



Tunnel View Overlook Rehabilitation *Environmental Assessment*

October 2007



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United States Department of the Interior

NATIONAL PARK SERVICE

Yosemite National Park
P. O. Box 577
Yosemite, California 95389
October 3, 2007

IN REPLY REFER TO:
A3823 (YOSE)

SEP 20 2007

Dear Yosemite Friends:

On behalf of the National Park Service, I am pleased to present the *Tunnel View Overlook Rehabilitation Environmental Assessment*. The project is needed to correct long-standing safety concerns, to restore the historic vista, to address visitor crowding that has been exacerbated by the narrowing of the historic vista, to reduce and manage traffic congestion, to improve drainage, and to make the overlook accessible to visitors with disabilities.

Public and agency consultation has been a key element throughout this planning process. In the summer of 2007, Yosemite National Park held public meetings and conducted a 30-day public scoping period to solicit ideas and concerns from park visitors, staff, conservation and park partner organizations, gateway communities and government agencies. The National Park Service reviewed these public scoping comments and identified concerns which were used to develop a range of alternatives for the *Tunnel View Overlook Rehabilitation Environmental Assessment*.

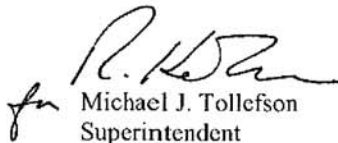
There will be a 30-day public review period for the Environmental Assessment. If the Environmental Assessment and a Finding of No Significant Impact are approved, the project would begin in the spring of 2008, and be completed in the fall of 2008.

We appreciate your interest in this planning effort and welcome your participation. Comments must be submitted in writing by November 2, 2007, and may be sent to:

Mail: Superintendent, Yosemite National Park
Attn: Tunnel View Overlook Rehabilitation EA
P.O. Box 577
Yosemite, California, 95389
Fax: 209/379-1294
Email: Yose_Planning@nps.gov

The National Park Service will host a public open house on October 31, 2007, from 1:00 p.m. to 5:00 p.m. at the Yosemite Valley Visitor Auditorium. Members of the planning team will be available to answer questions. Information about this project can be reviewed on the Yosemite National Park website at www.nps.gov/yose/planning.

Sincerely,


Michael J. Tollefson
Superintendent

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**Tunnel View Overlook Rehabilitation
Environmental Assessment**

Yosemite National Park

Lead Agency: National Park Service

ABSTRACT

The National Park Service (NPS) is considering the rehabilitation of Tunnel View Overlook in Yosemite National Park, California. The Wawona Tunnel View, located adjacent to Wawona Road at the east portal of the Wawona Tunnel, is one of the most popular scenic overlooks in Yosemite National Park. The overlook, constructed in 1932, affords expansive views of Yosemite Valley, El Capitan, Half Dome, Sentinel Rock, and Bridalveil Fall that have captured the awe of visitors for 75 years. Very little change has occurred to Tunnel View Overlook's physical features (including rockwork, circulation patterns, and configuration) since it was built in 1932. Tour buses, tram tours, and single-family vehicles bring an estimated 3,000-5,000 people to the site per day during the height of the visitation season.

The objectives of the Tunnel View Overlook Rehabilitation are to remedy vehicle and pedestrian safety issues, correct drainage deficiencies, provide clear circulation patterns for pedestrians and vehicles, enhance and maintain viewing opportunities, provide accessibility to viewing areas for visitors with disabilities, and correct safety problems associated with the existing Inspiration Point trailhead, while preserving the naturalistic, rustic character and integrity of this historic site.

The objectives are based in part on the need to correct long-standing safety concerns. Since the Wawona Tunnel was completed in 1932, the NPS has responded to vehicle-to-vehicle accidents, single-vehicle accidents, and vehicle-to-pedestrian fatalities and near-misses. Drivers traveling west through the tunnel often speed, are blinded by light as they exit the tunnel, encounter ice-patches at the east portal, and are faced with crowds of pedestrians and slow moving vehicles moving in and out of the roadway from the Tunnel View Overlook parking areas. Combined, these conditions create a sustained and serious safety problem. Drainage issues are among the contributing factors to the hazardous conditions and have existed since the construction of the overlook. This project is also needed to reduce traffic congestion and visitor crowding as well as making the site accessible to visitors with disabilities. In addition, the project is needed to restore the historic vista. The vista has been obscured by trees growing up in the granite fill material adjacent to the primary viewing platform.

The *Tunnel View Overlook Rehabilitation Environmental Assessment* (EA) is intended to guide the rehabilitation of the Tunnel View Overlook. The EA identifies and analyzes the potential impacts of four alternatives: Alternative 1 is the No Action Alternative; Alternative 2 (Preferred) would result in the largest area for viewing and would retain bus parking in the center of the North Lot; Alternative 3 would move bus parking to the northern portion of the North Lot; and Alternative 4 would result in the most preservation of the historic character defining features of this site.

Alternative 1, the No Action Alternative, describes existing conditions, operations, and maintenance associated with managing Tunnel View Overlook. It provides a baseline to compare the effects of the Action Alternatives on individual resources. Alternatives 2, 3 and 4 satisfy the purpose of and need for the project and conform to existing planning documents,

including the 1980 Yosemite National Park *General Management Plan* and other agency and park planning documents.

Alternative 2, the preferred alternative, would involve the construction of two viewing platforms in the North Lot and one in the South Lot. This alternative would provide the greatest amount of viewing area and the greatest number of parking spaces. Alternative 2 would change traffic circulation in the North Lot to a one-way pattern, and would result in the construction of a number of features that would clearly separate the parking area from the road and the viewing area from vehicle traffic. Oversized vehicle parking would remain in the center of the parking lot. Alternative 3 would include many of the same modifications as Alternative 2. Unlike Alternative 2, Alternative 3 would move oversized vehicle parking to the northern portion of the lot and would include a level-with-grade median/sidewalk to provide a visual separation between the oversized and single-family vehicle parking areas. Alternative 4 would result in the fewest changes to the defining characteristics of this historic site. Conversely, this alternative would provide the least amount of viewing area, would require retention of two-way traffic in the North Lot and would not create as clear a definition between the parking area and road.

There will be an official public comment period for 30 days following the release of this document. Exact dates will be announced (check www.nps.gov/yose/parkmgmt/tunnelview.htm for the latest information).

Written comments regarding this document should be directed to:

Mail: Superintendent, Yosemite National Park
ATTN: Tunnel View Overlook Rehabilitation
P.O. Box 577
Yosemite, California 95389

Fax: 209/379-1294

Email: yose_planning@nps.gov

Written comments will also be accepted at NPS Planning Open Houses held on the last Wednesday of each month at the Yosemite Valley Visitor Center Auditorium. Planning teams will be on hand to answer questions and provide more information regarding the Tunnel View Rehabilitation, as well as several other Yosemite National Park planning efforts. If individuals submitting comments request that their name and/or 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 a respondent's identity as allowable by law. As always, the NPS will make available for public inspection all submissions from organizations or businesses and from persons identifying themselves as representatives or officials of organizations and businesses; anonymous comments may not be considered.

This document can be reviewed online at www.nps.gov/yose/parkmgmt/tunnelview.htm. To request a printed copy, phone 209/379-1365.

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Organization of Environmental Assessment

The proposed action and alternatives for the Tunnel View Overlook Rehabilitation (and the evaluation of potential impacts of four alternatives) will be referred to collectively as the *Tunnel View Overlook Rehabilitation Environmental Assessment*. The contents of this document are as follows:

Executive Summary—The Executive Summary succinctly summarizes all pertinent information contained within the document.

Chapter 1: Purpose and Need—Chapter 1 includes a discussion of the project’s purpose and need, planning context, issues and concerns that are and are not addressed in this environmental assessment, and an overall organization of the document.

Chapter 2: Alternatives—Chapter 2 discusses the No Action Alternative and action alternatives under consideration by the National Park Service for the Tunnel View Overlook Rehabilitation project and provides a summary table comparing the alternatives.

Chapter 3: Affected Environment and Environmental Consequences—Chapter 3 provides an overview of the affected environment and presents an analysis of the potential environmental impacts of each alternative on natural resources, cultural resources, and social resources in the Tunnel View Overlook Rehabilitation Area.

Chapter 4: Wild and Scenic Rivers Act Compliance— Chapter 4 describes how activities proposed in the project comply with Wild and Scenic Rivers Act requirements, including the relationship to the river boundary, consistency with segment classification, identification of Outstandingly Remarkable Values, and relationship to user capacity.

Chapter 5: Consultation and Coordination— Chapter 5 summarizes how this environmental assessment was prepared and reviewed.

Chapter 6: List of Preparers—Chapter 6 lists the names and affiliations of the persons who are primarily responsible for preparing and reviewing the document.

Chapter 7: Glossary—Chapter 7 defines the technical terms and acronyms used in this document.

Chapter 8: Bibliography—Chapter 8 lists the references cited in this document.

In addition, **appendices** to this document augment and provide supplemental information to that presented in the above sections.

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Executive Summary

Introduction

The Wawona Tunnel View, located adjacent to Wawona Road at the east portal of the Wawona Tunnel, is one of the most popular scenic overlooks in Yosemite National Park. The overlook affords expansive views of Yosemite Valley, El Capitan, Half Dome, Sentinel Rock, and Bridalveil Fall that have captured the awe of visitors for 75 years. This historic site was constructed in 1932 during an era that heralded a boom in design and development throughout the National Park Service (NPS), and helped initiate the Park Service Rustic design style. Because of their exemplary park service rustic design, Wawona Tunnel and Tunnel View Overlook were determined eligible for listing on the National Register of Historic Places (NRHP) in 1986. Very little change has occurred to Tunnel View Overlook's physical features (including rockwork, circulation patterns, and configuration) since it was built in 1932. Tour buses, tram tours, and single-family vehicles bring an estimated 3,000-5,000 people to the site per day during the height of the visitation season.

Purpose and Need for Action

The purpose of the Tunnel View Overlook Rehabilitation Project is to remedy long-standing vehicle and pedestrian safety issues, to correct drainage deficiencies, to provide clear circulation patterns for pedestrians and vehicles, to restore and maintain viewing opportunities for visitors, to provide accessibility to viewing areas for visitors with disabilities, and to correct safety problems associated with the existing Inspiration Point trailhead, while preserving the naturalistic, rustic character and integrity of this historic site.

The project is needed to correct long-standing safety concerns. Since the Wawona Tunnel was completed in 1932, the NPS has responded to vehicle-to-vehicle accidents, single-vehicle accidents, and vehicle-to-pedestrian fatalities and near-misses. Drivers traveling west through the tunnel often speed, are blinded by sunlight as they exit the tunnel, encounter ice-patches at the east portal, and are faced with crowds of pedestrians and slow moving vehicles moving in and out of the roadway from the Tunnel View Overlook parking areas. Combined, these conditions create a sustained and serious safety problem. Drainage issues are among the contributing factors to the hazardous conditions and have existed since the construction of the overlook. The project is also needed to restore the historic vista. The vista has been increasingly obscured by trees growing on the slopes of the fill material which was deposited during the overlook's original construction. This project is also needed to reduce and manage traffic congestion that has been common at the site for decades, manage increasingly problematic visitor crowding which has resulted from the narrowing of historic views from the overlook, and make the overlook accessible to visitors with disabilities.

Relationship to Other Plans

The 1980 *General Management Plan* (GMP) is the overall guiding document for planning in Yosemite National Park. Rehabilitation of the Tunnel View Overlook supports the management objectives for scenic resources described in the GMP. The *Vegetation Management Plan* (1997) establishes broad vegetation management guidance for specific implementation plans. According to the plan,

“...scenic resources in Yosemite National Park contribute to the primary purpose for which the park was established. Scenic historic and natural biotic views will be preserved and enhanced through the development of a scenic resources management plan. Evaluation of

views and their contributing elements (including vegetation) will be conducted parkwide. Prioritization for establishment, preservation, restoration, and maintenance of high value views will be determined and instituted.”

Overview of the Alternatives

This Environmental Assessment presents and analyzes four alternatives. Alternative 1, the No Action Alternative, represents the continuation of existing conditions, operations and management practices at Tunnel View Overlook. The Action Alternatives (Alternatives 2, 3 and 4) represent a reasonable range of options that satisfy the purpose of and need for the project, meet relevant legal requirements and satisfy park policies and guidelines. Each Action Alternative aims to achieve the objectives of this project, but varies in the design approach.

All Action Alternatives include the following common features:

- Parking spaces and viewing areas would be built in compliance with the Americans with Disabilities Act (ADA) and Architectural Barriers Act (ABA) guidelines (U.S. Access Board 2004).
- One crosswalk would be maintained between the north and south lots.
- Construction activities would be phased to keep one parking area open for the majority of the time.
- Equipment and supplies would be staged at the turnout located north of Wawona Road, adjacent to the west portal of the tunnel and at the turnout east of the overlook.
- Drainage would be improved.
- Disturbed areas would be revegetated following construction.
- Parking lots would be repaved and re-striped.
- Granite curbing would be reset as needed to historic heights following paving.
- Inspiration Point Trailhead would be relocated to the center of the south side of the South Lot.
- South parking lot would include two oversized ADA/ABA compliant parking spaces and 25 single-family vehicle parking spaces and would not include oversized vehicle parking. One-way traffic circulation patterns would be maintained.
- A 560 square foot viewing area would be constructed in the south parking lot.
- To the extent possible, stone walls would be constructed of granite material salvaged from other park projects. Additional granite would be obtained from sources outside of the park.
- Existing stone walls would be repaired and reset as necessary, leaving stones in place when possible.
- Traffic calming features (e.g. signage, rumble strips) would be installed.
- Trees would be removed to restore the historic view.

Alternatives 2 (Preferred) and 3

Under Alternatives 2 (Preferred) and 3, a 3,450 square foot “Yosemite Valley Overlook” would be created on the east side of the north parking area. A low, protective stone wall would be placed along the west edge of the overlook to provide a barrier between the vehicles in the parking area and pedestrians on the viewing terrace. The guard wall materials and architectural character would be compatible with the historic stonework on site. The existing stone wall along the edge of the sidewalk would be repaired. The new curbing along Wawona Road adjacent to the new viewing platform in the North Lot would be at least 6-inches tall to meet

crash-safety standards set by the American Association of State Highway Transportation Officials (AASHTO). Granite curbing along the sidewalks and medians in the parking areas would be reset as needed to the historic height. A new stone guard wall would be built in the median that separates the North Lot from the road.

Traffic would enter the North Lot using the western driveway adjacent to the tunnel. This driveway would be moved approximately 20 feet west, and the opening would be widened to 45 feet. Outgoing traffic would exit using the eastern driveway adjacent to the viewing platform. This driveway would be reconfigured to be nearly perpendicular to the Wawona Road. The South Lot's curb, adjacent to the west driveway would be cut slightly, widening the entrance to the parking lot.

Alternatives 2 (Preferred)

In addition to the actions discussed above, Alternative 2 would also create a 1,450 square foot "Canyon Overlook" viewing area placed in the northwest corner of the north parking area. The North Lot parking area would have a total of 34 parking spaces; five more than are currently available. Four oversized vehicle parking spaces would be located in the center of the parking area and two accessible parking spaces would be located adjacent to the road nearest the viewing platform. The remaining 28 spaces would be provided for single-family vehicles. Parking spaces along the road would be angled at 60-degrees.

Alternative 3

In addition to the actions discussed above, Alternative 3 would provide 28 parking spaces; one less than is currently available. Five oversized vehicle parking spaces would be designated in the northern portion of the North Lot and would include an at-grade center island separating the oversized vehicle parking from single-family vehicle parking. Two parking spaces that meet ADA/ABA guidelines would be located adjacent to the road nearest the viewing platform. The remaining 21 spots would be provided for single-family vehicles. Parking spaces along the western edge of the parking area would be angled at 90-degrees and spaces in the remainder of the lot would be angled at 60-degrees.

Alternative 4

Alternative 4 would also create a "Yosemite Valley Overlook." However, this viewing terrace would only be 2,300 square feet. As with Alternatives 2 and 3, a low, protective stone wall would be placed along the west edge of Yosemite Valley Overlook to provide a barrier between the vehicles in the parking area and pedestrians on the viewing terrace and the granite curbing along the sidewalks and medians in the parking areas would be reset as needed to the historic height. However, no new stone walls would be added to the curbing between the road and the parking area.

The historic two-way traffic circulation pattern in the North Lot would be retained. The western driveway would be moved approximately 50 feet west and the opening would be widened to 30 feet. The eastern driveway would be widened to 22 feet wide to allow vehicles to enter and exit simultaneously. This alternative would create a total of 31 parking spaces; two more than are currently provided. Four oversized vehicle parking spaces would be located in the center of the parking area one accessible space would be located in the northeast corner and one would be located in the northwest corner of the lot. The remaining 25 spaces would be provided for single-family vehicles. These spaces would be angled at 60-degrees.

Environmental Analysis

Chapter 3 of this document presents the Affected Environment and the Environmental Consequences for the *Tunnel View Overlook Rehabilitation Environmental Assessment*, which fulfills the requirements of the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA). The *Affected Environment* section of Chapter 3 describes the existing conditions of the area affected by the alternatives described in Chapter 2, and the *Environmental Consequences* section of Chapter 3 analyzes the environmental effects associated with each of the alternatives.

Environmentally Preferable Alternative

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

Section 101 of NEPA states that:

“It is the continuing responsibility of the Federal Government to . . . (1) fulfill the responsibilities of each generation as trustee of the environment for succeeding generations; (2) assure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings; (3) attain the widest range of beneficial uses of the environment without degradation, risk to health or safety, or other undesirable and unintended consequences; (4) preserve important historic, cultural, and natural aspects of our national heritage, and maintain, wherever possible, an environment which supports diversity, and variety of individual choice; (5) achieve a balance between population and resource use which will 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.”

Upon full consideration of the elements of Section 101 of NEPA, Alternative 2 represents the Environmentally Preferable Alternative for the *Tunnel View Overlook Rehabilitation* project. This conclusion is analyzed in detail in Chapter 3.

Chapter 1: Purpose and Need

Introduction

The Wawona Tunnel View, located adjacent to Wawona Road at the east portal of the Wawona Tunnel, is one of the most popular scenic overlooks in Yosemite National Park. The overlook affords expansive views of Yosemite Valley, El Capitan, Half Dome, Sentinel Rock, and Bridalveil Fall that have captured the awe of visitors for 75 years. This historic site was constructed in 1932 during an era that heralded a boom in design and development throughout the NPS, and helped initiate the Park Service Rustic design style. Because of their exemplary park service rustic design, Wawona Tunnel and Tunnel View Overlook were determined eligible for listing on the NRHP in 1986. Very little change has occurred to Tunnel View Overlook's physical features (including rockwork, circulation patterns, and configuration) since it was built in 1932. Tour buses, tram tours, and single-family vehicles bring an estimated 3,000-5,000 people to the site per day during the height of the visitation season.

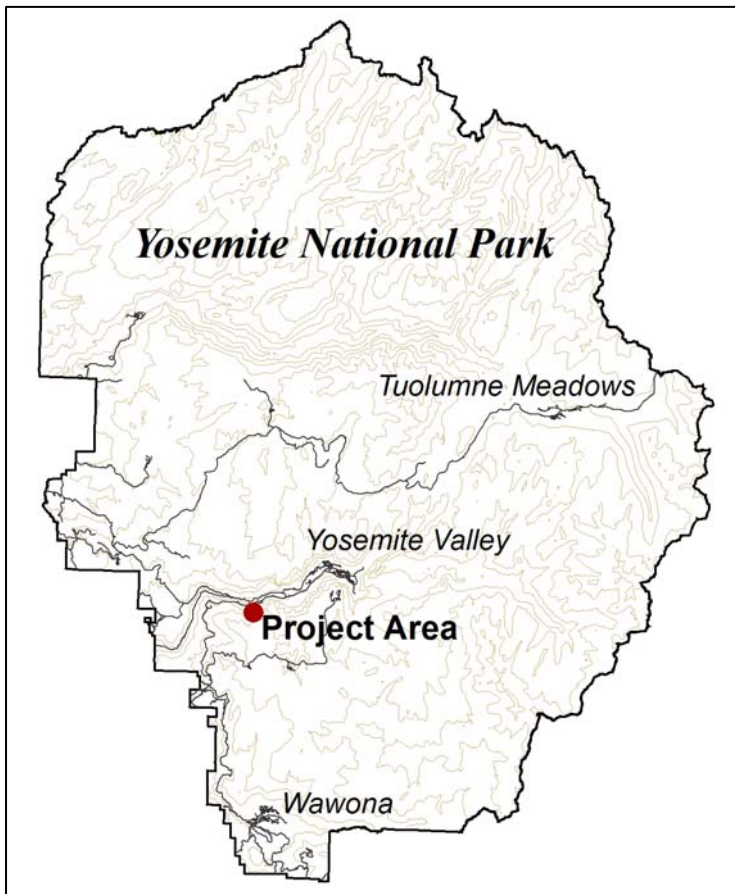


Figure 1: Project location map

Purpose of Proposed Project

The purpose of the Tunnel View Overlook Rehabilitation Project is to remedy long-standing vehicle and pedestrian safety issues, to correct drainage deficiencies and problems, to provide clear circulation patterns for pedestrians and vehicles, to restore and maintain viewing opportunities for visitors, to provide accessibility to viewing areas for visitors with disabilities, and to correct safety problems associated with the existing Inspiration Point trailhead, while

preserving the naturalistic, rustic character and integrity of this historic site. Rehabilitation of the Tunnel View Overlook supports the management objectives for scenic resources described in the 1980 *General Management Plan*.

Need for Proposed Project

Several factors demonstrate the need for this project.

- The existing viewing area in the North Lot consists of a narrow five-foot wide sidewalk, which has not accommodated the level of visitor use of the overlook that has been established for decades. Routinely, visitors to the overlook are forced into crowds of three to five people deep (including photographers with tripods) to see the view of Yosemite Valley. Consequently, visitors inadvertently and unknowingly step off the sidewalk and into the lanes of the immediately adjacent roadway, and thus into oncoming traffic.
- Vegetation such as ponderosa pine and incense cedar have grown and increasingly obscured much of the historic view, further limiting views of the valley. The encroaching vegetation forces visitors to cluster into smaller viewing areas than have existed historically. In turn, increased crowding and diminished enjoyment could occur.
- Since the Wawona Tunnel was completed in 1932, the NPS has responded to vehicle-to-vehicle accidents, single-vehicle accidents, and vehicle-to-pedestrian fatalities and near-misses. Drivers traveling west through the tunnel often speed, are blinded by light as they exit the tunnel, encounter ice-patches at the east portal (caused by an insufficient drainage system), and are faced with numerous pedestrians and slow moving vehicles moving in and out of the roadway from the Tunnel View parking areas. Combined, these conditions create a sustained and serious safety problem.
- Visitors who have parked their vehicles in the South Lot are directed to viewing areas by crosswalks located on blind corners that are not clearly visible by motorists.
- Currently stormwater and melting snow drain from the tunnel directly onto the North Lot. From here, the water sheet-flows over the parking area, and eventually drains down the Wawona Road. In the winter, the surface water on the parking area often freezes creating hazardous driving and walking conditions.
- The northern parking area has an unclear vehicle circulation pattern. Also, drivers of single-family vehicles and tour buses must negotiate ill-defined parking.
- Parking, path of travel, and viewing areas do not meet ADA/ABA accessibility standards. The historic sidewalks and viewing platforms are edged with granite curbing that does not allow wheelchair access.
- The Inspiration Point trailhead is located in the South Lot on a blind corner dangerously close to fast-moving traffic, and is excessively steep resulting in erosion.

Project Objectives

The following objectives were identified in response to an assessment of the purpose and need for the project and are based on input from the public and the NPS project team. The project objectives were used in the development of the action alternatives proposed for the Tunnel View Overlook Rehabilitation. The project goals are:

1. Restore Viewing Opportunities

- Selectively thin and actively manage vegetation that obscures the historic view
- Provide safe and appropriately sized viewing areas for visitors
- Provide accessibility for visitors with disabilities to viewing areas

2. Rehabilitate Historic Site

- Update documentation of historic character-defining features
- Rehabilitate historic character-defining features (including rockwork, vegetation, views)
- Ensure new design is compatible with historic character

3. Correct Safety Deficiencies

- Remedy long-standing vehicle and pedestrian safety issues
 - Define pedestrian areas
 - Correct safety problems associated with the Inspiration Point trailhead
 - Slow vehicles on Wawona Road prior to reaching Tunnel View Overlook

4. Provide Safe Access and Manage Circulation and Parking

- Address parking and circulation needs for cars, motorcycles, RVs, trams and tour buses
- Address needs for accessible parking
- Clarify safe and accessible pedestrian circulation pathways

5. Protect Resources

- Correct drainage deficiencies
- Manage runoff and control non-point source pollution

Policy and Planning Context

A variety of policy and planning sources provide direction for cultural resources, visitor facilities, and roadside overlooks at Yosemite National Park.

Regulations and Policies

National Park Service Organic Act

In 1916, the Organic Act established the NPS in order to “*promote and regulate the use of parks...*” The stated purpose of national parks is “*to conserve the scenery and 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.*” The Organic Act establishes the management responsibilities of the NPS. While Congress has given the NPS the management discretion to allow certain impacts within parks, that discretion is limited by the statutory requirement that park resources and values be left unimpaired. It ensures that park resources and values will continue to exist in a condition that allows future generations to enjoy them. *NPS Management Policies* (2006) provide additional guidance on impairment of park resources and values.

1970 National Park Service General Authorities Act (as amended in 1978—Redwood amendment)

This act prohibits the NPS from allowing any activities that would cause derogation of the values and purposes for which the parks have been established (except as directly and specifically provided by Congress in the enabling legislation for the parks). Therefore, all units are to be managed as national parks, based on their enabling legislation and without regard for their individual titles. Parks also adhere to other applicable federal laws and regulations, such as the Endangered Species Act, the National Historic Preservation Act, the Wilderness Act, and the Wild and Scenic Rivers Act. To articulate its responsibilities under these laws and regulations, the NPS has established management policies for all units under its stewardship.

National Environmental Policy Act (NEPA) (42 USC 4341 et seq.)

NEPA requires the identification and documentation of the environmental consequences of federal actions. Regulations implementing NEPA are set by the President's CEQ (40 CFR Parts 1500-1508). CEQ regulations establish the requirements and process for agencies to fulfill their obligations under the act.

National Historic Preservation Act (1966 as amended) (16 USC 470)

Section 106 of the NHPA directs federal agencies to take into account the effect of any undertaking (a federally funded or assisted project) on historic properties. "Historic property" is any district, building, structure, site, or object that is eligible for listing in the NRHP because the property is significant at the national, state, or local level in American history, architecture, archeology, engineering, or culture. Section 106 also provides the Advisory Council on Historic Preservation and the State Historic Preservation Officer (SHPO) an opportunity to comment on assessment of effects by the undertaking. Yosemite National Park's Section 106 review process is governed by the *1999 Programmatic Agreement Among the National Park Service at Yosemite, the California State Historic Preservation Officer and the Advisory Council for Historic Preservation regarding Planning, Design, Construction, Operations and Maintenance, Yosemite National Park, California* (1999 PA) (NPS 1999) developed in consultation with associated American Indian tribes and the National Trust for Historic Preservation.

National Park Service Management Policies 2006

NPS Management Policies (2006) is the basic Service-wide policy document of the NPS. The following sections of the Management Policies specifically pertain to the Tunnel View Overlook Rehabilitation:

9.1.1 Facility Planning and Design—*Designs for parks facilities, regardless of their origin (NPS, contractor, concessioner, or other), will use NPS facility models for space and function requirement and will be harmonious with and integrated into the park environment. They will also be subject throughout all phases of design and construction to the same code compliance; the same high standards of sustainable design, universal design, and functionality; and the same review and approval processes. NPS requirements for sustainable design and functionality include protection of the natural and cultural environments, resource conservation, energy conservation, pollution prevention, defensible space for fire safety, and fostering education about sustainable design and practices.*

9.1.1.2 Life-cycle Costs—*The total cost of a system, facility, or other product will be considered in its planning, design, and construction. Total cost will be computed over a product's or system's useful life or other specified period of time using economic analysis. Life-cycle costs include acquisition, shipping, initial construction or installation, operation and maintenance, environmental and energy consumption, water, wastewater, and the costs of eventual disposal or deconstruction of the system, facility, and/or product. To the extent practicable, the waste implications of materials, products, and by-products (including product life-cycle pollution) should be considered as part of life-cycle costs.*

9.1.1.3 Protection of Cultural Values—*When important cultural resources are present, efforts will be made to use existing contributing structures. New visitor or administration structures will harmonize with the area and the cultural resources in proportion, color, and texture. No attempt will be made to duplicate or mimic a historic design, nor will any modern construction be portrayed to the public as being historic. However, vernacular styles of architecture are appropriate when they provide visual compatibility with the cultural*

landscape. Application of the criteria of effect promulgated by the Advisory Council on Historic Preservation and compliance with the council's regulations on "Protection of Historic Properties" (36 CFR Part 800) will precede any development. These criteria apply to all historic properties.

9.2.4 Parking Areas—*Parking areas and overlooks will be located to not unacceptably intrude, by sight, sound, or other impact, park resources or values. When parking areas are deemed necessary, they will be limited to the smallest size appropriate, and they will be designed to harmoniously accommodate motor vehicles and other appropriate users. When large parking areas are needed, appropriate plantings and other design elements will be used to reduce negative visual and environmental impacts. Permanent parking areas will not normally be sized for the peak use day, but rather for the use anticipated on the average weekend day during the peak season of use.*

9.3 Visitor Facilities—*While striving for excellence in visitor services, the Park Service will limit visitor facility development to that which is necessary and appropriate.*

9.3.1 Informational and Interpretive Facilities—*Informational and interpretive facilities may be provided to assist park visitors in appreciating and enjoying the park and understanding its significance, provided that the facilities can be developed without impairing the park's natural or cultural resources.*

National Park Service Director's Orders

Director's Order 28 (DO 28) Cultural Resource Management Guideline—Chapter 7 of DO 28 discusses cultural landscape management. "Cultural landscape management involves identifying the type and degree of change that can occur while maintaining the historic character of the landscape. The identification and management of an appropriate level of change in a cultural landscape is closely related to its significance. In a landscape significant for its association with a specific style, individual, trend, or event, change may diminish its integrity and needs to be carefully monitored and controlled. In a landscape significant for the pattern of use that has evolved, physical change may be essential to the continuation of the use. In the latter case, the focus should be on perpetuating the use while maintaining the general character and feeling of the historic period(s), rather than on preserving a specific appearance."

Director's Order 87a (DO 87a) Park Road Standards (1984)—The purpose of DO 87a is to meet the need for NPS road design standards that will accommodate current or planned park road use, while continuing to preserve the natural and cultural values of National Park System areas.

"National park roadways, where they exist, are planned for leisurely sightseeing and are located with sensitive concern for the environment and designed with extreme care. They are often narrow, winding, and hilly—but therein may lie their appeal." (1984:7)

"For some, such as the handicapped, roads may provide the only means of park use, thereby reinforcing the case for their being intimately blended with the resource. Where terrain and safety conditions permit and where such uses are advocated by the general management plan, opportunities should be provided for random stopping to enable park visitors to more completely experience the park resources." (1984:7)

Planning Context

Planning in Yosemite National Park takes two forms: programmatic planning and implementation planning. General management plans are programmatic plans that are required for national parks by the National Park and Recreation Act of 1978. The purpose of general management plans is to set a “clearly defined direction for resource preservation and visitor use” (NPS 2006), provide general directions and policies, and guide planning and management in the park. The 1980 *General Management Plan* (GMP) is the overall planning document for Yosemite National Park. Implementation plans, which tier off of programmatic plans (like the GMP) focus on “how to implement an activity or project needed to achieve a long-term goal” (NPS 2006). Implementation plans may direct specific projects as well as ongoing management activities or programs. They provide a more extensive level of detail and analysis than do general management plans. The Tunnel View Overlook Rehabilitation is an implementation plan tiered from the GMP. The following plans pertain to the Tunnel View Overlook Rehabilitation:

The 1980 Yosemite National Park General Management Plan (GMP)

The 1980 GMP does not specifically mention the Tunnel View Overlook but discusses the importance of interpretation to the “fulfillment of the Yosemite experience.” The following goals for interpretation are intended to assist visitors in understanding, enjoying, and contributing to the preservation of the scenic, natural, and cultural resources of the park.

Provide interpretive services that relate the natural and cultural significance of Yosemite to visitors with a broad diversity of interests. The natural and cultural significance of the park is reflected in the following park interpretive themes.

Scenery - the unique and spectacular visual attributes of Yosemite

- Domes, cliffs, meadows, forests, rivers, and waterfalls in Yosemite Valley
- Towering peaks, ridges, deep canyons, lakes and streams, meadows, forests, and giant sequoia groves in the High Sierra surrounding the Valley

Biotic Systems and Geology - the natural processes that modify the land, the life forms that occupy it and the processes and interrelationships that govern it

- The geological land base and its origins, compositions, processes, and present forms; its characteristics (attributes, tolerances, and capacities); and its geologic future
- Yosemite's life communities - plants and animals and the balance and interdependence of all life forms and processes; present and future endangered species

Merced River Plan (2000 and 2005)

The Tunnel View Overlook is within the Merced Wild and Scenic River corridor, as defined by the original CMP (2000) and the 2005, revised CMP. Although at the time of printing for this EA the park does not have a valid Merced Wild and Scenic River CMP in place as a result of ongoing litigation, this project will protect and enhance features that qualify as Outstandingly Remarkable Values under the Wild and Scenic Rivers Act.

In 2000, the NPS published the Merced Wild and Scenic River Comprehensive Management Plan (CMP)/Final Environmental Impact Statement. That same month, a lawsuit challenging the plan was filed in the U.S. District Court. After the U.S. District Court initially upheld the Merced Wild and Scenic River CMP, the Ninth District U.S. Court of Appeals found the plan invalid based on two deficiencies, and ordered the park to prepare a new or revised CMP. In 2005, the

NPS published the Merced Wild and Scenic River Revised Comprehensive Management Plan/Supplemental Environmental Impact Statement. This revised plan was challenged and subsequently declared invalid by the U.S. District Court. On November 3, 2006, the U.S. District Court directed the NPS to prepare a new Merced Wild and Scenic River CMP. The park has initiated this new plan, anticipating completion in September 2009. Concurrent with preparing the new Merced Wild and Scenic River CMP, the NPS is appealing the U.S. District Court's 2006 decision with the Ninth District U.S. Court of Appeals. The NPS anticipates that the Ninth District U.S. Court of Appeals will make a ruling winter 2008.

Yosemite Resources Management Plan (1993)

This plan describes the status of park natural and cultural resources and recommends actions and programs needed to accomplish the legislative mandates applicable to the NPS and the park as well as to comply with other applicable environmental laws and NPS Management Policies.

Yosemite National Park Vegetation Management Plan (1997)

This plan establishes broad vegetation management guidance for specific implementation plans. One of the purposes of the plan is to “discuss the current vegetation management issues and to define management objectives and management techniques and strategies for achieving objectives.” (NPS 1997:3). According to the plan, *“scenic resources in Yosemite National Park contribute to the primary purpose for which the park was established. Scenic historic and natural biotic views will be preserved and enhanced through the development of a scenic resources management plan. Evaluation of views and their contributing elements (including vegetation) will be conducted parkwide. Prioritization for establishment, preservation, restoration, and maintenance of high value views will be determined and instituted.”* (1997:77).

The plan also contains a section on Roadside Vegetation Maintenance (1997:59-60), which states that: *“Minor manipulation of roadside vegetation may be appropriate for the following purposes:*

1. *Providing adequate clearance for safe passage of the largest vehicles normally using the road segment, considering heavy snow loading;*
2. *Providing for safety under the hazard tree management program in designated areas;*
3. *Providing appropriate sight distances for the reasonable safety of road users;*
4. *Protection of park wildlife by removing screening vegetation, thereby allowing motorists to see and avoid striking wildlife; and*
5. *Allowing for the disposal of plowed snow from the road surface.”*

According to the Plan, the design of vista viewing areas is critical for visitor and resource protection. *“All pull-outs along roadways should be established and maintained in areas with consideration to traffic patterns, speeds, sight distances, etc. to limit vehicular accidents. Pull-outs should also have paved surfaces, curbing, signing (interpretive and regulatory), and a designated pedestrian viewing area for protection of resources.”* (1997:101).

The Division of Resource Management and Science will begin a parkwide Vista Management Plan in Fiscal Year 2008. Although the Vista Management Plan has not been completed, the proposed action identifies solutions to restore the vista according to action strategies provided in the Vegetation Management Plan. These include, *“use selective trimming and cutting techniques when establishing and maintaining vistas. Some vegetation cover will be left on the ground while opening up a viewing area through standing trees. Develop the appearance of a natural setting by leaving trees of different size classes. Trim standing trees so that low limbs do not block scenic vistas and in a manner that no cutting pattern is evident.”* (1997:79).

1999 Programmatic Agreement regarding the Planning, Design, Construction, Operations and Maintenance of Yosemite National Park

Under this agreement, the park has the responsibility to review most undertakings without further review by the SHPO or the Advisory Council provided the stipulations of the agreement have been fulfilled. The agreement stipulates required consultation with SHPO, ACHP, Indian tribes, and interested persons when an undertaking may affect a National Historic Landmark, *or properties of national significance listed on the National Register of Historic Places*, may affect a human burial, adversely affect a traditional cultural property, generates significant public controversy, involves a disagreement among the park, the SHPO, any Indian Tribe, or any Interested Persons regarding proposed use of standard mitigating measures. The agreement applies to undertakings performed by NPS lessees, permittees, concessioners, cooperators and park partners. It also requires Yosemite to “*make every reasonable effort to avoid adverse effects to Historic Properties identified . . . through project design, facilities’ location or other means*” and to document avoidance alternatives through the NEPA process.

Traffic Engineering Safety Improvement Study (1985)

The purpose of this study was to determine the traffic safety improvement needs of Yosemite National Park and to create a program to implement the recommended improvements. All accidents occurring in the park over a 3.5 year period (1,600) were systematically reviewed and analyzed. Accident rates were calculated for high accident locations and high accident road segments. The types of accidents were analyzed for patterns that would suggest operational and safety improvements. Improvements that could potentially reduce the number of accidents were developed and recommended. Recommendations were also given to increase safety and to improve operations and to bring the park’s traffic control devices into compliance with the Manual on Uniform Traffic Control Devices (MUTCD). See *Affected Environment – Visitor Experience – Visitor Safety* for more information.

The Wawona Tunnel (including the Tunnel View Overlook) was called-out as a high accident location. The study recommended, “*the night-time light level in the tunnel should be reduced to alleviate the problem of dark-adaptation. An active (flashing light or variable message (ICE warning sign should be installed. This is an area where additional funding for snow and ice removal would be beneficial.*” (Kimley-Horn 1985:108).

Traffic Safety Study (1995)

In 1995, a Traffic Safety Program Review was conducted in the park. It consisted of a detailed review of accident characteristics in the park and an assessment of the park’s success in implementing traffic safety improvements following the Kimley-Horn 1985 study. (Peccia and Associates, Inc. 1995). Based on analysis of accidents in the park between January 1981 and June 1984 and January 1990 to December 1993, there was an increase of approximately 4 percent from approximately 459 accidents per year to 480 accidents per year, despite the nearly double increase in visitation (2.5 to 4.1 million). Most roads showed a corresponding decrease in the number of accidents with the exception of El Portal Road that showed an increase.

