localized beneficial impacts as a result of data gathering activities should any cultural material be found, recovered and studied.	Long-term, negligible and localized adverse impacts as a result of construction activities and site location. Short and long-term, negligible and localized beneficial impacts as a result of data gathering activities should any archeological artifacts be found, recovered and studied.
Lightscapes	Continued negligible short and long-term localized adverse impact from lighting not designed to mitigate night sky effects.	Short and long-term negligible and localized adverse impacts on night sky and lightscape management. Compared to the no-action alternative, there would be negligible, short and long-term beneficial impacts on night sky and lightscape management.	Short and long-term minor and localized adverse impacts on night sky and lightscape management. Compared to the no-action alternative, there would be negligible, short and long-term beneficial impacts on night sky and lightscape management.
Giant Sequoia Groves	Continued short and long-term negligible and localized adverse impacts.	Negligible short and long-term localized adverse impacts.	Negligible short and long-term localized adverse impacts.

Impacts	**Alternative A** *No-action*	**Alternative B** *Construct New Entrance Station at the Big Stump Lodge Site*	**Alternative C** *Construct New Entrance Station Below the junction of Highway 180 and the Generals*
Health and Safety	Continue to have minor, localized short and long-term adverse impacts on employee and visitor health and safety. Negligible, localized short and long-term adverse impacts to employee and visitor health and safety as a result of the hazard giant sequoia remaining.	Short-term and minor adverse impacts as a result of construction activity. Long-term minor localized beneficial impacts as a result of reducing traffic hazards. Negligible, localized short and long-term adverse impacts as a result of the hazard giant sequoia remaining.	Short-term and minor adverse impacts as a result of construction activity. Minor, localized and park-wide long-term beneficial impacts to recreation and visitor use experience once construction is complete. Long-term minor localized beneficial impacts as a result of reducing traffic hazards. Negligible, localized short and long-term adverse impacts as a result of the hazard giant sequoia remaining.
Scenic Values	No impacts from construction activity. Continued minor long-term localized adverse impact from kiosks not meeting parks' architectural character guidelines. Continued presence of giant sequoia tree provides moderate short and long-term localized beneficial impacts.	Short-term, negligible localized adverse impacts as a result of construction activity. Long-term, minor and localized beneficial impacts as a result of an entrance station designed to meet parks' architectural character guidelines. Continued presence of giant sequoia tree provides moderate short and long-term localized beneficial impacts.	Short-term, negligible localized adverse impacts as a result of construction activity. Long-term, minor and localized beneficial impacts as a result of an entrance station designed to meet parks' architectural character guidelines. Continued presence of giant sequoia tree provides moderate short and long-term localized beneficial impacts.
Park and Other Agency Operations	Impact is at low levels of detection and is not detectable or distinguishable and would not have a substantial impact.	Impact is detectable but would not have a substantial impact.	Impact would be readily apparent and would result in substantial change in park or other agency operations so that it is noticeable to staff and the public. Mitigation would be necessary to offset adverse impacts and would likely be successful.

CONSULTATION AND COORDINATION

CHAPTER 5: CONSULTATION AND COORDINATION

PUBLIC SCOPING

Prior to the writing of this environmental assessment, this project was announced to the public on March 1, 2006 when Sequoia and Kings Canyon National Parks sent out a general press release. In addition, the announcement was sent to targeted interested parties. The press release is found in Appendix E. Two comments were received and identified as not substantive and out of the scope of this project.

Internal and interagency scoping was also conducted. This included park managers, ranger supervisors and resource specialists in the park, the U.S. Forest Service, the U.S. Fish and Wildlife Service, the California State Department of Fish and Game and the California State Historic Preservation Office.

PERMIT REQUIREMENTS

Traffic control signs placed on Highway 180 outside the National Park boundary would require permits from the California Department of Transportation.

CONSULTATION

The National Park Service reviewed the special status species list contained on the U.S. Fish and Wildlife Service's website (Appendix F: United States Fish and Wildlife Service, Customized Letter). None of the listed species are expected to be adversely impacted by the project alternatives.

The National Park Service is currently consulting with the California State Historic Preservation Officer regarding the potentially significant historic Big Stump Lodge site.

Other agencies and organizations contacted for information, or that assisted in identifying important issues, developing alternatives, or that will be given an opportunity to review and comment on this EA include the following:

Federal Agencies

U.S. Geological Survey, Biological Resources Division, Western Ecological Research Center

State and Local Agencies and Individuals of California

California Department of Fish and Game
California Department of Forestry
California Department of Forestry and Fire Protection
California State Historic Preservation Officer
Fresno County Board of Supervisors
Tulare County Board of Supervisors
Senator Barbara Boxer
Assemblyman Mike Briggs
The Honorable Cal Dooley
Senator Dianne Feinstein
Senator William J. "Pete" Knight
Senator Roy Ashburn
Congressman Devin Nunes
Mr. Allen Ishida, District One Supervisor, Tulare County

American Indian Tribes, Organizations, and Individuals

Big Pine Paiute Tribe of the Owens Valley
Big Sandy Rancheria of Mono Indians
California Native American Heritage Commission
Cold Springs Rancheria of Mono Indians
Dunlap Band of Mono Indians
Fort Independence Indian Community of Paiute Indians
Kern Valley Indian Community
North Fork Rancheria of Mono Indians
Paiute–Shoshone Indians of the Bishop Community
Santa Rosa Rancheria
Sierra Foothill Waksachi Tribe
Sierra Nevada Native American Coalition
Table Mountain Rancheria
Tule River Indian Reservation
Wukchumni Tribal Council

Other Groups and Organizations

California Preservation Foundation
Center for Biological Diversity, California and Pacific Office
Fresno Audubon Society
Friends of the Earth
High Sierra Hikers Association
Mineral King District Association
National Audubon Society
National Parks and Conservation Association
The Nature Conservancy, California Field Office
Save-the-Redwoods League
Sequoia Forest Alliance
Sierra Club
Sierra Club, Kern Kaweah Chapter
Sierra Club, Tehipte Chapter
Sierra Club, Sacramento Field Office
Sierra Forest Products
The Sequoia ForestKeeper
The Wilderness Society
The Wildlife Society, San Joaquin Valley Chapter
Wilderness Watch
Tulare County Audubon Society
The Wilderness Society
Wilderness Watch
The Wildlife Society, San Joaquin Valley Chapter

National Park Service and U.S. Forest Service Staff

John Austin	Former NEPA Coordinator
Bob Basham	Information Management Officer
Daniel Blackwell	Chief of Maintenance
Tom Burge	Cultural Resources Specialist
Tony Caprio	Ecologist
Chris Carpenter	Project Leader
Athena Demetry	Restoration and Alien Plant Ecologist
Justin DeSantis	NPS Regional Landscape Architect
George Durkee	Preparer
Marianne M. Emmendorfer	Planner/Acting Recreation Officer, Hume Lake RD, Sequoia National Forest/Giant Sequoia National Monument
Annie Esperanza	Air Resources Specialist
John Exline	District Ranger, Giant Sequoia National Monument, Hume Lake RD, Sequoia National Forest
Gregg Fauth	Wilderness Coordinator
Don Fox	Accessibility Consultant
John W. Freeman	NPS Denver Service Center Landscape Architect
David Graber	Senior Scientist
Sylvia Haultain	Plant Ecologist
Rich Huffman	Concessions Manager
Nate Inoye	Former Kings Canyon Sub-district Ranger
David Karplus	Kings Canyon Buildings and Grounds Supervisor
Wendy Koelfgen	Former Environmental Protection Specialist
Pat Lineback	GIS Coordinator
Jill Ortiz	Telecommunications Specialist
Jim Purvis	Telecommunications Manager
Rick Rampi	Former Project Manager for this project
Anita Rowlands	Former Budget Assistant
Peter Rowlands	Former Chief of Natural Resources
Joel Siderius	Preparer
Cheryl E. Spencer	Land Surveyor, Sequoia National Forest
JD Swed	Chief Ranger
Paul Slinde	Former Kings Canyon Facility Supervisor
Tracy Thetford	Revenue and Fee Business Manager
Jerry Torres	Facility Manager
William Tweed	Former Chief of Interpretation
Phil Van Mantgem	USGS Ecologist
Dave Walton	Former Kings Canyon District Ranger
Tom Warner	Park Forester
Harold Werner	Wildlife Ecologist
Russ Wilson	Former Deputy Superintendent
Dr. Jonathan Upchurch	National Park Service Transportation Scholar

Copies of this environmental assessment will be provided at the following locations for public review:

Three Rivers Public Library

- Visalia Branch Library
- All Sequoia and Kings Canyon National Parks Visitor Centers

http://parkplanning.nps.gov

REFERENCES

CHAPTER 6: REFERENCES

Architectural Barriers Act of 1968, 42 U.S.C. §§ 4151 et seq. Implementing Regulation: 41 CFR Subpart 101-19.6

Council on Environmental Quality. (1981) *NEPA's Forty Most Asked Questions*. http://ceq.eh.doe.gov/nepa/regs/40/40p3.htm

Cowardin, Lewis M. et al. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*, U.S. Fish and Wildlife Service, Northern Prairie Wildlife Research Center, Jamestown, North Dakota 58401

Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884), as amended. Public Law 93-205, approved December 28, 1973

National Environmental Policy Act of 1969, as amended. Pub. L. 91-190, Sec. 2, Jan. 1, 1970, 83 Stat. 852.