Accident numbers were notably lower in 11 of 15 high accident road segments; however, they were higher for four segments—including the Wawona Tunnel/Tunnel View Overlook location. There were a total of 26 accidents on the Wawona Road between Southside Drive and the Wawona Tunnel and 16 accidents at the Wawona Tunnel/Tunnel View Overlook location from 1990-1993 (1995:2-10-2-11). According to a field review at each of the high accident road

segments and sites, approximately 20 percent of the recommendations made in the 1985 Traffic Safety Study had been implemented (1995:3-11).

Public Participation

NPS conducted initial internal scoping with a team of interdisciplinary specialists from January to March 2007. A variety of comments, issues and concerns were received from park staff, including: clarification of safety problems, condition of cultural resources, identification of traffic and pedestrian circulation conflicts, clarification of degraded condition of roads and trails, and determination of the challenges for effective visitor interpretation at the overlook.

Public Scoping was held from June 4 to July 9, 2007. The Public scoping process was conducted through the following means: 1) a press release describing the intent to begin the public involvement through comments on the proposed project was issued on May 18, 2007. The press release was published in the *Mariposa Gazette* and the *Sierra Star*; 2) the June 21, 2007 Yosemite National Park Electronic Newsletter, emailed to a list of approximately 7000 people, included an announcement of the public scoping period. [Note: The July 16, 2007 NPS newsletter directed interested public to a public website for viewing the public scoping comments]; 3) the May 2007 Planning Update included information about the project and an invitation to the monthly Yosemite Open House; 4) the scoping period was announced on the park's Daily Report; and 5) the scoping period was announced via the park's website. Invitations to Open Houses held on June 26, 2007 in Oakhurst and June 27, 2007 in Yosemite Valley were included in the above announcements. The Open Houses included exhibits about existing site conditions, environmental considerations, cultural resource concerns, transportation issues and construction and design procedures. Professional staff was available to introduce and provide information about the project. A formal presentation about the project was made, and time was made available to answer questions and to accept comments.

During the public scoping process ten comment letters were received, including nine from individuals and interested parties, and one from the chair of the Sierra Club's Yosemite Committee (Sierra Club Fresno Chapter). Letters were received via email, at public open houses, and through the U.S. mail and included the following issues and concerns. comments:

- Use the name "Discovery View" rather than "Tunnel View" for the project area.
- Address how the Yosemite Valley Plan affects planning for the Tunnel View Overlook rehabilitation.
- Ensure interested members of the public have continued opportunities for involvement in the planning process at Tunnel View Overlook.
- Remove trees to restore, and develop a plan to maintain the vista at Tunnel View Overlook.
- Remove trees to restore the historic vista at Tunnel View Overlook.
- Address carrying capacity at Tunnel View Overlook.
- Increase the size of the sidewalk to accommodate photographers at Tunnel View Overlook.
- Consider a designated smoking area at Tunnel View Overlook away from the viewing area.
- Consider design alternatives that minimize the amount of development at Tunnel View Overlook.
- Improve safety for pedestrians at Tunnel View Overlook.
- Provide viewing opportunities that keep pedestrians out of the road.

- Consolidate the three crosswalks to the center and provide clear direction to pedestrians for accessing the viewing area at Tunnel View Overlook.
- Use culturally accurate language on interpretive signs at Tunnel View Overlook.
- Consider constructing restrooms at the Tunnel View Overlook.
- Install signs informing visitors of the proximity of the Bridalveil and Chinquapin Comfort Stations.
- Improve traffic flow, reconfigure parking, and improve drainage at Tunnel View Overlook.
- Consider alternative parking locations and implement a shuttle service to and from Tunnel View Overlook.
- Slow vehicle traffic at Tunnel View
- Consider using the Rostrum parking area located west of Wawona Tunnel on the Wawona Road as a transit staging area to alleviate congestion at the Tunnel View Overlook.
- Improve garbage collection and disposal services at Tunnel View Overlook.
- Address carrying capacity at Tunnel View Overlook

Two internal alternatives development workshops were held following the public comment period with park staff and outside consultants. The first workshop, held on July 17, 2007, was used to develop the three Action Alternatives. The second workshop held on August 6, 2007, used Value Analysis (VA) and Choosing by Advantages (CBA) techniques to select the “Preferred Alternative.” Alternative development has been shared with the public in Yosemite National Park’s monthly open houses. The release of this EA is the first opportunity for the public to see and respond to the range of alternatives.

Issues and Concerns Addressed in This Document

All of the above issues and concerns were considered in the planning process and/or are addressed in this document except for those identified under the next heading.

Issues and Concerns Out of Scope of this Project

The issue regarding how the Yosemite Valley Plan (YVP) affects planning for the Tunnel View Overlook rehabilitation was determined to be out of scope of this project because actions called for in the YVP would not affect any aspect of the Tunnel View Overlook Rehabilitation project.

Chapter 2: Alternatives

The NPS has used input from public scoping and the information provided by the project's interdisciplinary project team to clarify the project's goals and develop a range of reasonable and feasible action alternatives that meet the project's purpose and need. A comparison of the Action and No Action Alternative designs is provided in Table 2 (Page 2-12).

Alternatives Considered

Alternative 1: No Action

Under this Alternative (Figure 2), the Tunnel View Overlook would not be improved, except for continuation of emergency repairs and routine and periodic maintenance activities. Because no rehabilitation, restoration or safety improvements would take place, this alternative would not address the flow of vehicle traffic and pedestrians to improve public wellbeing; inadequate drainage would continue to cause icing of Wawona Road and the parking areas, and would continue to erode the parking area's asphalt surface; hikers using the Inspiration Point trailhead would continue to experience pedestrian-vehicle conflicts; accessibility issues would continue to be unresolved; and the narrow sidewalk which also serves as a viewing platform would continue to impact visitor experience and cause additional vehicle and pedestrian conflicts. Traffic circulation would continue without organization and traffic flow would continue to be one-way in the South Lot and two-way in the North Lot. There would continue to be 29 parking spaces in the North Lot (four oversized and 25 single-family vehicle) and 35 single-family vehicle parking spaces in the South Lot.

The No Action Alternative would continue to result in routine maintenance actions, including snow removal, paved road asphalt patching, crack sealing, culvert cleaning and repair, roadside vegetation management, hazard tree abatement, and signage replacement as needed. However, much of the routine maintenance at Tunnel View has been deferred due to funding constraints. This has resulted in deterioration of many of the site features (i.e., deteriorated pavement, damaged stonework, clogged drainage features, and eroded trailhead). Under the No Action Alternative maintenance of these features could continue to be deferred.

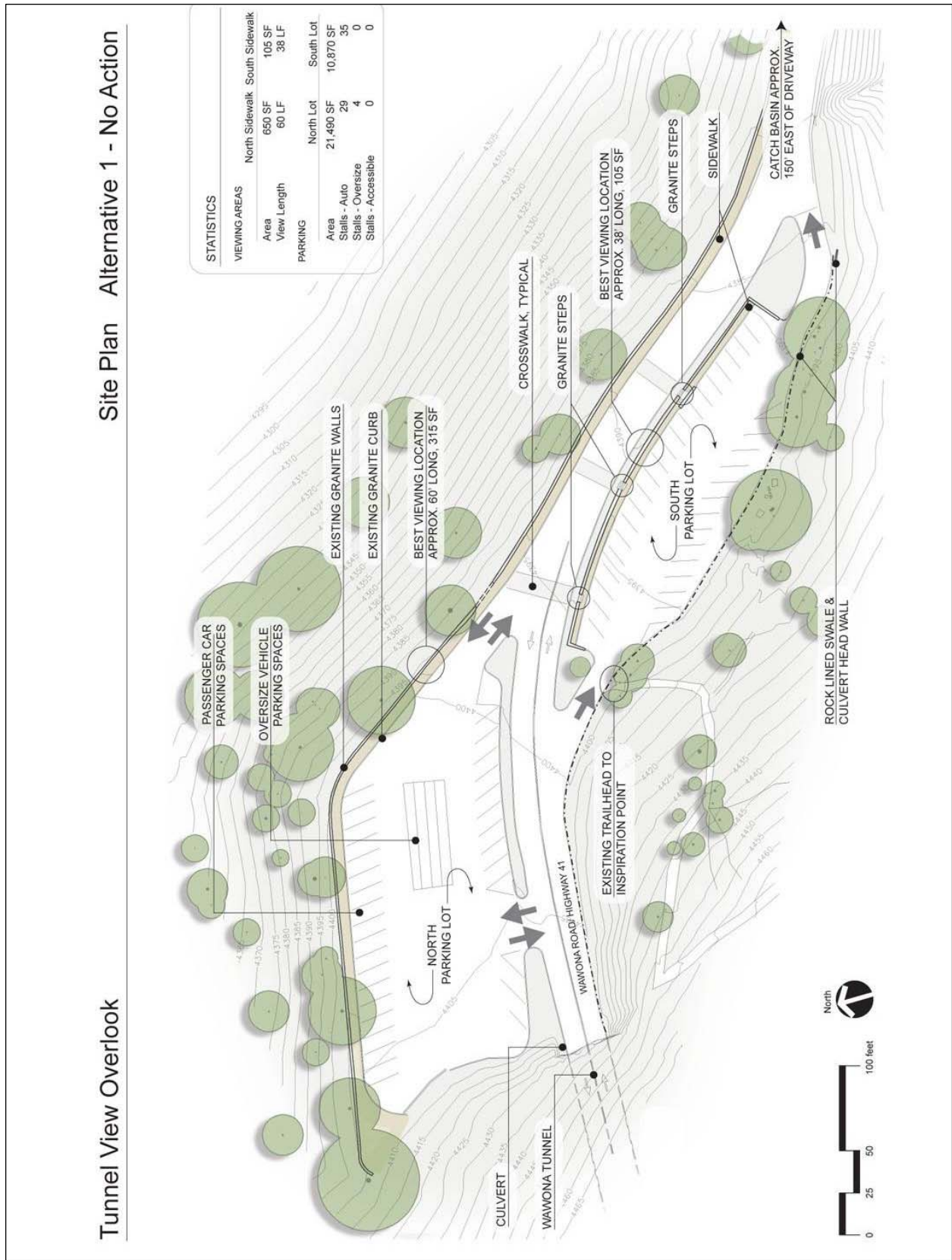


Figure 2. Alternative 1, No Action Alternative

Actions Common to All Action Alternatives

Accessibility

Parking spaces and wheelchair accessible ramps would be constructed in compliance with the Americans with Disabilities Act (ADA) and Architectural Barriers Act (ABA) guidelines (U.S. Access Board 2004). Design of parking areas and viewing platforms would follow Recommendations for Accessibility Guidelines: Outdoor Developed Areas (1999). These guidelines include recommendations for maneuvering space, slope, surface, and number of accessible viewing areas. The South Lot would include two oversized, wheelchair accessible parking spaces leading to wheelchair accessible ramps to the viewing platform. The North Lot would include two more oversized, wheelchair accessible parking spaces. The location of these spaces varies between alternatives.

Crosswalks

The two eastern-most crosswalks between the northern and southern parking areas would be closed. Pedestrians would be directed to use the western most crosswalk. This crosswalk provides the greatest sight distance for pedestrians and vehicles, and is the most direct path of travel for pedestrians.

Construction Activities

Construction Timing/Phasing. Construction would begin in early spring 2008 and finish early fall 2008. For a majority of the construction period, construction activities would be phased to keep one parking area open at all times, including access for oversized vehicles. There could be short periods of time when construction activities would require closing both parking areas. For example, during paving it may be necessary to close both parking areas for a few days. There may be other activities such as installation of drainage features that result in one-way traffic controls for short periods of time.

Staging Areas. Contractors would stage equipment and supplies at the one-lane turnout located north of Wawona Road, adjacent to the west portal of the tunnel and at the turnout below (east of) Tunnel View Overlook.

Drainage

Drainage at Tunnel View Overlook would be improved (Figure 3). Improvements would include repairs of existing, re-grading and paving swales, and refurbishing erosion control rock at the outfall (Table 1). Other improvements would include installation of a trench drain across the tunnel opening, a slotted drain or valley gutter across the North Lot and a storm water debris separation and filtration device prior to the outflow.

Revegetation and Curbside Planting

Revegetation would use locally collected seeds and cuttings in areas of natural soils disturbed during construction activities or relocation of the Inspiration Point trailhead. A three-year, post-construction monitoring plan would include removal of non-native plants and replanting of native plants when necessary.

Repaving and Striping Parking Areas and Resetting Granite Curbing

Parking areas would be repaved. The existing pavement would be pulverized and reused on site. The parking areas would be striped to delineate oversized vehicle parking, accessible parking, standard parking spaces, and no-parking zones. Granite curbing would be reset (as needed) to historic heights following paving.

Table 1. Location of current drainage issues and proposed improvements for all Action Alternatives.

Location	Current Issue	Improvement
1. Tunnel opening	Melting snow drips from above the tunnel opening and makes the roadway wet and slippery.	Reconstruct parapet above the tunnel to direct drainage to side of tunnel opening. Construct heavy duty trench drain across roadway at tunnel opening.
2. Roadside swale	Existing drainage swales along roadway are silted-up.	Re-grade swales and pave or reline with granite rubble.
3. Parking lot drainage	A large amount of water from the South Lot drains across the road.	A small amount of re-grading, repaving and installation of a curb inlet over the existing 18" culvert to pick up this water before it reaches the road.
4. Storm drain outfalls	Two existing storm drain outfalls drain on to the slope downhill from the overlook. Erosion control rock needs refurbishment.	Refurbish with new rip-rap for slope protection.
5. Parking lot sheet flows	Drainage sheet flows across parking lots. Melting snow piled on high end of parking lot thaws and freezes, making parking lots slippery in the winter.	Construct slotted drains or valley gutters across parking lot to cut-off this drainage.
6. Storm water treatment	New EPA Storm Water Pollution Prevention Plan (SWPPP) requirements may initiate the need to put storm water debris separation and filtration systems in place.	Place adequately sized on-line debris collector and media filtration systems on existing 18" storm drain pipe.

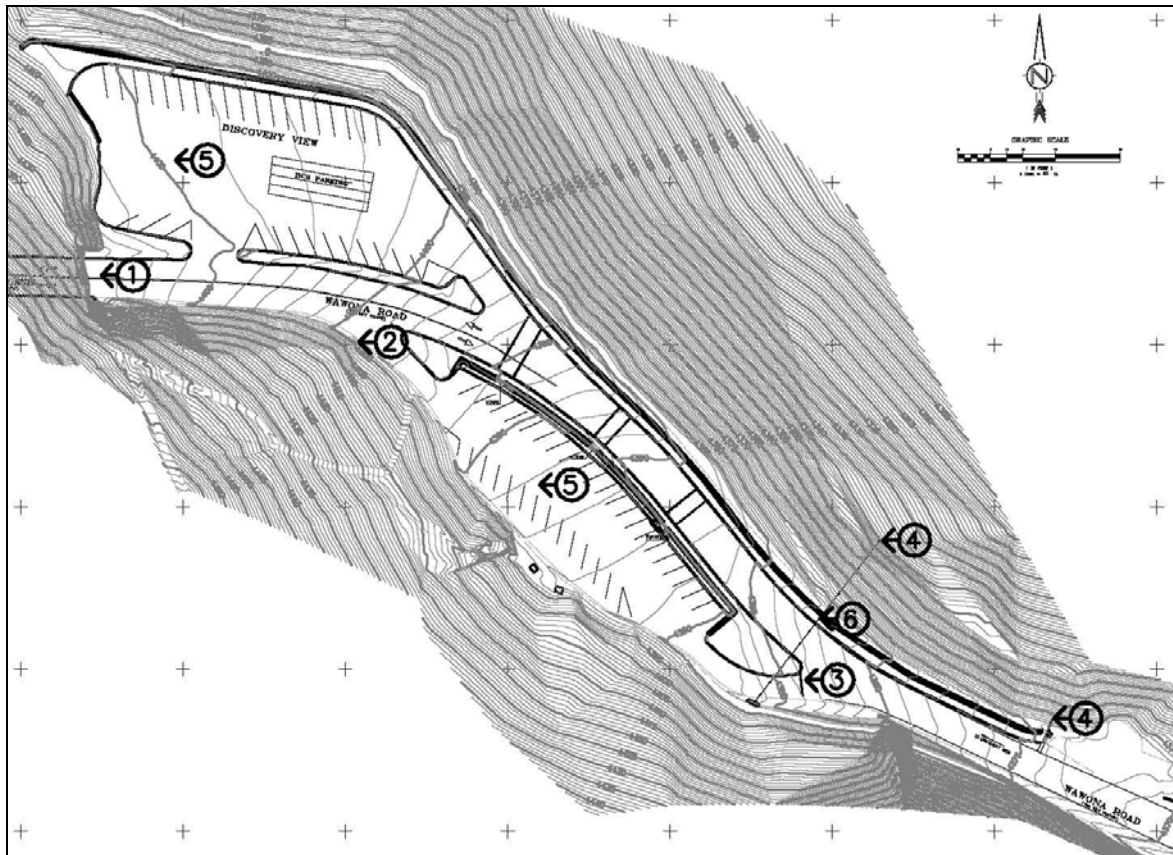


Figure 3. Site diagram showing location of common drainage issues and solutions.

Relocation of Inspiration Point Trailhead

All Action Alternatives would include the relocation of the Inspiration Point Trailhead to the center of the south side of the South Lot.

South Lot Vehicle Parking and Traffic Circulation

All Action Alternatives would include two oversized ADA/ABA compliant parking spaces and 25 standard parking spaces. No oversized vehicle parking would be designated in the South Lot.

One-way traffic circulation patterns into and out of the South Lot would be maintained. Vehicles would enter the lot using the west driveway and exit using the east driveway. Parking spaces would be angled at 60-degrees to facilitate the one-way traffic pattern.

South Lot Viewing Area

All Action Alternatives would include the establishment of a 560 square foot viewing area on the north side of the South Lot. Three trees would be removed to restore the historic vista under all Action Alternatives. These trees are growing in the fill material used for construction of the overlook in 1931-2.

Stone Wall

To the extent possible, stone walls would be constructed of granite material salvaged from other park projects for all Action Alternatives. Additional granite would be obtained from sources outside of the park. New stone will be selected to match the stone in the existing stonework as closely as possible. Existing stone walls would be reset and repaired as necessary, leaving stones in place when possible.

Traffic Calming Features

All Action Alternatives would include measures to reduce traffic speed within the project area. These measures would include installation of rumble strips within the tunnel and installation of signage alerting westbound vehicles of their proximity to the overlook and pedestrian crossing signs. Signage for eastbound traffic located prior to entering the tunnel would include speed limit signs, radar speed display signs, and signs alerting drivers of the overlook at the end of the tunnel. The overhead sign within the tunnel would be upgraded to a 2 or 3 line LED message board. Some examples of signage include:

- Installation of an advanced informational sign such as “Yosemite Valley Overlook at Tunnel End” before the tunnel entrance.
- Replacement of the existing overhead message sign in the tunnel with a new 2 or 3 line programmable LED message board. Possible messages are “SLOW—Congested Area Ahead” or “Bus/RV Parking-LEFT...Auto Parking-RIGHT.”
- Installation of a radar speed display sign in tunnel for eastbound vehicles along with a speed limit sign.
- Installation of an advanced informational sign for westbound vehicles about 400-feet before the North Lot, such as “Yosemite Valley Overlook Ahead.”
- Installation of a new “Pedestrian Crossing” warning signs

Vista Clearing

All Action Alternatives would include removal of approximately 20 trees ranging from 1-inch to 26-inch dbh to restore the view from the North Lot to its historic condition—completely open and unobstructed. Three trees ranging from 10-inch to 20-inch dbh would be removed to clear

the view from the South Lot. Selective thinning of approximately 5-10 trees (ranging from 1-inch to 18-inch dbh) would be removed along the Canyon View sidewalk and the Valley View sidewalk.

Alternative 2 (Preferred): Dedicated Viewing Areas Including Valley Overlook and Canyon Overlook; and Retention of Oversized Vehicle Parking in Center of North Parking Area

Under Alternative 2 (Figure 4), a “Yosemite Valley Overlook” would be created on the east side of the north parking area and a “Canyon Overlook” viewing area would be placed in the northwest corner of the north parking area. The Yosemite Valley Overlook would be 3,450 square feet and the Canyon Overlook viewing area would be 1,450 square feet.

A low, protective stone wall would be placed along the west edge of Yosemite Valley Overlook to provide a barrier between the vehicles in the parking area and pedestrians on the viewing terrace. The stone wall materials and architectural character would be compatible with the historic stonework on site. The existing stone wall along the edge of the sidewalk would be repaired. The new curbing along Wawona Road adjacent to the new viewing platform in the North Lot would be at least 6-inches tall to meet AASHTO crash-safety standards. Granite curbing along the sidewalks and medians in the parking areas would be reset as needed to the historic height. A new stone wall in the existing median would further separate the North Lot from the road.

Traffic would enter the North Lot using the western driveway adjacent to the tunnel. This driveway would be moved approximately 20 feet west, and the opening would be widened to 45 feet. Outgoing traffic would exit using the eastern driveway adjacent to the Yosemite Valley Overlook viewing platform. This driveway would be reconfigured to be nearly perpendicular to the Wawona Road. The North Lot parking area would have a total of 34 parking spaces; five more than are currently available. Four oversized vehicle parking spaces would be located in the center of the parking area. The remaining 28 spaces would be provided for single-family vehicles. Two parking spaces that meet ADA/ABA guidelines would be added to the North Lot—one along adjacent to the Yosemite Valley Viewing Area, and one adjacent to the Canyon Overlook. Parking spaces along the road would be angled at 60-degrees. The South Lot’s curb, adjacent to the west driveway would be cut slightly, widening the entrance to the parking lot.

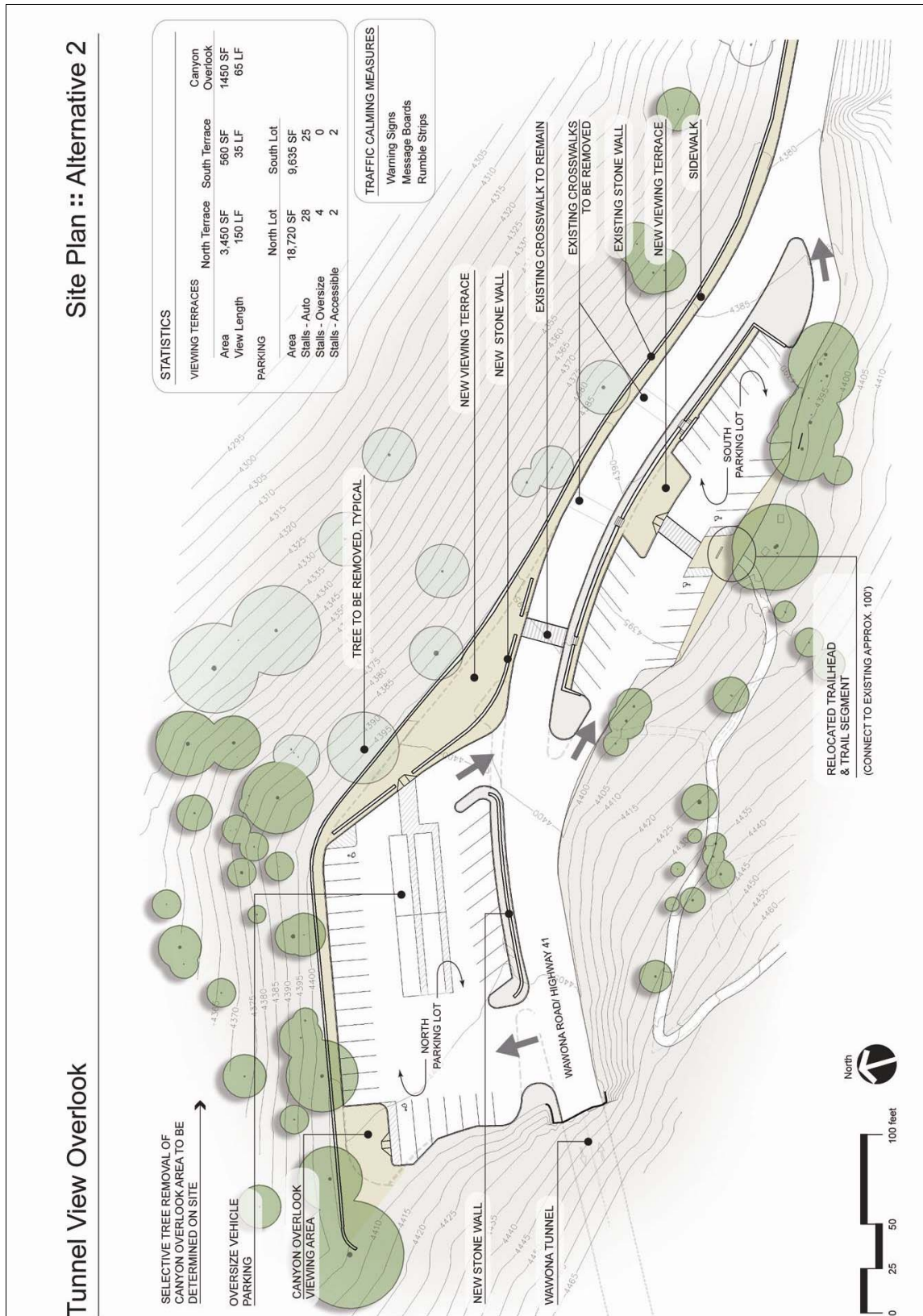


Figure 4. Alternative 2, Preferred Alternative

Alternative 3: Dedicated Yosemite Valley Overlook and Separation of Oversized Vehicle Parking from Automobile Parking

Under Alternative 3 (Figure 5), a “Yosemite Valley Overlook” would be created on the east side of the north parking area. This viewing terrace would be 3,450 square feet. A low, protective stone wall would be placed along the west edge of Yosemite Valley Overlook to provide a barrier between the vehicles in the parking area and pedestrians on the viewing terrace. The stone wall materials and architectural character would be compatible with the historic stonework on site. The existing stone wall along the edge of the sidewalk would be repaired. The new curbing along Wawona Road adjacent to the new viewing platform in the North Lot would be at least 6-inches tall to meet AASHTO crash-safety standards. Granite curbing along the sidewalks and medians in the parking areas would be reset as needed to restore the historic height. A new stone guard wall would be built in the median to further separate the North Lot from the road.

Traffic would enter the North Lot using the western driveway adjacent to the tunnel. This driveway would be moved approximately 20-feet west, and the opening would be widened to 45 feet. Outgoing traffic would exit using the eastern driveway adjacent to the Yosemite Valley Overlook viewing platform. This driveway would be reconfigured to be nearly perpendicular to the Wawona Road. Alternative 3 would provide 28 parking spaces; one less than is currently available. Five oversized vehicle parking spaces would be designated in the northern portion of the North Lot and would include an at-grade center island separating the oversized vehicle parking from single-family vehicle parking. Two parking spaces that meet ADA/ABA guidelines would be located in the North Lot nearest the viewing platform. The remaining 21 spots would be provided for single-family vehicles. Parking spaces along the western edge of the parking area would be angled at 90-degrees and spaces in the remainder of the lot would be angled at 60-degrees. The South Lot’s curb adjacent to the west driveway would be cut, slightly widening the entrance to the parking lot.

Alternative 4: Preservation of the Greatest Amount of Historic Character-Defining Features and Materials

Under Alternative 4 (Figure 6), a “Yosemite Valley Overlook” would be created on the east side of the north parking area. This viewing terrace would be 2,300 square feet. As with Alternatives 2 and 3, a low, protective stone wall would be placed along the west edge of Yosemite Valley Overlook to provide a barrier between the vehicles in the parking area and pedestrians on the viewing terrace and the granite curbing along the sidewalks and medians in the parking areas would be reset as needed to restore the historic height. However, no new stone walls would be added to the median between the road and the North Lot.

The historic two-way traffic circulation pattern in the North Lot would be retained. The western driveway would be moved approximately 50-feet west and the opening would be widened to 30 feet. The eastern driveway would be widened to 22 feet to allow vehicles to enter and exit simultaneously. This alternative would create a total of 31 parking spaces; two more than are currently provided. Four oversized vehicle parking spaces would be located in the center of the parking area. One parking space that meets ADA/ABA guidelines would be located in the northeast corner of the North Lot and an additional one would be located in the northwest corner of the lot. The remaining 25 spaces would be provided for single-family vehicles.

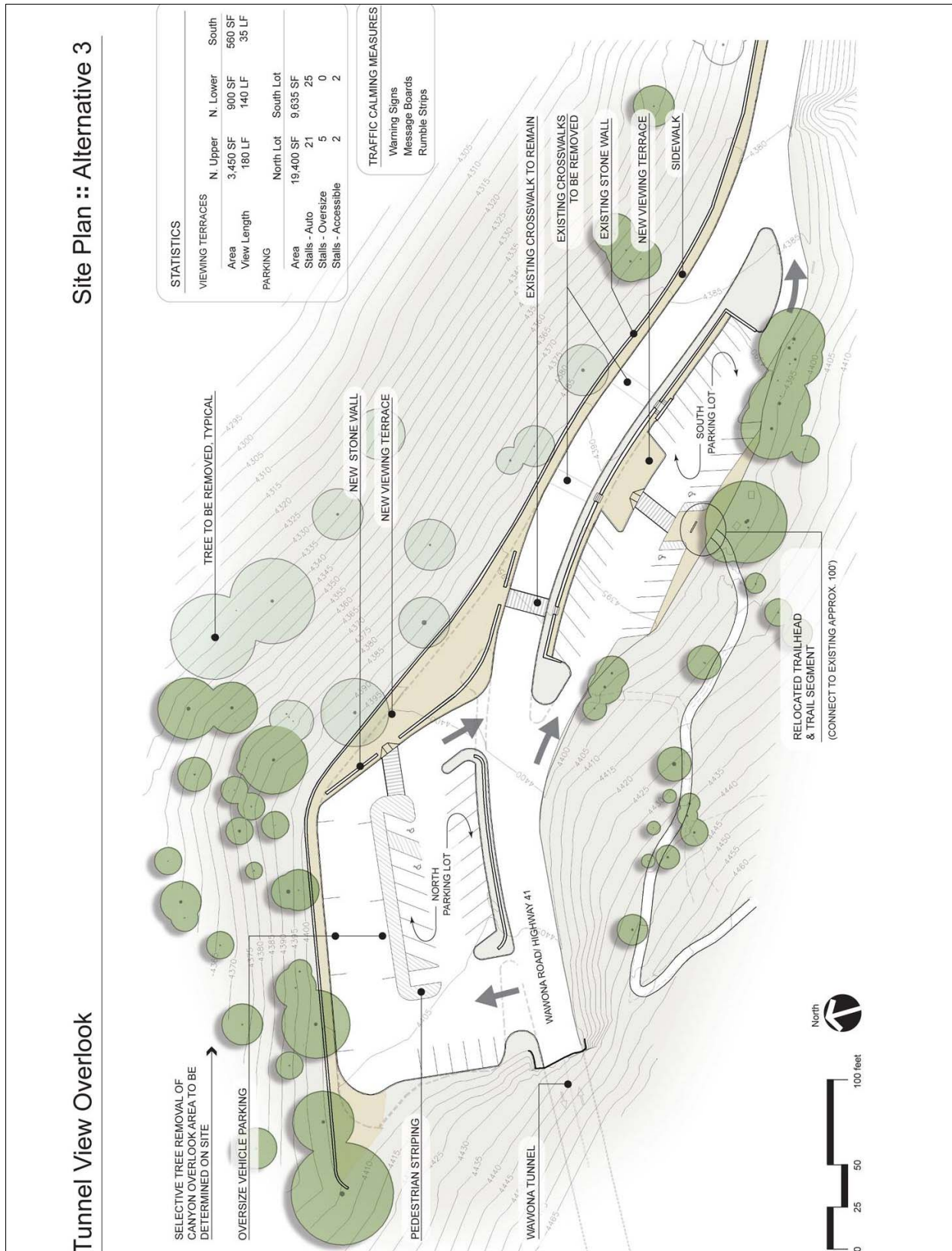


Figure 5. Alternative 3

Site Plan :: Alternative 4

Tunnel View Overlook

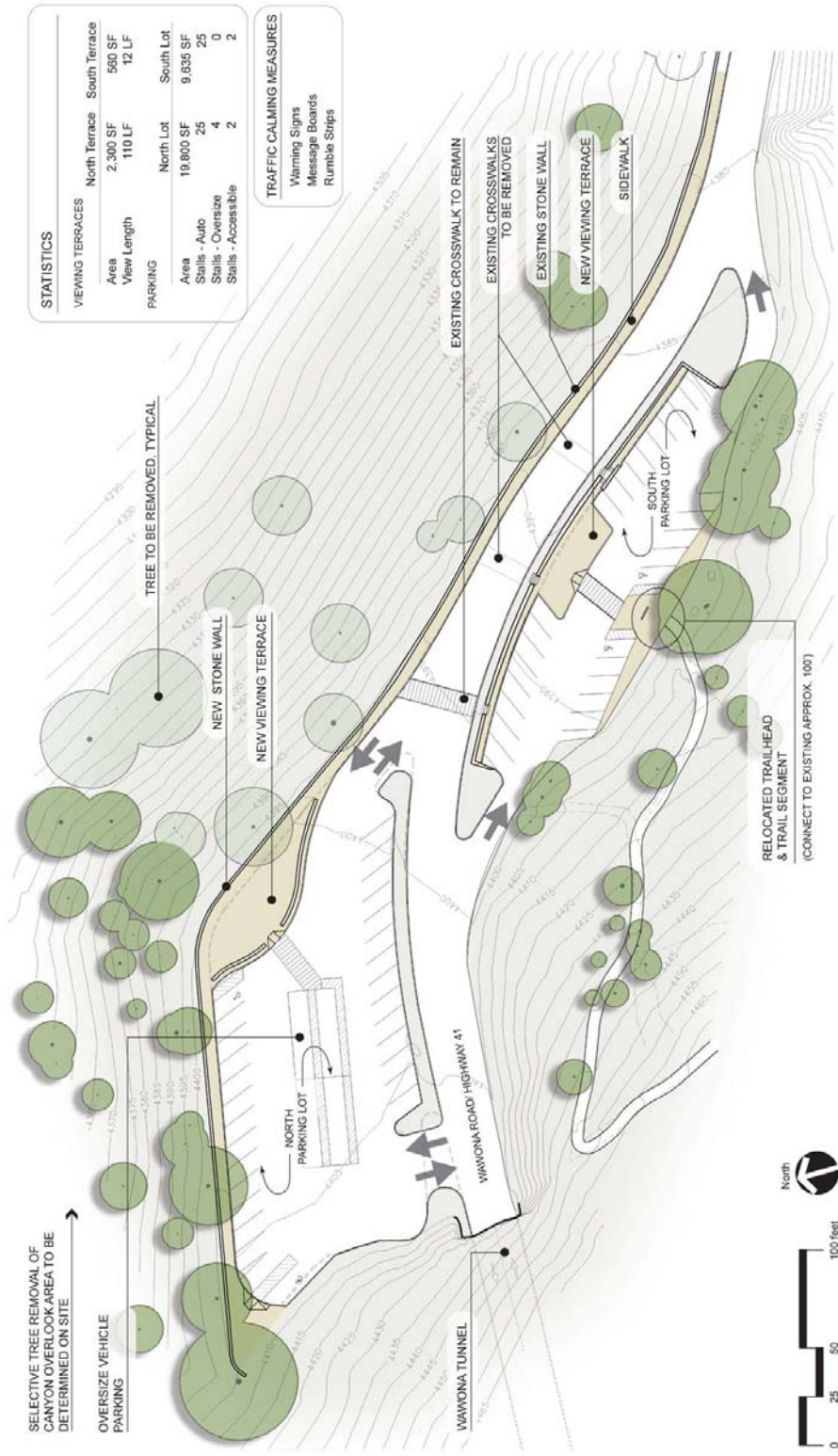


Figure 6. Alternative 4

Actions Considered But Dismissed

Under NEPA, an alternative may be eliminated from detailed study for the following reasons [40 CFR 1540.14(a)]:

- inability to meet project objectives or resolve need for the project;
- duplication of other less environmentally damaging alternatives;
- conflicts with an up-to-date valid plan, statement of purpose and significance, or other policy, and therefore would require a major change in that plan or policy to implement;
- environmental impacts are too great; and
- technical or economic infeasibility.

Alternative Parking Areas and Shuttle Service

The development of alternative parking areas and implementation of a shuttle service was considered but dismissed from further consideration. This action would not meet the project objectives as outlined above nor would it resolve the need for the project. Parking spaces are not a limiting factor at Tunnel View. Improving traffic circulation within the parking lots and providing appropriate sized and safe viewing areas, vista clearing, and safer crossing for pedestrians would alleviate traffic congestion and crowding at Tunnel View Overlook.

Bus Staging at Rostrum Parking Area and Reconfiguration of Parking/Driving Lanes

The use of Rostrum parking area (located west of Wawona Tunnel along the Wawona Road) as a bus staging area was considered but dismissed from further consideration. This action would not meet the project objectives as outlined above nor would it resolve the needs for the project. This action would require the development and coordination of communications between Tunnel View Overlook and Rostrum parking area to facilitate movement of buses in and out of Tunnel View. The action would also require a reconfiguration of the parking and driving lanes at the Rostrum parking area. Buses would be required to stage where the current eastbound traffic lane is.

Lower Terrace Viewing Platform

The construction of a 900 square foot lower viewing terrace below the main North Lot viewing terrace was considered but dismissed from further consideration. Using “Values Analysis” and “Choosing by Advantages” techniques, park management and staff determined that the Action Alternatives sufficiently addressed the purpose and need of the project, and that the addition of a lower terrace would not provide substantial benefits to meeting the project goals. Construction of this feature would be very costly, approximately 3/4 of a million dollars, and would provide little gain for the monies spent. The addition of a lower terrace would increase dwell time and adversely impact the function of the overlook by placing higher demand on available parking.

Restrooms

Installation of restrooms at Tunnel View Overlook was considered but dismissed from further consideration. Currently, there are no water or sewer lines at Tunnel View. Therefore, alternative technologies (e.g., vault, composting or combustion toilets) would need to be used at this site. These technologies would not be feasible due to the lack of adequate space and the high volume of visitors—potential high volume of use at Tunnel View Overlook. Additionally, there

are restrooms available at Bridalveil Fall parking area approximately 2 ½ miles east of Tunnel View Overlook, and at Chinquapin approximately ten miles southwest of Tunnel View. Additional signage along the Wawona Road corridor alerting visitors to the locations of restrooms is currently under consideration by park management.

Raised Sidewalk to Separate Bus Parking from Regular Parking under Alternative 3

Construction of a raised sidewalk/median to separate bus parking from regular parking was considered under Alternative 3 but dismissed from further consideration. Snow plows keep the overlook cleared in the winter, and use the parking lot as a snow plow turn around. Due to the size and configuration of the parking lot, construction of a raised sidewalk would make maneuvering snow plows within the parking lot difficult.