National Historic Preservation Act Of 1966, as amended. Public Law 89-665, October 15, 1966; 16 U.S.C. 470 et seq.

National Park Service

1916 *Organic Act of 1916*, (PL 64- 235, 16 USC §1 et seq.) Probably should be under US Congress…

1971 *Master Plan*, Sequoia and Kings Canyon National Parks.

1987 Sequoia and Kings Canyon National Parks *Vegetation Management Plan for the Developed Zone*.

1989 *Sequoia and Kings Canyon National Park: Architectural Character Guidelines*.

1993 *Guideline for Managing Tree Hazards*

1993 *Guiding Principles of Sustainable Design*

1993 *Western Regional Directive #WR-093*

1998 *General Agreement G8552030039 between Sequoia and Kings Canyon National Parks and Sequoia National Forest Management of Joint Fee Collection System*.

1999 *Natural and Cultural Resources Management Plan*. Sequoia and Kings Canyon National Parks. December.

2000 *Fire and Fuels Management Plan*, Sequoia and Kings Canyon National Parks. Sequoia / Kings Canyon National Parks, Three Rivers, CA.

2003 *Interim Technical Guidance on Assessing Impacts and Impairment to Natural Resources*

2005 Sequoia and Kings Canyon National Parks: *Predesign & Schematic Design Submittal for the Big Stump Entrance Station PMIS 84767*, 4/15/05

2006 *National Park Service Management Policies*.

2006 *General Management Plan and Comprehensive River Management Plan / Final Environmental Impact Statement, Sequoia and Kings Canyon National Parks*.

2006 *Big Stump Entrance Station Plant Survey*, June 28, 2006.

2007 *Policy Statement Defining "Trees of Special Interest."* Sequoia and Kings Canyon National Parks Memo, March 7, 2007.

Section 504 of the Rehabilitation Act of 1973, as amended 29 U.S.C. § 794 (Pub. L. 93-112) (Rehab. Act).

Stephenson, N. L., and A. Demetry. 1995. Estimating ages of giant sequoias. *Canadian Journal of Forest Research* 25:223-233.

U.S. Fish and Wildlife Service (USFWS). 2006. *Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads. Document Number: 070307083200. Database Last Updated: March 5, 2007. Quad Lists & County (Fresno)*.

U.S. Fish and Wildlife Service (USFWS). 2007. Customized Species List Letter, Sacramento Fish & Wildlife Office Document Number: 070307083200.

APPENDIX A: BIG STUMP GIANT SEQUOIA INTERIM TREE HAZARD ACTION PLAN

APPENDIX A: BIG STUMP GIANT SEQUOIA INTERIM TREE HAZARD ACTION PLAN

SEQUOIA-KINGS CANYON NATIONAL PARKS
NOVEMBER 3, 2005

EXECUTIVE SUMMARY

I recommend that that the fire-scarred, giant sequoia at Big Stump Entrance Station, Kings Canyon National Park undergo immediate crown reduction to reduce the likelihood of top, limb or even bole failure. This recommendation is based on reports by: Park Forester, Tom Warner on October 5, 2005; USDA Forest Service Plant Pathologist John Pronos on October 19, 2005; comments and suggestions by the SEKI Forestry Crew (Waldin "Junior" Martin, John Workman, and Eddie Alonzo); and preliminary recommendations from consulting arborists Randall Frizzell and Tim Brown.

The tree is approximately 17 feet in diameter at breast height (dbh)[2] and consists of a hollow "shell" of a trunk that is about 105 feet high. The vicissitudes of nature have caused previous "bole failure" of this tree and have left it with a damaged trunk that now sports a "candelabra" top comprised of several vertical "leaders" (branches) up to 75 feet long. Thus, the combined height of the trunk and its leaders is approximately 170 – 180 feet. These branches are thick and heavy and the meager thickness of wood (0.5 – 1.0 foot) on the trunk-shell, from which they manifest, provides them with little support. The trunk cylinder also contains structural cracks oriented parallel to its long axis. This means that a longitudinal section of the trunk-shell will most likely detach along with the main leader if it fails. These characteristics combine to make this a dangerous tree, which could suffer limb, top or catastrophic failure under stressful circumstance, such as high winds, a heavy load of snow, or both

The center of the trunk is within approximately 60 feet of hwy 180 and, should one of its leaders break off, it would most likely take part of the trunk-shell with it. Such a failure would very likely demolish two buildings and could even strike passing motorists on Highway 180, should they be unlucky enough to be in the way when it happens. The closest building to the tree is a small wooden frame structure used by fee collectors to count money. The farthest building from the center of the bole is the entrance station kiosk, which is located on an island in the center of HWY 180.

The park has already responded by closing both the kiosk and fee collection office at the Big Stump Entrance on October 6, 2005. Subsequently, on November 1, 2005, Kings Canyon National Park Maintenance staff lifted the Kiosk from its base and relocated to the Grant Grove maintenance Yard. The fee collection office remains in place.

Specifically, I recommend reduction of the two tallest leaders branching upward from the thin trunk-shell to 25% to 50% of their present length, and reduction of several other large limbs to 50% of their mass. Total crown reduction would be limited to 25-35% of its current mass to maintain the tree's vigor. A registered consulting arborist should direct the pruning. Topping and pruning could be dangerous to tree workers working within the tree. A sudden, asymmetric loss of mass could precipitate tree failure and cause death or injury to workers. For safety's sake the tree should be approached using a cage suspended from a rented 206-268' crane. Cutting and pruning should be done by a combination of NPS and consulting arborists.

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2. The diameter of a tree's trunk as measured 4.5 feet above the ground surface.

These recommendations are limited to the interim mitigation of this tree-hazard and, if cutting and pruning is done, it would reduce substantially the probability of some form of tree failure. Nevertheless, it would not guarantee long-term safety or protection of life or property – the tree could still suffer breakage or collapse. For that reason, park management should give deep and proper consideration to additional remediation. A parallel plan, probably accompanied by an environmental analysis, will evaluate whether or not the entrance station could be relocated, together with the prohibiting of visitors and staff from loitering or parking vehicles in proximity to this tree.[3] It would also evaluate whether or not the tree could be cut down. These decisions are beyond the narrow scope of these recommendations.

Background

The current Big Stump Entrance Station was constructed in 1957 following the demolition, by a logging truck, of its predecessor. In 1986, the severely fire-scarred giant sequoia located immediately southeast of the Station was identified as a tree hazard (#3325). Then, it measured 16.8 feet in diameter at breast height (dbh), 145 feet in height and its tree hazard rating was 2-3; 5[4]. No further action was recommended. On May 10, 2005, Park Forester, Tom Warner reevaluated the tree. He found that the main leader branching from the damaged bole had increased in height by 35 feet since 1986. On May 17, 2005, he expressed concern that the leader was a potential hazard. If it broke and fell, it would, most likely, take part of the trunk-shell with it and probably hit the fee collection office and entrance station. He recommended removing the limb if the fee collection office stayed. On August 8, 2005, he again evaluated the tree as part of the consultation associated with the proposed re-construction of the Entrance Station. On September 9, 2005, he met with the Kings Canyon Management Team (KCMT) to discuss the tree and its relation to reconstruction plans. His short-term recommendation was to either evacuate or minimize the use of the Fee Collection Office. He was asked for a written evaluation with recommendations. These were completed in draft on October 5, 2005. Previously, on September 19, 2005, USDA Forest Service Plant Pathologist John Pronos (Forest Health Protection Staff, Stanislaus N.F., Sonora) inspected the tree and on October 19, 2005, submitted a draft report that corroborated Forester Warner's findings and recommended moving the potential targets (kiosk, fee collection office, and vehicle parking) and treating the tree to reduce hazard potential.

Reconnaissance Methodology & Results

On September 1, 2005, Forester Warner re-measured the tree:

- Total height = 180 feet;
- Height to top of trunk-shell = 105 feet;
- Height of the highest leader = 75 feet;
- Uphill-side dbh (17.2 feet).
- Lean • 10 degree azimuth from tree (ocular estimate); directly over the fee collection office.)

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3 .Dave Kruse, Landscape Architect, Pacific-West Regional Office stated in an e-mail to SEKI Acting Superintendent, Russ Wilson: "Over the entire distance it [the highway] is just one curve after another and consistent steep climbing grade throughout. The existing entrance station is placed on about the only workable site as near as I can see."

4. Note: The "7-Pt. Rating System," which SEKI uses, includes two components – the first is defect (1-4); the other is target (1-3). The combonent ratings combine to derive the priority rating of 2-7. The threshold for control is usually six.)

Importantly, the fire scar at breast height – on the uphill side – accounted for approximately 33% of the tree's potential circumference (if the cross-section were complete). The tree is hollow throughout its height and open at the basal fire scar up to a height of 60 feet. At breast height, approximately 25% of the bole volume was "missing" due to the fire scar. Between 20 and 60 feet high approximately 50% was "missing." Above 60 feet, the bole is a complete cylinder or "shell."

On September 1, 2005, Forester Warner re-rated the tree as a 2-3; 5, and rated the top as 3-3; 6. He recommended that the tree be topped (i.e., reduce the mass of the leaders.).

On September 20, 2005, John Pronos and Tom Warner, with assistance from the SEKI Forestry Crew, evaluated the outside surface of the bole at a height of approximately 60' using the park "boom truck." [5]Several locations on the NW, W, and SE sides of tree from 6 feet to 60 feet high were bored and tested with a resistograph and cordless drill.

On September 21, 2005, Warner and forestry crew members, John Workman, Eddie Alonzo, climbed inside the bole to a height of approximately 85 feet (uphill side) and measured the diameter of the central cavity.

On September 22, 2005, Alonzo and Warner inspected the outside of the bole up to about 65 feet. They performed the inspection from the boom truck cage and from the tree, itself.

On September 30, 2005, Warner completed the final measurements, including the diameter at the top of the Trunk shell using a Spiegel relaskop.

From October 17, 2005 to October 21, 2005 and from October 24, 2005 to October 27, 2005, consulting arborists Randall Frizzell and Tim Brown appraised the tree from the ground level to the top of the leaders. Numerous measurements were taken with the resistograph, cordless drill, electric drill (powered by portable generator), and increment borer to determine the thickness of sound wood on the tree at various locations and heights on the tree, which was evaluated from bottom to top for defects. Tim Brown assessed the tree as potential wildlife habitat.

On October 20, Acting Park Superintendent Russ Wilson was briefed by the arborists, Randall Frizzell and Tim Brown, John Pronos (U.S. Forest Service) and park staff. The briefing was done over the telephone with a conference call from Grant Grove. Park staff present at Grant Grove included Chief of Resources Management, Peter Rowlands, Tom Warner, and members of the Resources Management, Maintenance, and Ranger Divisions

On October 25, 2005 another site visit was made, which was attended by Park and Regional Office staff, including Regional Director Jon Jarvis, Regional Environmental Coordinator Alan Schmierer and Acting Park Superintendent Russ Wilson, plus consultants Randall Frizzell and Tim Brown.

Findings

This tree has multiple defects, including:

- extensive (33% of the bh circumference) fire scar/heart rot,
- a 75 foot volunteer leader,

.5 Sixty feet above the surface on the downhill side of the tree and 55 feet above the surface on the upslope side.

- numerous large (3-4') diameter limbs attached to a sound shell estimated to be 0.5 – 1 foot thick.[6] The rule of thumb for "safe" minimum thickness, or safety threshold, is 30% of diameter inside bark. Accordingly, the tree was re-rated on 9/30/05 as 3-3; 6 (entire tree)/3-3; 6 (top/limbs).

- long, deep cracks, or fissures, in the trunk shell and parallel to its long axis.

John Pronos accurately summarized the condition of tree, stating, in an e-mail dated September 23, 2005 that:

> *"The giant sequoia has serious problems from top to bottom. The defects present could contribute to a failure of just about any portion of the tree (roots, bole and branches).*
> 1. *The very large fire scar at the base of the tree occupies almost one-half of the tree's circumference. There are likely few living or structural roots below the fire scar and the tree leans slightly away from the scar.*
> 2. *The thin shell of sound wood adjacent to the fire scar was only 7 inches thick in the locations we probed at heights between 50 and 60 feet above the ground. The weight of the branches attached to this shell could lead to a failure of the bole.*
> 3. *The large branches and leaders attached to the main bole could also break away. This is not the type of tree that you would want any targets within striking distance, especially permanent structures, vehicles or people (to include Park Service employees and visitors)."*

Randall Frizzell and Tim Brown have both presented their preliminary observations and recommendations and will be submitting final reports.

Alternatives

Based on the above evaluations, the following alternatives have been identified:

Alternative	Action	Constraints and Consequences[7]
1	Do Nothing	The tree remains in its present condition as a threat to government employees working in or around the entrance station kiosk and fee collection office. Visiting pedestrians and visitors waiting in vehicles to pay fees are also in jeopardy. The probability of damage to moving vehicles on Hwy 180 and injury or death of divers

6. Measurement with the Spiegel relaskop indicates that, at ≈ 85 feet in height, the bole diameter outside the bark (dob) is roughly 13 feet. Numerous resistograph and cordless drill measurements between 6-60' in height indicate a bark thickness of 8-10". Measurements inside the tree at a height of ≈ 85' height revealed a cavity ≈ 9 feet in diameter with an estimated 6" of rot between the inside of the cavity and "sound" wood. Thus the thickness of the sound shell at that height is ≈ 1 foot which represents only 16% of the cross-sectional diameter (2 feet of sound wood÷12 feet diameter bole inside the bark). Measurements by John Pronos and Randall Frizzell with the resistograph, cordless drill (with aircraft bit), and electric drill (powered by portable generator) with ship auger bit resulted in even thinner shell width measurements of 6 – 7 inches.

7. The consequences do not include economic losses to the park or the concessioner because of lost revenue, either from reduced visitation or failure to pay entrance fees at the visitor center. This is beyond the scope of this analysis.