Table 2. Alternatives comparison table

CATEGORIES	Alternative 1 (NO ACTION)	Alternative 2	Alternative 3	Alternative 4
VIEWING AREA (SF)				
North Lot Viewing Area	650	3,450	3,450	2,300
Canyon Overlook Viewing Area	0	1,450	0	0
South Lot Viewing Area	105	560	560	560
Total Viewing Area	755	5,460	4,610	2,860
NORTH PARKING LOT				
Square Feet	21,490	18,720	19,400	19,800
Number of Spaces	29	34	28	31
Accessible	0	2	2	2
Autos	25	28	21	25
Oversized Vehicles	4	4	5	4
Location of Oversized Parking	Middle	Middle	Northern Edge	Middle
ADA/ABA Parking Location	None	2 Near Viewing Platforms	2 Near Viewing Platform	1 Near Viewing Platform
New Stone Wall Separating Parking Lot from Viewing Platform	No	Yes	Yes	Yes
AASHTO Compliant Curbing Between Viewing Area and Road	No	Yes	Yes	No (viewing area is not next to road)
New Stone Wall Along Road in Median	No	Yes	Yes	No
Driveway Entrance				
Location	No Change	Move ~20 West	Move ~20 West	Move ~20 West
Width	~12 feet	45 Feet	45 Feet	30 Feet
Reset Granite Curbing, as needed to restore historic condition	No	Yes	Yes	Yes
Traffic Flow	Two-way	One-way	One-way	Two-way
SOUTH PARKING LOT				
Square Feet	10,090	9,635	9,635	9,635
Number Spaces	35	27	27	27
Accessible	0	2	2	2
Autos	35	25	25	25
Oversized Vehicles	0	0	0	0
Cut Curbing at Entrance	No	Yes	Yes	No
PARKING LOT SUMMARY				
Total Parking Lot Area (SF)	31,605	28,355	29,035	29,435
Total Number of Parking Spaces	64	61	55	58

Chapter 3: Affected Environment and Environmental Consequences

This section of the *Tunnel View Overlook Rehabilitation EA* describes the existing conditions and the potential impacts of each alternative on the topic areas relevant to the project. The topics were selected based on federal law, regulations, and executive orders; NPS management policies; and concerns expressed by the public, park staff or other agencies during scoping and comment periods. The topics analyzed in this EA include the natural, cultural, and social resources that would be directly, indirectly, or cumulatively impacted as a result of implementation of any alternative proposed in this EA. This section also provides a discussion of topics that were dismissed from further analysis. Following the discussion on the topics selected and not selected, the chapter presents the methodologies used in the environmental analysis.

A number of federal and state laws, regulations, and policies require that federal undertakings are examined for their effects on natural, cultural, and social resources. Primary laws requiring analysis of impacts to natural, cultural, and social resources and historic properties include:

- National Environmental Policy Act (NEPA)
- Endangered Species Act (ESA)
- Clean Water Act (CWA)
- Clean Air Act (CAA)
- National Historic Preservation Act (NHPA)
- Native American Graves Protection and Repatriation Act (NAGPRA)
- Archeological Resource Protection Act (ARPA)
- American Indian Religious Freedom Act (AIRFA)

In addition, NPS management policies and guidelines require that impacts to park resources be considered in all planning proposals. The analysis of social resources examines the effects of the Project on the social environment within the park. Conserving the park's scenery is a crucial component of the NPS 1916 Organic Act and the park's enabling legislation. Stewardship of Yosemite National Park requires consideration of two integrated purposes: to preserve the unique natural and cultural resources and scenic beauty, and to make these resources available to visitors for study, enjoyment, and recreation.

Impact Topics Considered in this Plan

The following impact topics were selected based on federal law, regulations, and executive orders; NPS management policies; and concerns expressed by the public, park staff or other agencies during scoping and comment periods: Soils; Water Resources; Vegetation; Wildlife; Special Status Species; Historic Properties; Visitor Experience; Scenic Resources; Park Operations; and Transportation. Table 3 provides a summary of the Environmental Consequences of the alternatives for each impact topic.

Impact Topics Dismissed From Further Analysis

Geologic Processes and Geological Hazards: Implementation of the Action Alternatives would result in no change from current geological or geological hazards conditions and no new facilities would be constructed.

Floodplains and Wetlands: There are no floodplains or wetlands in the project area. Consequently, none of the alternatives would directly affect floodplains or wetlands, nor would these alternatives result in indirect or cumulative effects on these resources.

Prime and Unique Farmlands: There are no agricultural lands in the project area, and the project would not have any indirect effects to downstream agricultural lands.

Air Quality: Tunnel View is one of the most popular scenic overlooks in Yosemite National Park. Close to 900 vehicles per day, including buses, trams, and RVs, may use the overlook during a busy Saturday (NPS 2007). Emissions from these vehicles reduce the air quality at the site. The number of vehicles using the overlook during implementation of this project would be reduced due to the closure of one or the other parking areas. The reduction in vehicles would offset emissions from construction equipment resulting in no short-term change in air quality. Implementation of this project would not notably change the number of vehicles using this site in the long-term. Thus, implementation of any of the Action Alternatives would result in no change from current air quality conditions.

Night Sky: The NPS wishes to 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. Implementation of the Action Alternatives would result in no change from current night sky conditions.

Soundscapes: Natural sources of noise in Yosemite National Park include rivers and streams, wind, and the motion of rocks, leaves, and other natural materials, and wildlife. These natural sounds comprise the park's natural soundscape, and are an important resource that is subject to protection from noise created by human activities and mechanical devices such as generators, airplanes, automobiles and trucks, and construction equipment. Tunnel View is one of the most popular scenic overlooks in Yosemite National Park. Tour buses, tram tours, and single-family vehicles bring an estimated 3,000-5,000 people to the site per day during the height of the visitation season. The large number of vehicles and visitors make this a very noisy site. During rehabilitation, visitor use will be reduced by the closure of one or the other parking areas. Noise that would otherwise be created by high visitor use would be replaced by similar noise created by construction vehicles in terms of volume and frequency. Additionally, this project would not change the visitor use of this site. Therefore, implementation of any of the Action Alternatives would not result in any short-term or long-term changes to natural soundscapes at Tunnel View or the surrounding area.

Environmental Justice: No aspect of the Action Alternatives would result in disproportionately high and adverse human health or environmental effects on minority or low-income populations. Any restriction on travel or access to any area of the park that might result from the project would be equally applied to all visitors, regardless of race or socioeconomic standing. The Action Alternatives would not result in destruction or disruption of community cohesion and economic vitality; displacement of public and private facilities and services; increased traffic congestion; and/or exclusion or separation of minority or low-income populations from the broader community.

Socioeconomics: Rehabilitation of Tunnel View under any of the Action Alternatives would not result in any changes to current socioeconomic conditions within Yosemite National Park's gateway communities.

Wilderness Experience: There is no designated Wilderness within the area of potential effects of the action alternatives. The Inspiration Point trail would continue to be accessible to

Wilderness visitors and parking would be available in one or the other lot. Soundscapes within the Wilderness would not be altered from the current level of noise and are discussed above. Thus, implementation of the project would not have any direct or indirect effects to designated Wilderness or Wilderness visitors in adjacent areas.

Land Use: Land uses within Yosemite National Park are classified as “Parklands” regardless of the individual types of land uses within the park. Implementation of the project would not affect this classification or any land uses within the park

Energy Consumption: Implementation of the Tunnel View Overlook Rehabilitation project would not cause measurable increases or decreases in the overall consumption of electricity, propane, wood, fuel oil, gas or diesel for stationary or mobile sources associated with visitor attendance or the continued operation and maintenance of park operations and facilities.

Archeology and Museum Collections: During the Section 106 process, NPS determined that there are no known archeological resources within the project area. This determination was made using existing records. Therefore no impacts to archeological resources are expected to result from the proposed action. Park projects can indirectly affect the museum collections by generating minimal additions to the collections from archeological data recovery performed as mitigation for direct site impacts. Because no archeological resources would be impacted during implementation of this project, no additional museum collections would be generated.

American Indian Traditional and Contemporary Cultural Practices and Traditional Cultural Properties: There are no known American Indian Traditional or Contemporary Cultural Practices associated with the project area. This was confirmed during consultation with interested American Indian Tribal governments. Thus, no impact to American Indian cultural activities protected under the American Indian Religious Freedom Act (AIRFA), or Executive Order 13007, which protects American Indian access to religious sites, are expected to result from the proposed action.

Traditional Cultural Properties: During the Section 106 process, NPS determined that there are no known Traditional Cultural Properties within the project area. This determination was made through consultation with American Indian Tribal governments and using existing records. Therefore, no resources to which American Indians or other ethnic groups attach religious or cultural significance are expected to be impacted.

Methods for Analyzing Environmental Consequences

NEPA requires that environmental documents disclose the environmental impacts of the proposed federal action, reasonable alternatives to that action, and any adverse environmental effects that cannot be avoided should the proposed action be implemented. This section analyzes the environmental impacts of project alternatives on affected park resources. These analyses provide the basis for comparing the effects of the alternatives. NEPA requires consideration of context, intensity and duration of impacts, indirect impacts, cumulative impacts, and measures to mitigate impacts. In addition to determining the environmental consequences of the preferred and other alternatives, *NPS Management Policies* (NPS 2006) and Director’s Order 12 (DO 12), *Conservation Planning, Environmental Impact Analysis, and Decision-making* (NPS 1982) require analysis of potential effects to determine if actions would impair park resources.

Impact Analysis General

The environmental consequences for each impact topic were defined based on the following information regarding context, type of impact, duration of impact, intensity of impact and the cumulative context. Unless otherwise stated in the resource section in *Environmental Consequences*, analysis is based on a qualitative assessment of impacts.

Context: Setting or area within which impacts are analyzed – such as the local project area, the region, or national area of influence; for cultural resources – the area of potential effect.

Localized: Detectable only in the vicinity of the proposed action.

Regional: Detectable on a landscape scale (beyond the affected site).

National: Detectable on a national scale.

Type of Impact: A measure of whether the impact will improve or harm the resource and whether that harm occurs immediately or at some later point in time.

Beneficial: Reduces or improves impact being discussed.

Adverse: Increases or results in negative impact being discussed.

Direct: Caused by, and occurring at the same time and place as the action, including such impacts as animal and plant mortality and damage to cultural resources.

Indirect: Caused by the action, but occurring later in time at another place or to another resource, including changes in species composition, vegetation structure, range of wildlife, offsite erosion or changes in general economic conditions tied to park activities.

Note: The type of impact is described in more detail preceding each resource section in Environmental Consequences below.

Duration of Impact: Duration is a measure of the time period over which the effects of an impact persist. The duration of impacts evaluated in this EA may be one of the following:

Short-term: Often quickly reversible and associated with a specific event, one to five years.

Long-term: Reversible over a much longer period, or may occur continuously based on normal activity, or for more than five years.

Intensity of Impact (All Impacts Except Special Status Species and Historic Properties)

Negligible: The measurable or anticipated degree of change would not be detectable or would be only slightly detectable. Localized or at the lowest level of detection.

Minor: The measurable or anticipated degree of change would have a slight effect, causing a slightly noticeable change of approximately less than 20 percent compared to existing conditions, often localized.

Moderate: The measurable or anticipated degree of change is readily apparent and appreciable and would be noticed by most people, with a change likely to be between 21 and 50 percent compared to existing conditions; can be localized or widespread.

Major: The measurable or anticipated degree of change would be substantial, causing a highly noticeable change of approximately greater than 50 percent compared to existing conditions; often widespread.

Note: Historic Properties impacts are also initially characterized as noted above, however, the conclusion follows the format below, and makes a formal determination of effect under Section 106 of the NHPA. In accordance with NPS Management Policies (2006), the analysis in this EA fulfills the responsibilities of the NPS under Section 106 of the NHPA.

Impact Analysis for Special Status Species

Federal agencies must consult with the U.S. Fish and Wildlife Service (USFWS) to ensure their actions will not jeopardize the continued existence of any federally listed or proposed threatened or endangered species, or adversely modify designated or proposed critical habitat (ESA Section 7 (a) (2)). If listed species or their critical habitat are present, the federal agency must determine if the action will have “no effect,” “may effect, not likely to adversely affect,” or “may effect, likely to adversely affect” those species or their habitat. The NPS makes the determination of effect for the alternatives following guidance outlined in the 1998 U.S. Fish and Wildlife Service (USFWS) and National Marine Fisheries Service *Endangered Species Act Consultation Handbook: Procedures for Conducting Section 7 Consultations and Conference*. Although special status species include state listed and sensitive species, park sensitive species, and species with other federal (i.e., BLM or Forest Service sensitive), state or local special status, in addition to species protected under the ESA, impacts are determined following the same guidance.

No Effect: The project (or action) is located outside suitable habitat and there would be no disturbance or other direct, indirect, or cumulative impacts on the species. The action will not affect the listed species or its designated critical habitat (USFWS 1998).

May Affect, Not Likely to Adversely Affect: The project (or action) occurs in suitable habitat or results in indirect impacts on the species, but the effect on the species is likely to be entirely beneficial, discountable, or insignificant. The action may pose effects on listed species or designated critical habitat but given circumstances or mitigation conditions, the effects may be discounted, insignificant, or completely beneficial. Insignificant effects would not result in take. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not 1) be able to meaningfully measure, detect, or evaluate insignificant effects or 2) expect discountable effects to occur (USFWS1998).

May Affect: The project (or action) would have an adverse effect on a listed species as a result of direct, indirect, cumulative, interrelated, or interdependent actions. An adverse effect on a listed species may occur as a direct, indirect, or cumulative result of the proposed action or its interrelated or interdependent actions and the effect is not: discountable, insignificant, or beneficial (USFWS 1998).

Impact Analysis for Historic Properties

This impact analysis methodology applies to the five types of historic properties as defined by Section 106 of the NHPA: sites, districts, buildings, structures, and objects.

Section 106 of the NHPA requires a federal agency to take into account the effects of its undertakings on properties included in, or eligible for inclusion in the NRHP, and provide the Advisory Council on Historic Preservation the reasonable opportunity to comment. The 1999 *Park Programmatic Agreement Among The National Park Service At Yosemite, The California State Historic Preservation Officer and The Advisory Council On Historic Preservation Regarding Planning, Design, Construction, Operations And Maintenance, Yosemite National Park, California*

(1999 PA) was developed among the NPS at Yosemite, the California State Historic Preservation Officer, and the Advisory Council on Historic Preservation, in consultation with American Indian tribes and the public. The 1999 PA governs the park's effort to take into account the effects of park planning and operations on historic properties.

NHPA Methods for Assessing Effect (Impact Analysis)

Pursuant to DO 12 sections 2.14(6) (3), 6.2 F and 6.3 F and Appendix 3, 40 CFR 1508.7, 1508.8 and 1508.27 and 36 CFR 800.8, impact intensity, duration, context and type as they relate to historic properties are determined with the criteria established in 36 CFR 800.5. NHPA defines the following types of effects:

No Effect: Indicates that there are no historic properties in the area of potential effect (APE); or, there are historic properties in the APE, but the undertaking will not alter the characteristics that qualify it for inclusion in or eligibility for the NRHP.

No Adverse Effect: Indicates that there will be an effect on the historic property by the undertaking, but the effect is not adverse, meaning it will not alter characteristics that make it eligible for listing in the NRHP in a manner that would diminish the integrity of the property (see below).

Adverse Effect: Indicates that the undertaking will alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the NRHP. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative. An adverse effect may be resolved in accordance with Stipulation VIII: Resolution of Adverse Effects, of the 1999 PA.

Impact Measures under NHPA and NEPA

Conventional terms used by the NPS to measure the context (local, regional, national or international), duration (short-or long-term), type (beneficial or adverse), and intensity (negligible, minor, moderate or major) of impact under NEPA are not valid for assessing effects on historic properties under NHPA. Because the effect on a historic property is measured by the status of the historic property's eligibility for listing in the NRHP, the negligible, minor, moderate and major degrees do not apply, and therefore satisfy neither the NHPA nor NEPA requirements. Either a historic property maintains the characteristics making it eligible for listing in the NRHP, or it does not. It cannot, for example, be moderately eligible for listing in the NRHP. Significance of impact under NEPA would occur only when an adverse effect to the characteristics of an historic property making it eligible for listing in the NRHP cannot be resolved.

Context and Duration: The geographical context of a historic property is determined during the identification and evaluation process when it is determined if it is of local, regional, national, or international significance. Because historic properties are nonrenewable, irreplaceable resources, duration of effect is "long-term" across the full range of actions from preservation to destruction.

Type and Intensity: Beneficial Effects as measured in NEPA are folded into the “No Adverse Effect” finding for NHPA. For example, a restoration of an historic structure may be considered “beneficial” under NEPA. NHPA, on the other hand, recognizes that the restoration will affect the historic property, but it will not be an adverse effect.

Direct or indirect impact consideration is the same for NHPA and NEPA. Direct impacts are those caused by the action that will occur at the same time and place. Indirect impacts are those caused by the action later in time or at a distance from the action that are reasonably foreseeable (1508.8 (a) and (b), 36 CFR 800.5 (a) (1)).

Resolving Adverse Effects to Historic Properties: An adverse effect under Section 106 of NHPA can be resolved with a good faith effort to consider whether and how to avoid, reduce, or mitigate the effect, which could be done by modifying the undertaking, imposing certain mitigation conditions, such as photo documentation, treatment of historic buildings, structures, and landscapes in accordance with the Secretary’s of Interior Standards or accepting the effect in the public interest. Yosemite’s 1999 PA stipulates Standard Mitigation Measures that can be used to resolve an adverse effect. These measures are: Recordation, Salvage, Interpretation, and NRHP Reevaluation.

Significant Impact: For the purposes of NEPA and DO 12, an impact to a NRHP property would be considered significant when an adverse effect cannot be resolved by agreement among SHPO, ACHP, American Indian tribal governments, other consulting and interested parties and the public. The resolution must be documented in a memorandum or programmatic agreement or the NEPA decision document.

Cumulative Impacts

Cumulative impacts are the effects on the environment that would result from the incremental impacts of the action when added to other past, present and reasonably foreseeable future actions. Impacts are considered cumulative regardless of what agency or group (federal or non-federal) undertakes the action.

The CEQ describes a cumulative impact as follows (Regulation 1508.7):

A “Cumulative impact” is 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. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

The cumulative projects addressed in this analysis include past and present actions, as well as any planning or development activity currently being implemented or planned for implementation in the reasonably foreseeable future. Cumulative actions are evaluated in conjunction with the impacts of an alternative to determine if they have any additive effects on a particular resource. Because most of the cumulative projects are in the early planning stages, the evaluation of cumulative impacts was based on a general description of the project. These projects are included in the cumulative effects analysis presented in Chapter 3 of this document.

Table 3. List of projects contributing to cumulative impacts at Tunnel View Overlook.

Past
El Portal Road Improvement Project: Park Boundary to Big Oak Flat Road General Management Plan
Present
Fire Management Plan Glacier Point Road Rehabilitation Project Reconstructing Critically Eroded Sections of El Portal Road Rehabilitation of the Yosemite Valley Loop Road Vegetation Management Plan Emergency Assessment and Repairs to Failed Ventilation System in Wawona Tunnel
Reasonably Foreseeable Future
Comprehensive Transportation Plan El Portal Road Improvements Project (Narrows to Pohono Bridge) Parkwide Invasive Plant Management Plan Parkwide Vista Management Plan State Highway 140 Ferguson Slide Restoration Chip/Micro Seal Wawona Road (Yosemite Valley to Chinquapin) Wawona Road Cultural Landscape Inventory Replace Electrical System Serving the Wawona Tunnel

Impairment

In addition to determining the environmental consequences of the preferred and other alternatives, *NPS Management Policies* (NPS 2006) and *Director's Order: 12, Conservation Planning, Environmental Impact Analysis, and Decision-making* (NPS 1982), require analysis of potential effects to determine if actions would impair park resources. In this EA, determinations of impairment are provided in the conclusion section under each applicable resource topic for each alternative. In accordance with NPS policy, impairment determinations are not made for visitor use, park operations, transportation or other non-natural or cultural resources topics. The following sections from the NPS Management Policies define impairment and highlight the difference between an impact and impairment.

1.4.3 The NPS Obligation to Conserve and Provide for Enjoyment of Park Resources and Values

The fundamental purpose of the national park system, established by the Organic Act and reaffirmed by the General Authorities Act, as amended, begins with a mandate to conserve park resources and values. This mandate is independent of the separate prohibition on impairment and applies all the time with respect to all park resources and values, even when there is no risk that any park resources or values may be impaired. NPS managers must always seek ways to avoid, or to minimize to the greatest extent practicable, adverse impacts on park resources and values. The laws do give the Service the management discretion, however, to allow impacts to park resources and values when necessary and appropriate to fulfill the purposes of a park, so long as the impact does not constitute impairment of the affected resources and values.

The fundamental purpose of all parks also includes providing for the enjoyment of park resources and values by the people of the United States. The enjoyment that is contemplated by the statute is broad; it is the enjoyment of all the people of the United States and includes enjoyment both by people who visit parks and by those who appreciate them from afar. It also includes deriving benefit (including scientific knowledge) and inspiration from parks, as well as

other forms of enjoyment and inspiration. Congress, recognizing that the enjoyment by future generations of the national parks can be ensured only if the superb quality of park resources and values is left unimpaired, has provided that when there is a conflict between conserving resources and values and providing for enjoyment of them, conservation is to be predominant. This is how courts have consistently interpreted the Organic Act.

1.4.4 The Prohibition on Impairment of Park Resources and Values

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. This, the cornerstone of the Organic Act, establishes the primary responsibility of the National Park Service. It ensures that park resources and values will continue to exist in a condition that will allow the American people to have present and future opportunities for enjoyment of them.

The impairment of park resources and values may not be allowed by the Service unless directly and specifically provided for by legislation or by the proclamation establishing the park. The relevant legislation or proclamation must provide explicitly (not by implication or inference) for the activity, in terms that keep the Service from having the authority to manage the activity so as to avoid the impairment.

1.4.5 What Constitutes Impairment of Park Resources and Values

The impairment that is prohibited by the Organic Act and the General Authorities Act is an impact that, in the professional judgment of the responsible NPS manager, would harm the integrity of park resources or values, including the opportunities that otherwise would be present for the enjoyment of those resources or values. Whether an impact meets this definition depends on the particular resources and values that would be affected; the severity, duration, and timing of the impact; the direct and indirect effects of the impact; and the cumulative effects of the impact in question and other impacts. An impact to any park resource or value may, but does not necessarily, constitute impairment. An impact would be more likely to 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, or is key to the natural or cultural integrity of the park or to opportunities for enjoyment of the park, or is identified in the park's general management plan or other relevant NPS planning documents as being of significance.

An impact would be less likely to constitute an impairment if it is an unavoidable result of an action necessary to preserve or restore the integrity of park resources or values and it cannot be further mitigated. An impact that may, but would not necessarily, lead to impairment may result from visitor activities; NPS administrative activities; or activities undertaken by concessioners, contractors, and others operating in the park. Impairment may also result from sources or activities outside the park.

1.4.6 What Constitutes Park Resources and Values

The "park resources and values" that are subject to the no-impairment standard includes: the park's scenery, natural and historic objects, and wildlife, and the processes and conditions that sustain them, including, to the extent present in the park: the ecological, biological, and physical processes that created the park and continue to act upon it; scenic features; natural visibility, both in daytime and at night; natural landscapes; natural soundscapes and smells; water and air resources; soils; geological resources; paleontological resources; archeological resources;

cultural landscapes; ethnographic resources; historic and prehistoric sites, structures, and objects; museum collections; and native plants and animals; appropriate opportunities to experience enjoyment of the above resources, to the extent that can be done without impairing them; the park's role in contributing to the national dignity, the high public value and integrity, and the superlative environmental quality of the national park system, and the benefit and inspiration provided to the American people by the national park system; and any additional attributes encompassed by the specific values and purposes for which the park was established.

1.4.7 Decision-making Requirements to Identify and Avoid Impairments

Before approving a proposed action that could lead to an impairment of park resources and values, an NPS decision-maker must consider the impacts of the proposed action and determine, in writing, that the activity will not lead to an impairment of park resources and values. If there would be an impairment, the action must not be approved.

Impact Mitigation

Avoid conducting management activities in an area of the affected resource

Minimize the type, duration or intensity of the impact to an affected resource

Mitigate the impact by repairing localized damage to the affected resource immediately after an adverse impact.

Rehabilitate an affected resource with a combination of additional management activities.

Compensating a major long-term adverse direct impact through additional strategies designed to improve an affected resource to the degree practicable.

Affected Environment and Environmental Consequences

Soils

Affected Environment

Natural Resource Conservation Service (NRCS) has identified approximately 120 soil types within Yosemite National Park (NRCS 2006 Tunnel View Overlook was built primarily on fill material consisting of the granite excavated from the Wawona Tunnel during its construction in 1931-2. The soils buried below the fill material and adjacent to the project area are classified as Rubble land-Half Dome complex, 25 to 60 percent slopes, mesic¹. The Half Dome series consists of very deep, well-drained soils that formed in colluvium weathered from granitic rocks. These soils are characterized as being found on very unstable colluvial sideslopes. The colluvial sideslopes are very active and the soils on them are young and very bouldery. Rubble land is an area where the soil material is so rocky, so shallow, so severely eroded, or so variable that it has not been classified by soil series. Rubble land consists of large boulders; the surface is covered with 35 to 100 percent boulders and stones with little or no vegetation. The Half Dome soils support mostly oaks and mixed conifers. Soil water retention for plant growth is low in the Half Dome soil. Vegetation must be adapted to droughty conditions, or be able to utilize brief and infrequent summer precipitation. Rubble land is too droughty to support vegetation (SCS 1991).

¹ A soil complex consists of areas of two or more soils, so intricately mixed or so small in size that they cannot be shown separately on the soil map. Each area of a complex contains some of each of the two or more dominant soils, and the pattern and relative proportions are about the same in all areas.

Environmental Consequences

Methodology: Soils analysis was based on a qualitative assessment of generalized soil types and typical effects of the type of impact described.

Types of Impacts: Types of soil impacts include soil removal, profile mixing, compaction, erosion, contamination, and soil restoration and revegetation activities. Activities that result in soil impacts include the construction of structures, parking areas, trails, stormwater drainage structures, etc. Beneficial impacts would protect soils from erosion or restore natural soil conditions; adverse impacts would degrade chemical or physical properties of soils or result in the loss or temporary removal of soils.

Soil Removal. Paving and construction remove and cover the soil surface and can result in changes to basic soil properties, including altering the ability of water to penetrate the soil. Excavation and removal of the soil surface result in a long-term impact because basic soil properties (such as compaction, texture, and physical and chemical composition) which may have taken from tens to hundreds or thousands of years to develop are removed. Covering the surface reduces water movement and minimizes the opportunity for the normal physical and chemical soil processes.

Soil Profile Mixing. Soil excavation and redistribution causes removal or mixing of the soil profile and disrupts soil structural characteristics, interrupting the chemical, physical, and biological processes that naturally occur in the soil. The level of change is dependent on the level of the alteration. It may take years to redevelop the soil profile.

Soil Compaction. Soil compaction may occur as a result of construction activities or in areas of intensive use such as trails, campgrounds and picnic areas. Wetland soils are very susceptible to compaction effects. Soil compaction reduces infiltration rates and decreases pore spaces within soils, thereby increasing surface runoff and the potential for erosion. Deep compaction of soils may impede subsurface water movement. In turn, these effects can alter soil chemical processes such as nutrient transfer, biological processes such as root development and microbial patterns, and physical processes such as soil structure. Vegetation growth on compacted soils is often limited due to low infiltration and poor root penetration.

Soil Erosion. Removal of vegetation through grading or casual pedestrian use may result in accelerated erosion of the soil surface. Soils on steep slopes and along watercourses are especially susceptible to erosion.

Soil Contamination. The addition of chemical constituents into the soils as a result of paving, untreated runoff from paved surfaces, or from incidental spills, may alter micro- or macro-organism populations, diversity, and dynamics. Machinery involved with construction activities may deposit small amounts of natural and synthetic petrochemicals onto soils through equipment failure or normal operations.

Soil Restoration. Ecological restoration that would minimize erosion potential and increase organic matter in the soil is considered a beneficial effect. Short-term adverse effects may occur during site restoration activities where construction equipment may compact soils, temporarily eliminate groundcover vegetation, and cause potential erosion from surface water runoff over the exposed soils, however, over the long-term, restoration will restore the soil profile, eliminate erosion, and increase continuity with adjacent areas.

Alternative 1 (No Action)

Analysis. Under Alternative 1 (No Action) there would be no new impacts to soils. Soils adjacent to the overlook are adversely impacted by erosion at the trailhead and drainage outfall. Petroleum products deposited onto road and parking lot surfaces from vehicles and picked up during rain and snowmelt would continue to runoff from the site untreated. Routine, ongoing maintenance of the parking surface and road could involve shoulder work, guard wall repairs, and ditch maintenance. These activities could have an adverse affect on soils. Soils along the edge of the road and near culverts could be mixed, removed, moved or replaced. Woody vegetation would continue to be removed from these areas which could lead to localized erosion of soils. These actions would likely occur as a result of cyclic maintenance and would occur widely spaced over time. Erosion of the trailhead would also continue under the No Action Alternative. Thus, the No Action Alternative would have a local, long-term, minor, adverse impact on soils within the project area.

Cumulative Impacts. Cumulative effects on soils are based on analysis of past, present and reasonably foreseeable future actions within the project area in combination with the potential effects of this alternative.

Past actions which could cumulatively impact soils within the project area include the construction of the Wawona road and tunnel, and Tunnel View Overlook. Soils directly below the parking areas and roadway were buried under fill during construction of the overlook in the 1930s. These soils were compacted and were affectively sealed off from normal soil development processes resulting in a long-term adverse affects. Construction of the roadway resulted in profile mixing, contamination, removal, compaction, and erosion. Impacts to soils from the construction of the Inspiration Point trailhead, including the installation of granite cobble and asphalt paving, also impacted soils through profile mixing, contamination, removal, compaction, and erosion.

Present Actions which could cumulatively impact soils within the project area include routine maintenance of the roadway and overlook by road crews. These activities include repaving and repair of the road and parking area, and repair of guard walls, as well as seasonal activities such as snow plowing and sanding. The continued use of sand to provide traction on icy sections of the roadway, if not specifically removed, would continue to result in alteration of soil conditions alongside the edge of the road, where sand piles up and contributes to an excess amount of this soil component to roadside soils. In addition to the indirect, localized effects of changing the physical and chemical composition of area soils through the addition of sand, the wind-throwing of the sand could result in the inability of plants to occupy the edge of the road, an indirect adverse effect on soil fertility. Water runoff from snow piled onto the west end of the North Lot in combination with poor drainage contributes to erosion. Deferred maintenance of the Inspiration Point trailhead results in erosion of the trailhead. Formation of social trails around the overlook also contributes to erosion and compaction of soils within the project area.

Reasonably Foreseeable Future actions which could contribute to cumulative impacts within the project area include vista management. Removal of trees below the fill material could result in localized erosion. Roadside vegetation management and passive reduction of fuels along Wawona Road as prescribed in the park's Fire Management plan could have a similar adverse impact to local soils. These activities could result in soil profile mixing, contamination, removal, compaction, and erosion. Implementation of the Wawona Road Rehabilitation Project and Wawona Tunnel Power Upgrade could also result in soil profile mixing, contamination, removal, compaction, and erosion within the project area. These impacts would be minimized

by adherence to Best Management Practices (BMPs) and other applicable mitigation measures. Past, present and reasonably foreseeable future actions within the project area in combination with the potential effects of the No Action Alternative would result in local, long-term, minor, adverse cumulative impacts to soils.

Impairment. Alternative 1 (No Action) would result in no change from current conditions. Because no resources specific to the park's purpose would be affected, and there would be no change to the natural and cultural integrity of the park, nor effect to resource value highlighted in the 1980 GMP, Alternative 1 would not impair park soils.

Alternatives 2 (Preferred), 3 and 4

Analysis. Alternatives 2, 3 and 4 would have short-term, local, negligible, adverse impacts to soils during construction. These impacts could include soil removal, compaction, profile mixing and erosion resulting from the installation of new storm water debris separation and filtration system, the refurbishing of rock rip-rap at the outfall, and the realignment of Inspiration Point trailhead. These impacts would be minimized through the adherence to BMPs. Long-term, local, minor, beneficial impacts on soils within the project area would include reduced erosion at the drainage outfall, and soil contamination deposited by storm water, and restoration of the trailhead.

Cumulative Impacts. Past, present and reasonably foreseeable future actions within the project area would result in local, long-term, minor, adverse impacts to soils while implementation of Alternatives 2, 3 or 4 would have long-term, local, minor, beneficial impacts. Thus, the cumulative actions in combination with Alternatives 2, 3 or 4 would result in net local, long-term, negligible, beneficial cumulative impacts to soils within the project area.

Impairment. Alternatives 2, 3 and 4 would result in localized impacts to soils. These impacts would benefit soils by improving current conditions. Because no resources specific to the park's purpose would be adversely affected, and there would be no change to the natural and cultural integrity of the park, nor effect to resource value highlighted in the 1980 GMP, Alternatives 2, 3 and 4 would not impair park soils.

Water Resources

Affected Environment

Hydrology: The Merced River Watershed originates in the park's southern peaks, in the Clark and Cathedral Ranges and drains westward into the Merced River Canyon (an area of 511 square miles). The main stem of the Merced River watershed drains 250,000 acres (391 square miles) of the park. The main stem can be divided into three hydrologic segments: the upper Merced River, Yosemite Valley and the Merced River Gorge (which includes the El Portal Administrative Site). This division is based upon the unique watershed characteristics of the three river areas.

The Tunnel View Overlook is located above the Merced River Gorge hydrologic segment. As the river exits Yosemite Valley, it cascades at an average gradient of approximately 70 feet per mile through the narrow, steep-sided Merced River gorge. The Merced River gorge watershed includes the area from Pohono Bridge through the El Portal Administrative site. Tributaries along the gorge include Cascade, Tamarack, Wildcat, Grouse, Avalanche, Indian Crane, and Moss Creeks. None of these tributaries are located within the Tunnel View Overlook project area. An ephemeral creek is located on the south hillslope of the project area, terminating in the South Lot's historic rock-lined drainage swale.

Water Quality: Water quality is determined by a measure of the characteristics of water, including temperature, dissolved oxygen, suspended sediment, nutrients and chemical pollutants. The concentrations and interactions of these elements affect the ability of organisms to survive and exhibit a great degree of natural variation among water resources. Water quality also refers to the suitability of surface water for recreational use and wildlife habitat{ XE “Wildlife: habitat: water quality” }, particularly the enhancement or degradation of water quality. The NPS *Freshwater Resource Management Guidelines* (found in NPS-77) require the NPS to “maintain, rehabilitate, and perpetuate the inherent integrity of water resources{ XE “Water resources: restoration” } and aquatic ecosystems.” The Clean Water Act requires the NPS to “comply with all federal, state, interstate, and local requirements.”

Water quality within the park is considered good and is generally better than required by state and federal standards (NPS 1994). According to the park’s website, an inventory of water quality by the NPS indicated pristine conditions in many parts of the park, with some water quality degradation in areas of high visitor use (NPS 1994). The surface water quality of most park waters is considered valuable by the State of California for wildlife and freshwater habitat and recreation (Central Valley Regional Water Quality Control Board 2007).

In general, water in the Merced River Watershed is noted for low conductivity (limited dissolved solids), near-neutral pH (a measure of acid or base conditions) – low alkalinity, and low nutrient concentrations. Due to low alkalinity of the stream water, the Merced River also has low buffering capability (ability to withstand changes in water chemistry due to impacts) (NPS 1994).

Environmental Consequences

Methodology: Water resources analysis was based on a qualitative assessment of water resources and effects likely caused by maintenance, construction or rehabilitation and typical effects of the action described.

Type of Impact: Types of water resources impacts include adding constituents to water, such as sediment or runoff; loss of or additions to the amount of water; and changes in the flow of water. Beneficial impacts would protect water resources (hydrologic flow) conditions and quality (pollution, sediment or bacteria) or restore natural conditions, such as stream banks or remove impediments such as dams. Adverse impacts would degrade the same chemical or physical properties of water or water resources, including natural or human-constructed structures.

Alternative 1 (No Action)

Analysis. There would be no new impacts to water resources (hydrology or water quality) under Alternative 1. Existing impacts on water resources would continue under the No Action Alternative. The effects of the impermeable parking and road surfaces and inadequate or poorly maintained drainage structures would continue to have adverse effects by altering the quality and quantity of overland water flow within this area. Petroleum products deposited onto road and parking lot surfaces from vehicles and picked up during rain and snowmelt would continue to runoff from the site untreated.

Sediment would also continue to be transported off of the parking and road surfaces and deposited below the culvert outflows untreated adversely affecting surface water quality. Undersized, damaged, or clogged culverts and inadequate drainage would continue to inadequately carry water away from the road and could impede surface flows. Ongoing impacts related to erosion from unprotected culvert outlets and clogged ditches would continue to

occur. Poor drainage and sheet flow across the roadway would continue to cause icy road conditions requiring additional use of sand to provide traction and would result in a range of potential impacts to water quality, depending on the final location of the sand as it travels down the road and in or alongside ditches during rain and/or snowmelt. Long-term use of sand without specific removal would result in the continued filling of the drainage structures along the roadway and parking areas.

The No Action Alternative would also result in the continued erosion of the Inspiration Point trailhead caused by the steepness of design, lack of water bars, and deferred maintenance of the hardened surface. This would result in impacts to water quality and continued deposition of soil and other debris into the drainage ditch impacting its function. Thus, the No Action Alternative would have a local, long-term, minor, adverse impact to water quality and hydrology within the project area.

Cumulative Impacts. Cumulative effects to water resources are based on analysis of past, present and reasonably foreseeable future actions within the project area in combination with the potential effects of this alternative.

Past actions which cumulatively impact water resources (hydrology and water quality) within the project area include the construction of Wawona Road, Wawona Tunnel, and the Tunnel View Overlook. Natural overland flow of water was impeded by the construction of an impermeable surface, placement of fill material and grading of the site. Drainage structures resulted in further alteration of natural flow. Water quality impacts resulting from these actions include the introduction of contaminants such as petroleum products deposited by vehicles, and increase in sediment loading of surface waters within the project area. Other past actions impacting water resources include construction of the Inspiration Point trailhead which altered hydrology of the site, and caused local impacts to water quality caused by erosion.

Present actions that could result in cumulative impacts to water resources within the project area include routine maintenance of the roadway and overlook by road crews. These activities include repaving and repair of roadway surface as well as seasonal activities such as snow plowing and sanding. The continued use of sand to provide traction on icy sections of the roadway, if not specifically removed, would continue to result in increase sediment loading of surface waters. The lack of water separation and adequate energy dissipation structures would continue to result in contamination and erosion at the culvert outfalls. Deferred maintenance of the Inspiration Point trailhead causes localized adverse impacts to water quality due to erosion. Use of social trails similarly impacts water quality and could be impacting the project areas hydrology.

Reasonably Foreseeable Future actions which could contribute to cumulative impacts to water resources within the project area include vista management. Removal of trees below the fill material could result in localized erosion impacting water quality and altering hydrology. Removal of roadside vegetation to improve sightlines and passive reduction of fuels along Wawona Road as prescribed in the park's Fire Management plan would have similar adverse impacts to local water resources. These impacts, although slight, would be further minimized by adherence to BMPs and other mitigation measures. Implementation of the Wawona Road Rehabilitation Project and Wawona Tunnel Power Upgrade could also result in increased erosion indirectly impacting surface water within the project area. These impacts would also be minimized by adhering to BMPs and other applicable mitigation measures. Past, present and reasonably foreseeable future actions within the project area in combination with the potential

effects of this alternative would result in local, long-term, minor, adverse cumulative impacts to water quality and hydrology.

Impairment. Alternative 1 (No Action) would result in no change from current conditions. Because no resources specific to the park's purpose would be affected, and there would be no change to the natural and cultural integrity of the park, nor effect to resource value highlighted in the 1980 GMP, Alternative 1 would not impair park water resources.

Alternatives 2 (Preferred), 3 and 4

Analysis. Alternatives 2, 3 and 4 would have short-term, local, negligible, adverse impacts to water quality resulting from increased erosion during construction, installation of new storm water debris separation and filtration system, the refurbishing of rock rip-rap at the outfall, and the realignment of Inspiration Point trailhead. These impacts would be minimized through the adherence to BMPs. Other impacts within the project area include reduced erosion at the drainage outfall and separation of contaminants from storm water. On a whole, implementation of Alternatives 2, 3 or 4 would have long-term, local, minor, beneficial impacts to water quality and hydrology within the project area.

Cumulative Impacts. Past, present and reasonably foreseeable future actions within the project area would result in local, long-term, minor, adverse impacts to water quality and hydrology while implementation of Alternatives 2, 3 or 4 would have long-term, local, minor, beneficial impacts. Thus, the cumulative actions in combination with Alternatives 2, 3 or 4 would result in net local, long-term, minor, beneficial cumulative impacts to water quality and hydrology within the project area.

Impairment. Alternatives 2, 3 and 4 would result in localized impacts to water quality. These impacts would benefit water quality by improving current conditions. Because no resources specific to the park's purpose would be adversely affected, and there would be no change to the natural and cultural integrity of the park, nor effect to resource value highlighted in the 1980 GMP, Alternatives 2, 3 and 4 would not impair park water resources.

Vegetation

Affected Environment

Landcover at Tunnel View is classified as "Developed". The classification includes the north and south paved parking areas, fill material, sidewalks, and Wawona Road. Ponderosa pine, incense cedar, and Douglas-fir have established within the exposed fill material adjacent to the North Lot.

Sierra mixed conifer forest, and montane hardwood forest communities are found adjacent to the project area along with bare rock and talus. Forest types within these communities include: ponderosa pine/whiteleaf manzanita; ponderosa pine/incense cedar/black oak; Douglas-fir/white fir/incense cedar; canyon live oak/whiteleaf manzanita; and canyon live oak. These forest types and their descriptions are based on field observations, GIS mapping using NPS landcover layers, and the *Vegetation Management Plan* (NPS 1997).

Montane hardwood forests range throughout California mostly west of the Cascade-Sierra Nevada crest. In the Sierra Nevada range, steep, rocky south slopes of major river canyons often are covered extensively by canyon live oak and scattered old-growth Douglas-fir. Canyon live oak is a transitional forest type found between low elevation broadleaved forests and higher elevation coniferous forests. It is typically found on sites like Tunnel View Overlook which

include rocky, steep slopes with little soil development in canyons on north-facing slopes at relatively low elevations. The forest type occurs between 2,500 and 5,500 feet in elevation.

The Sierra mixed conifer forest is usually found in areas such as Tunnel View which are on north-facing slopes between 4,000 and 7,500 feet. The community forms an open, park-like forest of coniferous trees dominated by ponderosa pine with several co-dominant species. The Sierra mixed conifer forest is represented by three subtypes, two of which are found adjacent to Tunnel View; the ponderosa pine mixed coniferous forest, and the Douglas-fir mixed coniferous forest. Ponderosa pine is the dominant species in the ponderosa pine mixed coniferous forest; however, it occurs with several co-dominant species including incense-cedar, sugar pine, white fir, and California black oak. Shrubs such as whiteleaf manzanita and whitethorn frequently occupy forest openings. Douglas-fir mixed coniferous forest is found on steep north-facing canyon sides along the Tuolumne, Merced, and South Fork of the Merced Rivers between 4,000 and 6,600 feet in elevation. The forest subtype is dominated by Douglas-fir. Primary associated species are white fir, incense cedar, sugar pine, and ponderosa pine.

Of the 179 non-native plants known to occur in Yosemite, 15 have been documented within the Tunnel View Overlook project area. None of the species have a high probability of escaping from the site and displacing native flora and fauna. However, all the species favor disturbed ground which will be created during construction.

Environmental Consequences

Methodology: Vegetation analysis was based on a qualitative assessment of project area vegetation and the effects anticipated as a result of ongoing maintenance, construction or rehabilitation. For all Action Alternatives quantitative analysis was conducted to determine the total number of trees to be removed.

Natural processes such as flooding, sustain many plant communities. This impact analysis considered whether changes would occur that affect opportunities for natural processes to take place. For example, in areas where proposed work may affect the hydrology of a system, impacts were analyzed to assess changes to the distribution, composition and diversity of associated plant communities.

Non-native species can alter soil chemical and physical properties, hamper native species establishment, and ultimately alter native plant community structure and function. This impact analysis considered whether proposed actions would favor the establishment of non-native species, as well as the ability to contain and reverse non-native plant infestation.

Type of Impact: Actions that reduce the size or disrupt the continuity, and/or integrity of native plant communities are considered adverse impacts. Ground disturbance and importation of contaminated materials can adversely impact native plant communities because they provide means for non-native species to gain a foothold in the park. Standard mitigation measures, such as inspecting construction vehicles for invasive species, minimize such adverse impacts. Restoration of disturbed areas using native seeds, plants, mulch, or other stabilizing materials accelerates site recovery and reduces opportunities for exotic plants to become established. Actions that preserve and/or restore any or all of these essential qualities of native plant communities constitute beneficial impacts.

Alternative 1 (No Action)

Analysis. There would be no new impacts to vegetation under Alternative 1. Existing impacts on vegetation would continue. Repair activities would include work along the shoulder which

would result in the removal, damage, or disturbance of vegetation. Trampling of vegetation would continue to occur from ongoing establishment and use of social trails. Other impacts to vegetation would continue to result from vegetation maintenance activities alongside the road, including the periodic trimming and removal of vegetation from within approximately ten feet of the edge of pavement on both sides of the road. None of the trees within the project area have been identified as hazard trees. However, the No Action Alternative would include future removal of hazard trees as they are identified. Thus, the No Action Alternative would have a local, long-term, negligible to minor, adverse impact to vegetation within the project area.

Cumulative Impacts. Cumulative effects to vegetation are based on analysis of past, present and reasonably foreseeable future actions within the project area in combination with the potential effects of this alternative.

Past actions which cumulatively impact vegetation within the project area include the construction of Wawona Road and tunnel and Tunnel View Overlook. Vegetation was removed and impermeable surfaces were constructed preventing revegetation of the site. These structures and associated drainage features have altered the hydrology within the project area. Vehicle traffic within the project area causes deposition of petroleum products and other contaminants along the paved surfaces. Precipitation events mobilize these contaminants resulting in impacts to water quality and indirectly to vegetation. Fire suppression has impacted the vegetations community composition and structure within and adjacent to the project area.

Present actions which cumulatively impact vegetation within the project area include routine maintenance of the roadway and overlook by road crews. Repair activities include work along the shoulder which results in the removal, damage, or disturbance of vegetation. Trampling of vegetation occurs from ongoing establishment and use of informal trails. Vegetation maintenance activities alongside the road, including the periodic trimming and removal of vegetation from within approximately ten feet of the edge of pavement on both sides of the road and hazard tree abatement has minimal, long-term adverse effect. The lack of water separation and energy dissipation structures would continue to result in contamination and erosion at the culvert outfalls indirectly impacting vegetation. Combined these impacts have a localized, adverse effect on vegetation adjacent to Tunnel View. Implementation of the park's Fire Management Plan will benefit vegetation through restoration of natural fire regimes, and fuels reduction.

Reasonably Foreseeable Future actions which could contribute to cumulative impacts to vegetation within and adjacent to the project area include vista management. Vista management would result in removal, damage or disturbance of vegetation. Implementation of the Wawona Road Rehabilitation Project and Wawona Tunnel Power Upgrade could also result in removal, damage, or disturbance of vegetation within the project area. These projects would minimize impacts to vegetation by adhering to BMPs and other applicable mitigation measures. Implementation of the park's Vegetation Management Program and Parkwide Invasive Plant Management Plan would have a beneficial impact on vegetation through programs such as invasive species management, and habitat restoration. Past, present and reasonably foreseeable future actions within the project area in combination with the potential effects of this alternative would result in local, long-term, negligible to minor, adverse cumulative impacts to vegetation.

Impairment. Alternative 1 (No Action) would result in no change from current conditions. Because no resources specific to the park's purpose would be affected, and there would be no change to the natural and cultural integrity of the park, nor effect to resource value highlighted in the 1980 GMP, Alternative 1 would not impair park vegetation.

Alternatives 2 (Preferred), 3 and 4

Analysis. All Action Alternatives would include removal of approximately 20 trees ranging from 1-inch to 26-inch dbh, restoring the view from the North Lot to its historic condition—completely open and unobstructed. These trees would include two ponderosa pines—one 26-inch dbh, and one 20-inch dbh—and one 24-inch dbh incense cedar. Three trees ranging from 10-inch to 20-inch dbh would be removed to clear the vista from the South Lot. Selective thinning of approximately 5-10 trees (ranging from 1-inch to 18-inch dbh) would be removed along the Canyon View sidewalk and the Valley View sidewalk. The trees proposed for removal are growing up in the fill material that was deposited during construction of the overlook in 1931 and 1932. None of the trees are more than seventy-five years old, nor have any of them been identified as hazard trees.

Most of the project area is either developed or directly adjacent to developed features including the road, parking lot, and fill material. Some crushing of plant material could occur during construction activities including the installation of new drainage features. These impacts would be isolated. Mitigation measures to prevent construction activities from expanding beyond the project area include the installation of temporary fencing around the project boundaries. This visual barrier would minimize the amount of disturbance to vegetation. Disturbance of soils during construction could facilitate the spread of non-native species within the site. Mitigation measures would include mapping and treating the non-native species prior to construction. Post-construction planting of native plants, and three-year monitoring, as well as weed removal and replanting when necessary, would reduce the risk of spreading the non-natives within the site. Other mitigation would include cleaning equipment prior to entering the park and inspection by park invasive species specialists to ensure compliance. Overall, these activities would not disrupt the continuity or integrity of the native plant communities. Thus, Alternatives 2, 3 and 4 would have a local, short-term, negligible, adverse impact to vegetation within the project site.

Cumulative Impacts. Past, present and reasonably foreseeable future actions within the project area would result in local, long-term, negligible to minor, adverse impacts to vegetation while implementation of Alternatives 2, 3 or 4 would have local, short-term, negligible, adverse impacts. Thus, the cumulative actions in combination with Alternatives 2, 3 or 4 would result in net local, long-term, negligible to minor, adverse cumulative impacts to vegetation within the project area.

Impairment. Alternatives 2, 3 and 4 would result in slight, localized changes from current conditions. There would be no change to the natural and cultural integrity of the park, or discernable effects to resource values highlighted in the 1980 GMP. Thus, Alternatives 2, 3 and 4 would not impair park vegetation.

Wildlife

Affected Environment

The habitat at Tunnel View Overlook is considered marginal due to the development, the disturbance caused by a high volume of visitors to the site and the proximity to Wawona Road which has a high volume of traffic. Tunnel View is located at 4,409 feet in elevation on a north-facing slope surrounded by Sierra mixed conifer and montane hardwood forests, talus, and exposed bedrock.

Within forests dominated by ponderosa pine, such as some of the forest adjacent to Tunnel View, the understory varies depending on amount of canopy closure, size of canopy openings and fire history. Openings in the canopy can support dense stands of shrubs such as manzanita, dogwood, ceanothus, and buckthorn. The mosaic of areas with trees of different ages and distribution and size of openings in the canopy provides a wide variety of habitat layers for wildlife such as Douglas squirrel, long-eared chipmunk, western wood pewee, red-breasted nuthatch, and Steller's jay. Large snags and lightning-scarred trees can provide important roosts for several bat species. Ponderosa pine habitat can be important holding area for migratory mule deer, providing forage and thermal cover.

Sierra mixed conifer habitat is an assemblage of conifer and hardwood species that form multiple layers. The structural complexity found within the habitat results in numerous ecological niches for wildlife (Verner and Boss 1980). Variety in plant species composition provides diversity in food and cover. Black oak acorns, berries from a variety of shrubs (e.g., manzanita), and a great number of grasses and forbs provide the forage resource essential for wildlife. Pileated woodpeckers favor this habitat, as do brown creepers, white-headed woodpeckers, Hammond's flycatcher, and hermit thrush.

A typical montane hardwood habitat is composed of a pronounced hardwood tree layer, with an infrequent and poorly developed shrub stratum, and a sparse herbaceous layer, while openings and edges can have considerable ground and shrub cover. The montane hardwood forest adjacent to Tunnel View is dominated by canyon live oak with interspersed whiteleaf manzanita. Acorns from the canyon live oak are an important food for black bears, deer, gray squirrels, ground squirrels, mice, Steller's jay, scrub jay, and pigeons. Deer also forage on the twigs and leaves of canyon live oaks. Many amphibians and reptiles are found on the forest floor in the montane hardwood habitat. Among them are Mount Lyell salamander, ensatina, western fence lizard, western rattlesnake, and California mountain kingsnake. The seeds from manzanita growing in association with canyon live oak provide forage for coyotes, foxes, and some birds.

Exposed rock and talus provide basking and foraging habitat for reptiles including California mountain kingsnake, western rattlesnake, and northern alligator lizard.

Environmental Consequences

Methodology. Wildlife analysis was based on a qualitative assessment of wildlife that could occur in the project area and the effects anticipated as a result of ongoing maintenance, rehabilitation, and/or construction.

Type of Impact. Adverse impacts include those that directly remove, relocate or affect wildlife or wildlife habitat or that affect wildlife or wildlife habitat through increased disturbance. Beneficial impacts result from restoration of wildlife habitat (size, continuity, or integrity). Noise impacts can adversely affect wildlife foraging, mating and nesting behavior. Construction activity can also directly interfere with normal animal movement patterns.

Alternative 1 (No Action)

Analysis. There would be no new impacts to wildlife under Alternative 1. Existing impacts to wildlife would continue under this No Action Alternative. Impacts to wildlife include some loss of trees and understory due to existing development, human activity, fire suppression, removal of hazard trees, availability of human food and trash, and noise and visual disturbance associated with human activities and vehicles. These impacts reduce the amount and quality of areas available to species that require undisturbed habitat for essential activities such as nesting, roosting/resting, and foraging. The majority of wildlife that occur in close proximity to Tunnel

View are likely habituated to human disturbance, and some species may be attracted to the area to forage on food waste and trash. Wildlife mortality also occurs due to the volume and speed of vehicle travel and short line of sight on Wawona Road. Combined these impacts would have a localized, adverse effect on wildlife alongside adjacent to Tunnel View. As a result, the No Action Alternative would have a local, long-term, minor to moderate, adverse impact to wildlife.

Cumulative Impacts. Cumulative effects to wildlife are based on analysis of past, present and reasonably foreseeable future actions within the project area in combination with the potential effects of this alternative.

Past actions which cumulatively impact wildlife within the project area include the construction of Wawona Road, the Wawona Tunnel, and Tunnel View Overlook. Habitat was fragmented or permanently destroyed during construction of these features. High visitor use, and its associated noise and disturbance at Tunnel View have impacted wildlife that are sensitive to these types of disturbance since it was built in 1932.

Present actions that contribute to cumulative impacts to wildlife within the project area include hazard tree abatement which could result in the loss of some nesting and roosting trees. However, these impacts are slight due to the marginal habitat. Assessment of these trees for nesting birds and roosting bats by park biologists minimizes these negative impacts. Passive fuels reduction along Wawona Road as prescribed in the Fire Management may also have similar short-term adverse and long-term beneficial impacts to wildlife.

Reasonably Foreseeable Future actions that could contribute to cumulative impacts to wildlife within the project area include the Reconstruction of Critically Eroded Sections of El Portal Road, Glacier Point Road Rehabilitation, the State Route 140 Ferguson Slide Restoration project, Wawona Road Rehabilitation Project and the park's Comprehensive Transportation Plan. These actions could cumulatively impact wildlife migrating through the project area by changing traffic volume. Actions that would improve access to Yosemite Valley via Route 140 (e.g., Reconstruction of Critically Eroded Sections of El Portal Road and the State Route 140 Ferguson Slide Restoration project) could be beneficial to wildlife within the project area due to reduction in traffic volumes along Wawona Road. Although, these projects may result in short-term adverse impacts due to employees and visitors avoiding State Route 140 during construction phases. Conversely, implementation of the Wawona Road Rehabilitation Project and Wawona Tunnel Power Upgrade could result in decreased traffic as employees and visitors avoid this section of roadway during construction. Implementing specific aspects of the Vegetation Management Plan and Parkwide Invasive Plant Management Plan would have beneficial impacts on wildlife through invasive species management, habitat restoration, and other management strategies and techniques for improving habitat. Past, present and reasonably foreseeable future actions within the project area in combination with the potential effects of this alternative would result in local, long-term, minor to moderate, adverse cumulative impacts to wildlife.

Impairment. Alternative 1 (No Action) would result in no change from current conditions. Because no resources specific to the park's purpose would be affected, and there would be no change to the natural and cultural integrity of the park, nor effect to resource value highlighted in the 1980 GMP, Alternative 1 would not impair park wildlife resources.

Alternatives 2 (Preferred), 3 and 4

Analysis. Because the project area offers marginal habitat and the Action Alternatives would not change the overall footprint of Tunnel View Overlook or the amount or type of visitor use, the

impacts to wildlife would be negligible. Approximately 28-33 trees would be removed from within the fill material. All of these trees are growing within one hundred feet of the parking lot or road, and none of these trees are snags. These trees would be assessed for nesting birds and roosting bats prior to removal. However, removing these trees could eliminate some habitat for squirrels or other wildlife insensitive to the high volume of vehicle traffic on Wawona Road and high volume of visitors to the overlook. Therefore, Alternatives 2, 3 or 4 would have local, short-term, negligible, adverse impacts to wildlife in the project area.

Cumulative Impacts. Past, present and reasonably foreseeable future actions within the project area would result in local, long-term, minor to moderate, adverse impacts to wildlife while implementation of Alternatives 2, 3 or 4 would have local, short-term, negligible, adverse impacts. Thus, the cumulative actions in combination with Alternatives 2, 3 or 4 would result in net local, long-term, negligible to minor, adverse cumulative impacts to wildlife within the project area.

Impairment. Alternatives 2, 3 and 4 would result in localized, discountable changes from current conditions. Because no resources specific to the park's purpose would be discernibly affected, and there would be no change to the natural and cultural integrity of the park, nor effects to resource values highlighted in the 1980 GMP, Alternatives 2, 3, and 4 would not impair park wildlife.

Special Status Species

Section 7 (a) (2) of the Federal Endangered Species Act of 1973, as amended, requires all federal agencies to consult with the U.S. Fish and Wildlife Service to ensure that actions taken by the agencies do not jeopardize the continued existence of federally listed or proposed threatened or endangered species, or result in the destruction of adverse modification of designated critical or proposed critical habitat. In addition, the CEQ regulations for implementing NEPA require agencies to consider whether the action would violate federal, state, or local laws or requirements imposed for the protection of the environment. For this reason, species listed under the California Endangered Species Act or afforded "special status" (i.e. considered rare or sensitive) by the California Department of Fish and Game are included in this analysis.

Also included in this analysis are impacts to "park rare" species. Park rare species are those that have no federal or state status, but have extremely limited distributions in the park and may represent relict populations from past climatic or topographic conditions, may be at the extreme extent of their range in the park, or represent changes in species genetics.

Affected Environment

A total of 51 special status wildlife species and two special status plant species were considered in the evaluation of this project (Appendix C). These species were identified based on data gathered from the NPS, U.S. Fish and Wildlife Service (USFWS 2007), and the California Natural Diversity Database (CDFG 2007). Although the habitat within the project area is considered marginal, five species of bats (four *Myotis* spp. and one *Lasiurus* sp.) designated as sensitive species by other federal agencies (BLM and USFS) were identified during NPS internal review process as wildlife species of concern related to this project. These species and the environmental consequences of this project on these species are discussed here in further detail. The environmental consequences of the remaining special status wildlife species, identified in Appendix C, are addressed in the preceding general wildlife discussion. One park sensitive plant species, tanbark oak (*Lithocarpus densiflorus*), was also identified as being of particular concern for this project. This plant species occurs adjacent to the project area. The environmental

consequences of this project on tanbark oak are discussed here in further detail. No other special status plant species occur within or adjacent to the project area. The habitat is considered marginal due to the development, the proximity to Wawona Road and the associated high volume of traffic, and the high number of visitors. Additionally, the trees growing up within the fill material are less than 70 years old and do not include lose bark, cavities, or fire scars that could provide habitat for bats.

Federally Threatened or Endangered Species

The U.S. Fish and Wildlife Service provided a species list that included federally listed threatened and endangered species as well as proposed and candidate species for this project. Aided by this list, park data, and professional judgment, it was determined that no federally listed threatened or endangered species or proposed or candidate species are known to occur within the Tunnel View Overlook project area.

Critical Habitat

No critical habitat has been designated for any federally listed species within the project area.

Special Status Bat Species

Little Brown Myotis (*Myotis lucifugus*). Little brown myotis are widely distributed and common from middle to high elevations and are primarily a forest dwelling, mountain species. They require permanent pools, ponds, or lakes for feeding and drinking. This species uses snags are used for roosting and caves for hibernation. Young are born from June to Augusts, with peak in July. Females produce one litter per year with a mean litter size of one. Maternity colonies with up to several hundred adults may be found in buildings, snags, or other warm, dark retreats. Prey includes flying insects found using echolocation generally over water.

Yuma Myotis (*Myotis yumanensis*). Yuma myotis are widespread and locally common, and are closely associated with the water. They are most common in riparian habitats, from annual grasslands through ponderosa pine forests. They use caves, crevices, snags, buildings, and mines for roosting and maternity colonies. Young are born from May to June, with a peak in June. Females rear one litter per year with a mean litter size of one. Buildings, bridges, caves, mines, or crevices are used as maternity colonies occasionally which may include up to 1,000 individuals. Yuma myotis prey on flying insects, captured in flight using echolocation for detection. They migrate from higher elevations in fall.

Long-eared Myotis (*Myotis evotis*). Long-eared myotis are uncommon and range throughout much of western slope of the Sierra Nevada. They use caves, snags and trees for roosting and maternity colonies and require permanent water (ponds, lakes and pools) for foraging. Young are born from May to July, with peak in June. Females rear one litter per year with a mean litter size of one. Maternity colonies of 12 to 30 females are located in buildings, crevices in rocks, behind tree bark, or in snags. Prey includes beetles, moths, and other insects taken in flight using echolocation for detection. Prey may also be gleaned from foliage.

Fringed Myotis (*Myotis thysanodes*). Fringed myotis are irregularly distributed in the Sierra Nevada, with most known localities in bull pine-oak through black oak woodland habitats. Winter range is unknown. They use caves or rock crevices for roosting and maternity colonies and require permanent water (ponds, lakes and pools) required as foraging sites. Young are born from May to July, with peak in June. Females rear one litter per year with a mean litter size of one. Maternity colonies of up to 200 individuals roost in caves, mines, rock crevices or

buildings. Beetles taken in flight are the major food source located by echolocation. Prey may also be gleaned from foliage.

Western red bat (*Lasiurus borealis*). Western red bats are found in wooded areas at lower elevations throughout the western Sierra Nevada. They prefer open to moderately dense stands of trees for roosting and often roost in foliage near the ground. Snags and trees are used for roosting and maternity sites. Permanent water (ponds, lakes, pools) required as foraging sites. In the winter they migrate to western lowlands of California. They are solitary in summer and more colonial in winter. Young are born from May to June, with peak in June. Females rear one litter per year with a mean litter size of three (range one to four). Prey includes crickets, moths, beetles, cicades, and other insects taken in flight.

Special Status Plants

Tanbark Oak (*Lithocarpus densiflorus*). Tanbark oak or Tanoak is an evergreen species of the beech family, Fagaceae that is more closely allied to the oaks of southeastern Asia. The tree is called Tanoak because it was once a major source of tannin, the substance used to preserve or tan leather. This is a relict, distributed in moist locations from southern Oregon to southern California. Along with Pacific Madrone, California laurel, and Coast Redwood, it is a remnant of a forest that enjoyed a much larger distribution. Leached acorns were ground by Indians and used as flour. There is a relic population of tanbark oak adjacent to the project area.

Environmental Consequences

Methodology: Analysis was based on the known or likely occurrence of the species in the vicinity of the project area, the potential loss of habitat for the species, and the alteration of habitat.

Type of Impact: Adverse impacts are those that alter the range, location, number or population of a species or its habitat. Beneficial impacts would improve one or more of these characteristics.

Wildlife: The impact evaluation for special status wildlife species was based on the following: (1) the known or likely occurrence of a species or its preferred habitat in the vicinity of the project area; (2) the direct physical loss or adverse modification of habitat; (3) the effective loss of habitat (through avoidance or abandonment) due to construction activity or noise, or the species' sensitivity to human disturbance.

Plants: The impact evaluation for special status plant species was based on the following: (1) the known or likely occurrence of a species or its preferred habitat in the vicinity of the project area; (2) the direct physical loss of habitat; (3) the effective loss of habitat through loss of habitat features such as surface water flows.

Surveys specific to this planning effort to identify individuals or populations of special status species within the corridor have not been performed. Data presented herein are based on field reconnaissance, the professional knowledge and judgment of park staff, records of observations, published references, and studies of selected species.

Alternative 1 (No Action)

Analysis. There would be no new impacts to sensitive species under Alternative 1. Existing impacts to sensitive species would continue under this No Action Alternative. The habitat within the project area is considered to be marginal at best. Trees growing up within the fill material are less than 70 years old, and have not developed decadent features such as cavities and loose bark that could provide habitat for bats. The high volume of visitor use and vehicle

traffic along Wawona Road also contributes to the poor quality of habitat within the project area. Impacts, although slight, include some loss of habitat through the removal of snags and trees for hazard abatement, fuels reduction, and roadside maintenance. Mitigation measures to reduce the potential adverse impacts to bats from these activities include having a park biologist assess trees prior to removal to ensure that roost trees are not removed. There would be no new impacts to tanbark. Existing impacts to tanbark oak would continue under this No Action Alternative. Tanbark oak is found adjacent to the project area in an area that doesn't receive high visitor use. However, there could be impacts resulting from the formation of social trails and other roadside disturbance. Overall, Alternative 1 would not likely affect sensitive species within the project area.

Cumulative Impacts. Cumulative effects to sensitive species are based on analysis of past, present and reasonably foreseeable future actions within the project area in combination with the potential effects of this alternative.

Past actions which cumulatively impact sensitive bat and plant species within the project area include the construction of Wawona Road, Wawona Tunnel, and Tunnel View Overlook. Habitat was fragmented or permanently destroyed during construction of these features and sensitive plant species could have been destroyed or populations could have been isolated. Construction of Inspiration Point trail could have had similar impacts, although, on a much smaller magnitude.

Present actions that contribute to cumulative impacts to sensitive bat and plant species within the project area include hazard tree abatement which could result in the loss of roosting trees through. However, trees growing up within the project area are less than 70 years old, and have not developed decadent features such as cavities and loose bark that could provide habitat for bats. Prior to removal of trees, park biologists will assess them for roosting bats. High visitor use, and its associated noise and disturbance at Tunnel View contribute to the marginal nature of the habitat. Formation of social trails adjacent to the project area could result in trampling of sensitive plant species and introduction of invasive non-native plant species.

Reasonably Foreseeable Future actions that could contribute to cumulative impacts to sensitive bat species within and adjacent to the project area include the Reconstruction of Critically Eroded Sections of El Portal Road, Glacier Point Road Rehabilitation, the State Route 140 Ferguson Slide Restoration project, and the park's Comprehensive Transportation Plan. These actions could cumulatively impact bats foraging or migrating through the project area by changing the volume of traffic on Wawona Road. Actions that would improve access to Yosemite Valley via Route 140 (e.g., Reconstruction of Critically Eroded Sections of El Portal Road and the State Route 140 Ferguson Slide Restoration project) could be beneficial to bats within the project area due to reduction in traffic volumes along Wawona Road. Although, these projects may result in short-term adverse impacts due to employees and visitors avoiding State Route 140 and El Portal Road during construction phases. Implementing specific aspects of the Vegetation Management Plan and Parkwide Invasive Plant Management Plan would have beneficial impacts on sensitive bat and plant species through invasive species management, habitat restoration, and other management strategies and techniques for improving habitat and protecting native plants. Past, present and reasonably foreseeable future actions within the project area in combination with the potential effects of this alternative would not likely affect sensitive species within the project area.

Impairment. Alternative 1 (No Action) would result in no change from current conditions. Because no resources specific to the park's purpose would be affected, and there would be no

change to the natural and cultural integrity of the park, nor effect to resource value highlighted in the 1980 GMP, Alternative 1 would not impair park special status species.

Alternatives 2 (Preferred), 3 and 4

Analysis. Because the project area offers marginal habitat and Alternatives 2, 3 and 4 would not change the overall footprint of Tunnel View Overlook or the amount or type of visitor use, the impacts to sensitive wildlife species would be negligible. Approximately 28-33 trees would be removed from within the fill material. All of these trees are growing within one hundred feet of the parking lot or road and do not exhibit features such as loose bark or cavities necessary to provide habitat for bats. However, these trees would be assessed for roosting bats prior to removal. If bats were found to be using a tree slated for removal, the importance of this habitat would be assessed based on availability of adjacent habitat. Removal of any trees being used by bats would occur between August and September to avoid maternity and hibernation periods. Tanbark oak grows adjacent to the project area. To protect this sensitive plant species, construction fencing would be placed around the project area to prevent activities from straying beyond the approved area. Therefore, Alternatives 2, 3 or 4 would not likely affect sensitive species within the project area.

Cumulative Impacts. Past, present and reasonably foreseeable future actions within the project area would not likely affect special status species, nor would implementation of Alternatives 2, 3 or 4 likely affect those species. Thus, the cumulative actions in combination with Alternatives 2, 3 or 4 would not likely adversely affect special status species within the project area.

Impairment. Alternatives 2, 3 or 4 would result in localized, discountable changes from current conditions. Because no resources specific to the park's purpose would be discernibly affected, and there would be no change to the natural and cultural integrity of the park, nor effects to resource value highlighted in the 1980 GMP, Alternatives 2, 3 or 4 would not impair park sensitive species.

Historic Properties

Affected Environment

The Wawona Tunnel historic site, a NRHP eligible property, includes the Tunnel View Overlook. As defined under Section 106 of the NHPA, the *area of potential effect* (APE) for this project includes the pullout at the western portal of the tunnel, extends east through the tunnel, and ends at the east boundary of the Tunnel View Overlook developed area. The southern boundary encompasses portions of the Inspiration Point Trailhead, and the northern boundary includes the granite fill-slope below the main viewing platform at the northern parking lot at Tunnel View Overlook. Construction staging is likely to occur at the pullout at the west portal of the Tunnel and the chain-up lane east of the Tunnel View Overlook. These areas are included in the APE.

The Wawona Tunnel historic site was determined eligible for listing in the NRHP in 1987 (NPS 1987). The National Register Nomination form was updated in 2007 that addressed comments from the National Register Historian.

The following descriptions are extracted from the updated Wawona Tunnel National Register Nomination form (NPS 2007a).

Historic Background for the Wawona Tunnel Historic Site

The Wawona Tunnel is determined significant in the field of transportation under NRHP Criterion A (properties that are associated with events that have made a significant contribution to the broad patterns of our history). It is also significant in the fields of architecture and landscape architecture under NRHP Criterion C (properties that embody the distinctive characteristics of a type, period, or method of construction).

The Wawona Tunnel and Tunnel View overlook were built in 1931-1932 as part of the rerouting of the old Wawona Road between Yosemite Valley and Grouse Creek. Engineers determined that a tunnel would be required to attain a satisfactory grade and to avoid a massive road scar that would impact the view of the road from below. This tunnel was an innovation in highway design within the National Park System, following the precedent set by the Zion Park highway tunnel. Upon completion, it was the longest vehicle tunnel in the western United States. The tunnel location and alignment were carefully selected to provide a dramatic view of Yosemite Valley for motorists exiting the eastern portal. Material removed from the shaft when boring the tunnel was used as fill to provide level parking and viewing areas at this portal. These areas were designed and built within the surrounding landscape using Rustic design principles. Civilian Conservation Corps enrollees further enhanced the naturalistic character by landscaping fill slopes and cut banks with native vegetation and artificially painting fresh-cut granite to make it appear naturally weathered. The tunnel represents a significant engineering achievement that allowed improved highway access to Yosemite harmonizing with the landscape the visitors were coming to enjoy. The overlook affords expansive views of Yosemite Valley and has attracted visitors and photographers since it was built and remains one of the most popular scenic overlooks in the park.

Character Defining Features for the Wawona Tunnel Historic Site

Circulation: The Wawona Road at the east portal of the tunnel is flanked by the two parking areas that comprise the Tunnel View Overlook. The South Lot is the smaller of the two parking areas. It has two driveways—one at each end, with traffic routed one-way, west to east. The driveway at the west end of the South Lot is 12-foot wide and the driveway at the east end is 16-foot wide. The South Lot is 60-foot wide and approximately 200-foot long, with parking along its northeast and southwest perimeters. A curvilinear traffic island with a granite retaining wall (described below) separates the lot from the road. Small unpaved areas at each end of the island are planted with native vegetation.

The North Lot also has two entry points. Traffic direction through the lot is undesignated. The east entry is 16-foot wide and the west entry is 26-foot wide. The lot is approximately 100-foot wide and 200-foot long, with parking along its north and south perimeters and large vehicle parking in the center. A 6-foot wide level traffic island bordered with granite curbing separates this lot from the road. The island is covered with road sand.

There are three stairways leading from the South Lot to three crosswalks, which convey visitors parked in the South Lot across the Wawona Road to enjoy the more dramatic view from the North Lot. Asphalt paved sidewalks with granite curbing line the parking lots and this section of the road.

An asphalt paved trailhead, leading to Inspiration Point on the Old Wawona Road, is located off the west driveway of the South Lot. A sign indicates distances to destinations along the trail, including Inspiration Point at 1.6 miles ahead.

At the west portal, there is a 100-foot long, 50-foot wide lens shaped paved pull out with granite curbing on the north side of the road. There is currently no traffic island at this pullout, although a patch in the pavement corresponds with the configuration of a traffic island in the original plans.

Tunnel: The Wawona Tunnel is 4,230-feet long, 19-feet high and 28-feet wide. Bored through solid granite, the tunnel was originally unlined except for a few short sections where the rock was too unstable to be self supporting. These sections are lined with concrete barrel vaults, and comprise only about 700 feet of the total length. The remaining length of the tunnel retains the jagged rock texture of the original bore, although most of the rock is now coated with gunite. The tunnel has a roughly barrel vaulted form and straight alignment. There is a raised sidewalk running the full length of the north side of the tunnel, which covers a chase containing electrical lines. The sidewalk surface is made of 2-foot by 3-foot concrete slabs which are removable to allow access to the utility chase. The tunnel is lit by modern high pressure sodium lights mounted at the top of the vault. There is evidence of moisture damage throughout the tunnel, with a significant amount of efflorescence and deterioration of concrete in a few locations.

Three perpendicular adits run north from the main bore to the cliff face to provide ventilation. The natural rock lined adits have a similar character to the main tunnel and are approximately 300-feet long. The two outermost adits are approximately 6-feet wide and 7-feet high. The center adit is the largest, similar in height and width to the main tunnel, and houses equipment to remove carbon monoxide from the tunnel. The center adit has a small parking area large enough for two service vehicles and a mechanical room that still houses some of the original equipment designed to monitor carbon monoxide levels and automatically activate ventilation fans when needed. The three 9-foot diameter fans are also still intact, although only one is operational and it is run continuously rather than on the automatic detection system. Also associated with this system were semaphores at each end of the tunnel that would drop to close the tunnel when dangerous levels of carbon monoxide were present. The bases of these semaphores remain intact in recesses in the wall at each end of the tunnel, although the arms that extended across the road are missing.

The west end of the tunnel is lined with a concrete barrel vault, which extends to form a concrete arched opening and retaining wall at the west portal. This plain poured concrete wall extends 11 feet to each side of the opening. The outer edges of the wall are formed in a broad arc, while the top of the wall is level about 8-feet above the opening. The wall projects out from the face of the cliff; vegetation is growing in earth-filled voids at the top of the wall. The east end of the tunnel is unlined, and the opening at the east portal is framed only by the jagged cut stone of the tunnel bore. In keeping with the Rustic design principles of blending infrastructure with the surrounding environment, this opening has the appearance of a natural cave opening, rather than calling attention to the engineering achievement the tunnel actually was.

Stone Walls: The parking areas at the east tunnel portal are lined on their northern and eastern edge with stone walls which serve as both guard walls and retaining walls. On the parking lot side, these walls are approximately 16-inches high and 18-inches wide. The walls are made of large angular granite rubble, with the top course roughly squared allowing for seating on the wall. The irregularly shaped stones vary in size from roughly 12- to 24-inches high and 18- to 36-inches wide, with larger stones predominating. Mortar joints are recessed at least 1-inch average approximately 2-inches wide. The walls also serve as retaining walls to hold the fill creating the level parking areas. The wall height varies from 18 inches to 6 feet on the downhill side. There are a couple of places where the walls have been damaged by vehicle impacts, but overall the walls are in good condition.

Just outside the west portal, there is a dry laid retaining wall on the south side of the road. This wall is about 75-feet long and 25-feet high, made of large granite boulders placed into the slope. Gaps between the stones are adequate for the growth of vegetation, which serves the dual purpose of giving the wall a naturalistic appearance and providing additional erosion control.

Sidewalks: Sidewalks and traffic islands are edged with granite curbing. The granite has a mottled surface, giving it a rustic appearance despite having been carefully cut in arcs to conform to the curves of the sidewalk and traffic island perimeters. Some sections of the curbing are buried in road sand, especially on the traffic island between the road and the North Lot.

Drainage Structures: A stone headwall over a culvert pipe is located at the east end of the South Lot. The headwall is approximately 11-feet wide at the top and approximately 5-feet tall at its highest point. There is an 18" corrugated metal culvert pipe at the base of the wall. The wall is made of angular granite rubble with stones averaging approximately 8-inches by 12-inches with recessed mortar joints. A shallow drainage ditch lines the south perimeter of the South Lot leading to this culvert. Stone paving is visible on approximately the last 10 feet of the ditch adjacent to the culvert. The ditch is approximately 18-inches wide and sloped to the center a few inches below grade.

There is a small retaining wall on the granite slope just above the east portal of tunnel. This wall consists of a single course of large roughly squared stones placed to convey water from the top of the tunnel entrance to the parking area below instead of having water drip directly onto moving vehicles and the roadbed.

Stairs: Three flights of stone steps lead from the South Lot to crosswalks leading to the north side of the Wawona Road. These steps are configured as shown on the 1932 plans for the area, with treads made with roughly squared single granite slabs. The steps at the west end and center of the lot are simple 5-foot wide straight runs, with two steps at the west passage and four steps at the center passage. The passage to the east is more complex, with a T-shaped plan with three steps leading up from the road to a landing, then two perpendicular flights with three steps each leading up to the South Lot. A stone retaining wall, similar to the other walls lining the lot, separates this stairway from the parking lot.

Trail: The first 50 feet of trail to Inspiration Point is currently covered with asphalt, but stone pavers are visible below. These stones are roughly squared granite with an average surface area of approximately 6 inches by 12 inches. The stones are laid generally lengthwise across the trail, with border stones running lengthwise on the edge of the trail.