		and passengers (i.e., moving targets) is lower, but not-zero.
2	Top/limb, i.e., "prune" the tree by employing tree climbers. Estimated to take 1 day (8 hrs.) with 2 climbers to treat the tree. (Total Cost= $3250)	**Dismissed** because of safety concerns for climbers who would be working in the tree while it is being topped/limbed. The threat to through-traffic is mitigated by reducing the probability of top/limb/bole failures with debris falling on the highway. The tree, however still remains a hazard, especially to stationary targets such as the entrance station kiosk and fee collections office, and to park staff, pedestrians and vehicle traffic.
3	Top/limb tree using a crane. Using either 206' (80-Ton) or 268' crane, remove 25-35% of the overall crown, including 50% -75% of the tallest two leaders and up to 50% of selected limbs (Total Cost = $9,520).	Workers are safer than if they were working in the tree. The threat to through-traffic is mitigated by reducing the probability of top/limb/bole failures with debris falling on the highway. The tree, however still remains a hazard, especially to stationary targets such as the entrance station kiosk and fee collections office, and to park staff, pedestrians and vehicle traffic.
4	Top/limb tree with helicopter. (Total Cost = $7,500)	**Dismissed.** Not a viable option with the current Park helicopter contractor, involving government employees. The action is not covered by Parks "short-haul" program, which is designed for emergency SAR incidents only.
5	Top/limb tree with explosives. Total Cost = $3,350	**Dismissed.** Only one of the contractors (Tim Brown) has experience using explosives to top/limb trees, but has never done this to a Sequoia. Potentially, highly controversial
6	Remove the entire tree (Cost not estimated but could exceed $10,000 because of the cost of cleanup.	The tree hazard would be removed, leaving only a stump. There would be no further danger to government employees or visitors. This alternative is highly controversial. Removal of potentially "hazardous" sequoias has been done only twice in SEKI since 1890 – one, which in all likelihood was not a tree hazard, was cut down in 1950 – the second in 1967. Reportedly, removal of both of these trees required Secretary of the Interior approval. Implementation of this alternative might also require secretarial approval.
7	Top/limb the tree and move the entrance station to a new location (Cost unknown, but high)	The threat to through-traffic is mitigated by reducing the probability of top/limb/bole failures with debris falling on the highway. There would be no danger to stationary targets since they would

		no longer be there. Vehicle stopping parking and loitering by visitors or park staff would be prohibited. *Note that permanently relocating the entrance station is a decision that is beyond the scope of this analysis and recommendations. This alternative is listed in the interests of thoroughness.*

Recommendations

I recommend that the subject tree undergo crown reduction to diminish the potential for top/limb failure. I recommend that the two tallest leaders emerging from the thin trunk-shell at approximately 100 feet above the ground be reduced to 25% to 50% of their current height and that several other large limbs be reduced by as much as 50%. The total crown reduction would be limited to 25-35% to maintain the vigor of this tree. We have consulted with Forest Ecologist Jerry Franklin (Professor of Ecosystem Analysis at College of Forest Resources, University of Washington), who concurs that this level of pruning should not be detrimental to the health of tree. This work would be performed by NPS Forestry Crew personnel who will operate from the cage of a 206-268' crane with technical guidance from the consulting arborists.

Timing of Proposed Action

Implementation would take place in the Fall 2005, as soon as possible pending approval by the Regional Director and contingent upon favorable weather conditions, the timely processing of contracting requirements and the availability of a crane. The earliest tentative date would be November 9, 2005.

Safety

A project-specific Job Hazard Analysis (JHA) which will include chainsaw, climbing, and crane operation safety hazards will be prepared and approved by the Acting Park Superintendent prior to starting the project. A Medical Plan will also be prepared to address emergency medical treatment or evacuation.

Selected References

Warner, T., Duriscoe, D., Demetry, A. 1992. *An Evaluation of Giant Sequoia Tree Hazards and Determination of Potential Accident Failures Involving Giant Sequoia Limbs in Giant Forest, Sequoia National Park*, National Park Service, 11 pp.

National Park Service, Western Region. 1993. *Guidelines for Managing Hazardous Trees*. 82 pp.

Sequoia-Kings Canyon National Parks. 1987. *Development Zone Vegetation Management Plan*. 140 pp.

Sequoia-Kings Canyon National Parks. 1997. *Tree Hazard Management Addendum to Vegetation Management Plan*, 7 pp.

Acknowledgements

The above observations and recommendations reflect input from numerous individuals, including: Tom Warner John Pronos, Randall Frizzell, Tim Brown, Waldin ("Junior") Martin, John Workman, Eddie Alonzo, Jerry Franklin, Tony Caprio, Nate Stephenson, Ward Eldridge, and Bob Meadows.

Prepared by:_____ Date:_____

Peter G. Rowlands, Chief DNR

Recommended by: _____ Date: _____
Russel J. Wilson, Acting Superintendent

Approved by: Date: _____
Jonathan B. Jarvis, Regional Director

APPENDIX B: PLANT SPECIES EVALUATED
FEDERALLY LISTED SPECIES

APPENDIX B: PLANT SPECIES EVALUATED FEDERALLY LISTED SPECIES

The Endangered Species Act defines an endangered species as any species that is in danger of extinction throughout all or a significant portion of its range. A threatened species is defined as any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. At this time, no federally listed or candidate plant species are known to occur within Sequoia or Kings Canyon National Parks.

Based on its known distribution and habitat, the following candidate species may occur within Sequoia and Kings Canyon National Parks. However, it is not known to occur nor expected to occur within the area affected by the Big Stump Entrance Station project.

Botrychium lineare W.H. Wagner (slender moonwort, or narrowleaf grapefern). This small member of the Ophioglossaceae is known in California from only one occurrence near Piute Pass (north of Kings Canyon National Park) and from only ten occurrences rangewide, some historical. Known habitat is described as upper montane coniferous forest, often in disturbed areas, at 2600 meters (8,500 feet) elevation.

California State Listed Species

No California State endangered, threatened or rare species were identified by the US Fish and Wildlife Service as occurring on the General Grant Grove topographic map quadrangle affected by the Big Stump Entrance Station project.

Tompkin's sedge (*Carex tompkinsii*) is a California State rare species that is known to occur within the Kings River Drainage. It is a cespitose perennial herb of the sedge family that is restricted to river canyons of the western slope of the Sierra Nevada. It inhabits foothill oak woodland and chaparral areas and lower talus slopes. In Kings Canyon National Park, it grows on gentle to steep slopes at elevations of 1268 − 1829 m (4,160 − 6,000 ft) in *Quercus chrysolepis - Umbellularia californica and Q. chrysolepis - Pinus monophylla* associations as well as talus slopes. No populations of Tompkin's sedge are known to occur, nor are expected to occur, in the area affected by the Big Stump Entrance Station project.

Species Removed from Further Analysis

The following species are on the list of "Endangered and Threatened Species that May Occur in or be Affected by Projects in Fresno County, Document No. 060522041750" that was provided by the USFWS through their website on May 22, 2006. The park plant ecologist has determined that these species would not be affected by the proposed project because they are not known to occur within the boundary of Sequoia and Kings Canyon National Parks, nor are they expected to occur within the parks based on known distribution and habitat needs. These species will not be evaluated further.

Listed Species and Critical Habitats Not Known to Occur within Sequoia and Kings Canyon National Parks

Mariposa pussy-paws	*Calyptridium pulchellum*
San Benito evening-primrose	*Camissonia benitensis*
succulent owl's-clover	*Castilleja campestris* ssp. *succulenta*
Critical habitat, succulent owl's-clover	*Castilleja campestris* ssp. *succulenta*
California jewelflower	*Caulanthus californicus*
palmate-bracted bird's-beak	*Cordylanthus palmatus*

APPENDIX B: PLANT SPECIES EVALUATED
FEDERALLY LISTED SPECIES

San Joaquin woolly-threads	*Monolopia congdonii*
San Joaquin Valley Orcutt grass	*Orcuttia inaequalis*
Critical habitat, San Joaquin Valley Orcutt grass	*Orcuttia inaequalis*
Critical habitat, hairy Orcutt grass	*Orcuttia pilosa*
Hartweg's golden sunburst	*Pseudobahia bahiifolia*
San Joaquin adobe sunburst	*Pseudobahia peirsonii*
Keck's checker-mallow	*Sidalcea keckii*
Critical habitat, Keck's checker-mallow	*Sidalcea keckii*

APPENDIX C: BIG STUMP ENTRANCE STATION PLANT SURVEY, JUNE 28, 2006

APPENDIX C: BIG STUMP ENTRANCE STATION PLANT SURVEY, JUNE 28, 2006

The current Big Stump Entrance station will be replaced and three sites are being considered for a new facility. A survey of the plants occurring on and near the three sites was conducted to describe and document the vegetation and determine the presence of any special status plants.

Survey Sites

Each of the three potential sites is along Highway 180 near the park boundary (see Figure 1: Survey Sites). One site would involve enlarging the footprint of the former Big Stump Entrance Station (hereafter referred to as the 'former Big Stump entrance station site'). Another site would be immediately west of the existing entrance station on the grounds of the former Big Stump Lodge site (hereafter referred to as the 'Big Stump Lodge'). The third site is east of the existing entrance station at a large pullout, approximately 0.5 km west of the junction of Highway 180 with the Generals Highway (hereafter referred to as the 'pullout site').