Views and Vistas: The Tunnel View scenic overlook provides one of the most popular and photographed vistas in Yosemite. Visitors entering the park from the south have a spectacular view of the Yosemite Valley framed by the jagged rock of the tunnel walls as they exit the tunnel. Many of the icons of Yosemite Valley, including El Capitan, Half Dome, Sentinel Rock and Bridalveil Falls are visible in one sweeping panorama. Early photos taken from the east tunnel portal and viewing areas adjacent to the parking lots show the view unencumbered by vegetation. Currently a number of conifers block the view from certain vantage points, causing visitors to cluster at the remaining ideal spots for viewing and photography, often overflowing from the narrow sidewalk on to the parking lot.

The parking area south of the road is at a higher elevation, originally allowing visitors to look beyond the lower lot and enjoy the view without crossing the road. Encroaching vegetation has obscured the view from the upper lot, encouraging visitors to cross the heavily traveled Wawona Road for a better view.

While the location of the east portal and viewing areas were selected to provide a view, it was also important to the designers that the infrastructure did not detract from the view. This impact was considered both at close range and when viewed from a distance. A great deal of study went in to site selection for this reason. Once the site was selected, use of Rustic design principles helped to blend the infrastructure with the surrounding natural environment.

Topography: Part of the road designer's intention was that the view for motorists emerging from the east portal of the tunnel be comparable to the view from Inspiration Point located on the Old Wawona Road. As the tunnel was excavated from the east end, a substantial amount of material removed from the shaft was used to form the base for the road leading down to the valley and to create the level parking areas that flank the road at the east portal of the tunnel. The use of this material as fill solved the dual challenges of disposing of the excavated material and creating parking and viewing areas for motorists stopping to enjoy the view. The fill material used for the road bed leading east down to the Valley is not supported by retaining walls, but drops steeply from the road grade.

After exiting the tunnel traveling west to east, the road gently curves to the south and down to the Valley. The South Lot is supported by a curvilinear granite retaining wall, which rises to about 5-feet high as the road grade drops below the grade of the lot. The North Lot is level with the road, supported at its north and east sides by a similar curvilinear granite retaining wall. Below this retaining wall, additional fill material extends steeply down the slope. The surface of this slope is covered with decomposed granite and very little vegetation. Granite boulders described in historic reports as being placed to create this fill are generally not visible. This fill slope extends down to the natural slope below, which while still quite steep, supports growth of vegetation.

At the west portal of the tunnel there is a lens shaped turnout, roughly 50-feet wide by 100-feet long, just outside the tunnel on the north side of the road. Both the road bed and the turnout were carved into the steep north-facing slope. The cut bank on the south side is supported by carefully placed granite rip rap. The north side is very steeply sloped fill with no retaining wall.

Vegetation: Shortly after the tunnel opening, the areas adjacent to the tunnel were replanted with native vegetation by Civilian Conservation Corps enrollees. The landscape plan was the result of collaboration between the Landscape and Educational Divisions. Enrollees gathered native plant seeds, which were propagated in seed boxes in the gardens behind the Yosemite Museum. Records show this revegetation effort included planting incense cedar, manzanita, chinquapin, coffee berry, elderberry, lupine and other native plants (McClelland 1998:358). A similar mix exists in the area today. The traffic island at the South Lot currently contains oak, manzanita, coffee berry and other low growing native shrubs. There is no vegetation in the traffic island between the road and the North Lot. The ponderosa pine, white fir, and incense cedar on the slopes below the road and the North Lot have grown since the overlook was constructed, and have obscured significant portions of the historic viewshed.

Integrity: The Wawona Tunnel historic site retains integrity of location, setting, design, feeling, workmanship, association, and materials.

Environmental Analysis

Methodology. Historic properties were analyzed qualitatively, in accordance with 36 CFR 800 criteria of effect, based on the modifications that would be made to character-defining features (features that qualify the property for inclusion in the NRHP).

Type of Impact. Adverse impacts (or an adverse effect determination) result when the proposed action directly or indirectly impacts any of the characteristics of the historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association (see Methodology section for more information).

Alternative 1 (No Action)

Analysis. Under the No Action Alternative, there would be no additional impacts to the Wawona Tunnel historic site. No modification to the historic character-defining elements listed above would occur with the exception of periodic repairs to rockwork and paving, and cyclic maintenance of roadside vegetation and drainage structures. Vegetation that currently obscures the historic view would not be removed, and the historic view would become more obscured as the vegetation continues to mature. The No Action Alternative would have *no adverse effect* to the Wawona Tunnel historic site: although some of the historic character-defining features will be affected, they would not be affected so as to diminish the historic property's integrity.

Impairment. Alternative 1 (No Action) would result in no change from current conditions. Because no resources specific to the park's purpose would be affected, and there would be no change to the natural and cultural integrity of the park, nor effect to resource value highlighted in the 1980 GMP, Alternative 1 would not impair park historic properties.

Alternatives 2 (Preferred), 3 and 4

Analysis. There are a number of actions common to all Action Alternatives that would impact historic properties. These impacts are discussed in the following analysis. Impacts specific to an individual alternative are addressed under each Action Alternative's analysis.

Under Alternatives 2, 3, and 4, the historic pullout located at the west portal of the Wawona Tunnel would be used for construction staging. No character-defining historic features would be altered by this use.

Tunnel. Other than the addition to or modification of existing signs within the tunnel, Alternatives 2, 3, and 4 would not alter the tunnel. The changes in signs would not alter the character of the historic tunnel.

Drainage structures. Under Alternative 2, 3, and 4, the historic drainage structures would be restored. Additional drainage structures would be added to the site, but these structures would be designed to be compatible with the historic character of the site.

Trail. Under Alternative 2, 3, and 4, the trailhead to Inspiration Point would be moved approximately 115 feet to the east, and approximately 70 feet of historic trail would be removed and restored to natural conditions. This action would include removal of historic granite cobbles, removal of non-historic asphalt surfacing, and revegetation with native vegetation. This action would permanently alter the trail—a historic character-defining feature of the historic site. Approximately 100 feet of new trail would be constructed to connect the new trailhead with the existing trail. This section of trail would be constructed using the same types of materials and the same dimensions as the historic trail, and would therefore be compatible with the historic site.

Vegetation. Under Alternative 2, 3, and 4, vegetation would be affected by revegetating the perimeters of the site and the medians at both the north and South Lots with native vegetation. Revegetation would also occur at the construction staging areas at the west portal of the tunnel and at the turnout between the Bridalveil Fall parking area and the Tunnel View Overlook.

Because the site was planted with native vegetation after it was built in the 1930s, this action is considered compatible with the historic character.

Topography. No changes to the topographic historic character-defining features would occur in any of the Action Alternatives.

Views and vistas. Under Alternative 2, 3, and 4 approximately 28-33 conifers that currently block much of the historic views would be removed. Overall, removal of trees for vista management in Alternatives 2, 3, and 4 would restore the view to the period of significance.

Alternatives 2 (Preferred) and 3

Analysis. There are a number of actions common to Alternatives 2 and 3 that would impact historic properties. These impacts are discussed in the following analysis. Impacts specific to an individual alternative are addressed under each Action Alternative's analysis.

Stone walls. Under Alternatives 2 and 3, the stone walls that are currently damaged due to deferred maintenance or vehicle impact would be restored to their historic condition. A new stone wall would be built along the edge of the historic median that separates Wawona Road from the North Lot. This stonewall will be constructed of materials and designed to be compatible with the historic stonework on site. An additional stone wall will be built at the outer edge of a new viewing platform located at the east end of the North Lot and will be designed to be compatible with the historic stone walls.

Stairs. Under Alternative 2 and 3, two of the three sets of stairs would no longer be accessible.

Alternative 2 (Preferred)

Analysis. Circulation. Under Alternative 2, historic circulation patterns and layout would be permanently altered. The circulation in the North Lot would change from undesignated to a one-way entrance and one-way exit. The west driveway would become the entrance, and the east driveway would become the exit. To allow safer access to the lot and to the road, both driveways would be widened. To accomplish this, the historic median would be reduced in length. Historic granite curbing would be removed at the east and west ends, and would be reinstalled around the new, shorter configuration. The west driveway would also be widened by moving the entrance approximately 20 feet to the west. Granite curbing from the west edge of the existing entrance would also be removed, and reset along the reconfigured driveway entrance. The east exit would be oriented to allow vehicles to exit the North Lot and directly enter the South Lot. Currently and historically this pattern of movement has not been possible in a vehicle without making very tight, unsafe turns. Buses would continue to park in the center of the North Lot, and automobiles would continue to park along the perimeters of the lot as they always have. Two wheelchair accessible spaces would be added to the North Lot. Two viewing platforms would be added to the North Lot reducing the parking lot area from its original 21,490 SF to 18,720 SF.

Under Alternative 2, the South Lot would continue to be one-way with the west driveway serving as the entrance and the east driveway serving as the exit. The entrance would be widened to facilitate the movement of vehicles from the North Lot to the South Lot. Granite curbing would be permanently removed and the area of the historic median would be permanently reduced. One viewing platform would be added to the South Lot, reducing the parking lot area from its original 10,870 SF to 9,635 SF. The three historic crosswalks that lead from the South Lot to the North Lot (across Wawona Road) would be consolidated into one crosswalk—the westernmost crosswalk.

Sidewalks. The historic fabric of the historic sidewalks would not be altered under Alternative 2; however, three viewing platforms would be constructed to abut the existing sidewalks. The Canyon viewing platform would be built at the north western edge of the North Lot. It would extend south from the sidewalk. A second larger viewing platform would be built adjacent to the eastern sidewalk in the North Lot and would extend to the west. A third viewing platform would be built adjacent to the sidewalk in the South Lot and would extend to the west. The existing sidewalks would be minimally altered by the addition of these viewing platforms. The historic granite curbing and concrete surfacing would remain intact. The new viewing platforms would be constructed of materials that are compatible with the historic sidewalks.

Overall, under Alternative 2, the combined actions will directly and permanently alter several of the characteristics of the historic site that qualify the property for inclusion in the NRHP. These features include: granite curbing/medians, area of parking lots, circulation pattern, and width of driveways. Many of these actions alter these features in a manner that diminish the integrity of the property's *design*, therefore Alternative 2 (including an evaluation of related actions common) would have a resolvable *adverse effect* on the Wawona Tunnel historic site.

Integrity of Design is the composition of natural and cultural elements comprising the form, plan, and spatial organization of a property. Design results from conscious and unconscious decisions over time about where areas of land use, roadways, buildings and structures, and vegetation are located in relationship to natural features and to each other. Design also relates to the functional organization of vegetation, topography, and other characteristics (National Register Bulletin 30: Guidelines for Documenting and Evaluating Rural Historic Landscapes).

Alternative 3

Analysis. Circulation. Under Alternative 3, historic circulation patterns and layout would be permanently altered. Like in Alternative 2, the circulation in the North Lot would change from undesignated to a one-way entrance and one-way exit. The west driveway would become the entrance, and the east driveway would become the exit. To allow safer access to the lot and to the road, both driveways would be widened. To accomplish this, the historic median would be reduced in length. Historic granite curbing would be removed at the east and west ends, and would be reinstalled around the new, shorter configuration. The west driveway would also be widened by moving the entrance approximately 20 feet to the west. Granite curbing from the west edge of the existing entrance would also be removed, and reset along the reconfigured driveway entrance. The east exit would be oriented to allow vehicles to exit the North Lot and directly enter the South Lot. Currently and historically this pattern of movement has not been possible in a vehicle without making very tight, unsafe turns. Alternative 3 circulation differs in the North Lot from Alternative 2 in the pattern of vehicle parking. Buses would park along the edge of the northern sidewalk and would be separated from automobile parking by a new median added to the center of the parking lot. The new median would be flush with the asphalt surface, but would be distinguished from the asphalt by using different material, paint, and/or texture. Two wheelchair accessible spaces would be added to the North Lot. One viewing platform would be added to the North Lot reducing the parking lot area from its original 21,490 SF to 19,400 SF.

Under Alternative 3, the South Lot would be identical to that described in Alternative 2.

Sidewalks. The historic fabric of the sidewalks would not be altered under Alternative 3, however two viewing platforms would be constructed to abut the existing sidewalks—identical to two of the viewing platforms described in Alternative 2. A large viewing platform would be

built adjacent to the eastern sidewalk in the North Lot and would extend to the west. The second viewing platform would be built adjacent to the sidewalk in the South Lot and would extend to the west. The existing sidewalks would be minimally altered by the addition of these viewing platforms. The historic granite curbing and concrete surfacing would remain intact. The new viewing platforms would be constructed of materials that are compatible with the historic sidewalks.

Overall, under Alternative 3, the combined actions will directly and permanently alter several of the characteristics of the historic site that qualify the property for inclusion in the NRHP. These features include: granite curbing/medians, area of parking lots, circulation pattern, width of driveways, and access to historic view to canyon (from north sidewalk in North Lot). Many of these actions alter these features in a manner that diminish the integrity of the property's *design* (in the case of the curbing, medians, parking lot size, circulation pattern, and width of driveway), *setting* and *feeling* (in the case of access to the historic view), therefore, Alternative 3 (including an evaluation of related actions common) would have a resolvable *adverse effect* on the Wawona Tunnel historic site.

Integrity of Setting is the physical environment within and surrounding a property. Large-scale features, such as bodies of water, mountains, rock formations, and woodlands, have a very strong impact on the integrity of setting. Small-scale elements such as individual plants and trees, gateposts, fences, milestones, springs, ponds, and equipment also cumulatively contribute to historic setting.

Integrity of Feeling, although intangible, is evoked by the presence of physical characteristics that reflect the historic scene. The cumulative effect of setting, design, materials, and workmanship creates the sense of past time and place. Alterations dating from the historic period add to integrity of feeling while later ones do not characteristics (National Register Bulletin 30: Guidelines for Documenting and Evaluating Rural Historic Landscapes).

Alternative 4

Analysis. Circulation. Under Alternative 4, historic circulation patterns would remain largely intact, although some of the physical features that direct circulation would be altered. The North Lot would continue to allow vehicles to enter and exit from both driveways. To allow safer access to the lot and to the road, both driveways would be widened. To accomplish this, the historic median would be reduced in length. Historic granite curbing would be removed at the east and west ends, and would be reinstalled around the new, shorter median configuration. The west driveway would also be widened by moving it approximately 20 feet to the west. Granite curbing from the west edge of the existing western driveway would also be removed, and reset along the reconfigured driveway entrance. The east driveway would be slightly widened to safely allow two vehicles to pass by each other at the same time. Currently the driveway is 19-foot wide, and under Alternative 4, it would be increased to 22-foot wide. Buses would continue to park in the center of the North Lot, and automobiles would continue to park along the perimeters of the lot as they always have. Two wheelchair accessible spaces would be added to the North Lot. One viewing platform would be added to the North Lot reducing the parking lot area from its original 21,490 SF to 19,800 SF.

Stone walls. Under Alternative 4, the stone walls that are currently damaged due to deferred maintenance or vehicle impact would be restored to their historic condition. A new stone wall would be built along the edge of the new viewing terrace in the North Lot. This stonewall would be constructed of materials and designed to be compatible with the historic stonework on site.

Sidewalks. The historic fabric of the sidewalks would not be altered under Alternative 4. However two viewing platforms would be constructed to abut the existing sidewalks. A viewing platform would be built adjacent to the north and eastern sidewalk in the North Lot and would extend to the west. A second viewing platform would be built adjacent to the sidewalk in the South Lot and would extend to the west. The existing sidewalks would be minimally altered by the addition of these viewing platforms. The historic granite curbing and concrete surfacing would remain intact. The new viewing platforms would be constructed of materials that are compatible with the historic sidewalks.

Stairs. Under Alternative 4, the historic stairs would remain intact.

Overall, under Alternative 4, the combined actions will directly and permanently alter some of the characteristics of the historic site that qualify the property for inclusion in the NRHP. These features include: granite curbing/medians (although to a lesser degree than Alternatives 2 and 3), area of parking lots, and width of driveways. Many of these actions alter these features in a manner that diminish the integrity of the property's *design* (see definition in Alternative 2). Therefore, Alternative 4 (including an evaluation of related actions common) would have a resolvable *adverse effect* on the Wawona Tunnel historic site.

Impact Avoidance, Minimization, and Mitigation Measures.

All Action Alternatives would have a resolvable adverse effect on the historic site. The 1999 PA includes standard mitigation measures to resolve adverse effects. In accordance with Stipulation VIII A 1(b), the adverse effect for all three of the Action Alternatives would be resolved with documentation by black and white 5 x 7-inch photographic prints before and after construction, and a Historic Record that includes narrative history and original drawings where available. Copies of documentation would be deposited at the Yosemite archives and with the SHPO. In accordance with Stipulation VIII.A.4, the National Register Nomination will be updated to reflect the impact of the adverse effects on the historic property. In accordance with Stipulation VIII.A.2, historic material will be salvaged from the site to be used in the new construction on site.

Additional measures that would be included during the design development and construction of the proposed project (as appropriate to the alternative actions) to avoid, minimize, or mitigate impacts are as follows:

- Remnant contributing vegetation would be maintained. Revegetation of disturbed or restored areas would be compatible with the historic native plant palette.
- Historic culvert headwalls and stone-lined swales would be restored.
- All new construction will be compatible with historic character in size, materials, and design.
- Damaged historic rockwork would be restored.
- Prior to repaving, granite curbing will be removed as necessary, then reset following repaving—restoring it to its historic height.
- Construction barrier fencing will be used to ensure that heavy equipment does not impact historic features during construction.
- Tree removal would occur to restore historic viewshed

Impairment. Because adverse effects to cultural resources would be resolved in all of the three action alternatives, there would be no impairment of historic properties with the implementation of the alternatives described in this EA.

Visitor Experience

Affected Environment

Visitor Use: Yosemite National Park is guided by the park's enabling legislation, which has two purposes: (1) to preserve the unique natural resources and scenic beauty at the park, and (2) to make these resources available to visitors for study, enjoyment, and recreation. The experience of visitors in Yosemite National Park is dependent on a number of factors, including the availability of recreational and interpretive opportunities, the availability of services, safety, and the quality of the recreational environment and facilities. Yosemite National Park offers a broad spectrum of recreation opportunities, including access to and availability of such activities as use of non-motorized watercraft (e.g., rafts, inner tubes, and kayaks), swimming and wading, hiking, backpacking, camping, rock climbing, fishing, sightseeing, photography, nature study, bicycling, and stock use. In addition, every individual visitor to Yosemite brings unique expectations, and thus each has a unique experience.

Based on statistics from the last ten years, approximately 3.5 to 4.1 million people per year visit Yosemite National Park. Most people visit between late-spring and early-fall. The number of visitors begins to increase in February, with peak visitation occurring between July and August when an estimated 575,000 people per month visit the park. Visitation drops off sharply through September, October and November. During December and January visitation is at its lowest with approximately 100,000 people per month visiting the park.

Most visitors travel to Yosemite by private vehicle. However, tour buses also accommodate a considerable percentage of visitors. Bus transportation within the park includes public transportation, charter and tour bus operations, concessioner-operated tours, and shuttle bus services.

Data on visitor use at Tunnel View Overlook was collected by the park over five weekend and mid-week days between June 22, and July 10, 2007 (NPS 2007b). Researchers recorded information on the number of visitors within each of the parking lots at one time, the number and type of vehicles, the length of stay, and whether they were using the Inspiration Point trailhead for dayuse or backpacking.

Visitor Use Study (NPS 2007b) Summary: The number of visitors at Tunnel View Overlook ranged from 12 to 288 at any one time (Figure 7). On average 95 pedestrians were present at any one time on Saturday, the busiest day during the study period, while the average number of visitors during the five-day period was 65. The number of people present at one time peaked at 288 when four buses arrived in the North Lot at the same time. Pedestrians tended to cluster at the best viewing location near the east entrance of the North Lot. Private groups stayed on average of 8.3 minutes. Although, 8.8% of groups stayed more than 15 minutes, the most common visit last just four minutes. Average stay for commercial vehicles was approximately 15 minutes. The most common number of people traveling in a private vehicle was two.

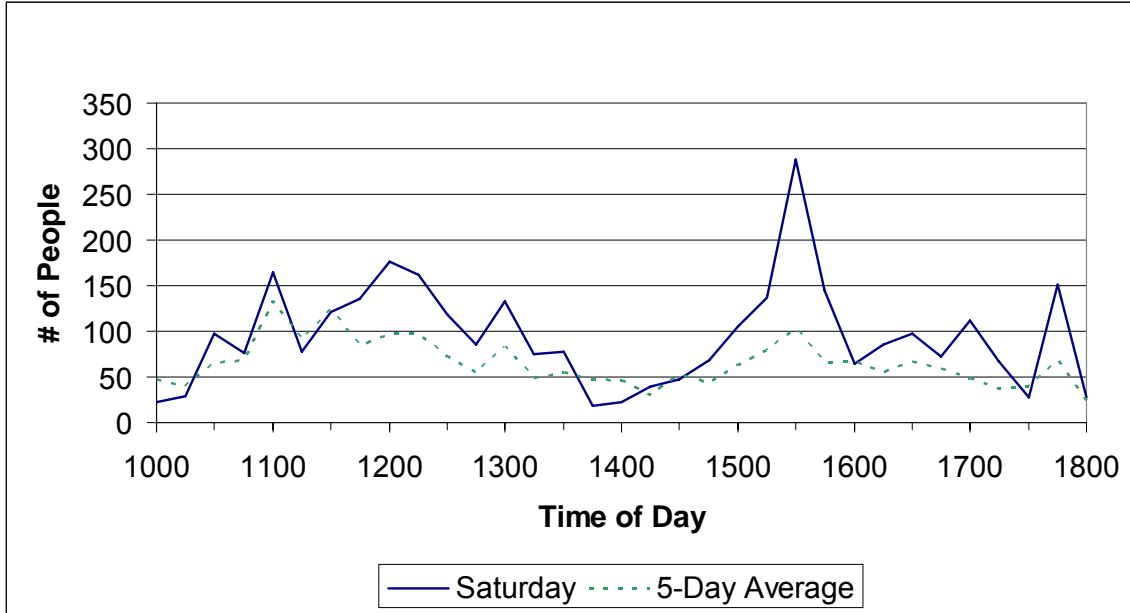


Figure 7. Number of people at the overlook at any one time

During the study period, 88 percent of visitors at Tunnel View Overlook traveled by private vehicle (Figure 8). Four percent traveled by commercial bus or tram.

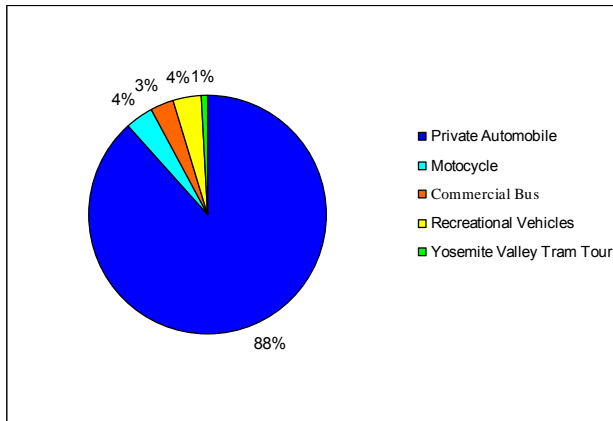


Figure 8. Average vehicle type

Between 561 and 867 vehicles parked at Tunnel View Overlook each day during the study period. Nearly twice as many vehicles park in the North Lot compared to the South Lot. Results indicate that the North Lot only reached 100% of parking capacity during one 15-minute sampling interval at 12:00pm on Saturday (Figure 9). Overall, the lot exceeded 85% of personal vehicle parking capacity for approximately one hour during the eight-hour Saturday sampling period. The South Lot never reached parking capacity (Figure 10).

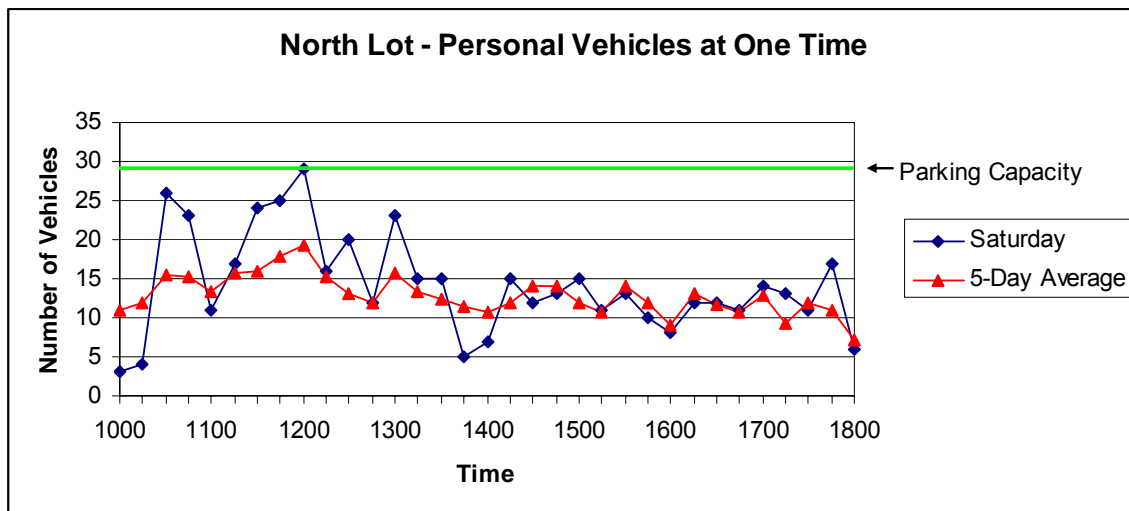


Figure 9. Number of personal vehicles parked in the North Lot at any one time

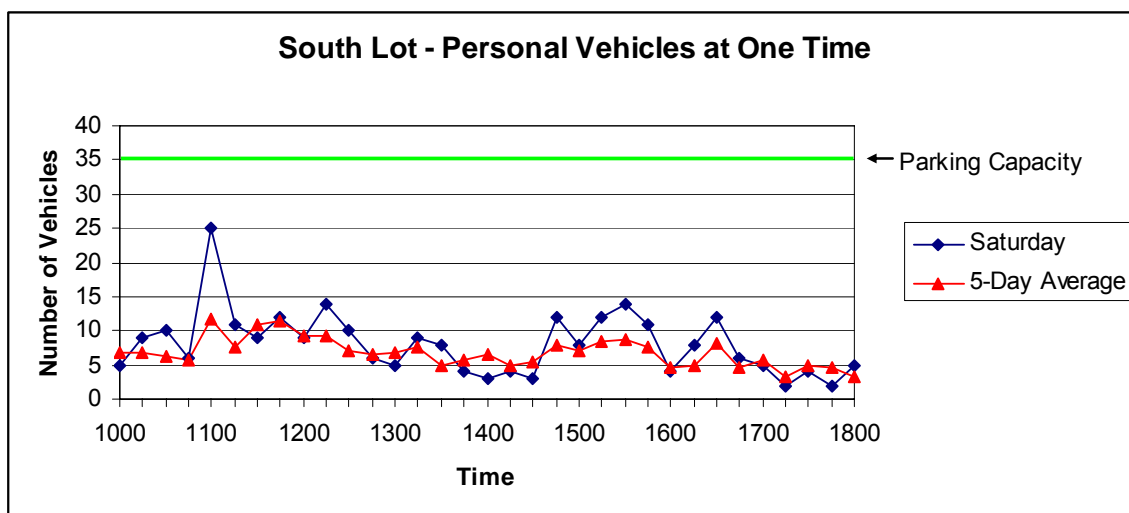


Figure 10. Number of personal vehicles parked in the South Lot at any one time

The Inspiration Point and Pohono Trails are accessed from the western end of the overlook’s southern lot. These popular hiking trails are known for their exceptional views of Yosemite Valley. Pohono trail can be taken from Glacier Point to Tunnel View, or in the other direction, although most visitors choose to hike the trail from Glacier Point downhill to Tunnel View. The trail follows the south rim of Yosemite Valley, dropping 1800 ft. There are several opportunities to experience outstanding views of the valley while hiking the 13 miles of trail. Hikers wishing to do a one-way trip will leave a vehicle at Tunnel View. An average of 30 people per day used the trailhead during the study period. However, most of these visitors returned within 15 minutes. Only four backpackers were observed using the trailhead during the study period.

Safety: Approaching Yosemite Valley along the Wawona Road by way of the South Entrance, visitors are afforded views from above the Merced River gorge and have the opportunity to stop at Tunnel View Overlook to experience this world-famous and historical viewpoint into Yosemite Valley. From the overlook, trees in the Valley hide roads, and little evidence of human influence is evident. Tunnel View also offers a spectacular panorama, including Bridalveil Fall and El Capitan in the foreground, and the granite domes and cliffs of the east valley in the

background. However, there are a number of safety concerns at Tunnel View that can impact a visitor's experience. These impacts include vehicle-to-vehicle and vehicle-to-pedestrian conflicts resulting in injury, personal property damage, and in some cases death.

In response to concerns regarding traffic safety and to address transportation concerns, the park commissioned a three-and-one-half year study in the early 1980's. The *Traffic Engineering Safety Improvement Study for Yosemite National Park* (Kimley-Horn Associates 1985) analyzed records for 1,600 traffic accidents that occurred on park roadways between January 1, 1981 and June 30, 1984. The study included identification of high accident sites and recommendations for improving safety at those sites². High accident sites were characterized as any portion of road with an accident density of more than ten accidents per mile during the study period.

The study identified 18 high accident sites on the park's road system. Wawona Road east and west of Wawona Tunnel was one of five sites with the highest overall accident rate. A follow-up study, conducted between January 1, 1990 and December 31, 1993 (Peccia and Associates 1995), showed that accident rates had decreased at this site, but the severity of accidents had increased (Table 4). The accidents included vehicle-vehicle and vehicle-pedestrian incidents.

Table 4. Comparison of accidents between the 1981-1984 and 1990-1993 study periods

	Total Accidents at Wawona Tunnel	Accidents per Million Vehicle Miles Traveled	Accident Severity Index
1981-1984	16	6.78	1.25
1990-1993	16	4.04	1.38
Percent Change	0	- 40.4	+ 1.10

There are a number of contributing factors to the high accident rate at the east end of the tunnel, the location of Tunnel View Overlook. Poor sightlines make it difficult for motorists on Wawona Road to see pedestrians crossing between the north and South Lots. Additionally, drivers may not be aware of their proximity to the viewing area as they exit the tunnel. Poor sightlines also make it difficult for drivers exiting the North Lot to see approaching traffic because of the curve in the road to the east and the tunnel to the west of the parking exit. Vehicles traveling at high rates of speed past the overlook also contribute to the high accident rate.

Environmental Consequences

Methodology: This analysis evaluates the quality of visitor experiences in terms of how they might be altered as a result of the Action Alternatives. Professional judgment was applied to reach reasonable conclusions as to the context, intensity, and duration of potential impacts.

Analysis was based on whether there was a complete loss of a recreation opportunity, a change in access to or availability of a recreation opportunity, a change in the quality of visitor experience or recreational opportunities or a change in safety. Impacts to visitor experience quality and recreation opportunities were assessed in terms of duration, intensity, and type. In terms of duration, a short-term impact on visitor experiences would be temporary in duration due to construction, restoration, or demolition activities; short-term impacts would occur during the construction period. A long-term impact would have a permanent effect on the

² Severity Index = [(5 x the number of fatal accidents at the site during the study period) + (3 x the number of non-fatal injuries at the site during the study period) + (number of property-damage-only accidents at a site during the study period)] / total number of accidents at the site during the study period.

visitor experience. In terms of intensity, impacts are defined as negligible, minor, moderate, and major. Negligible impacts would result in little noticeable change in visitor experience. Minor impacts would result in changes in desired experiences but without appreciably limiting or enhancing critical characteristics (critical characteristics are those elements of a recreational activity that are most important to those who pursue it; for example, it may be important to picnickers to be able to drive to a picnic site). Moderate impacts would change the desired experience appreciably, (i.e., changes to one or more critical characteristics or appreciable reduction/increase in the number of participants). Major impacts would eliminate or greatly enhance multiple critical characteristics or greatly reduce/increase participation. In terms of type, impacts were evaluated in terms of whether they would be beneficial or adverse to visitor experience.

Table 2 provides a comparison of the No Action and Action Alternatives viewing area and parking lots designs and viewshed management strategies. Table 5 provides a comparison of each Alternatives measures to address safety concerns, crowding, and traffic congestion.

Type of Impact: Beneficial impacts would enhance visitor participation, quality of visitor experience, and service level. Adverse impacts would be effects that reduce visitor participation, quality of visitor experience, and service level.

Alternative 1 (No Action)

Analysis. There would be no new impacts to visitor experience under Alternative 1. Existing impacts to visitor experience would continue under the No Action Alternative. Impacts to visitor experience at Tunnel View Overlook include visitor crowding caused by the small viewing platform. Crowding at the viewing platform would continue to be exacerbated by trees growing up in the historic viewshed. Visitor crowding would continue to result in pedestrians overflowing into the driveway while they wait to experience and photograph the views. Safety issues at Tunnel View Overlook would also continue to impact visitor experience (Table 4). As a result, the No Action Alternative would have a local, long-term, moderate, adverse impact to visitor experience within the project area.

Cumulative Impacts. Cumulative effects to visitor experience are based on analysis of past, present and reasonably foreseeable future actions within the project area in combination with the potential effects of this alternative.

Past actions that cumulatively impact visitor experience within the project area include beneficial impacts resulting from the construction of Wawona Road, Wawona Tunnel, and Tunnel View Overlook. Other past actions cumulatively impacting visitor experience include implementation of 1980 GMP. The 1980 GMP included the establishment of park policies and programs for visitor use within Yosemite National Park that enhance visitor experience.

Present actions that cumulatively impact visitor experience include Reconstruction of Critically Eroded Sections of El Portal Road, Rehabilitation of the Yosemite Valley Loop Road, Glacier Point Road Rehabilitation, and Wawona Tunnel Ventilation and Lighting Systems Repair. These actions would have a short-term adverse impact to visitor experience due to traffic delays and rerouting during construction. In the long-term, these projects would benefit visitor experience by improving the park's infrastructure, improving safety, and reducing traffic pressures on Wawona Road.

Reasonably Foreseeable Future actions that would cumulatively impact visitor experience within the project area include vista management. Removal of trees within the historic vista would have a beneficial impact on visitor experience. The State Route 140 Ferguson Slide

Restoration and the Wawona Tunnel Utilities Improvement would have short-term adverse impact to visitor experience due to traffic delays and rerouting during construction. In the long-term, these projects would benefit visitor experience by improving the park's infrastructure, improving safety, and reducing traffic pressures on Wawona Road. The park's Comprehensive Transportation Plan would improve visitor experience by assessing visitor experience, access and resource conditions as they relate to the transportation system, identifying issues, developing alternatives and proposing solutions in a comprehensive management plan. Past, present and reasonably foreseeable future actions within the project area in combination with the potential effects of this alternative would result in local, long-term, moderate, adverse cumulative impacts to visitor experience.

Alternatives 2 (Preferred), 3 and 4

Analysis. There are a number of actions common to all Action Alternatives that would impact visitor experience. These impacts are discussed in the following analysis. Impacts specific to an individual alternative are addressed under each Action Alternative's analysis.

Implementation of Alternatives 2, 3 and 4 would result in short-term impacts to visitor experience due to closure of one or the other parking areas during construction. During construction, the number of visitors able to experience the overlook would be reduced, and crowding within the available viewing space would be exacerbated. Traffic delays due to one-lane traffic controls would impact the quality of visitor's experience traveling along Wawona Road. Depending on access to the parking lots, Concessioner-operated tram tours may choose to avoid the overlook during specific construction phases. Tour buses may also avoid stopping during construction. As a result, fewer visitors would be able to experience the overlook's historic views. Traffic controls, use of one lot or the other, and other construction activities would slow traffic through the site and reduce the number of pedestrians crossing between parking lots.

Long-term impacts common to All Action Alternatives include beneficial impacts resulting from construction of a 560 square foot ADA/ABA accessible viewing platform in the South Lot improving access for all park visitors. The North Lot would also include accessible parking spaces and viewing platforms. Decreased traffic congestion and improved safety would result from single-family vehicles traveling east on Wawona Road being directed into the South Lot. This would reduce the number of vehicles making left-hand turns into the North Lot. Oversized vehicles traveling east would still use the North Lot. The number of parking spaces in the South Lot would be reduced from 35 to 27 under all Action Alternatives. However, parking capacity in the South Lot was not identified as an issue during the visitor use study.

Actions common to all Action Alternatives that would reduce traffic congestion and improve traffic flow and visitor experience include changing the traffic circulation pattern within the North Lot to a one-way pattern. Repaving the parking lots would improve visitor access. Restriping parking lots and providing clearer delineation of parking and no-parking zones would improve traffic and pedestrian flow.

There are a number of actions common to all Action Alternatives that would improve the quality of visitor experience by addressing safety concerns. Prescriptions to improve drainage would reduce sheet flow across the road and provide drainage at the tunnel entrance to reduce icy conditions. Moving the Inspiration Point trailhead to the middle of the South Lot would reduce vehicle-pedestrian conflicts. The three existing crosswalks would be consolidated so that visitors would only use the western most crosswalk. This crosswalk is the most direct route between parking lots and has the best sight lines for pedestrians and approaching traffic. The

length of this crosswalk differs between alternatives. Hence, the perception of safety for individuals using this crosswalk would also differ between alternatives and is analyzed for each Action Alternative separately. Measures to reduce traffic speed within the project area would be common to all Action Alternatives and would improve safety for visitors.

Visitor experience would be enhanced under all Action Alternatives through vista clearing. Vista clearing would reduce crowding and expand the views of the Valley from the north and South Lots as well as along the sidewalks.

Alternative 2 (Preferred)

Analysis. Actions under Alternative 2 would reduce crowding at the overlook by the construction of a 3,450 square foot viewing platform in the North Lot. This alternative also retains and expands access to the northern views from the overlook through construction of a 1,450 square foot “Canyon Overlook viewing area in the North Lot (Table 2). This platform would provide broad viewing area. Thus the viewing spectrum would be wider compared to Alternative 4. This alternative would provide the greatest amount of square footage (5,450 total square feet) for visitors to experience the historic views and take photographs. This alternative would provide the greatest number of parking spaces. The crosswalk between the north and South Lots would be shorter than in Alternative 4. Increased sightlines in combination with the shortened span would provide an added sense of safety to visitors crossing Wawona Road. Regular parking spaces would be increased from 25 to 28 in the North Lot. Oversized vehicle parking would remain the same (four spaces) and two accessible parking spaces would be added to the North Lot closest to the viewing area.

Alternative 2 includes a number of features that would benefit visitor experience by improving safety and reduce traffic congestion within the project area (Table 4). These features would provide a greater sense of separation between the parking lot and the road. A 6-8-inch tall curb that meets AASHTO crash-safety standards would be constructed between the road and the viewing platform to protect visitors and prevent vehicles from going off the road and through the existing rock wall as has happened in the past. Parking spaces along the roadside would be angled at 60 degrees. Orienting the parking spaces this way would reduce the total number of spaces, but this orientation makes it easier for vehicles to get in and out and to keep drivers in the one-way traffic pattern. The remaining parking spaces would be at 90 degrees. This alternative would retain oversized vehicle parking in the center of the lot to allow for easy ingress and egress. This parking scheme would require passenger vehicles to back towards the oversized vehicle parking. This would maintain a less-than desirable situation with vehicles backing out of spaces while visitors are loading onto buses and trams.