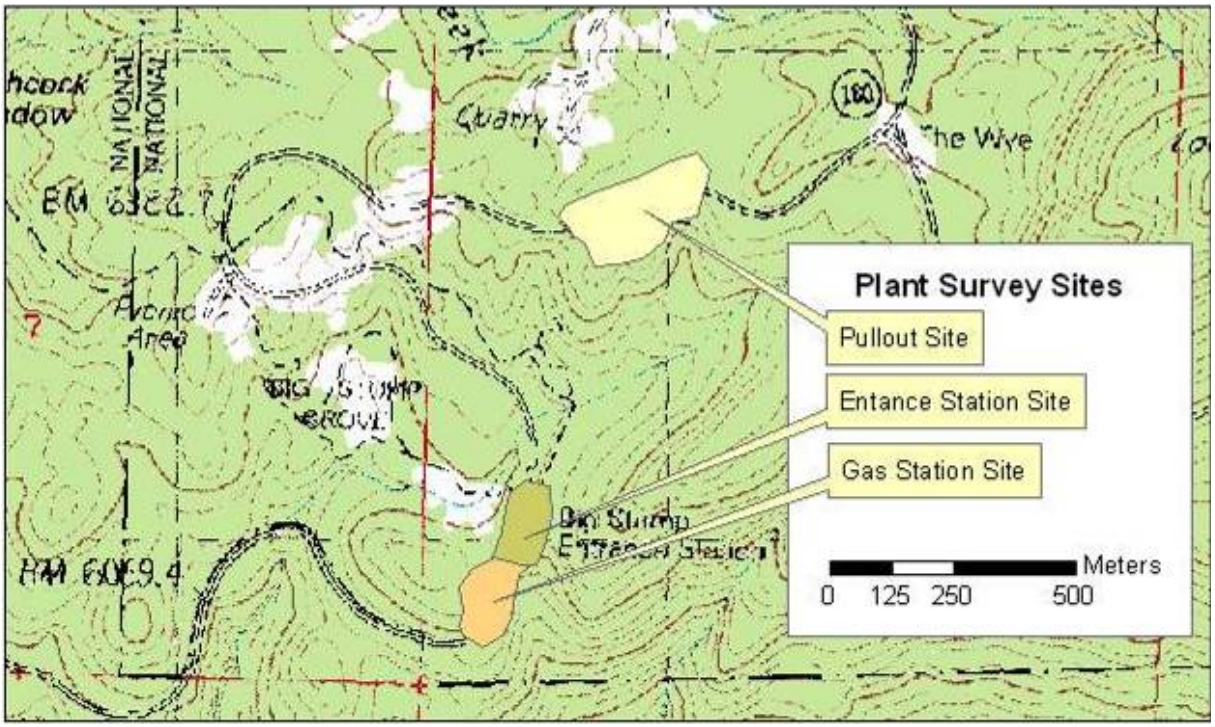

Figure 1: Survey Sites

Methods

Methods used to survey the construction site follow CNPS botanical survey guidelines (CNPS, 2001).

These were visited on June 28, 2006 by Biological Sciences Technician Erik Frenzel. The vegetation and environment were described in narrative form and photographs were taken.

One day (about 5 hours of search time) was spent surveying the three sites. All plant species observed were in flowering condition, although not all had fruits. Those species not readily identifiable in the field were collected for identification in the lab.

Site Descriptions

Former Big Stump Entrance Station Site

Soils are dry, coarse, and moderately well drained from granite parent materials. There is a ruderal influence due to the proximity to the highway and the presence of the entrance station facilities.

The former Big Stump entrance station site is vegetated by a Sequoiadendron giganteum (Giant sequoia) Forest. *Abies concolor*, *Pinus lambertiana*, and *Calocedrus decurrens* (White fir, Sugar pine, and Incense-cedar) are all abundant in the canopy as well.

Figure 2: Photographs of the Former Big Stump entrance station site

Big Stump Lodge Site

The Big Stump Lodge site would include an area of second-growth forest on the old building site and could also impact the mature relatively unimpacted forest to the west. Soils are dry, coarse, and moderately well drained from granite parent materials. There is a ruderal influence due to the proximity to the highway and past development.

The old building site has a canopy of relatively young Ponderosa Pine with a mid-seral shrub and herb understory. The more intact forest adjacent to the Big Stump Lodge is an *Abies concolor-Pinus lambertiana-Calocedrus decurrens* (White fir-Sugar pine-Incense-cedar) Forest that includes a few *Sequoiadendron giganteum* (Giant sequoia).

Figure 3: Photographs of the Big Stump Lodge Site

Pullout Site

The pullout site occurs along an indistinct bench with convex topography. Two ephemeral drainages bound this site to the west and east. Soils are moderately deep and coarse textured.

Portions of this site have been heavily disturbed. The entire area was infested by tussock moth and subsequently burned. Following these disturbances, the area down slope of the pullout was used as a log deck and staging area for clearing hazard trees. This has created a persistent soil disturbance.

The vegetation on this site was largely *Abies concolor-Pinus lambertiana-Calocedrus decurrens* (White fir-Sugar pine-Incense-cedar) Forest, although seral shrubland dominated by *Prunus emarginata, Arctostaphylos patula,* and *Ceanothus cordulatus* (Bitter cherry, Greenleaf manzanita, and Mountain whitethorn) occupies much of the site now.

Figure 4: Photographs of the Pullout Site

Plants Observed

Nomenclature follows Hickman (1993). Double brackets indicate that material was insufficient to confidently identify the plant to the taxon in the brackets. None of the species that were observed have special status, and none of the genera with uncertain species are known to have rare species in this area.

Entrance Station

Fifty taxa were observed within entrance station area.

Former Big Stump Entrance Station Site Flora		
Trinomial	**Abundance**	**Common Name**
Abies concolor (Gordon & Glend.) Lindl. ex Hildebr.	Abundant	white fir
Achnatherum nelsonii (Scribner) Barkworth ssp. dorei (Barkworth & J.R. Maze) Barkworth	Occasional	Dore's needlegrass
Agoseris retrorsa (Benth.) Greene	Occasional	spear-leaved agoseris
Arabis glabra (L.) Benth. var. glabra	Uncommon	tower-mustard
Arctostaphylos patula Greene	Occasional	greenleaf manzanita
Bromus suksdorfii Vasey	Uncommon	Suksdorf's brome
Calocedrus decurrens (Torr.) Florin	Common	incense cedar
Calyptridium monospermum Greene	Common	oneseed pussypaws
Calystegia malacophylla (Greene) Munz ssp. malacophylla	Uncommon	Sierra morning glory
Carex fracta Mack.	Uncommon	fragile-sheathed sedge
Carex multicaulis L.H. Bailey	Common	many-stemmed sedge

Former Big Stump Entrance Station Site Flora		
Trinomial	**Abundance**	**Common Name**
Carex rossii Boott	Occasional	Ross' sedge
Castilleja applegatei Fernald	Uncommon	wavy-leaved paintbrush
Ceanothus cordulatus Kellogg	Common	mountain whitethorn
Ceanothus integerrimus Hook. & Arn. var. californicus (Kellogg) G. T. Benson	Occasional	deer brush
Ceanothus parvifolius (S. Watson) Trel.	Common	littleleaf ceanothus
Chamaebatia foliolosa Benth.	Occasional	mountain misery
Chrysolepis sempervirens (Kellogg) Hjelmq.	Common	bush chinquapin
Claytonia perfoliata Willd. ssp. perfoliata	Uncommon	miner's lettuce
Elymus glaucus Buckley ssp. glaucus	Common	blue wildrye
Eriogonum nudum Benth. var. nudum	Common	tibinagua
Galium aparine L.	Abundant	goose grass
Gayophytum sp.	Common	
Hackelia mundula (Jeps.) Ferris	Uncommon	pink stickseed
Hieracium albiflorum Hook.	Occasional	white-flowered hawkweed
Iris hartwegii Baker ssp. hartwegii	Uncommon	Hartweg's iris
Juncus balticus Willd.	Locally Abundant	Baltic rush
Lepidium virginicum L. var. pubescens (Greene) Thell.	Uncommon	hairy pepperweed
Linanthus bicolor (Nutt.) Greene	Locally Abundant	true babystars
Linanthus ciliatus (Benth.) Greene	Locally Abundant	whisker brush
Lotus nevadensis (S. Watson) Greene var. nevadensis	Common	Sierra Nevada lotus
Madia [[minima (A. Gray) D.D. Keck]]	Uncommon	oppositeleaved tarweed
Monardella odoratissima Benth. ssp. pallida (A. Heller) Epling	Common	mountain mint
Pinus ponderosa Laws.	Common	pacific ponderosa pine
Plagiobothrys sp.	Occasional	
Potentilla glandulosa Lindl. [[ssp. glandulosa]]	Occasional	sticky cinquefoil
Prunus emarginata (Hook.) Walp.	Uncommon	bitter cherry
Pseudostellaria jamesiana (Torr.) W.A. Weber & R.L. Hartm.	Occasional	sticky starwort
Pteridium aquilinum (L.) Kuhn var. pubescens L. Underw.	Locally Common	bracken fern
Ribes nevadense Kellogg	Uncommon	mountain pink currant
Ribes roezlii Regel var. roezlii	Common	Sierra gooseberry
Rosa bridgesii Crépin	Common	pygmy rose
Rumex acetosella L.	Common	sheep sorrel
Sambucus mexicana C. Presl ex DC.	Uncommon	blue elderberry
Sequoiadendron giganteum (Lindl.) Buchholz	Common	giant sequoia
Smilacina stellata (L.) Desf.	Uncommon	
Spergularia rubra (L.) J. Presl & C. Presl	Uncommon	purple sand-spurry
Symphoricarpos mollis Nutt.	Common	creeping snowberry
Tragopogon dubius Scop.	Uncommon	yellow salsify
Viola lobata Benth. ssp. lobata	Uncommon	pine violet

Big Stump Lodge

Sixty-three taxa were observed within the site.

Big Stump Lodge Site Flora		
Trinomial	**Common Name**	**Abundance**
Abies concolor (Gordon & Glend.) Lindl. ex Hildebr.	white fir	Abundant
Achnatherum nelsonii (Scribner) Barkworth ssp. dorei (Barkworth & J.R. Maze) Barkworth	Dore's needlegrass	Occasional
Agoseris retrorsa (Benth.) Greene	spear-leaved agoseris	Locally Common
Arabis glabra (L.) Benth. var. glabra	tower-mustard	Uncommon
Arabis hirsuta (L.) Scop. var. glabrata Torr. & A. Gray	hairy rock cress	Occasional
Arctostaphylos patula Greene	greenleaf manzanita	Common
Barbarea orthoceras Ledeb.	American winter cress	Uncommon
Bromus suksdorfii Vasey	Suksdorf's brome	Occasional

Big Stump Lodge Site Flora		
Trinomial	**Common Name**	**Abundance**
Calocedrus decurrens (Torr.) Florin	incense cedar	Common
Calyptridium monospermum Greene	oneseed pussypaws	Common
Calystegia malacophylla (Greene) Munz ssp. malacophylla	Sierra morning glory	Uncommon
Carex fracta Mack.	fragile-sheathed sedge	Uncommon
Carex multicaulis L.H. Bailey	many-stemmed sedge	Common
Carex rossii Boott	Ross' sedge	Occasional
Castilleja applegatei Fernald	wavy-leaved paintbrush	Uncommon
Ceanothus cordulatus Kellogg	mountain whitethorn	Common
Ceanothus integerrimus Hook. & Arn. var. californicus (Kellogg) G. T. Benson	deer brush	Common
Ceanothus parvifolius (S. Watson) Trel.	littleleaf ceanothus	Common
Chamaebatia foliolosa Benth.	mountain misery	Common
Chrysolepis sempervirens (Kellogg) Hjelmq.	bush chinquapin	Uncommon
Claytonia perfoliata Willd. ssp. perfoliata	miner's lettuce	Occasional
Collinsia torreyi A. Gray var. torreyi	Torrey's blue-eyed mary	Occasional
Corallorhiza maculata (Raf.) Raf.	spotted corralroot	Uncommon
Elymus glaucus Buckley ssp. glaucus	blue wildrye	Common
Eriogonum nudum Benth. var. nudum	tibinagua	Common
Galium aparine L.	goose grass	Occasional
Galium bifolium S. Watson	low mountain bedstraw	Locally Abundant
Galium bolanderi A. Gray	Bolander's bedstraw	Occasional
Gayophytum sp.		Common
Goodyera oblongifolia Raf.	rattlesnake plantain	Occasional
Hackelia mundula (Jeps.) Ferris	pink stickseed	Uncommon
Hieracium albiflorum Hook.	white-flowered hawkweed	Common
Iris hartwegii Baker ssp. hartwegii	Hartweg's iris	Uncommon
Juncus balticus Willd.	Baltic rush	Locally Abundant
Lepidium virginicum L. var. pubescens (Greene) Thell.	hairy pepperweed	Uncommon
Linanthus bicolor (Nutt.) Greene	true babystars	Locally Abundant
Linanthus ciliatus (Benth.) Greene	whisker brush	Locally Abundant
Lotus crassifolius (Benth.) Greene var. crassifolius	broad-leaved lotus	Uncommon
Lotus nevadensis (S. Watson) Greene var. nevadensis	Sierra Nevada lotus	Common
Monardella odoratissima Benth. ssp. pallida (A. Heller) Epling	mountain mint	Uncommon
Penstemon parvulus (A. Gray) Krautter	small azure beard-tongue	Uncommon
Pinus lambertiana Douglas	sugar pine	Abundant
Pinus ponderosa Laws.	pacific ponderosa pine	Common
Plagiobothrys sp		Uncommon
Pleuricospora fimbriolata A. Gray	fringed pinesap	Uncommon
Poa bolanderi Vasey	Bolander's bluegrass	Occasional
Poa secunda J. Presl ssp. secunda	one-sided bluegrass	Common
Potentilla glandulosa Lindl. [[ssp. glandulosa]]	sticky cinquefoil	Occasional
Pseudostellaria jamesiana (Torr.) W.A. Weber & R.L. Hartm.	sticky starwort	Locally Common
Pteridium aquilinum (L.) Kuhn var. pubescens L. Underw.	bracken fern	Locally Common
Pterospora andromedea Nutt.	pinedrops	Common
Pyrola picta Sm.	white-veined wintergreen	Uncommon
Quercus chrysolepis Liebm.	canyon live oak	Uncommon
Quercus kelloggii Newb.	California black oak	Uncommon
Ribes roezlii Regel var. roezlii	Sierra gooseberry	Common
Rosa bridgesii Crépin	pygmy rose	Common
Rumex acetosella L.	sheep sorrel	Abundant
Sanicula graveolens DC.	Sierra sanicle	Uncommon
Sequoiadendron giganteum (Lindl.) Buchholz	giant sequoia	Common

Big Stump Lodge Site Flora		
Trinomial	**Common Name**	**Abundance**
Silene lemmonii S. Watson	Lemmon's campion	Common
Symphoricarpos mollis Nutt.	creeping snowberry	Occasional
Tragopogon dubius Scop.	yellow salsify	Occasional
Viola lobata Benth. ssp. lobata	pine violet	Occasional

APPENDIX D: EXCERPTS FROM ARCHITECTURAL CHARACTER GUIDELINES

APPENDIX D: EXCERPTS FROM ARCHITECTURAL CHARACTER GUIDELINES

SEQUOIA AND KINGS CANYON NATIONAL PARKS

Forward

Architecture in national parks must be special…

Park management, caught up in the complexity of the post-war world, placed less and less emphasis on separateness from the outside world and unified design within single parks. The impact of this period can be seen in the presence of numerous "modern" structures that largely ignore the design premises of the rustic era and seek little compromise with adjacent park structures.

Visitors still need to perceive the parks as special, significant places. And one way to bring this about is to create a human environment that is different from the daily urban environment. Unified park image has resurfaced once again as a way of seeking distinctive park images, and is now a design goal clearly expressed by Former NPS Director William Penn Mott, Jr.

National Parks should have an architecture that contributes to the understanding that they are special places that require special attitudes and behavior on the part of Visitors.