This alternative provides a clear and intuitive circulation for cars and large vehicles and improves both parking lots ingress and egress. Under this alternative, the North Lot driveway would be shifted west approximately 20 feet. The driveway would also be increased to 45 feet wide. These modifications would make it easier for visitors to circulate within the parking lot. The exit driveway would also be shifted to the west making the exit more perpendicular with the road. This would make it easier for visitors to turn right out of the parking lot. It would also make it more obvious to west bound traffic that it was an exit. The entrance to the South Lot would also be increased under this alternative providing safer access. Overall, Alternative 2 would result in local, long-term, moderate, beneficial impacts to visitor experience at Tunnel View Overlook.

Cumulative Impacts. Past, present and reasonably foreseeable future actions within the project area would result in local, long-term, moderate, adverse impacts to visitor experience while

implementation of Alternative 2 would have local, long-term, moderate, beneficial impacts. Thus, the cumulative actions in combination with Alternative 2 would result in net local, long-term, moderate, beneficial cumulative impacts to visitor experience within the project area.

Alternative 3

Analysis. Actions under Alternative 3 would reduce crowding at the overlook by the construction of a 3,450 square foot viewing platform in the North Lot (Table 2). This platform would provide a broad viewing area. The viewing spectrum would be the same as Alternative 2 and wider compared to Alternative 4. This alternative would not include the construction of a Canyon Overlook but would provide the second greatest amount of square footage (4,010 total square feet) for visitors to experience the historic views and take photographs. The crosswalk between the north and South Lots would also be the same length and thus provide the same sense of safety to visitors crossing Wawona Road as Alternative 2. This alternative would also result in the fewest number of parking spaces. Regular parking spaces would be decreased from 25 to 21 in the North Lot. Oversized vehicle parking would remain the same (four spaces) and two accessible parking spaces would be added to the North Lot closest to the viewing area. Alternative 3 would provide a clear separation between oversized vehicles and automobiles and would remove the buses from the historic view experience from the tunnel portal. However, the buses would become a barrier to visitors wishing to experience the views to the canyon views to the north of the parking lot, reducing overall access to the site. Visitors may not wish to walk along side buses, and bus idling would make the northwest corner of the lot less than attractive. This alternative would also require more backing up of buses, resulting in safety concerns for visitors.

Alternative 3 includes a number of features that would benefit visitor experience by improving safety and reduce traffic congestion within the project area (Table 4). These features would provide a greater sense of separation between the parking lot and the road. As with Alternative 2, a curb that meets AASHTO crash-safety guidelines would be constructed between the road and the viewing platform to protect visitors and prevent vehicles from going off the road and through the existing rock wall. Oversized vehicle parking under this alternative would be in the northern portion of the parking area and would be separated from automobiles by a painted sidewalk. Parking spaces along the western edge of the parking lot would be angled at 90 degrees; all other spots would be angled at 60 degrees. Orienting the parking spaces this way would reduce the total number of spaces, but this orientation makes it easier for vehicles to get in and out and to keep drivers in the one-way traffic pattern.

This alternative provides a clear and intuitive circulation pattern within the parking area and improves both parking lots ingress and egress. As with Alternative 2, under this alternative, the North Lot driveway would be shifted west approximately 20 feet. The driveway would also be increased to 45 feet wide. These modifications would make it easier for visitors to navigate within the parking lot. The exit driveway would also be shifted to the west making the exit more perpendicular with the road. This would make it easier for visitors to turn right out of the parking lot. It would also make it more obvious to west bound traffic that it was an exit. The entrance to the South Lot would also be increased under this alternative providing safer access. Overall, Alternative 3 would result in local, long-term, moderate, beneficial impacts to visitor experience at Tunnel View Overlook

Cumulative Impacts. Past, present and reasonably foreseeable future actions within the project area would result in local, long-term, moderate, adverse impacts to visitor experience while implementation of Alternative 3 would have local, long-term, moderate, beneficial impacts.

Thus, the cumulative actions in combination with Alternative 3 would result in net local, long-term, moderate, beneficial cumulative impacts to visitor experience within the project area.

Alternative 4

Analysis. Alternative 4 would result in the fewest modifications to the historic character defining features of the site. Consequently, it would also result in fewer modifications to improve safety and decrease traffic congestion and crowding. Actions under Alternative 4 would reduce crowding at the overlook by the construction of a 2,300 square foot viewing platform in the North Lot (Table 2). This platform would not provide as broad a viewing area compared to Alternatives 2 and 3. Thus the viewing spectrum would be narrower. This alternative would provide the least amount of square footage (2,860 total square feet) for visitors to experience the historic views and take photographs. This alternative would include a long crosswalk between the north and South Lots that would also require visitors to cross at the east driveway into the North Lot. This crosswalk is located for the greatest sightlines, but the long span in combination with crossing multiple lanes of traffic would diminish the sense of safety for visitors crossing Wawona Road. This alternative would have more parking spaces than Alternative 3, but fewer than Alternative 2. The number of Regular parking spaces would be the same as the No Action Alternative (25) as would the number of oversized vehicle parking spaces (four spaces). Two accessible parking spaces would be added to the North Lot.

Alternative 4 includes a number of features that would benefit visitor experience by improving safety and reduce traffic congestion within the project area (Table 4). As with Alternatives 2 and 3, a wall would be constructed between the viewing platform and the parking lot and the curbing between the entrance and exit of the North Lot would be reset as needed. No new wall would be constructed to provide separation between Wawona Road and the parking area. Oversized vehicle parking under this alternative would remain in the middle of the parking lot.

This alternative addresses some circulation and ingress/egress issues, but retention of the two-way traffic circulation pattern perpetuates some of the within parking lot traffic congestion issues and makes the North Lot less easy for visitors to navigate. Retention of the two-way circulation pattern was a trade-off for retaining a greater amount of the historic character defining features of this site. Under this alternative, the North Lot driveway would be shifted west approximately 20 feet and the driveway would only be increased to 30 feet wide. The driveway would be 15 feet narrower than under Alternatives 2 and 3. These modifications would still make it easier for visitors to circulate within the parking lot. The exit driveway would not be shifted to the west. Visitors would have a more difficult time making right-hand turns out of the parking lot compared to the other Action Alternatives. The entrance to the South Lot would also remain unchanged from current conditions making it difficult for visitors to drive between the parking lots. Overall, Alternative 4 would result in local, long-term, minor, beneficial impacts to visitor experience at Tunnel View Overlook

Cumulative Impacts. Past, present and reasonably foreseeable future actions within the project area would result in local, long-term, moderate, adverse impacts to visitor experience while implementation of Alternative 3 would have local, long-term, minor, beneficial impacts. Thus, the cumulative actions in combination with Alternative 3 would result in net local, long-term, minor, beneficial cumulative impacts to visitor experience within the project area.

Table 5. Comparison of measures to address safety concerns and traffic congestion. Blue cells indicate a change from existing conditions that would improve safety

CATEGORIES	Alternative 1 (NO ACTION)	Alternative 2	Alternative 3	Alternative 4
Traffic Calming				
Angle parking spaces in North Lot at 60 degree, making it easier for drivers to get in and out and will also keep drivers in the one-way circulation pattern.	NO	Partial	Partial	NO
Construct new wall between North Lot and road	NO	YES	YES	NO
Rumble strips in Tunnel	No	YES	YES	YES
Circulation				
Shift entrance driveway to west to make it easier for buses to circulate in parking lot	No Change	Move ~20 West	Move ~20 West	Move ~20 West
Shift exit driveway to west to make more perpendicular to Wawona Road, making it easier for buses to turn right and more obvious that it is an exit not an entrance.	No Change	Yes	Yes	No Change
Widen Entrance Driveway to North Lot to allow safer access	No Change	Yes 45 Feet Wide	Yes 45 Feet Wide	Yes 30 Feet Wide
Widen Entrance Driveway to South Lot to allow safer access.	No Change	Yes	Yes	No Change
Change Traffic Flow to One-Way in North Lot	No Change	Yes	Yes	No Change
One-Way Traffic Flow in South Lot	No Change	No Change	No Change	No Change
Autos not allowed to make left-hand turns into North Lot	NO	YES	YES	YES
Shorten sidewalk	No Change	YES	YES	NO

Scenic Resources

Affected Environment

This site is one of the most popular scenic vistas in the park. Since 1932, it has offered visitors awe-inspiring views of some of Yosemite Valley’s most iconic features: El Capitan, Half Dome, Sentinel Rock, and Bridalveil Fall. Tunnel View Overlook offers views of the glacially carved, densely forested, U-shaped Yosemite Valley all the way east to the mouth of Tenaya Canyon. These views of the Valley floor are angled so that very little, if any of Yosemite Valley’s development is noticeable. The siting and alignment of the tunnel was designed to capture this dramatic view and the scenic overlook was built to provide visitors traveling along Wawona Road a place to stop to soak in the wonders of Yosemite Valley.

There are three primary vistas at the Tunnel View Overlook distinguished by the view that is offered and the manner in which the view is intended to be experienced. These primary vistas were intentionally designed by the landscape engineers who designed the tunnel and overlook. Secondary viewing areas exist that are less immediately spectacular, but still afford quality viewing experiences.

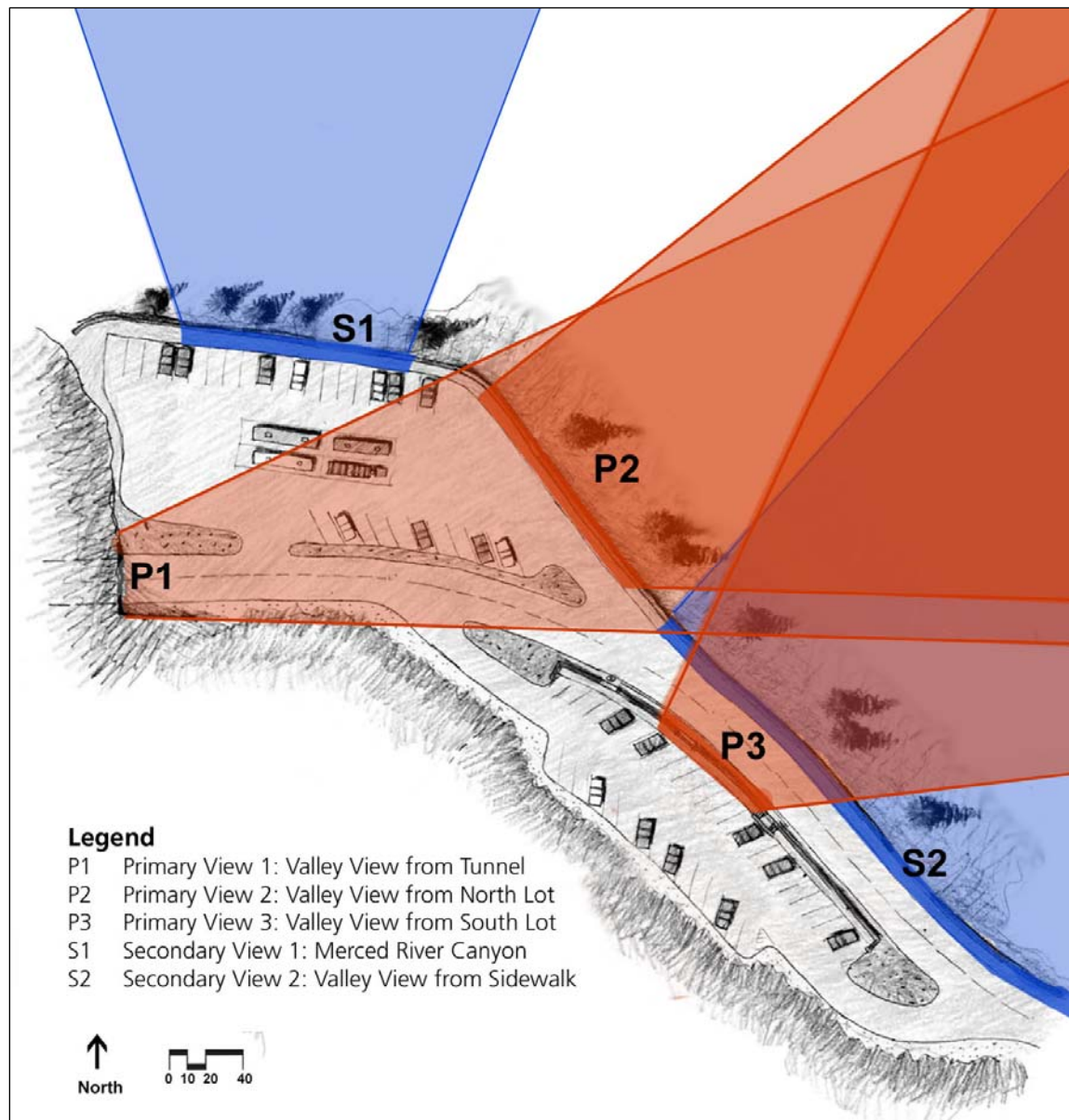


Figure 11. Map showing primary and secondary viewing areas

Primary Viewing Areas

P1. The Valley View from Tunnel is meant to be observed from the visitor’s vehicle as they are exiting the east portal of the tunnel. This view, framed by the jagged tunnel walls, was intended by the site designers to be a dramatic snapshot of the Valley. When it was constructed, this snapshot had open views of El Capitan, Half Dome, Sentinel Rock, and Bridalveil Fall. In the 1933 photograph below, two ponderosa pine can be seen off to the side in the middle ground, and no trees impede the view in the foreground. The North Lot of the Tunnel View Overlook and Wawona Road are in the foreground. Currently, because of a lack of routine vista management at the site, ponderosa pines have grown to obscure much of the historic view. These trees are growing in the fill just below the North Lot.



Figure 12. Comparison of views from Tunnel (P1), 1933 and 2007. In the 1933 view, two ponderosa pine are in the left part of the middle ground (right); in the 2007 view, ponderosa pine obstruct view (left)

P2. The Valley View from North Lot is the main viewing area at the site. It is located at the northeast end of the Tunnel View Overlook, and was designed to provide unobstructed views of the Valley. A 5-foot wide sidewalk is provided for visitors to stand on to observe the view. Like the view from the tunnel, this view is of El Capitan, Half Dome, Sentinel Rock, and Bridalveil Fall. The Valley floor is clearly seen, and the viewer is able to catch a glimpse of Tenaya Canyon as it enters Yosemite Valley. Like the view from the tunnel, the middle ground view historically had a few ponderosa pine at the side, and no trees obstructing the view in the foreground. However, as with the view from the tunnel, this view is currently obscured by ponderosa pine and incense cedar that have grown in the granite fill since the site was first constructed. This view is the most popular of all of the views. The trees that obstruct the view currently require that visitors stand three or four people deep waiting their turn to be at the front, for a clearer view. Because the sidewalk is only 5-feet wide, dozens of people are often standing in the driveway while vehicles are trying to pass by. The current configuration feels crowded and unsafe for those waiting in the path of vehicles. For most visitors this is the only area used during their brief visit to the Tunnel View Overlook.



Figure 13. Valley View from North Lot 1939 (P2): View is unobstructed

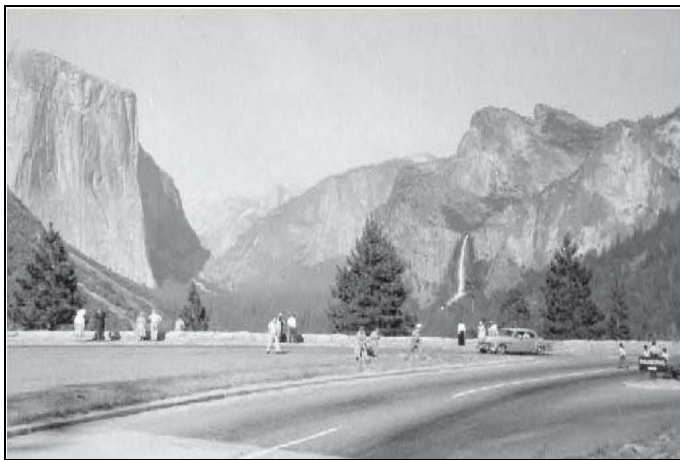


Figure 14. Valley View from North Lot 1958 (P2): ponderosa pines are beginning to obstruct view



Figure 15. Valley View from North Lot 2007 (P2): ponderosa pine and incense cedar obstruct much of view

P3. The Valley View from South Lot is located at the 4-foot-wide sidewalk in the South Lot, and originally provided unobstructed views of the Valley. Like the North Lot Valley View, this view is of El Capitan, Half Dome, Sentinel Rock, and Bridalveil Fall. As with the other primary views, this view was historically open. However, it is currently obscured by ponderosa pine and incense cedar that have grown in the granite fill since the site was first constructed. This view is less popular than the Valley View from North Lot—because the view is almost completely obstructed by vegetation most visitors who park in the South Lot cross Wawona Road to experience the view from the North Lot.

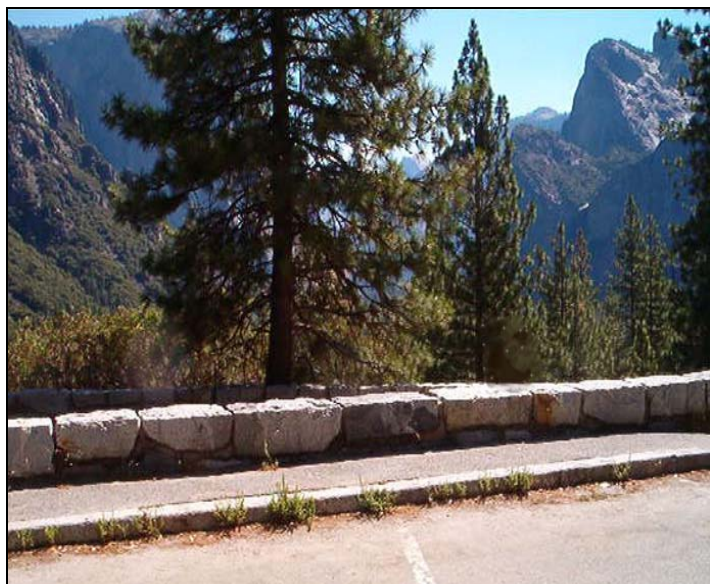


Figure 16. Valley View from South Lot 2007 (P3): ponderosa pine obstructs much of the view

Secondary Viewing Areas

S1. The Canyon View from North Lot is a secondary view that is experienced from the north 5-foot-wide sidewalk adjacent to the North Lot. This view is of the Merced River gorge and was likely only partially obstructed during the historic era. Currently ponderosa pine and incense cedar are growing in the fill slope below the sidewalk and block much of the view. This viewing area is rarely crowded, but because it provides shade, some visitors enjoy sitting on the rock wall protected from the hot sun.

S2. The Valley View from Sidewalk is a secondary view intended to be experienced along the 5-foot-wide sidewalk east of Wawona Road, south of the main parking lot (North Lot). This view is like the other Valley views (P1, P2, and P3) of El Capitan, Half Dome, Sentinel Rock, and Bridalveil Fall. Like the other views, it was historically unobstructed. Currently ponderosa pine and incense cedar are growing in the granite fill slope below the sidewalk and block much of the view. Of all of the views, this feels the least safe. It is located on a narrow sidewalk, separated only by a 4-inch curb-cut from the busy Wawona Road where vehicles currently travel from 20-45 MPH.

Environmental Analysis

Methodology: This analysis evaluates the quality of visitor experience in terms of how well visitors are able to access or enjoy the views. Each of the Action Alternatives applies a strategy for improving views. Professional judgment was applied to reach reasonable conclusions as to the context, intensity, and duration of potential impacts.

Analysis was based on whether there was a change in access to or availability of scenic views or a change in the quality of visitor experience of the views. Impacts to views themselves and the visitor experience quality were assessed in terms of duration, intensity, and type. In terms of duration, a short-term impact on visitor experiences would be temporary in duration due to construction, restoration, or demolition activities; short-term impacts are those during the duration of the construction period. A long-term impact would have a permanent effect on the views and visitor experience of the views. In terms of intensity, impacts are defined as negligible, minor, moderate, and major. Negligible impacts would result in little noticeable change in the views or visitor experience of the views. Minor impacts would result in changes in desired experiences but without appreciably limiting or enhancing the views or visitors' ability to experience the views. Moderate impacts would change the desired experience appreciably. Major impacts would eliminate or greatly enhance the views and visitors' ability to enjoy the views. In terms of type, impacts were evaluated in terms of whether they would be beneficial or adverse to the physical views themselves and the visitors' ability to experience these views.

Type of Impact: Beneficial impacts would restore the physical openness of the views and enhance the quality of visitor experience by increasing visitors' ability to enjoy the views. Adverse impacts would be effects that allow the degradation of the physical openness of the views and reduce visitors' ability to enjoy the views.

Alternative 1 (No Action)

Analysis. Under Alternative 1, the conifers currently obstructing all of the primary and secondary views would continue to grow and continue to encroach on all of these views. Roadside hazard tree removal would continue to occur, however no tree removal for vista management would occur. Primary View 2: Visitors would continue to cluster into small areas where the view is still accessible. They would continue to stand in the driveway and parking lot while waiting their turn to be at the front of the crowd to experience this view. The perception of over-crowding and lack of safety would continue to worsen as the "cone of view" continues to decrease in size. The other viewing areas would become even less accessible as conifers continue to grow. People who currently use these other views would eventually be forced to join the crowds at Primary View 2 in order to experience the view. The No Action Alternative would have a local, long-term, moderate, adverse impact on scenic resources.

Cumulative Impacts. Cumulative effects to scenic resources are based on analysis of past, present and reasonably foreseeable future actions within the project area in combination with the potential effects of this alternative.

Past actions which cumulatively impact scenic resources within the project area include the lack of vista management since the overlook was constructed. This lack of action has allowed vegetation to obscure all of the primary and secondary views on site. Fire suppression has impacted the vegetation's composition and structure throughout Yosemite Valley—a major component of the background views from Tunnel View—and has altered the more natural vegetation patterns that existed during the historic era. Since the 1970s, Yosemite has reinstated fire into the Valley ecosystem, however the vegetation density and composition that existed during the historic era has not yet been reestablished.

Cumulatively impacts to vegetation from present actions within the project area include routine vegetation maintenance activities alongside the road, including the periodic trimming and removal of vegetation from within approximately ten feet of the edge of pavement on both sides of the road. Implementation of the park's Fire Management Plan will benefit scenic resources through fuels reduction.

Reasonably Foreseeable Future actions which could contribute to cumulative impacts to scenic resources would include the development of a Vista Management Plan. Vista management would result in the analysis of historic and existing vegetation that impact views not only at the Tunnel View Overlook, but at scenic overlooks throughout Yosemite's front country. Implementation of the plan would include treatment such as removal of vegetation to enhance scenic resources. Implementation of the park's Vegetation Management Program and Parkwide Invasive Plant Management Plan would have a beneficial impact on scenic resources through programs such scenic resources management and invasive species management. These past, present and reasonably foreseeable future impacts, in combination with the No Action Alternative, would have a localized, long-term, moderate, beneficial effect on scenic resources at Tunnel View.

Alternative 2 (Preferred), 3, and 4

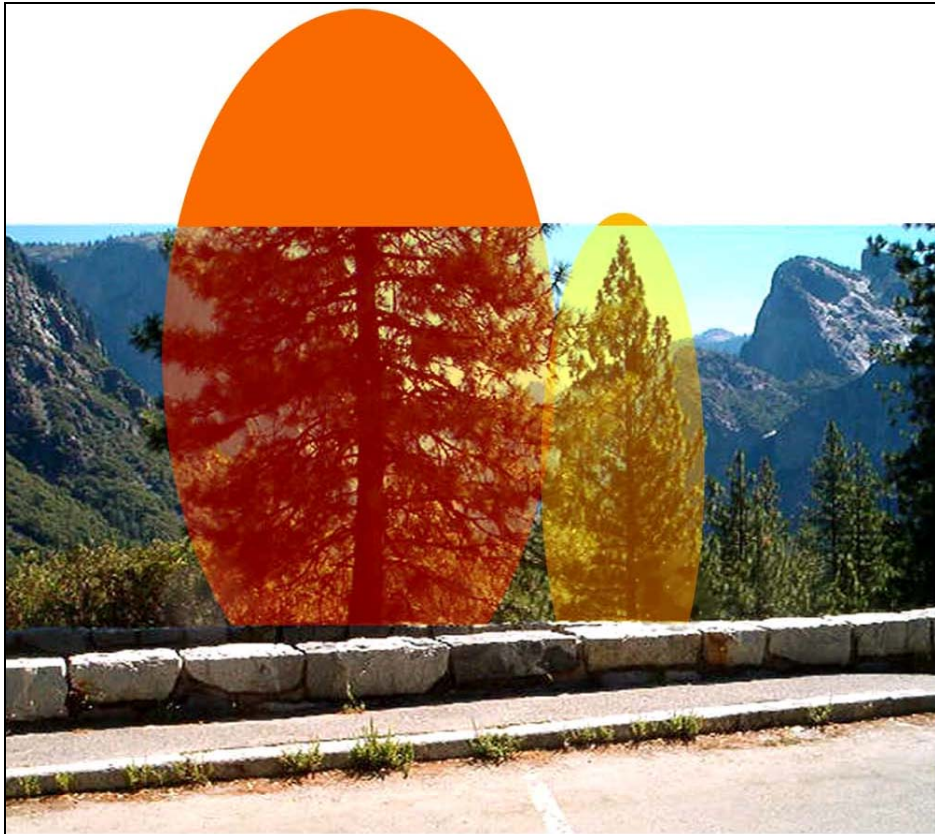
Analysis. Under all three Action Alternatives, vista clearing for P2: Valley View from North Lot would include selective tree removal. Approximately 20 trees ranging from 1-inch to 26-inch dbh would be removed, restoring the view to its historic condition—completely open and unobstructed. This tree removal would also restore P1: Valley View from Tunnel to historic conditions. Under all three Action Alternatives, vista clearing for P3: Valley View from South Lot would also be identical, three trees would be removed. Secondary Views 1 and 2 would be altered for all three action alternatives by selectively thinning trees along the Canyon View sidewalk and the Valley View sidewalk—approximately 5-10 trees (ranging from 1-inch to 18-inch dbh) would be removed. The following photographs demonstrate before and after vista clearing strategies for Primary View 2: Valley View from North Lot and Primary View 3: Valley View from South Lot.

The visitor experience at Primary View 3 (in the South Lot) would be identical for Alternatives 2, 3, and 4—an expanded viewing platform at P3 would improve visitor access to views, increase visitors' perception of safety by creating a separation between pedestrians and vehicles, and would create a diversity of viewing opportunities. Primary View 1: Valley View from Tunnel would also be identical under all three Action Alternatives. All trees blocking the views from P1 would be removed, restoring the view to historic conditions. The visitor experience at Primary View 2 would be identical for Alternatives 2 and 3—an expanded viewing platform would improve visitor access to views, increase visitors' perception of safety by creating a separation between pedestrians and vehicles and would create a diversity of viewing opportunities. For Alternative 4, Primary View 2: Valley View from North Lot would be located further to the northwest than in Alternatives 2 and 3—further away from Wawona Road and further away from the South Lot. Because it would not be adjacent to the Wawona Road, it would increase the perception of safety among visitors when compared to Alternatives 2 and 3.

Overall, through vista management and improvements in the visitors' ability to access views, Alternatives 2, 3, and 4 would have a local, long-term, major, beneficial impact on scenic resources.

Cumulative Impacts. The effects of cumulative actions on scenic resources are described previously for the Alternative 1 (No Action). Actions under Alternatives 2, 3, and 4 in combination with past, present and reasonably foreseeable future actions would result in local, long-term, moderate, beneficial cumulative impacts to scenic resources within the project area.

Impairment. Because scenic resources would be improved in all three of the action alternatives, there would be no impairment of scenic resources with the implementation of the alternatives described in this EA.



Existing conditions without vista management, trees shaded orange are to be removed.



Same view point with vista management

Figure 17. Vista Management common to all Action Alternatives. Valley View from South Lot (P3) before and after vista management



Existing conditions without vista management, trees shaded orange are removed.



Same viewpoint with vista management.

Figure 18. Alternative 4, Valley View from North Lot (P3) before and after vista management

Park Operations

Affected Environment

Park facilities and infrastructure in the vicinity of the project area include Wawona Road, Wawona Tunnel and Tunnel View Overlook. Overhead power utilities to the tunnel extend from a substation at the Cascades Powerhouse to the western end of the tunnel. Telephone lines extend from the Valley up alongside Wawona Road. There are two public telephones, one located at the west portal of the tunnel and one located in the middle of the tunnel, provided for visitor safety. A telephone located at Tunnel View Overlook was removed, in 2006. However, there are plans to install new emergency call boxes at the three locations in fall/winter 2007. A dumpster is provided in the North Lot for trash collection, and is also used as a transfer station. Trash is collected from cans along Wawona Road, and deposited into the dumpster for later pickup. A trash can is provided in the South Lot. The parking lots are kept free of snow in the winter. This allows visitors to enjoy the winter view of the Valley, provides a safe area for people to install chains when required, and provides a snowplow turnaround. During the summer, Facilities Management staff patches and repairs roads and cleans drainage structures. Due to budget constraints, however, much of the maintenance at Tunnel View Overlook has been deferred.

The Division of Visitor Protection routinely responds to incidents at Tunnel View Overlook. For example, during the second week in July, 2007 rangers responded to two vehicle-vehicle accidents at the overlook. As discussed in the Visitor Use section of this EA, Wawona Tunnel has been identified as a high accident area. Accidents have involved damage to personal property, and in some instances injuries that required response from emergency medical personnel.

Resources Management staff identifies and protects the natural, historic, and cultural resources of the park. They are responsible for resource monitoring and evaluation, impact mitigation, restoration, and wildlife management. Vista management, invasive species management, and hazard tree abatement within the project area are among the Resource Management and Science Division's responsibilities.

The Division of Interpretation is responsible for communication and information services, education, interpretive services, museum operations, and field operations. Interpretive and educational activities include introducing some of Yosemite's most famous sightseeing points in Yosemite Valley and describing the history, geology, plant and animal life of the region during a 26-mile, two-hour Yosemite Valley Floor tram tour. Tunnel View is among the famous sites visited during the tour. The tours are operated by the Delaware North Company (DNC), Yosemite National Park's primary contracted concession operator. DNC books the tours, and owns and operates the fleet and an NPS interpretive ranger leads the tour. Concessions Management is provided by the Division of Business and Revenue Management.

Environmental Consequences

Methodology: Park Operations analysis was based on a qualitative assessment of park operations that could occur in the project area and the effects anticipated as a result of ongoing maintenance, rehabilitation, and/or construction. For purposes of this analysis, an alternative is assumed to have an impact (negative or beneficial) on park operations if it:

- Results in direct changes to park operation, facilities, or staffing requirements or policies associated with park operations

- Causes indirect effects on park operations staffing, such as effects on utility and roadway infrastructure, flooding, and impacts on provision of utilities, especially potable water and sewer services

Alternative 1 (No Action)

Analysis. There would be no new impacts to park operations under Alternative 1. Existing impacts to park operations would continue under the No Action Alternative. Impacts to park operations at Tunnel View Overlook include Visitor Protection staff responding to a high number of accidents at the overlook. Some of these accidents result from poor drainage within the site causing icy road conditions. Traffic calming features would not be installed under the No Action Alternative. Consequently, high rates of speed within the project area would continue to impact visitor safety. Comprehensive repairs and repaving of the site would not occur under the No Action Alternative, nor would the site benefit from new materials. As a result, the Facilities Management Division would continue to have to find funds for patch and repair work, or continue to defer maintenance for lack of funds. Traffic flow in and out of the North Lot and the poorly marked parking spaces would continue to pose a challenge for the Yosemite Valley Floor tram tour drivers and create safety risks for visitors. The obscured view and small viewing platform would continue to make it difficult for interpretative rangers to provide programs for visitors. As a result, the No Action Alternative would have a local, long-term, moderate, adverse impact to park operations.

Cumulative Impacts. Cumulative effects to park operations are based on analysis of past, present and reasonably foreseeable future actions within the project area in combination with the potential effects of this alternative.

Past actions that cumulatively impact park operations within the project area include the construction of Wawona Road, Wawona Tunnel, and Tunnel View Overlook. Construction of these features increased the amount of infrastructure requiring routine and regular maintenance. Safety issues, drainage issues, traffic congestion and visitor crowding have had an adverse impact on park operations.

Present actions that cumulatively impact park operations within the project area include Wawona Tunnel Ventilation and Lighting Systems Repair. This action would have a short-term adverse impact on park operations due to the increase in workload, but it would have a long-term beneficial impact by upgrading the tunnels infrastructure, installing emergency call boxes and reducing the need for emergency repairs.

Reasonably Foreseeable Future actions that would cumulatively impact park operations within the project area include Wawona Tunnel Utilities Improvement, Repaving Wawona Road, and El Portal Road Improvements Project (Narrows to Pohono Bridge). The construction phases of these activities would have an adverse impact on park operations due to increased traffic congestion resulting from one-way traffic controls and delays. The park's Comprehensive Transportation Plan would have a beneficial impact on park operations. The transportation plan would include an assessment of visitor experience, access and resource conditions as they relate to the transportation system. Based on these assessments, public comments, and feedback from park staff and consultants, issues would be identified, alternatives would be developed, and solutions would be proposed in a comprehensive management plan. Past, present and reasonably foreseeable future actions within the project area in combination with the potential effects of this alternative would result in local, long-term, minor, adverse cumulative impacts to park operations.

Alternatives 2 (Preferred) and 3

Analysis. Implementation of Alternatives 2 or 3 would have the same impacts on park operations. These impacts, both beneficial and adverse, would primarily affect the Roads and Trails Branch of the Facilities Management Division. Features that would increase workload for Roads and Trails include the installation of new drainage structures, the trench drain across the tunnel portal and the storm water debris separation and filtration system in particular would require routine maintenance not currently conducted at the overlook. The parking areas are kept clear of snow in the winter. The added viewing platforms in the north and South Lot may require additional hand clearing. Additionally, the South Lot viewing platform may make plowing in that lot less efficient. The width and alignment of the driveways would be expanded or improved in all Action Alternatives. These modifications would improve parking lot ingress and egress making the site easier for plow drivers. New materials, comprehensive repairs, and improved drainage features would provide a long-term benefit to park operations by reducing the amount of time spent patching parking lots and doing emergency repairs at the site.

Visitor Protection would also benefit from implementation of Alternatives 2 or 3. Clear and intuitive traffic circulation patterns and pedestrian areas, reduced traffic congestion, and improved drainage along with a clear separation of the parking lot from road and the viewing platform from the parking lot would result in substantial improvements in safety. These improvements would reduce the number of accidents at the site. Accordingly, the amount of time Visitor Protection spends responding to accidents at this site would also be reduced.

The construction of a larger viewing platform would also provide greater opportunities for interpretive programs at the site. Additionally, the improved traffic and pedestrians conditions within the North Lot would allow Yosemite Valley Floor tram tour interpretive rangers to spend more time on interpretation and less time directing traffic and worrying about visitor's safety.

Implementation of this project would also impact the Resources Management and Science Division's staff. Staff responsibilities would include: overseeing compliance with invasive species mitigation measures, mapping non-native species and conducting post-construction monitoring and treatment; and surveying for nesting birds and roosting bats. The Branch of History, Architecture, and Landscapes would provide evaluations and advice regarding preservation of the historic site, and would assist in the development and oversight of impact mitigation and restoration measures as stipulated in the PA.

Alternatives 2 and 3 would have local, short-term, minor, adverse impacts to park operations during construction. These impacts would result from periodic one-way traffic controls on Wawona Road, closure of one or the other parking area, increased visitor crowding, and traffic congestion. Following construction, Alternatives 2 and 3 would have local, long-term, moderate, beneficial impacts on park operations for the reasons discussed above.

Cumulative Impacts. Past, present and reasonably foreseeable future actions within the project area would result in local, long-term, minor, adverse impacts to park operations while implementation of Alternatives 2 or 3 would have local, long-term, moderate, beneficial impacts. Thus, the cumulative actions in combination with Alternatives 2 or 3 would result in net local, long-term, moderate, beneficial cumulative impacts to park operations within the project area.

Alternative 4

Analysis. As with Alternatives 2 and 3, implementation of Alternative 4 would result in both beneficial and adverse impacts. These impacts would primarily affect the Roads and Trails Branch of the Facilities Management Division. Features that would increase workload for Roads

and Trails include the installation of new drainage structures, the trench drain across the tunnel portal and the storm water debris separation and filtration system in particular would require routine maintenance not currently conducted at the overlook. The parking areas are kept clear of snow in the winter. The added viewing platforms in the north and South Lot may require additional hand clearing. Additionally, the South Lot viewing platform may make plowing in that lot less efficient. Compared to Alternatives 2 and 3, Alternative 4 does not expand the North Lot driveways as much, nor does it propose to realign the eastern driveway of this lot to be totally perpendicular with the road. However, Alternative 4 does include modifications that would improve parking lot ingress and egress improving the situation for plow drivers. New materials, comprehensive repairs, and improved drainage features would provide a long-term benefit to park operations by reducing the amount of time spent patching parking lots and doing emergency repairs at the site.

Visitor Protection would also benefit from implementation of Alternative 4. Traffic circulation and pedestrian areas would be more defined, there would be a reduction of traffic congestion, drainage would be improved, and there would be a clear separation between the viewing platforms and parking lots. While these modifications do not provide as much improvement compared to Alternatives 2 and 3, improved safety for visitors and staff would reduce the number of accidents at the site. Accordingly, the amount of time Visitor Protection spends responding to accidents at this site would also be reduced.

The construction of a larger viewing platform would also provide greater opportunities for interpretive programs at the site. Additionally, the improved traffic and pedestrians conditions within the North Lot would allow Yosemite Valley Floor tram tour interpretive rangers to spend more time on interpretation and less time directing traffic and worrying about visitor's safety.

Implementation of this project would also impact the Resources Management and Science Division's staff. Staff responsibilities would include: overseeing compliance with invasive species mitigation measures, mapping non-native species and conducting post-construction monitoring and treatment; and surveying for nesting birds and roosting bats. The Branch of History, Architecture, and Landscapes would provide evaluations and advice regarding preservation of the historic site, and would assist in the development and oversight of impact mitigation and restoration measures as stipulated in the PA.

Alternative 4 would have local, short-term, minor, adverse impacts to park operations during construction. These impacts would result from periodic one-way traffic controls on Wawona Road, closure of one or the other parking area, increased visitor crowding, and traffic congestion. Following construction, Alternative 4 would have local, long-term, minor, beneficial impacts on park operations for the reasons discussed above.

Cumulative Impacts. Past, present and reasonably foreseeable future actions within the project area would result in local, long-term, minor, adverse impacts to park operations while implementation of Alternative 4 would have local, long-term, minor, beneficial impacts. Thus, the cumulative actions in combination with Alternative 4 would result in net local, long-term, minor, beneficial cumulative impacts to park operations within the project area.

Transportation

Affected Environment

Yosemite National Park is accessed by three state highways: California Highway 41 enters from the southwest; 120 has two entrances, one from the northwest and the other from the east; and 140 which enters from the west. The highways are paved, primarily two-lane roads

characterized by segments of steep grades, winding curves, and narrower sections as they approach the park. California Highway 41 is one of three year-round routes to Yosemite National Park. The most direct southern access to the park is from Fresno along California Highway 41, which passes through the gateway communities of Oakhurst and Fishcamp. Highway 41 enters the park at South Entrance. The state highways leading into Yosemite National Park transition into the internal parkwide road system. There are no state highways within the boundaries of the park, though California Highway numbers are used on park signs to help orient visitors. Highway 41, which becomes Wawona Road, provides access to the communities of Wawona and Yosemite West, as well as developed areas such as Glacier Point, Badger Pass Ski area, Tunnel View Overlook and Yosemite Valley.