Ultimately, Park architecture has a significant impact on how visitors perceive and use the Park. At its best, good architecture provides a special human setting in which the values of the Park are clarified and reinforced. At its worst, it weakens and cheapens the entire Park experience, subtracting from the values and perceptions that allow a park to survive and prosper.

Analysis of Existing Architecture

Siting

Buildings are placed to minimize alteration or terrain or intrusion into the natural Character of site.

Buildings are always subordinate to nature. In a natural setting, buildings fit between trees accentuating the spaces in the landscape.

Walls/Wall Materials

Facades generally have a three-part composition foundation wall, main wall, and upper wall at gable ends. These parts are distinguished by changes in material, which in turn are emphasized by wood frames or trim members. The facade is generally horizontal by virtue of its overall shape and horizontal board siding which lends additional emphasis with its horizontal jointing. Sometimes timber framing members are exposed, adding a minor vertical pattern.

Windows are usually rectangular and divided into small lights. In small buildings a typical small window is repeated throughout. A variety of wood siding is used, either as a continuous skin or as infill between timber frames.

Guidelines for Building Design

Working With the Site

Buildings are an intrusion into the natural environment. Consequences of this intrusion affect both the integrity of the site and the visitor's enjoyment. It must be remembered that in a national park, the highest values are protecting an irreplaceable resource and exposing the visitor to the surrounding

natural environment without it creating harmful intrusions. If the environment is harmed or if visitors are separated from the outdoors, the main purpose of the park will be defeated.

Site Character

Buildings should be seen among tree masses and geological features as integral parts of the natural scene. The natural landscape should continue through the building complex. Hence, rustic buildings should work with the existing land form.

APPENDIX E: PRESS RELEASE FROM INITIAL PUBLIC SCOPING

APPENDIX E: PRESS RELEASE FROM INITIAL PUBLIC SCOPING

National Park Service
U.S. Department of the Interior

Sequoia and Kings Canyon National Parks

47050 Generals Highway
Three Rivers, CA 93271

559 565-3341 phone
559 565-3730 fax

Sequoia and Kings Canyon National Parks News Release

March 1, 2006
For Immediate Release
Tracy Thetford 559-565-3760 Dave Walton 559-565-4330

Public Comment Sought on Planning Options for Big Stump Entrance Station

The National Park Service is proposing to construct a new entrance station to serve the Highway 180 entry point into Sequoia and Kings Canyon National Parks and Sequoia National Forest. The current entrance station, customer service kiosk, employee restroom, storage facility, and fee administration office were all closed, and some removed for safety reasons when it was discovered that the adjacent monarch Sequoia posed a significant safety hazard to the public and park staff. Present and projected traffic volume must also be considered during this process. The new station needs to reduce waiting time for visitors entering the Parks and Forest, incorporate current park architectural guidelines, and be compliant with the American Disabilities Act for employee access.

The Park Service intends to develop formal alternatives for this project and prepare an environmental assessment for public review. The parks welcome public input on the project. Questions and/or comments must be submitted in writing to the Superintendent at Sequoia and Kings Canyon National Parks, 47050 Generals Highway, Three Rivers, CA 93271, or email your comments to: SEKI_Superintendent@nps.gov. Please include the phrase "Big Stump Entrance Station" at the top of your comments or in your email subject line. Comments will be accepted throughout this scoping process; however those that have been postmarked or transmitted no later than April 1, 2006 will be of the most use.

Please note that names and addresses of people who comment become part of the public record. If individuals commenting request that their name or\and address be withheld from public disclosure, it will be honored to the extent allowable by law. Such requests must be stated prominently in the beginning of the comments. There also may be circumstances wherein the NPS will withhold from the record a respondent's identity, as allowable by law. As always: the NPS will make available to public inspection all submissions from organizations or businesses and from persons identifying themselves as representatives or officials of organizations and businesses; and, anonymous comments may not be considered.

NPS

APPENDIX F: UNITED STATES FISH AND WILDLIFE SERVICE, CUSTOMIZED LETTER

APPENDIX F: UNITED STATES FISH AND WILDLIFE SERVICE, CUSTOMIZED LETTER

United States Department of the Interior
FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825

March 7, 2007

Document Number: 070307083200

Craig Axtell
National Park Service
Sequoia and Kings Canyon National Parks
47050 Generals Highway
Three Rivers, CA 93271

Subject: Species List for Big Stump Entrance Station Environmental Assessment

Dear: Superintendent Axtell

We are sending this official species list in response to your March 7, 2007 request for information about endangered and threatened species. The list covers the California counties and/or U.S. Geological Survey 7½ minute quad or quads you requested.

Our database was developed primarily to assist Federal agencies that are consulting with us. Therefore, our lists include all of the sensitive species that have been found in a certain area *and also ones that may be affected by projects in the area*. For example, a fish may be on the list for a quad if it lives somewhere downstream from that quad. Birds are included even if they only migrate through an area. In other words, we include all of the species we want people to consider when they do something that affects the environment.

Please read Important Information About Your Species List (below). It explains how we made the list and describes your responsibilities under the Endangered Species Act.

Our database is constantly updated as species are proposed, listed and delisted. If you address proposed and candidate species in your planning, this should not be a problem. However, we recommend that you get an updated list every 90 days. That would be June 05, 2007.

Please contact us if your project may affect endangered or threatened species or if you have any questions about the attached list or your responsibilities under the Endangered Species Act. A list of Endangered Species Program contacts can be found at www.fws.gov/sacramento/es/branches.htm.

Endangered Species Division

TAKE PRIDE IN AMERICA

Federal Endangered and Threatened Species that Occur in or may be Affected by Projects in the Counties and/or U.S.G.S. 7 1/2 Minute Quads you requested

Document Number: 070307083200
Database Last Updated: March 5, 2007

Quad Lists

Listed Species

Invertebrates
Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)

Fish
Hypomesus transpacificus
delta smelt (T)

Amphibians
Rana aurora draytonii
California red-legged frog (T)

Birds
Gymnogyps californianus
California condor (E)
Haliaeetus leucocephalus
bald eagle (T)

Candidate Species

Amphibians
Rana muscosa
mountain yellow-legged frog (C)

Mammals
Martes pennanti
fisher (C)

Quads Containing Listed, Proposed or Candidate Species:

GENERAL GRANT GROVE (354B)

County Lists

Fresno County

Listed Species

Invertebrates
Branchinecta lynchi
Critical habitat, vernal pool fairy shrimp (X)
vernal pool fairy shrimp (T)

Desmocerus californicus dimorphus
valley elderberry longhorn beetle (T)

Lepidurus packardi
Critical habitat, vernal pool tadpole shrimp (X)
vernal pool tadpole shrimp (E)

Fish

Oncorhynchus (=Salmo) clarki henshawi
Lahontan cutthroat trout (T)

Oncorhynchus (=Salmo) clarki seleniris
Paiute cutthroat trout (T)

Oncorhynchus mykiss
Central Valley steelhead (T) (NMFS)

Amphibians

Ambystoma californiense
California tiger salamander, central population (T)
Critical habitat, CA tiger salamander, central population (X)

Rana aurora draytonii
California red-legged frog (T)

Reptiles

Gambelia (=Crotaphytus) silа
blunt-nosed leopard lizard (E)

Thamnophis gigas
giant garter snake (T)

Birds

Gymnogyps californianus
California condor (E)

Haliaeetus leucocephalus
bald eagle (T)

Mammals

Dipodomys ingens
giant kangaroo rat (E)

Dipodomys nitratoides exilis
Critical habitat, Fresno kangaroo rat (X)
Fresno kangaroo rat (E)

Dipodomys nitratoides nitratoides
Tipton kangaroo rat (E)

Ovis canadensis californiana
Sierra Nevada (=California) bighorn sheep (E)

Vulpes macrotis mutica
San Joaquin kit fox (E)

Plants

Calyptridium pulchellum
Mariposa pussy-paws (T)

Camissonia benitensis
San Benito evening-primrose (T)

Castilleja campestris ssp. succulenta
Critical habitat, succulent (=fleshy) owl's-clover (X)
succulent (=fleshy) owl's-clover (T)

Caulanthus californicus
California jewelflower (E)

Cordylanthus palmatus
palmate-bracted bird's-beak (E)

Monolopia congdonii (=Lembertia congdonii)
San Joaquin woolly-threads (E)

Orcuttia inaequalis
Critical habitat, San Joaquin Valley Orcutt grass (X)
San Joaquin Valley Orcutt grass (T)

Orcuttia pilosa
Critical habitat, hairy Orcutt grass (X)

Pseudobahia bahiifolia
Hartweg's golden sunburst (E)

Pseudobahia peirsonii
San Joaquin adobe sunburst (T)

Sidalcea keckii
Critical habitat, Keck's checker-mallow (X)
Keck's checker-mallow (=checkerbloom) (E)

Candidate Species

Amphibians

Bufo canorus
Yosemite toad (C)

Rana muscosa
mountain yellow-legged frog (C)

Mammals

Martes pennanti
fisher (C)

Plants

Botrychium lineare
slender Moonwort (= narrowleaf grapefern) (C)

Key:

(E) *Endangered* - Listed as being in danger of extinction.

(T) *Threatened* - Listed as likely to become endangered within the foreseeable future.

(P) *Proposed* - Officially proposed in the Federal Register for listing as endangered or threatened.

(NMFS) Species under the Jurisdiction of the National Oceanic & Atmospheric Administration Fisheries Service. Consult with them directly about these species.

Critical Habitat - Area essential to the conservation of a species.

(PX) *Proposed Critical Habitat* - The species is already listed. Critical habitat is being proposed for it.

(C) *Candidate* - Candidate to become a proposed species.

(V) Vacated by a court order. Not currently in effect. Being reviewed by the Service.

(X) *Critical Habitat* designated for this species

Important Information About Your Species List

How We Make Species Lists

We store information about endangered and threatened species lists by U.S. Geological Survey 7½ minute quads. The United States is divided into these quads, which are about the size of San Francisco.

The animals on your species list are ones that occur within, or may be affected by projects within, the quads covered by the list.

- Fish and other aquatic species appear on your list if they are in the same watershed as your quad or if water use in your quad might affect them.
- Amphibians will be on the list for a quad or county if pesticides applied in that area may be carried to their habitat by air currents.
- Birds are shown regardless of whether they are resident or migratory. Relevant birds on the county list should be considered regardless of whether they appear on a quad list.

Plants

Any plants on your list are ones that have actually been observed in the area covered by the list. Plants may exist in an area without ever having been detected there. You can find out what's in the surrounding quads through the California Native Plant Society's online Inventory of Rare and Endangered Plants.

Surveying

Some of the species on your list may not be affected by your project. A trained biologist or botanist, familiar with the habitat requirements of the species on your list, should determine whether they or habitats suitable for them may be affected by your project. We recommend that your surveys include any proposed and candidate species on your list.

For plant surveys, we recommend using the Guidelines for Conducting and Reporting Botanical Inventories. The results of your surveys should be published in any environmental documents prepared for your project.

Your Responsibilities Under the Endangered Species Act

All animals identified as listed above are fully protected under the Endangered Species Act of 1973, as amended. Section 9 of the Act and its implementing regulations prohibit the take of a federally listed wildlife species. Take is defined by the Act as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" any such animal.

> Take may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or shelter (50 CFR §17.3).

Take incidental to an otherwise lawful activity may be authorized by one of two procedures:

- If a Federal agency is involved with the permitting, funding, or carrying out of a project that may result in take, then that agency must engage in a formal consultation with the Service.

  During formal consultation, the Federal agency, the applicant and the Service work together to avoid or minimize the impact on listed species and their habitat. Such consultation would result in a biological opinion by the Service addressing the anticipated effect of the project on listed and proposed species. The opinion may authorize a limited level of incidental take.

- If no Federal agency is involved with the project, and federally listed species may be taken as part of the project, then you, the applicant, should apply for an incidental take permit. The Service may issue such a permit if you submit a satisfactory conservation plan for the species that would be affected by your project.

  Should your survey determine that federally listed or proposed species occur in the area and are likely to be affected by the project, we recommend that you work with this office and the California Department of Fish and Game to develop a plan that minimizes the project's direct and indirect impacts to listed species and compensates for project-related loss of habitat. You should include the plan in any environmental documents you file.

Critical Habitat

When a species is listed as endangered or threatened, areas of habitat considered essential to its conservation may be designated as critical habitat. These areas may require special management considerations or protection. They provide needed space for growth and normal behavior; food, water, air, light, other nutritional or physiological requirements; cover or shelter; and sites for breeding, reproduction, rearing of offspring, germination or seed dispersal.

APPENDIX G: SECTION 106 CONSULTATION

STATE OF CALIFORNIA – THE RESOURCES AGENCY ARNOLD SCHWARZENEGGER, *Governor*

OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
P.O. BOX 942896
SACRAMENTO, CA 94296-0001
(916) 653-6624 Fax: (916) 653-9824
calshpo@ohp.parks.ca.gov
www.ohp.parks.ca.gov

October 17, 2008 In Reply Refer To NPS070503A

Craig C. Axtell, Superintendent
Sequoia and Kings Canyon National Parks
47050 Generals Highway
Three Rivers, California 93271

RE: Section 106 Consultation for Replacement of Big Stump Entrance Station at Sequoia and Kings Canyon National Park, Tulare County, California

Dear Mr. Axtell;

Thank-you for continuing to consult with my office on the above referenced project pursuant to 36 CFR Part 800, the regulation, effective 5 August 2004, that implements Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470f), as amended, and other applicable regulations.

As I understand it, the undertaking consists of replacement of the Big Stump Entrance Station. The NPS was originally considering four alternatives, but has withdrawn from consideration Alternative D which involved placing the entrance station back at its original location and cutting down the giant sequoia. Additionally, you have provided me with an APE map depicting Alternatives A, B, and C. It is the park's opinion that adoption of Alternative B, the preferred alternative, will have "No Adverse Effect" on potential historic properties. Alternative B would involve construction of a new entrance station and support office approximately 200 feet to the west of the former entrance station location. This site is one of the few locations along the access road (Highway 180) and before the intersection with the main inter-park road (the Generals Highway) that offers adequate space for the proposed infrastructure, including a critical "chain-up" area for enforcing the use of tire chains in the winter, and has utilities within approximately 300 feet.

Two cultural resources have been identified within the vicinity of preferred Alternative B. Those resources include a potentially significant 19th century logging district and the Big Stump Lodge, a modest recreation complex which existed from the 1930s to the 1950s. There is very little surface evidence today of the Big Stump Lodge complex which is currently managed as being potentially eligible for listing in the National Register of Historic Places. It is anticipated that both resources will be avoided during construction of the Big Stump Entrance Station though final design plans and drawings will not be completed until after the Environmental Assessment is complete and an alternative selected.

I have the following comments regarding your identification of historic properties and finding of No Adverse Effect.

- I have no objection to the NPS assuming eligibility for listing on the National Register of Historic Places for the 19th century logging district and the Big Stump Lodge complex for the purposes of this undertaking only.

- I believe that a "conditional finding of no adverse effect" would be more appropriate. The condition in this case would be, as you have suggested, that the NPS will provided a qualified park archaeologist to monitor all ground disturbing activities associated with the selected alternative. Additionally, a park archaeologist will advise work crews and their supervisors of the penalties for illegally collecting artifacts or intentionally damaging any archaeological or historic property by construction crews.

- Should previous unknown archaeological resources be uncovered during construction, all work will immediately cease in the discovery area and the NPS will consult according to 36 CFR 800.13.

- Upon the discovery of any buried human remains, all ground disturbing activities will immediately cease in the discovery area and the NPS will consult according to 36 CFR 800.11 and, as appropriate, provisions of the Native American Graves Protection and Repatriation Act (1990).

Be advised that under certain circumstances, such as unanticipated discovery or a change in project description, the NPS may have additional future responsibilities for this undertaking under 36 CFR Part 800. Thank you for seeking my comments and for considering historic properties in planning your project. If you require further information, please contact William Soule, Associate State Archaeologist at phone 916-654-4614 or email wsoule@parks.ca.gov.

Sincerely,

Susan K Stratton for

Milford Wayne Donaldson, FAIA
State Historic Preservation Officer

As the nation's principal conservation agency, the Department of the Interior has the responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; 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 by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. Administration.

NPS D558 October 2007

United States Department of the Interior, National Park Service