The high volume of traffic on Wawona Road in general, and the high visitor use at Tunnel View Overlook in particular, results in traffic congestion within the project area. This issue is exacerbated by the narrow driveways, short sightlines for pedestrians and vehicles, less-than intuitive traffic flow patterns, and lack of adequate viewing space for pedestrians.

In late-April 2006, re-activation (Ferguson rockslide) occurred on a prehistoric rock slide in the Merced River Canyon (outside of the park) and caused the complete blocking of California Highway 140. The California Department of Transportation (Caltrans) completed a temporary bypass of the rockslide in August, 2006. The bypass is restricted to vehicles 28-foot-in-length or less. Consequently, charter and tour buses, RVs, and large commercial trucks must use the South Entrance (Wawona Road) or the Big Oak Flat Entrance (accessed by Highway 120) to enter the park from the South or West. This has put a strain on the South Entrance and Wawona Road. The total number of vehicles entering through the South Entrance Station increased from 384,783 in 2005 to 425,546 in 2006. As a result of the Highway 140 bypass, and Big Oak Flat Entrance Station increasing the number of tour buses allowed through that entrance, the number of vehicles using the South Entrance Station has declined towards pre-Ferguson rockslide numbers. For example, in July of 2005 (before the rockslide), the South Entrance served 54,120 vehicles, 335 of which were buses. In July of 2006 (after the rockslide), the South Entrance served 73,634 vehicles, 616 of which were buses. In July of 2007 (after Big Oak Flat entrance increased the numbers of tour buses allowed, and after the rockslide bypass was constructed on Highway 140), the South Entrance served 55,500 vehicles, 396 of which were buses.

Environmental Consequences

Methodology: This impact assessment focuses primarily on the effect of temporary changes to the roadway system and parking spaces on traffic volumes and associated traffic flow, access and circulation, and safety conditions. Transportation impacts are assessed in terms of duration, intensity, and type. In terms of duration, a short-term impact is one that would be created during the implementation phase of the alternative action (e.g., temporary disruption of access created during construction of facility improvements) and would generally last approximately four years. A long-term impact would be created through the permanent change to traffic generation, as well as changes to circulation patterns, expected following the implementation phase of the alternative action. The intensities of impacts consider whether the impact would be negligible, minor, moderate, or major. Negligible impacts are effects considered not detectable and would have no discernible effect on traffic flow and/or traffic safety conditions. Minor impacts are effects on traffic flow and/or traffic safety conditions that would be slightly detectable, but not expected to have an overall effect on those conditions. Moderate impacts would be clearly detectable and could have an appreciable effect on traffic flow and/or traffic

safety conditions. Major impacts would have a substantial, highly noticeable influence on traffic flow and/or traffic safety conditions and could permanently alter those conditions.

Type of Impact: Impacts are considered either beneficial or adverse on traffic flow and/or traffic safety conditions. Beneficial impacts would improve traffic flow and traffic safety by reducing levels of congestion and occurrences of vehicle/vehicle, vehicle/bicycle, and vehicle/pedestrian conflicts. Adverse impacts would negatively alter traffic flow and traffic safety by increasing levels of congestion and occurrences of such conflicts.

Alternative 1 (No Action)

Analysis. There would be no new impacts to transportation under Alternative 1. Existing impacts to transportation would continue under the No Action Alternative. Impacts to transportation at Tunnel View Overlook include the high number of accidents at the overlook. Some of these accidents result from poor drainage within the site causing icy road conditions. Traffic calming features would not be installed under the No Action Alternative. Consequently, high rates of speed within the project area would continue to influence the high number of accidents within the project area. New signage alerting vehicles to their proximity to the site would not be installed along Wawona Road. Thus, vehicles would continue to exit the tunnel unaware of the congested area and pedestrian crossing. Traffic flowing in and out of the parking lots merging into traffic on Wawona Road would continue to cause traffic congestion and safety issues. Crowding at the viewing platform would continue to result in pedestrians overflowing into the parking lot entrance creating additional traffic congestion including forcing vehicles to stop in Wawona Road and wait for the driveway to clear of pedestrians. The narrow two-way east entrance to the parking lot would not be widened to allow two vehicles to use this driveway simultaneously. This situation would continue to result in vehicles stopping on Wawona Road to wait for other vehicles to exit the parking lot. As a result, the No Action Alternative would have a local, long-term, moderate, adverse impact to transportation.

Cumulative Impacts. Cumulative effects to transportation are based on analysis of past, present and reasonably foreseeable future actions within the project area in combination with the potential effects of this alternative.

Past actions that cumulatively impact transportation within the project area include the construction and design of Wawona Road, Wawona Tunnel, and Tunnel View Overlook. Impacts include traffic congestion and safety issues.

Present actions that cumulatively impact transportation within the project area include Reconstruction of Critically Eroded Sections of El Portal Road, Glacier Point Road Rehabilitation, and Wawona Tunnel Ventilation and Lighting Systems Repair. These actions could have a short-term adverse impact to transportation due to traffic delays and rerouting during construction. Traffic on Wawona Road may increase during construction on El Portal Road if visitors and staff choose alternative routes to avoid construction. In the long-term, these projects would benefit transportation in the long-term by improving the park's infrastructure, improving safety, and reducing traffic pressures on Wawona Road.

Reasonably Foreseeable Future actions that would cumulatively impact transportation within the project area include State Route 140 Ferguson Slide Restoration, Wawona Road repaving and the Wawona Tunnel Utilities Improvement. These actions would have short-term adverse impact to transportation due to traffic delays and rerouting during construction. In the long-term, these projects would benefit transportation by improving the park's infrastructure, improving safety, and, in the case of the State Route 140 Ferguson Slide Restoration, reducing

traffic pressures on Wawona Road. The park's Comprehensive Transportation Plan would improve transportation within the park. The transportation plan would include an assessment of visitor experience, access and resource conditions as they relate to the transportation system. Based on these assessments, public comments, and feedback from park staff and consultants, issues would be identified, alternatives would be developed, and solutions would be proposed in a comprehensive management plan. Past, present and reasonably foreseeable future actions within the project area in combination with the potential effects of this alternative would result in local, long-term, moderate, adverse cumulative impacts to transportation.

Alternative 2 (Preferred)

Analysis. Alternative 2 would include several modifications that would improve traffic flow and reduce traffic congestion on Wawona Road and within the overlook parking areas. These modifications include instituting a one-way traffic flow pattern in and out of the North Lots. The change in traffic flow would reduce vehicle-vehicle conflicts created by two-way traffic trying to exit and enter the parking lot simultaneously. Movement of oversized vehicles into the North Lot the west driveway would be improved by moving the driveway closer to the tunnel and widening it to 45 feet. The east exit of this parking lot would also be widened and would be oriented perpendicular to the road to make it easier for vehicles turning right and would make the driveways one-way nature more obvious to westbound traffic. Oversized vehicles traveling east on Wawona Road would be directed into the North Lot. Eastbound automobiles would be prohibited from making the left-hand turn into the North Lot and would be directed into the South Lot. This would improve safety and traffic congestion at the tunnel portal.

This alternative would increase the number of parking spaces from 29 to 34. Parking within the North Lot would be designed to be intuitive for oversized vehicles and automobiles. Oversized vehicle parking would remain in the center of the North Lot. This design would provide enough turning radius for oversized vehicles to pull in and out with little if any need to back up in the parking lot. Automobile parking spaces by the road would be oriented 60-degrees to maintain the one-way traffic pattern. The remainder of parking spaces would be angled 90-degrees to conserve the total number of parking spaces.

The South Lot would maintain the existing one-way traffic flow and the entrance would be expanded to make it easier for vehicles to turn in and would also facilitate the movement of overflow traffic from the North Lot into the South Lot. Parking spaces within the South Lot would be oriented at a 60-degree angle making the one-way traffic flow more intuitive.

Alternative 2 would also include traffic calming features that would improve traffic congestion and safety within the project area. These features would slow vehicle traffic, and alert visitors of their proximity to the overlook and the associated congestion and pedestrian traffic. Alternative 2 would also improve drainage at Tunnel View Overlook reducing icy and wet road conditions.

Implementation of Alternative 2 would result in local, short-term, minor, adverse impacts to transportation. These impacts would be result from construction related traffic congestion. Temporary one-way traffic controls, closure of one or the other parking lot, and movement of construction equipment would contribute to these impacts. However, once construction was complete, Alternative 2 would have local, long-term, moderate, beneficial impacts to transportation.

Cumulative Impacts. Past, present and reasonably foreseeable future actions within the project area would result in local, long-term, moderate, adverse impacts to transportation while implementation of Alternative 2 would have local, long-term, moderate, beneficial impacts.

Thus, the cumulative actions in combination with Alternative 2 would result in net local, long-term, moderate, beneficial cumulative impacts to transportation within the project area.

Alternative 3

Analysis. Alternative 3 would include many of the same modifications and would therefore have similar impacts as Alternative 2. The primary difference between these alternatives is how the North Lot is configured for oversized and automobile parking.

Oversized vehicle parking would be moved to the northern portion of the lot and would be separated from automobile parking by an at-grade sidewalk. If more than two oversized vehicles were in the lot, vehicles would have to back or parallel park into the spaces. This could cause some congestion or safety issues that would impact transportation. Conversely, automobiles would not be backing up towards buses loading passengers, and would therefore, improving safety in the parking lot. Automobile parking spaces would be angled 60-degrees in the center of the lot to facilitate the one-way traffic patterns, and would be angled 90-degrees on the western edge.

This alternative would decrease the number of parking spaces from 29 to 28. Implementation of Alternative 3 would result in local, short-term, minor, adverse impacts to transportation. These impacts would be result from construction related traffic congestion. Temporary one-way traffic controls, closure of one or the other parking lot, and movement of construction equipment would contribute to these impacts. However, once construction was complete, Alternative 3 would have local, long-term, moderate, beneficial impacts to transportation.

Cumulative Impacts. Past, present and reasonably foreseeable future actions within the project area would result in local, long-term, moderate, adverse impacts to transportation while implementation of Alternative 3 would have local, long-term, moderate, beneficial impacts. Thus, the cumulative actions in combination with Alternative 3 would result in net local, long-term, moderate, beneficial cumulative impacts to transportation within the project area.

Alternative 4

Analysis. Alternative 4 would also include many of the same features as Alternatives 2 and 3. For example, drainage would be improved and traffic calming features would be added to the site. However, the historic preservation theme of this alternative would result in fewer modifications to the historic defining features of the site and fewer modifications that would improve traffic flow, reduce traffic congestion and improve safety. For example, the historic two-way traffic circulation pattern in the North Lot would be maintained, and the entrance to the South Lot would not be widened.

Alternative 4 would include some modifications to improve traffic flow and reduce traffic congestion on Wawona Road and within the North Lot. These modifications include moving the west driveway closer to the tunnel and widening it to 30 feet. The east driveway of this parking lot would be widened to 22 feet to allow two vehicles to use the driveway simultaneously and the curb would be cut to facilitate vehicles turning east. Oversized vehicles traveling east on Wawona Road would be directed into the North Lot. Eastbound automobiles would be prohibited from making the left-hand turn into the North Lot and would be directed into the South Lot. This would improve safety and traffic congestion at the tunnel portal.

This alternative would increase the number of parking spaces from 29 to 31. Parking within the North Lot would remain relatively unchanged from the historic configuration, although two oversized wheelchair accessible parking spaces would be added. Oversized vehicle parking

would remain in the center of the North Lot and as with Alternative 2 would be shifted west to accommodate the expanded viewing platform.

Implementation of Alternative 4 would result in local, short-term, minor, adverse impacts to transportation. These impacts would be result from construction related traffic congestion. Temporary one-way traffic controls, closure of one or the other parking lot, and movement of construction equipment would contribute to these impacts. However, once construction was complete, Alternative 4 would have local, long-term, minor, beneficial impacts to transportation.

Cumulative Impacts. Past, present and reasonably foreseeable future actions within the project area would result in local, long-term, moderate, adverse impacts to transportation while implementation of Alternative 4 would have local, long-term, minor, beneficial impacts. Thus, the cumulative actions in combination with Alternative 4 would result in net local, long-term, minor, beneficial cumulative impacts to transportation within the project area.

Table 6. Summary of Environmental Consequences

No Action Alternative	Alternative 2 (Preferred)	Alternative 3	Alternative 4
Soils			
<p>Soils would continue to be impacted from erosion at the Inspiration Point trailhead and from uncontrolled stormwater runoff. Untreated storm water would continue to deposit petroleum products and other contaminants from the parking area at the outflow of the existing drainage. Routine and ongoing maintenance of the parking surface and road would continue to impact soils along the edge of the road and near culverts including mixing, removing, and replacing soils. Thus, the No Action Alternative would have a local, long-term, minor, adverse impact to soils within the project area.</p>	<p>Impacts could include soil removal, compaction, profile mixing and erosion resulting from the installation of new storm water debris separation and filtration system, the refurbishing of rock rip-rap at the outfall, and the realignment of Inspiration Point trailhead. These impacts would be minimized through the adherence to Best Management Practices. Long-term, local, minor, beneficial impacts on soils within the project area would include reduced erosion at the drainage outfall, and soil contamination deposited by storm water, and restoration of the trailhead. Overall, Alternatives 2, 3 and 4 would have Long-term, local, minor, beneficial impacts on soils within the project area.</p>		
Water Resources (Water Quality and Hydrology)			
<p>Inadequate or poorly maintained drainage structures would continue to impact water quality through erosion and lack of stormwater treatment; sand and sediment deposited onto road and parking lot surfaces from vehicles and picked up during rain and snowmelt would continue to runoff from the site untreated. Erosion would continue at the Inspiration Point trailhead. Overall, the No Action Alternative would have a local, long-term, minor, adverse impact to water quality and hydrology within the project area.</p>	<p>Ground disturbing activities associated with construction would result in short-term, local, negligible, adverse impacts to water quality. These impacts would be minimized through the adherence to Best Management Practices. Other impacts within the project area include reduced erosion at the drainage outfall and separation of contaminants from storm water. Overall, Alternatives 2, 3 and 4 would have long-term, local, minor, beneficial impacts to water quality and hydrology within the project area.</p>		
Vegetation			
<p>Impacts to vegetation would continue to result from vegetation maintenance activities alongside the road, including the periodic trimming and removal of vegetation from within approximately ten feet of the edge of pavement on both sides of the road, fuels reduction, and hazard tree removal. As a result, the No Action Alternative would have a local, long-term, negligible to minor, adverse impact to vegetation within the project area.</p>	<p>Under all Action Alternatives, approximately 20 trees ranging from 1-inch to 26-inch dbh, restoring the view from the North Lot to its historic condition—completely open and unobstructed. These trees would include two ponderosa pines—one 26-inch dbh, and one 20-inch dbh—and one 24-inch dbh incense cedar. Three trees ranging from 10-inch to 20-inch dbh would be removed to clear the vista from the South Lot. Selective thinning of approximately 5-10 trees (ranging from 1-inch to 18-inch dbh) would be removed along the Canyon View sidewalk and the Valley View sidewalk. The trees proposed for removal are growing up in the fill material that was deposited during construction of the overlook in 1931 and 1932. None of the trees are more than seventy-five years old, nor have any of them been identified as hazard trees. Most of the project area is either developed or directly adjacent to developed features including the road, parking lot, and fill material. Some crushing of plant material could occur during construction activities including the installation of new drainage features. Mitigation measures would include installing temporary fencing around the project boundaries, revegetation following construction, and monitoring and treating the non-native species. Overall, these activities would not disrupt the continuity or integrity of the native plant communities. Thus, Alternatives 2, 3 and 4 would have a local, short-term, negligible, adverse impact to vegetation within the project site.</p>		
Wildlife			
<p>The habitat at this site is marginal. Impacts to wildlife include some loss of trees and understory due to visitor activities, fuels reduction, removal of hazard trees, availability of human food and trash, and noise and visual disturbance associated with human activities and vehicles. Other impacts include mortality due to vehicle volume and traffic speed. Combined these impacts would have a local, long-term, minor to moderate, adverse impact to wildlife.</p>	<p>The Action Alternatives would not expand the developed footprint or alter the volume or type of visitor use at Tunnel View Overlook. The habitat at this site is marginal. The trees slated for removal are growing within one hundred feet of the parking lot or road, and are all less-than 75 years old. Removal could reduce available habitat for wildlife. Impacts from vehicle collisions would be reduced as a result of slowing traffic within the project area. Therefore, Alternatives 2, 3 and 4 would have local, short-term, negligible, adverse impacts to wildlife in the project area.</p>		

No Action Alternative	Alternative 2 (Preferred)	Alternative 3	Alternative 4
Special Status Species			
<p>The habitat at this site is marginal. Impacts to special status species (bats) include minor loss of trees and snags due to fuels reduction, removal of hazard trees. These impacts would be mitigated. Other impacts include mortality due to volume and vehicle traffic speed. Impacts to special status plant species (tanbark oak) include trampling from visitors hiking off trail and roadside disturbance. Due to the location of this species, these impacts would be slight. As a result, the No Action Alternative would not be likely to affect sensitive species.</p>	<p>Alternative 2 would not expand the developed footprint or alter the volume or type of visitor use at Tunnel View Overlook. Twelve trees, all growing within one hundred feet of the parking lot or road, would be removed potentially reducing available habitat for bats. Mitigation measures would reduce the likelihood of these impacts. Construction fencing would be placed around the project area to reduce impacts to sensitive plant species (tanbark oak). Overall, Alternatives 2, 3 and 4 would not be likely to affect sensitive species.</p>		
Historic Properties			
<p>Under the Alternative 1, there would be no additional impacts to the Wawona Tunnel historic site. No modification to the historic character-defining elements would occur with the exception of periodic repairs to rockwork and paving, and cyclic maintenance of roadside vegetation and drainage structures. Vegetation that obscures the historic view would not be removed, and the historic view would become more obscured as vegetation continues to mature. This alternative would have <i>no adverse effect</i> to the Wawona Tunnel historic site: although some of the historic character-defining features would be affected, but not so as to diminish the historic property's integrity.</p>	<p>Under Alternative 2, the combined actions will directly and permanently alter several of the characteristics of the historic site that qualify the property for inclusion in the NRHP. These features include:</p> <ul style="list-style-type: none"> • granite curbing/medians • area of parking lots • circulation pattern, • and width of driveways <p>Many of these actions alter these features in a manner that diminish the integrity of the property's <i>design</i>. Therefore, Alternative 2 would have an <i>adverse effect</i> on the Wawona Tunnel historic site.</p>	<p>Under Alternative 3, combined actions will directly and permanently alter several of the characteristics of the historic site that qualify the property for inclusion in the NRHP. These features include:</p> <ul style="list-style-type: none"> • granite curbing/medians • area of parking lots • circulation pattern • width of driveways, • and accessibility to historic view to canyon (from north sidewalk in North Lot) <p>Many of these actions alter features in a manner that diminish the integrity of the property's <i>design</i> (in the case of the curbing, medians, parking lot size, circulation pattern, and width of driveway), <i>setting</i> and <i>feeling</i> (in the case of the historic view). Therefore, Alt 3 would have an <i>adverse effect</i> on the Wawona Tunnel historic site.</p>	<p>Under Alternative 4, the combined actions will directly and permanently alter some of the characteristics of the historic site that qualify the property for inclusion in the NRHP. These features include:</p> <ul style="list-style-type: none"> • granite curbing/medians (although to a lesser degree than Alternatives 2 and 3) • area of parking lots, • and width of driveways <p>Many of these actions alter these features in a manner that diminish the integrity of the property's <i>design</i>. Therefore, Alternative 4 would have an <i>adverse effect</i> on the Wawona Tunnel historic site.</p>
Visitor Experience			
<p>Impacts include visitor crowding, traffic congestion and safety issues. Overall, the No Action Alternative would have a local, long-term, moderate, adverse impact to visitor experience within the project area.</p>	<p>Impacts would include short-term loss of access to portions of Tunnel View Overlook, additional visitor crowding and traffic congestion resulting from construction. Long-term impacts include increased access and recreational opportunities, additional parking spaces, increased safety, reduced crowding, reduced traffic congestion and ability to experience the historic vista following tree removal. restoration</p> <p>Alternative 2 would have the greatest impact on decreased crowding and parking opportunities and would increase access to the view of</p>	<p>As with Alternative 2, impacts would include short-term loss of access to portions of Tunnel View Overlook, additional visitor crowding and traffic congestion resulting from construction. Long-term impacts include increased access and recreational opportunities, additional parking spaces, increased safety, reduced crowding, reduced traffic congestion and ability to experience the historic vista following tree removal. restoration</p> <p>Alternative 3 would reduce visitor crowding more than Alternative 4, but would provide the fewest parking</p>	<p>As with Alternative 2, impacts would include short-term loss of access to portions of Tunnel View Overlook, additional visitor crowding and traffic congestion resulting from construction. Long-term impacts include increased access and recreational opportunities, additional parking spaces, increased safety, reduced crowding, reduced traffic congestion and ability to experience the historic vista following tree removal. restoration</p> <p>Alternative 4 would result in the least reduction for visitor crowding, and would not provide as clear or intuitive</p>

Affected Environment and Environmental Consequences

No Action Alternative	Alternative 2 (Preferred)	Alternative 3	Alternative 4
	<p>the canyon north of the parking area. This alternative would also result in the most intuitive traffic and pedestrian movement patterns and improved perception of safety.</p> <p>Overall, Alternative 2 would result in local, long-term, moderate, beneficial impacts to visitor experience at Tunnel View Overlook</p>	<p>spaces. The north view from the parking area could be blocked by oversized vehicles reducing access for visitors. This alternative would result in an intuitive traffic and pedestrian movement pattern and improved perception of safety.</p> <p>Overall, Alternative 3 would result in local, long-term, moderate, beneficial impacts to visitor experience at Tunnel View Overlook</p>	<p>traffic or pedestrian movement pattern compared with Alternatives 2 and 3. It would also result in fewer modifications to improve the perception of safety, separation of traffic from pedestrians and reduction in traffic congestion. The number of parking spaces would be greater than Alternative 3 but less than Alternative 2. Overall, Alternative 4 would result in local, long-term, minor, beneficial impacts to visitor experience at Tunnel View Overlook.</p>

Scenic Resources

<p>Under Alternative 1, the conifers currently obstructing all of the primary and secondary views would continue to grow and continue to encroach on all of these views. Roadside hazard tree removal would continue to occur, however no tree removal for vista management would occur. Primary View 2: Visitors would continue to cluster into small areas where the view is still accessible. They would continue to stand in the driveway and parking lot while waiting their turn to be at the front of the crowd to experience this view. The perception of over-crowding and lack of safety would continue to worsen as the “cone of view” continues to decrease in size. The other viewing areas would become even less accessible as conifers continue to grow. People who currently use these other views would eventually be forced to join the crowds at Primary View 2 in order to experience the view. The No Action Alternative would have a local, long-term, moderate, adverse impact on scenic resources.</p>	<p>Under all three Action Alternatives, vista clearing for P2: Valley View from North Lot would include selective tree removal. Approximately 20 trees ranging from 1-inch to 26-inch dbh would be removed, restoring the view to its historic condition—completely open and unobstructed. This tree removal would also restore P1: Valley View from Tunnel to historic conditions. Under all three Action Alternatives, vista clearing for P3: Valley View from South Lot would also be identical, three trees would be removed. Secondary Views 1 and 2 would be altered for all three action alternatives by selectively thinning trees along the Canyon View sidewalk and the Valley View sidewalk—approximately 5-10 trees (ranging from 1-inch to 18-inch dbh) would be removed.</p> <p>The visitor experience at Primary View 3 (in the South Lot) would be identical for Alternatives 2, 3, and 4—an expanded viewing platform at P3 would improve visitor access to views, increase visitors’ perception of safety by creating a separation between pedestrians and vehicles, and would create a diversity of viewing opportunities. Primary View 1: Valley View from Tunnel would also be identical under all three Action Alternatives. All trees blocking the views from P1 would be removed, restoring the view to historic conditions. The visitor experience at Primary View 2 would be identical for Alternatives 2 and 3—an expanded viewing platform would improve visitor access to views, increase visitors’ perception of safety by creating a separation between pedestrians and vehicles and would create a diversity of viewing opportunities. For Alternative 4, Primary View 2: Valley View from North Lot would be located further to the northwest than in Alternatives 2 and 3—further away from Wawona Road and further away from the South Lot. Because it would not be adjacent to the Wawona Road, it would increase the perception of safety among visitors when compared to Alternatives 2 and 3.</p> <p>Overall, through vista management and improvements in the visitors’ ability to access views, Alternatives 2, 3, and 4 would have a local, long-term, major, beneficial impact on scenic resources.</p>
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Park Operations

<p>Impacts include increased workload for Visitor Protection and Roads and Trails staff, reduced interpretation opportunities for Interpretive staff, traffic congestion and reduced employee safety. Overall, the No Action Alternative would have a local, long-term, moderate, adverse impact to park operations.</p>	<p>Beneficial impacts include reduced workload for Visitor Protection and Road and Trails staff, improved interpretive opportunities for Interpretive staff, reduced traffic congestion and improved employee safety. Access for snow plows and other maintenance vehicles would also beneficially impact park operations.</p> <p>Adverse impacts include increase workload associated with maintenance of new infrastructure. Construction activities would also increase workloads for park staff due to monitoring and project</p>	<p>Same as Alternative 2.</p>	<p>Beneficial impacts would be similar to those of Alternatives 2 and 3. However, However, the intensity of these impacts would not be as great. For example, the impact to traffic congestion and employee safety would not be as great. Adverse impacts would be the same as those in Alternatives 2 and 3.</p> <p>Alternative 4 would have local, long-term, minor, beneficial impacts on park operations for the reasons discussed above.</p>
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Affected Environment and Environmental Consequences

No Action Alternative	Alternative 2 (Preferred)	Alternative 3	Alternative 4
	<p>implementation activities.</p> <p>Overall, Alternatives 2 would have a local, long-term, moderate, beneficial impact on park operations.</p>		
Transportation			
<p>Impacts to transportation include a high number of accidents and traffic congestion at the overlook. There would be no effect on the number parking spaces. Overall, the No Action Alternative would have a local, long-term, moderate, adverse impact to transportation.</p>	<p>Adverse impacts would include short-term increases in traffic congestion and reduction in parking spaces during construction.</p> <p>Beneficial impacts include addressing traffic and pedestrian safety issues, improving traffic circulation patterns and reducing the volume and intensity of accidents. Overall, Alternative 2 would have local, long-term, moderate, beneficial impacts to transportation.</p>	<p>Short-term impacts would be the same as Alternative 2.</p> <p>Beneficial impacts would also be the same in terms of addressing traffic and pedestrian safety issues, improving traffic circulation patterns and reducing the volume and intensity of accidents.</p> <p>The number of available parking spaces would be reduced from existing conditions, and would result in the fewest parking spaces at the overlook. Overall, Alternative 3 would have local, long-term, moderate, beneficial impacts to transportation.</p>	<p>Short-term impacts would be the same as Alternative 2.</p> <p>Beneficial impacts would also include addressing traffic and pedestrian safety issues, however, the intensity of these impacts would be less. Traffic circulation patterns and would also be improved to less of an extent than Alternatives 2 and 3. This alternative would also have less of an impact on safety and consequently would have less of an impact on the volume and intensity of vehicle to vehicle and vehicle to pedestrian accidents within the project area.</p> <p>This alternative would increase the number of parking spaces by two. Overall, Alternative 4 would have local, long-term, minor, beneficial impacts to transportation.</p>

Chapter 4: Wild and Scenic River Act Compliance

Introduction

In 1987, the U.S. Congress designated the Merced River a Wild and Scenic River under the Wild and Scenic River Act (WSRA) (16 U.S.C. 1271 et seq.). This designation was authorized to protect the rivers free-flowing condition and to protect and enhance its unique values for the benefit and enjoyment of present and future generations. The designation gives the Merced River special protection under the WSRA and requires the managing agencies to prepare a Comprehensive Management Plan for the river and its immediate environment. This chapter evaluates the consistency of the proposed action with the WSRA and the Wild and Scenic Rivers Guidelines, 1982 (Secretarial Guidelines).

Relationship of the Action to the Boundary

The WSRA states *“the boundaries of any river proposed in section 5(a) of this Act for potential addition to the National Wild and Scenic Rivers System shall generally comprise that area measured within one-quarter mile from the ordinary high water mark on each side of the river. In the case of any designated river, prior to publication of boundaries. . . the boundaries also shall comprise the same area.”*

In the designating language for the Merced River, the WSRA signals the intent of Congress to protect a minimum of one quarter mile from both riverbanks until boundaries are formally defined. The Act states *“with respect to the segments of the main stem of the Merced River and the South Fork Merced River designated as recreational or scenic . . .the minerals to Federal lands which constitute the bed or bank or are situated within one-quarter mile of the bank are hereby withdrawn, subject to valid existing rights, from all forms of appropriation under the mining laws and from operation of the mineral leasing laws including, in both cases, amendments thereto.”*

The Secretarial Guidelines restate that for designated rivers for which boundaries are yet to be formally defined, the boundary should be considered to be *“an area extending the length of the river segment authorized for study and extending in width one-quarter mile from each bank of the river.”* The proposed action would occur within one quarter mile of the main stem of the Merced Wild and Scenic River.

Classification Consistency

Tunnel View Overlook is in the segment of the Merced River that includes flows through the west end of Yosemite Valley. This segment is designated as Scenic. The Scenic classification refers to “those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.” Implementation of this project would not result in any additional impoundments, shoreline development, or changes in road access. Therefore, the proposed action is compatible with the existing classifications.

Management Zoning Prescriptions

Management zoning is a technique used by NPS to classify park areas and prescribe future desired resource conditions, visitor experiences, and facilities. The Tunnel View Overlook was zoned as an Attraction Zone by the MRP and Revised MRP. These plans applied this zone *“to maintain park features that attract large numbers of visitors.”* These plans are currently invalid due to ongoing litigation, and the park has initiated an appeal of the District Court decision while also beginning the development of a new Merced River plan. However, the effects of this

project would not alter the number of visitors to the site nor affect the visitor experience that has been in place since construction of the overlook was completed in the 1930s. No new facilities would be built as a result of this project. Resource damage would be reduced by drainage improvements and movement of the Inspiration Point Trailhead. Therefore, implementation of this project would not impact future Merced Wild and Scenic River comprehensive management planning efforts.

Outstandingly Remarkable Values

Outstandingly Remarkable Values (ORVs) are defined by the WSRAs as those characteristics that make the river worthy of special protection. These can include scenery, recreation, fish and wildlife, geology, history, culture, and other similar values, which are to be considered in determining eligibility for Wild and Scenic River designation.

The first documentation of the Merced River’s ORVs relative to the WSRAs occurred with the 1982 National Rivers Inventory conducted by the NPS. Subsequent listing of the Merced River’s values, which qualified the river for inclusion in the Wild and Scenic Rivers System, occurred during the interdisciplinary study which became part of the 1986 Sierra National Forest Draft Forest Land and Resource Management Plan. This plan recommended the river for designation as a Wild and Scenic River.

Congressional committee reports to the U.S. House of Representatives and Senate regarding the authorization bill (H.R. 317) contained brief descriptions of the ORVs along with the concern that a proposed hydroelectric project on the river just outside Yosemite National Park threatened the values that qualified it for inclusion in the system. The NPS initially published ORVs for the Merced River corridor in the 1996 Draft Yosemite Valley Housing Plan.

Revisions to the 1996 ORVs by the Merced River Plan (1999-2000)

In developing the 2000 Merced Wild and Scenic River Comprehensive Management Plan (CMP), the NPS made technical corrections, clarifications, and changes to the ORVs that were defined for the Draft Yosemite Valley Housing Plan. These corrections were based on agency analysis and public comments. The resulting ORV descriptions presented in the 2000 Merced Wild and Scenic River CMP are listed in Table 7. The ORV descriptions were not altered from the 2000 descriptions for the 2005 Revised Merced Wild and Scenic River CMP.

Table 7. ORVs as defined in the 2000 Merced Wild and Scenic River CMP

Outstandingly Remarkable Values for the Valley Segment of The Merced River
<p>Scenic – This segment provides magnificent views from the river and its banks of waterfalls (Nevada, Vernal, Illilouette, Yosemite, Sentinel, Ribbon, Bridalveil, and Silver Strand), rock cliffs (Half Dome, North Dome/Washington Column, Glacier Point, Yosemite Point/Lost Arrow Spire, Sentinel Rock, Three Brothers, Cathedral Rock, and El Capitan), and meadows (Stoneman, Ahwahnee, Cook’s, Sentinel, Leidig, El Capitan, and Bridalveil). There is a scenic interface of river, rock, meadow, and forest throughout the segment.</p> <p>Geologic Processes/Conditions – This segment contains a classic, glaciated, U-shaped valley, providing important examples of a mature meandering river; hanging valleys such as Yosemite and Bridalveil Creeks; and evidence of glaciation (e.g., moraines below El Capitan and Bridalveil Meadows).</p> <p>Recreation – This segment offers opportunities to experience a spectrum of river-related recreational activities, from nature study and sightseeing to hiking. Yosemite Valley is one of the premier outdoor recreation areas in the world.</p> <p>Biological – Riparian areas and low-elevation meadows are the most productive communities in Yosemite Valley. The high quality and large extent of riparian, wetland, and other riverine areas provide rich habitat for a diversity of river-related species, including special-status species, neotropical migrant songbirds, and numerous bat species.</p> <p>Cultural – This segment contains evidence of thousands of years of human occupation reflected in a large number of archeological sites and continuing traditional use today. Nationally significant historic resources are found here, such as designed landscapes and developed areas, historic buildings, and circulation systems (trails, roads, and bridges) that provide visitor access to the sublime views of natural features that are culturally valuable.</p> <p>Hydrologic Processes – This segment is characterized by a meandering river, world renowned waterfalls, an active flood regime, oxbows, unique wetlands, and fluvial processes.</p>

ORVs Used in Current Analysis

The current analysis will use the ORVs listed in Table 7 to define the river values in the project area. These ORVs represent the most recent expression of river values, which have evolved with the input of the public and technical experts since 1982.

Wild and Scenic Rivers Act Section 7 Determination Process

Pursuant to the WSRA, the NPS must carry out a Section 7 determination on all proposed water resources projects that are within the bed or banks of the Merced River to ensure that they do not affect free flow and do not directly and adversely affect the ORVs for which the river was designated. The Tunnel View Overlook Rehabilitation would not occur within the bed or banks of the Merced River. Therefore, Section 7 determination is not required.

User Capacity

The proposed action is not expected to result in any change in the types or levels of visitor use within the Merced Wild and Scenic River boundaries, nor would it change existing vehicular or pedestrian circulation patterns. While implementation of this project would improve safety for visitors within the project area, the project would not alter a visitor's desire to reach a given location. The action alternatives would result in negligible changes (slight reduction) in parking capacity, and would therefore, result in negligible changes in visitor use. Dwell time would be unchanged by this project.

To protect ORVs and manage user capacity in the associated river segment and related project area, the NPS has established a program which includes a suite of specific indicators and measurable standards along with a rigorous monitoring program to ensure that each indicator remains within its designated standard. Indicators and standards have been developed to ensure that desired resource conditions and visitor experience opportunities, which are derived from the Merced Wild and Scenic River's elements, are being achieved. If monitoring indicates that ORV protection standards are being exceeded, the user capacity program requires NPS to take timely action to bring conditions within the accepted range necessary to protect ORVs. The user capacity program states that park managers will take action to proactively prevent degradation before it occurs.

Chapter 5: Consultation and Coordination

This chapter presents a review of all consultation and coordination efforts undertaken for the Tunnel View Rehabilitation EA.

Project Internal and Public Scoping History

The park conducted both internal and external scoping with appropriate NPS staff, agencies, American Indian tribes, and the public to determine the range of issues to be analyzed in the EA. Internal scoping included analysis from specialists such as historical landscape architects, hydrologists, biologists, engineers and other NPS staff from Yosemite National Park, the Denver Service Center, and the Pacific West Region, as well as engineers and other staff from the Federal Highways Administration. Specialists also participated in alternative development workshops. Based on scoping comments received, and federal laws, regulations, and executive orders, the NPS determined that an EA was the appropriate level of compliance for this stage of the project. This scoping process was used to define the project purpose and need, identify issues and impact topics, outline reasonable and feasible alternative actions, and to describe and evaluate the relationship of the preferred alternative to other planning efforts in the park.

Yosemite National Park conducted internal scoping from January to March, 2007. A variety of comments were received from park staff in cultural resources, safety, traffic management, roads, trails, and interpretation. Two alternatives development workshops were held following the public comment period with park staff and outside consultants. The first workshop, held on 17, 2007, was used to develop the three Action Alternatives. The second workshop held on August 6, 2007, used Value Analysis (VA) and Choosing by Advantages (CBA) techniques to select the “Preferred Alternatives.”

Public scoping was conducted through the following means: 1) a press release describing the intent to begin the public involvement through comments on the proposed project was issued on May 18, 2007. The press release was published in the *Mariposa Gazette* and the *Sierra Star*; 2) the June 21, 2007 Yosemite National Park Electronic Newsletter, emailed to a list of approximately 7000 people, included an announcement of the public scoping period. The July 16, 2007 newsletter directed interested public to a website for viewing the public scoping comments; 3) the May 2007 Planning Update included information about the project and an invitation to the monthly Yosemite Open House; 4) the scoping period was announced on the park’s Daily Report; and 5) the scoping period was announced via the park’s website. Invitations to Open Houses held on June 26, 2007 in Oakhurst and June 27, 2007 in Yosemite Valley were included in the above announcements. The Open Houses included exhibits about existing site conditions, environmental considerations, cultural resource concerns, transportation issues and construction and design procedures. Professional staff was available to introduce the project, give a presentation, answer questions, and to accept comments. During the public scoping process for this Environmental Assessment, which occurred from June 4, 2007 to July 9, 2007, ten comment letters were received, including eight from individuals, one from the chair of the Sierra Club’s Yosemite Committee (Sierra Club Fresno Chapter), and one from the Chairman of the Yosemite-Mono Lake Paiute Indian Committee. Letters were received via email, at public open houses, and through the U.S. mail.

Based on the comments received during the internal and public scoping periods, in addition to applicable federal law, regulations, and executive orders; the NPS determined that an environmental assessment (EA) was the appropriate level of National Environmental Policy Act (NEPA) compliance for this project.

Agency Consultation

U.S. Fish and Wildlife Service (Sacramento Fish and Wildlife Office)

Yosemite National Park obtained a list of federally designated Threatened, Endangered, Proposed and Candidate species for Tunnel View Overlook Rehabilitation from the U.S. Fish and Wildlife Service on July 23, 2007. This list was used as the basis for analyzing the affects of this project on federally protected species. Based on this list, park data, and park staff's professional knowledge and judgment it was determined that the project would have "no affect" on any federally protected species or their critical habitat. Therefore, no further consultation is required (50 CFR 402.14).

For more information on the U.S. Fish and Wildlife Service's Sacramento Fish and Wildlife Office, please visit their website at: <http://www.fws.gov/sacramento/consultation.htm>.

Office of Historic Preservation/Advisory Council on Historic Preservation

The *1999 Park Programmatic Agreement Among The National Park Service At Yosemite, The California State Historic Preservation Officer and The Advisory Council On Historic Preservation Regarding Planning, Design, Construction, Operations And Maintenance, Yosemite National Park, California* (1999 PA) was developed among the NPS at Yosemite, the California State Historic Preservation Officer, and the Advisory Council on Historic Preservation, in consultation with American Indian tribes, the National Trust on Historic Preservation, and the public and stipulates methods for the Park to carry out its responsibilities under Section 106 of the NHPA. In accordance with the 1999 PA, public involvement was coordinated with the NEPA Public Involvement and Scoping discussed above. Pursuant to the 1999 PA, the park has responsibility to review projects of this nature and magnitude in-house. SHPO made site visit to Tunnel View Overlook on May 22, 2007. The NHPA Section 106 review process is documented in this EA and the subsequent decision document.

The 1999 PA stipulates required consultation with SHPO, ACHP, Indian tribes, and interested persons when there is a disagreement among the park, the SHPO, any Indian Tribe, or any Interested Persons regarding proposed use standard mitigating measures. Pursuant to Stipulation VIII of the 1999 PA, this document facilitates notification to the SHPO and the public of the intention to implement standard mitigation measures. The SHPO will be provided with a copy of this EA, and will have an opportunity to review and comment on this project during the public comment period.

American Indian Consultation

Yosemite National Park is consulting with American Indian tribes having cultural association with this geographical area of the park, including the American Indian Council of Mariposa County, aka Southern Sierra Miwuk, and the Tuolumne Band of Me-Wuk Indians, the North Fork Mono of Rancheria Indians of California, and the Picayune Rancheria of Chukchansi Indians. The Tunnel View Overlook Rehabilitation was presented by park staff at the annual All-Tribes meeting held July 24, 2007. There are no known American Indian Traditional or Contemporary Cultural Practices associated with the project area, nor are there any known Traditional Cultural Properties within the site. This was confirmed during consultation with interested American Indian Tribal Governments and during the Section 106 process, respectively. Interested American Indian Tribal Governments will be provided with a copy of this EA, and will have additional opportunity to review and comment on this project during the public comment period. Information sharing and project planning will continue throughout the

planning and implementation of the proposed project to ensure that any potential concerns are addressed accordingly.

Future Information

This EA is available for a thirty (30) day public review and comment period from October 3, 2007 to November 2, 2007. Comments must be postmarked by November 2, 2007. An electronic copy of the EA is available on-line at <http://www.nps.gov/yose/planning>.

The availability of the EA is being announced through a press release and an e-newsletter. The EA is being mailed or emailed to the list of persons and agencies that have expressed interest in Yosemite National Park proposed actions and events. This includes agencies, public libraries, and organizations such as The Wilderness Society, The Alpine Club, Sierra Club, etc. The EA will also be available at local libraries in Mariposa, Wawona, Oakhurst and Groveland. Copies of the EA will also be submitted to the California State Clearinghouse.

Comments on the EA, or requests for additional copies of this EA (please specify CD or printed copy) should be directed to:

Superintendent, Yosemite National Park
ATTN: Tunnel View Overlook Rehabilitation
P.O. Box 577
Yosemite, CA 95389
Fax: 209-379-1294

Email: yose_planning@nps.gov

For a CD or hardcopy of this document, please call Yosemite National Park at (209) 379-1365.

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 publicly available 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 will be able to do so. Comments will be documented and analyzed at the close of the public review period. If no significant impacts from the proposed action are identified, the EA will then be used to prepare a Finding of No Significant Impact (FONSI), which will be sent to the NPS Pacific West Regional Director for signature.

During the public review period, additional consultation will occur to confirm determinations of effect (if needed) with the California SHPO, the USFWS, and the U.S. Army Corps of Engineers. Notice of concurrence with the determinations of effect will be documented in the FONSI, if prepared, for this EA (see above).

For more information concerning this EA, please contact the park office of Environmental Planning and Compliance at (209) 379-1365.

List of Agencies, Organizations, and Businesses that Received the Tunnel View Overlook Rehabilitation Environmental Assessment

Alameda Free Library	Mono Lake Kutzadika ^a Tribe
American Indian Council of Mariposa County (aka Southern Sierra Miwuk Nation)	National Park Service- Denver Service Center-Planning
American Alpine Club	National Park Service- Denver Service Center- TIC
Bioscience & Natural Resources Library	National Park Service- PWR
Bishop Paiute Tribe	National Parks Foundation
Bridgeport Paiute Indian Colony	National Parks Conservation Association
Bureau of Land Management	North Fork Rancheria of Mono Indians
California Department of Fish & Game	Oakhurst Public Library
California Department of Transportation	Office of Assemblyman Dave Cogdill
California State Clearing House	Picayune Rancheria of Chukchansi Indians
California State Library	Sacramento County Public Library
California State Water Resources Control Board	Salazar Library, Sonoma State U
Caltrans Central Reg Env Analysis Office	San Francisco Planning Department
Central Sierra Environmental Resource Center	San Francisco City Public Library
Civic Center Library	San Francisco Public Utilities Commission
Columbia College Library	San Joaquin Valley Air Pollution Control District
Delaware North Corporation	San Mateo County Office of Education
Department of the Interior, Regional Solicitor	Senator Barbara Boxer
El Portal Town Planning Advisory Committee	Senator Dianne Feinstein
Federal Highway Administration	Sequoia & Kings Canyon National Parks
Friends of the River/American Rivers	Sierra Club
Friends of Yosemite Valley	Sonoma County Library
George Radanovich, Representative	Stanford University Green Library
Government Information Shields Library	Stanislaus Council of Government
Groveland Community Services Dist	State Historic Preservation Office (CA SHPO)
Groveland Ranger District	The Access Fund
House Subcommittee on National Parks & Public Lands	Tuolumne Band of Me-Wuk Indians
Inyo National Forest	Tuolumne County Board of Supervisors
Madera County Board of Supervisors	Tuolumne County Visitor Bureau
Mammoth Mountain Ski Area	Tuolumne River Preservation Trust
Mariposa County Board of Supervisors	UCLA Maps & Government Information Library
Mariposa County Chamber of Commerce	United States Attorney's Office
Mariposa County Dept of Public Works	University of Library Tech Services
Mariposa County Fire Department	University of Minnesota
Mariposa County Planning Department	US Army Corps of Engineers
Mariposa Public Utility District	US EPA / Region IX
Mariposans for Environmentally Responsible Growth	USDOI Office of Env Policy & Compliance
Merced County Association of Governments	Wawona Area Property Owners Association
	Wawona Town Planning Advisory Committee

Chapter 6: List of Preparers

Preparer	Position	Affiliation
National Park Service		
Lisa Acree	Park Botanist	Yosemite N.P.
Ed Appling	Valley Road District Supervisor	Yosemite N.P.
Jim Bacon	Outdoor Recreational Planner	Yosemite N.P.
Adam Barnett	Acting Branch Chief, Visitor Use Social Science	Yosemite N.P.
Sueann Brown	Historical Architect	Yosemite N.P.
Mark Butler	Branch Chief of Environmental Planning & Compliance	Yosemite N.P.
Linda Dahl	Division Chief of Planning	Yosemite N.P.
Bill Delaney	Division Chief of Project Management	Yosemite N.P.
Randy Fong	Branch Chief of Design	Yosemite N.P.
Andy Fristensky	Supervisory Park Ranger (Interpretation)	Yosemite N.P.
Bob Hartzler	List of Classified Structures Coordinator	PWR Office
Rachel Hill	Planning Technician	Yosemite N.P.
Dave Humphrey	Branch Chief, History, Architecture, and Landscapes	Yosemite N.P.
Dave Kari	Trails Foreman	Yosemite N.P.
Kimball Koch	Cultural Landscape Program Coordinator	PWR Office
Victoria Mates	Exhibit Specialist	Yosemite N.P.
Brian Mattos	Park Forester	Yosemite N.P.
Heather McKenny	Environmental Compliance Specialist	Yosemite N.P.
Bret Meldrum	Visitor Use Management Specialist	Yosemite N.P.
Jen Nersesian	Branch Chief, Public Involvement and Outreach	Yosemite N.P.
Niki Stephanie Nicholas	Division Chief of Resources Management and Science	Yosemite N.P.
Paul Pyle	Survey Technician	Yosemite N.P.
Leslie Reynolds	Valley District Ranger	Yosemite N.P.
Jim Roche	Physical Scientist (geology/hydrology)	Yosemite N.P.
Jeannette Simons	Park Historic Preservation Officer/Native American Liaison	Yosemite N.P.
Gretchen Stromberg	Project Manager	Yosemite N.P.
Steve Thompson Park	Wildlife Biologist	Yosemite N.P.
Jeni Treutelaar	Yosemite Fund Liaison	Yosemite N.P.
Kim Tucker	Business and Revenue Management	Yosemite N.P.
Others		
Kirstie Kari	Director of Projects	Yosemite Fund
Doug Nelson	Principal Landscape Architect	RHAA
Cara Ruppert	Landscape Architect	RHAA

Chapter 7: Glossary of Terms and Acronyms

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

Alternatives: Sets of management elements that represent a range of options for how, or whether to proceed with a proposed project. An environmental assessment analyzes the potential environmental and social impacts of the range of alternatives presented, as required under the National Environmental Policy Act (NEPA).

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

Area of Potential Effect (APE): The geographic area or areas where a federal undertaking has potential to affect historic properties. Consider physical, visual, auditory, atmospheric effects; potential changes in land or building use, change in the setting, and potential for neglect.

Asphalt pulverizing: Pulverizing is the process of breaking apart existing road asphalt into an aggregate (gravel-like) mixture, sometimes blending the recycled aggregate with new aggregate and reusing it as subgrade for newly laid asphalt. Pulverizing is a cost effective and environmentally appropriate way to reconstruct existing pavement. The process eliminates the expensive and environmentally damaging excavation and trucking of the existing asphalt and it creates a stronger base course.

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

Biodiversity: Biodiversity, or biological diversity, is generally accepted to include genetic diversity within species, species diversity, and a full range of biological community types. The concept is that a landscape is healthy when it includes stable populations of native species that are well distributed across the landscape.

CEQ Regulations: The Council on Environmental Quality (CEQ) was established by the National Environmental Policy Act (NEPA) and given the responsibility for developing federal environmental policy and overseeing the implementation of NEPA by federal agencies.

Council on Environmental Quality regulations: The Council on Environmental Quality was established by the National Environmental Policy Act and given the responsibility for developing federal environmental policy and overseeing the implementation of National Environmental Policy Act by federal agencies.

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

Curbing: Reinforced concrete and/or rectangular cut granite placed at selected roadside parking locations and/or along roadway shoulder.

Ecological restoration: Ecological restoration is the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed.

Ecosystem: An ecosystem can be defined as a geographically identifiable area that encompasses unique physical and biological characteristics. It is the sum of the plant community, animal community, and environment in a particular region or habitat.

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

Environmental Impact Statement (EIS): A public document required under the National Environmental Policy Act (NEPA) that identifies and analyzes activities that might affect the human and natural environment.

Environmentally Preferable Alternative: The environmentally preferable alternative is the alternative within the range of alternatives presented in a Draft Environmental Impact Statement that best promotes the goals of the National Environmental Policy Act (NEPA). In general, this is the alternative causes the least damage to the environment and best protects natural and cultural resources. In practice, one alternative may be more preferable for some environmental resources while another alternative may be preferable for other resources.

Facilities: Buildings and infrastructure such as roads, trails, and utilities.

Finding of No Significant Impact (FONSI): The public document describing the decision made on selecting the "preferred alternative" in an environmental assessment. See "environmental assessment."

Guardwall: A wall at the edge of a road intended to keep cars on the road in case of loss of control

Hazardous material: A substance or combination of substances, that, because of quantity, concentration, or physical, chemical, or infectious characteristics, may either: (1) cause or significantly contribute to an increase in mortality or an increase in serious, irreversible, or incapacitating illness; or (2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, disposed of, or otherwise managed.

Hazardous waste: Hazardous wastes are hazardous materials that no longer have practical use, such as substances that have been discarded, spilled, or contaminated, or that are being stored temporarily prior to proper disposal.

Headwall: A vertical support structure at a culvert inlet or outlet

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

Historic Property: under NHPA and NEPA, a prehistoric or historic district, site, building, structure, object, landscape, or traditional cultural resource to which American Indians attach cultural and religious significance that is listed in, or eligible for listing in, the NRHP (36 CFR 800.16(l)(1) 40 CFR 1508.27(b)(8)).

Human Environment: The natural (including biophysical and geophysical aspects) and built environments and the relationships of people to them. Culturally valued aspects of the environment generally include historic and cultural resources and historic properties.

Impairment: 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 would otherwise be present for the enjoyment of those resources or values.

Implementation plan: Implementation plans, which tier off of programmatic plans (like the General Management Plan) and focus on how to implement an activity or project needed to achieve a long-term goal. Implementation plans may direct specific projects as well as ongoing management activities or programs. They provide a more extensive level of detail and analysis than do general management plans. Implementation plans are required to undergo NEPA review.

Implementation project: Implementation projects are specific actions identified in an implementation plan

Inlet: The place where water enters a culvert or other drainage feature.

Management action: Actions taken by park management to protect river values and return conditions to established standards based upon information gathered by the Visitor Experience & Resource Protection monitoring program.

Management zone: A geographical area for which management directions or prescriptions have been developed to determine what can and cannot occur in terms of resource management, visitor use and access, facilities or development, and park operations. One of the seven management elements prescribed in the Merced Wild and Scenic River Comprehensive Management Plan.

Mitigation: Activities that will avoid, reduce the severity of, or eliminate an adverse environmental impact.

National Environmental Policy Act (NEPA): The federal act that requires the development of an Environmental Impact Statement for federal actions that might have substantial environmental, social, or other impacts.

National Park Service Management Policies: A policy is a guiding principle or procedure that sets the framework and provides direction for management decisions. NPS (NPS) policies are guided by and consistent with the Constitution, public laws, Executive proclamations and orders, and regulations and directives from higher authorities. Policies translate these sources of guidance into cohesive directions. Policy direction may be general or specific. It may prescribe the process by which decisions are made, how an action is to be accomplished, or the results are to be achieved. NPS Management Policies 2006 are applicable Service-wide. Director's Orders supplement and may amend Management Policies.

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

Natural processes: All processes, such as hydrologic, geologic, and ecosystemic, that are not the result of human manipulation.

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

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

Nonpoint pollution sources: Pollutants that enter the environment from locations that generally are not contained. Examples of nonpoint sources are roadways, parking lots, and landscaped areas. Pollutants from these locations can include petrochemicals, heavy metals, and fertilizers.

Outflow: The location where water exits a culvert or other drainage feature.

Planning: An interdisciplinary process for developing short-term and long-term goals for visitor experience, resource conditions, and facility placement.

Preferred Alternative: The preferred alternative is the alternative within the range of alternatives presented in an environmental assessment that the agency believes would best fulfill the purpose and need of the proposed action. While the preferred alternative is a different concept from the environmentally preferable alternative, they may also be one and the same for some environmental assessments.

Programmatic Plan: Programmatic plans establish broad management direction for Yosemite National Park. The 1980 General Management Plan is a programmatic plan with a purpose to set a "clearly defined direction for resource preservation and visitor use" and provide general directions and policies to guide planning and management in the park. Programmatic plans undergo a required NEPA review.

Public comment process: The public comment process is a formalized process required by the National Environmental Policy Act (NEPA) in which the NPS must publish a Notice Of Availability in the Federal Register which provides public notice that a Draft Environmental Impact Statement (EIS) and associated information, including scoping comments and supporting documentation, is available for public review and input pursuant to the Freedom Of Information Act. In addition, the NPS must conduct formal public hearings on the Draft EIS when required by statute or the Council on Environmental Quality NEPA Regulations.

Record of Decision (ROD): The public document describing the decision made on selecting the "preferred alternative" in an environmental impact statement. See "environmental impact statement."

Talus: Rock fragments of any size or shape derived from and lying at the base of a cliff or very steep rocky slope. Also refers to outward sloping and accumulated heap of loose broken rock considered as a unit and formed primarily by falling, rolling, and sliding.

Threatened and Endangered Species: Species of plants that receive special protection under state and/or federal laws. Also referred to as "listed species" or "endangered species."

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

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

User capacity: As it applies to parks, user capacity is the type, level, and location of use that can be accommodated while sustaining the desired resource and social conditions based on the purpose and objectives of a park unit.

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

Visitor use: Refers to the types of recreation activities visitors participate in, numbers of people in an area, their behavior, the timing of use, and distribution of use within a given area.

ACRONYMS

AIRFA	American Indian Religious Freedom Act	FONSI	Finding of No Significant Impact
ARPA	Archaeological Resources Protection Act	GMP	General Management Plan
AASHTO	American Association of State Highway Transportation Officials	MOU	Memorandum of Understanding
BMP	Best Management Practice	NAGPRA	Native American Graves Protection and Repatriation Act
CDFG	California Department of Fish and Game	NEPA	National Environmental Policy Act
CEQ	Council on Environmental Quality	NHPA	National Historic Preservation Act
CEQA	California Environmental Quality Act	NRHP	National Register of Historic Places
CFR	Code of Federal Regulations	NPS	National Park Service
CNDDB	California Natural Diversity Database	PA	Programmatic Agreement
dbh	Diameter at Breast Height	SCS	Soil Conservation Service
EA	Environmental Assessment	SHPO	State Historic Preservation Officer
EIS	Environmental Impact Statement	USDOl	United States Department of the Interior
		USFS	United States Forest Service
		USFWS	United States Fish and Wildlife Service
		USGS	United States Geological Survey

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Appendix A: List of Projects for Cumulative Impacts

Appendix A presents a summarized list and subsequent description of past, present, and reasonably foreseeable actions that have been evaluated in conjunction with the impacts of an alternative to determine if they have any additive effects on a particular resource. These projects were included in the cumulative effects analysis presented in Chapter III of this document.

Past

El Portal Road Improvement Project: Park Boundary to Big Oak Flat Road
General Management Plan

Present

Fire Management Plan
Glacier Point Road Rehabilitation Project
Reconstructing Critically Eroded Sections of El Portal Road
Rehabilitation of the Yosemite Valley Loop Road
Vegetation Management Plan
Emergency Assessment and Repairs to Failed Ventilation System in Wawona Tunnel

Reasonably Foreseeable Future

Comprehensive Transportation Plan
El Portal Road Improvements Project (Narrows to Pohono Bridge)
Parkwide Invasive Plant Management Plan
Parkwide Vista Management Plan
State Highway 140 Ferguson Slide Restoration
Chip/Micro Seal Wawona Road (Yosemite Valley to Chinquapin)
Wawona Road Cultural Landscape Inventory
Replace Electrical System Serving the Wawona Tunnel

Past Actions

Agency Name: National Park Service

Project Name: **El Portal Road Improvement Project – Park Boundary to Cascades Diversion Dam**

Description: This federal jurisdiction transportation project, which was located entirely within Yosemite National Park boundaries, involved road improvements to 6.5 miles of El Portal Road, from the Yosemite National Park boundary in El Portal to just east of intersection with Big Oak Flat Road. The project improved access to Yosemite Valley and reduced safety concerns. El Portal Road is a primary route for visitors accessing Yosemite Valley, and is the shortest all-weather route to the Valley. It also serves as the primary commuting route for park employees living in El Portal, Midpines, and Mariposa. The project was completed in 2000.

Agency Name: National Park Service

Project Name: **General Management Plan**

Description: As defined in the NPS park planning program standards, the purpose of the GMP is to ensure that park managers and stakeholders share a clearly defined understand of the resource condition, opportunities for visitor experiences, and general kinds of management, access, and development that will best achieve the park's purpose and conserve its resources unimpaired for the enjoyment of future generations. The General Management Plan for Yosemite National Park is the "blueprint" for improving and preserving the park for the next century. It was finalized and signed in 1980. The plan describes actions that would achieve five broad goals: Reclaim Priceless Natural Beauty, Markedly Reduce Traffic Congestion, Allow Natural Processes to Prevail, Reduce Crowding, Promote Visitor Understanding and Enjoyment.

Present Actions

Agency: National Park Service

Project Name: **Fire Management Plan, Yosemite National Park**

Description: The Yosemite National Park Fire Management Plan guides the implementation of a complex fire management program. The program includes wildland fire suppression, wildland fire used to achieve natural and cultural resource benefits, fire prevention, prescribed fire, fire ecology research, and the use of mechanical methods to reduce and thin vegetation in and around communities.

Agency Name: National Park Service

Project Name: **Glacier Point Road Rehabilitation**

Description: Rehabilitation of the Glacier Point roadway is proposed to repair and resurface existing roadway pavement and drainage facilities. Pavement rehabilitation likely will involve some sort of in-place recycling of the existing deteriorated pavement, followed by the placement of new asphalt paving. All drainage culverts will be examined for condition, capacity, and proper

location. Culverts found to be in poor condition, undersized, and/or poorly located will be replaced in improved locations with properly sized pipes. As necessary, the drainage channels to and downstream of existing culverts will be examined for potential improvements. Existing stone masonry at culvert headwalls and outlets may be salvaged and reused. The proposed pavement rehabilitation work likely can be accomplished within the existing disturbed road corridor. However, culvert relocation or rehabilitation and the improvement of drainage channels to existing culverts may require disturbance of some new areas.

A Finding of No Significant Impact is currently being prepared for this project.

Agency Name: National Park Service

Project Name: **Reconstructing Critically Eroded Sections of El Portal Road**

Description: This project is to repair a 1,350 foot section of the El Portal Road just east of the Big Oak Flat Road intersection. This section of road is immediately adjacent to and being undercut by the Merced Wild and Scenic River. As a result, its dry-laid walls are failing. The walls were severely damaged by the 1997 flood and have been spot-repaired several times over the past 10 years. In spite of these repairs, the road continues to be in jeopardy of collapse, especially during periods of high runoff.

A Finding of No Significant Impact and an Environmental Assessment has been prepared and approved for this project, July 2007. This project will be implemented during low flows in fall 2007.

Agency Name: National Park Service

Project Name: **Rehabilitation of the Yosemite Valley Loop Road**

Description: The Yosemite Valley Loop Road is a historic feature in Yosemite National Park, first built as a stage coach road in 1872. The initial pavement was laid in 1909, and culverts were first installed a year later beneath stretches of Southside Drive. Spot repairs have been made along the roadway as required over time. However, much-needed, comprehensive maintenance and repair of the roadway and associated drainage structures has not been performed for many decades.

Since 1980, annual visitation to Yosemite National Park has averaged 3.4 million people, 95 percent of which is focused in Yosemite Valley. Dramatic scenery, the Merced Wild and Scenic River, and diverse recreational opportunities draw visitors to the Valley year round, making it one of the most heavily developed areas of the park. As a result, the Yosemite Valley Loop Road experiences the heaviest traffic volumes of any area in Yosemite National Park. Automobiles make up the majority of the volume, but tour buses and public transportation vehicles also contribute to Yosemite Valley traffic. Bus transportation in Yosemite National Park includes regional public transportation, charter and tour bus operators, concessioner-operated tours, and shuttle bus services provided by the park concessioner. With the exception of shuttle bus services in Tuolumne Meadows and between the Mariposa Grove and Wawona, nearly all park buses travel to, from, and within Yosemite Valley.

The purpose of this project is to repair and resurface existing roadway pavement, rehabilitate or replace adjacent drainage features (e.g., culverts, diversion ditches, and headwalls) and improve the condition of adjacent roadside parking along approximately 12.5 miles of the Yosemite Valley Loop Road in Yosemite Valley. No roadway widening (outside of the original road prism width of 22 feet), realignment, or changes to vehicular or pedestrian circulation patterns as

called for in the Final Yosemite Valley Plan Supplemental Environmental Impact Statement (NPS 2000a), will be undertaken.

The need for this project is evidenced by the fact that the existing road surface and associated drainage features are in poor condition because major maintenance repairs have not been undertaken for many years. Numerous existing culverts are undersized, in disrepair, and/or ineffectively located to capture peak seasonal run-off. In addition, informal roadside parking along stretches of the Yosemite Valley Loop Road presents visitor safety and resource impact concerns.

A Finding of No Significant Impact and an Environmental Assessment has been prepared and approved for this project, February 2006.

This project is currently being implemented.

Agency: National Park Service

Project Name: **Vegetation Management Plan, Yosemite National Park**

Description: The Vegetation Management Plan is an addendum to the Yosemite National Park Resource Management Plan (RMP) (NPS 1993) and is guided by the 1980 General Management Plan (NPS 1980). The purpose of the plan is to:

- Delineate the legislative and administrative requirements which guide development of vegetation management objectives.
- Refine the goals and objectives for vegetation management which are established in the RMP.
- Describe the dynamic environment of vegetation within the park and the social, cultural and natural processes which influence the vegetation.
- Discuss the current vegetation management issues, define management objectives, management techniques and strategies for achieving objectives, and information needed.
- Provide an overview of the history of vegetation management
- Provide a summary of vegetation management planning needs to be addressed in the future, including the roles and responsibilities for planning and implementation.

The framework of the plan provides guidance for specific implementation plans to be developed for vegetation management in Yosemite.

Agency: National Park Service

Project Name: **Emergency Assessment and Repairs to Failed Ventilation System in Wawona Tunnel**

Description: Complete an immediate safety assessment of the existing ventilation system in Wawona Tunnel. This assessment will be used to determine which emergency repairs are required to make and keep this tunnel safe until such time that the overall ventilation system is replaced. At a minimum the emergency repairs would include repair all three existing bidirectional fan motors, cleaning the carbon soot and dust from the tunnel walls, and repairing/replacing the existing gas monitoring system. The project also includes replacing the existing underground segment of the high voltage line. All of this work would be contracted out and due to the immediate safety concerns we are hopeful that funding could become available

immediately to complete the assessment and needed repairs. This plan is expected to be completed by January 2008.

Reasonably Foreseeable Actions

Agency Name: National Park Service

Project Name: **Comprehensive Transportation Plan**

Description: This plan will study modern transportation solutions for the park. Many past park plans have studied transportation, both parkwide and in specific areas such as Yosemite Valley. However, many areas such as the Wawona and Tioga Road corridors have not been reexamined since the 1980 General Management Plan. Previous plans defined problems and solutions to deal with visitation and demographic projections that reflected trends characteristic of that time period. Since then, the park has continued to update transportation and visitor information through a grant from the Federal Transit Administration. This new data indicates that many previous predictions and assumptions are not consistent with today's conditions, and thus a fresh examination of transportation systems and solutions is warranted. Park planners, social and natural scientists, and transportation managers will work together to prepare a new plan. They will compile past plans and decisions regarding visitor experience, access, and resource conditions relative to our transportation system, examine how the system is currently functioning, and, with public input, identify issues, develop alternatives, and present solutions in a comprehensive transportation management plan.

Agency Name: National Park Service

Project Name: **El Portal Road Improvements Project (Narrows to Pohono Bridge)**

Description: Original designs for El Portal Road improvements included the entire mile segment from just east of the Big Oak Flat Road intersection to Pohono Bridge to be completed as one project referred to as "Segment D". As a result of litigation, that project has been scaled back for the time being to only address an unstable portion of road beginning at the Big Oak Flat Road intersection and extending east approximately 1,350 feet (the subject of this Environmental Assessment). Road improvements will eventually be necessary throughout the remainder of El Portal Road. This segment of road has two narrow travel lanes, each 9.5 feet wide. Road improvements would be designed to improve safety and minimize the chance of roadway failures in the future.

Agency Name: National Park Service

Project Name: **Parkwide Invasive Plant Management Plan**

Description: Today there are over 150 non-native plant species in Yosemite National Park, which is about 10 percent of the park's flora. Of these, 28 species are listed for control by the U.S. Department of Agriculture, California Department of Food and Agriculture, or California Exotic Pest Plant Council. Species targeted for control in Yosemite include bull thistle, mullein, yellow star thistle, spotted knapweed, perennial pepperweed, purple vetch, rose and burr clovers, Himalayan blackberry, white and yellow sweet clover, non-native wildflowers, and escaped landscaping plants such as foxglove, ox-eye daisy, pink mullein, French broom, tree-of-heaven, and black locust.

The current control program includes using Global Positioning System (GPS) technology to map plant populations. Crews then remove plants using a variety of techniques, including hand

pulling. Treated areas are photographed and re-visited each year to assess the results and provide follow-up treatment.

The proposed Parkwide Invasive Plant Management Plan will define a set of comprehensive programs, including the following:

- Education and focused research.
- Prioritized prevention and control efforts using a variety of techniques and appropriate mitigation measures.
- Systematic monitoring and documentation of invasive plant status and the results of management efforts.
- Restoration of ecosystems altered by invasive plants.

Control methods being considered include some combination of the following: hand-pulling or using various machines to try and remove plants; releasing predatory insects or fungus to attack plants; educating users and staff about preventative measures; and using chemical treatments derived from natural products like vinegar, or manufactured chemicals like glyphosate. Program goals include eradicating (or at least controlling) invasive plant species; preventing new invasions; restoring and maintaining desirable plant communities and healthy ecosystems; enhancing the visitor experience; and educating park staff, partners, and users.

Agency Name: National Forest Service

Project Name: State Route 140 Ferguson Slide Restoration

Description: State Route 140 provides year-round access to Yosemite National Park. Since April 2006, rockslides have damaged and blocked State Route 140 in the Merced River Canyon between Mariposa and El Portal. The rockslide is located outside of the park in United States Forest Service land. A State of Emergency was declared and a temporary emergency detour was constructed to reopen State Route 140 and bypass the rockslide. The purpose of the future project is to reopen and restore full access to the section of State Route 140. Currently motorists use a temporary bypass route to travel this portion of State Route 140. Restoration of State Route 140 would eliminate inconvenient detours or extended commute times for residents, businesses, and workers in the area. Restoration of the route would also allow tour buses and other vehicles longer than 28-feet access to the park via 140 again. The California Department of Transportation and the United States Forest Service are in the alternative development phase of the environmental planning process.

Agency Name: National Park Service

Project Name: Parkwide Vista Management Plan

Description: As called for in the Vegetation Management Plan, Yosemite will initiate a Parkwide Vista Management Plan. This plan will evaluate site-specific historic vistas and scenic values. It will develop a set of criteria for ranking of views and established viewing areas including desirability of view, historic significance and integrity, resource impacts (soil type, erosion, compaction, etc.), plant community elevation, condition of plant community historically, hazard tree potential, proximity of threatened, endangered, or sensitive species, proximity to archeological sites, level of maintenance required, waste disposal, frequency of use, length of potential stop-over, distance to nearest viewing area, and distance to desired view from viewing area. This plan is scheduled for development in FY08 and FY09.

Agency Name: National Park Service

Project Name: **Replace Electrical System Serving the Wawona Tunnel**

Description: The Wawona Tunnel is a two-way, 0.8-mile vehicle tunnel located on the Wawona Road approximately 5-miles west of Yosemite Valley. Annually, approximately 1.6 million visitors pass through this tunnel, a significant cultural resource listed on National Register of Historic Places. Visitors, employees, contractors, and park residents depend on this tunnel for access to and from Yosemite Valley and other park destinations. The current power supply through the tunnel is insufficient for park needs, and there is no backup system to provide ventilation and lighting in the event of a power failure. Significant drops in voltage level are common in the Wawona Tunnel electrical distribution system, and therefore it cannot provide the reliable power supply required for proper operation of a new tunnel ventilation system. The electrical distribution system also is the only commercial power source for the current park telephone and radio communications hub on nearby Turtleback Dome; the unreliable power it delivers jeopardizes the park's ability to provide timely response to fire, medical and law enforcement emergencies. The existing electrical distribution system transects two miles of mountainside, providing a visual intrusion and disturbing the natural condition of the area. This project will replace the overhead electrical distribution system with an underground high-voltage duct bank, and construct an emergency power source facility within the Wawona tunnel walls. Work will include: power supply, emergency communications, lighting, vehicle restriction systems, and hazard warnings; replacing the existing 2,400-volt overhead electrical distribution system with 12,000-volt underground primary distribution feeders; and installing a 300-kilowatt generator for backup power for ventilation and lighting of the vehicle tunnel.

Agency Name: National Park Service

Project Name: **Chip/Micro Seal Wawona Road (Yosemite Valley to Chinquapin)**

Description: Placement of a multiple coat microseal over approximately 10-miles of the Wawona Road between Southside Drive and the Chinquapin Intersection. The work also includes patching and crack cleaning prior to placing the seal coat. Also, the work also includes sealing the parking areas that are adjacent to this road segment.

Appendix B: Mitigation Measures Common to all Action Alternatives

Mitigation Measure	Impact Topic	Responsibility	Critical Milestones
Prior to entry into the park, steam-clean heavy equipment to prevent importation of non-native plant species, tighten hydraulic fittings, ensure hydraulic hoses are in good condition and replace if damaged, and repair all petroleum leaks.	Construction Mitigation Measures	Yosemite National Park, Project Manager; Contractor	Prior to and concurrent with project activities
Inspect the project to ensure that impacts stay within the parameters of the project area and do not escalate beyond the scope of the environmental assessment, as well as to ensure that the project conforms with all applicable permits or project conditions. Store all construction equipment within the delineated work limits. Confine work areas within creek channels to the smallest area necessary.		Yosemite National Park, Project Manager; Contractor	Prior to and concurrent with project activities
Implement compliance monitoring to ensure that the project remains within the parameters of National Environmental Policy Act (NEPA) and National Historic Preservation Act (NHPA) compliance documents.		Yosemite National Park, Project Manager; Contractor	Concurrent with project activities
Provide a project orientation for all construction workers to increase their understanding and sensitivity to the challenges of the special environment in which they will be working.		Yosemite National Park, Project Manager	Prior to and concurrent with project activities
If deemed necessary, demolition/construction work on weekends or federal government holidays may be authorized, with prior written approval of the Superintendent.		Yosemite National Park, Project Manager;	Prior to and concurrent with project activities
Remove all tools, equipment, barricades, signs, surplus materials, and rubbish from the project work limits upon project completion. Repair any asphalt surfaces that are damaged due to work on the project to original condition. Remove all debris from the project site, including all visible concrete, timber, and metal pieces.		Yosemite National Park, Project Manager; Contractor	Upon completion of project activities
The Construction Contractor shall prepare a Health and Safety Plan to address all aspects of Contractor health and safety issues compliant with OSHA standards and other relevant regulations. The Plan shall be submitted for park review and approval prior to construction.		Contractor	Prior to and concurrent with project activities
A Storm Water Pollution Prevention Plan (SWPPP) shall be prepared by the Construction Contractor and implemented for construction activities to control surface run-off, reduce erosion, and prevent sedimentation from entering water bodies during construction. The SWPPP shall be submitted for park review and approval prior to construction.		Contractor	Prior to and concurrent with project activities
A construction work schedule shall be prepared by the Construction Contractor for the project that minimizes effects on wildlife in adjacent habitats, peaks in visitation, and noise levels near residential housing and visitor lodging areas. The work schedule shall be submitted for park review and approval prior to construction.		Contractor	Prior to and concurrent with project activities

Mitigation Measure	Impact Topic	Responsibility	Critical Milestones
Supervisory construction personnel shall attend an Environmental Protection briefing provided by the park prior to working on site. This briefing is designed to familiarize workers with statutory and contractual environmental requirements and the recognition of and protection measures for archeological sites, sensitive habitats, water resources, and wildlife habitats.	Construction Mitigation Measures	Contractor	Prior to and concurrent with project activities
The park shall develop a Communications Strategy Plan to alert necessary park and Concessioner employees, residents and visitors to pertinent elements of the construction work schedule.		Yosemite National Park, Project Manager	Prior to and concurrent with project activities
Ensure that all earth moving equipment and hand tools enter the park free of mud or seed-bearing material to prevent the introduction of non-native plants. The NPS will inspect all equipment prior to use on the project. Map and treat noxious weeds prior to construction. Certify all seeds and straw material as weed-free. Ensure that imported top-soil is weed-free. The NPS will approve sources of imported fill material that will be used within the top 12 inches of the finished grade. Monitor and treat invasive plants for three years post-construction.	Vegetation	Yosemite National Park, Project Manager; Contractor	Prior to, concurrent with and following project activities
Install temporary fencing (black silt fencing or orange construction fencing) around the entire project area to protect natural surroundings (including sensitive plants, trees, and root zones) from damage. Avoid fastening ropes, cables, or fences to trees.		Yosemite National Park, Project Manager; Contractor	Prior to and concurrent with project activities
Use native seed mix or seed-free mulch to minimize surface erosion and the introduction of		Contractor	Concurrent with project activities
If special-status plant species are identified within the construction disturbance zone, in particular within restoration and revegetation areas, avoid special-status plant populations to the extent feasible during construction activities.		Yosemite National Park, Project Manager; Contractor	Prior to and concurrent with project activities
If it is not feasible for construction activities to avoid special-status plant species, species conservation measures will be developed in coordination with Yosemite National Park natural resources staff. Measures may include salvage of special-status plants for use in revegetating disturbed areas and transplantation of special-status plants wherever possible using methods and monitoring identified in the revegetation plan, monitoring to ensure successful revegetation, protection of plantings, and replacement of unsuccessful plant materials if practicable.		Yosemite National Park, Project Manager; Contractor	Prior to and concurrent with project activities
Store equipment and materials away from all waterways.		Yosemite National Park, Project Manager; Contractor	Concurrent with project activities
Provide proper and timely maintenance for vehicles and equipment used during construction to reduce the potential for mechanical breakdowns.		Yosemite National Park, Project Manager; Contractor	Prior to and concurrent with project activities
Use silt fencing at drainages to prevent construction materials from escaping work areas.		Contractor	Concurrent with project activities
Conduct surveys of the project area to determine the type and number of vulnerable species that may be affected by construction activities; schedule construction activities with seasonal consideration of wildlife lifecycles to minimize impacts during sensitive periods (i.e., after bird nesting seasons, when bats are neither hibernating nor have young, etc).	Wildlife	Yosemite National Park, Project Manager	Prior to project activities

Mitigation Measure	Impact Topic	Responsibility	Critical Milestones
<p>Limit the effects of light and noise on adjacent habitat through controls on construction equipment and through site design of facilities.</p> <p>Provide adequate education and enforcement to limit visitor and construction worker activities that are destructive to wildlife and habitats.</p> <p>Preserve, where possible, natural features with obvious high value to wildlife, such as tree snags.</p> <p>Prior to tree management activities, qualified biologists will screen the area for bat roosts, nesting birds, and other features that are important wildlife habitat.</p>	Wildlife	<p>Yosemite National Park, Project Manager; Contractor</p> <p>Yosemite National Park, Project Manager</p> <p>Yosemite National Park, Project Manager; Contractor</p> <p>Yosemite National Park, Project Manager</p>	<p>Prior to and concurrent with project activities</p> <p>Concurrent with and following project activities</p> <p>Prior to and concurrent with project activities</p> <p>Prior to and concurrent with project activities</p>
<p>A qualified bat biologist will conduct surveys prior to construction to evaluate whether trees or other habitat that will be affected by the proposed action provide hibernacula or nursery colony roosting habitat for bat species.</p> <p>Tree removal will occur primarily during the period when neither maternity nor hibernation colonies are likely (generally April through May and August through October). If tree removal is slated to occur between November and March or between June and July, a qualified bat biologist will survey trees to be removed and other potential habitat for breeding or hibernating bats prior to any tree removal activities.</p> <p>If bats are detected during reproduction or hibernation periods, tree removal and disturbance of other potential habitat will be delayed until the bats can be excluded from the area in a manner that does not adversely affect their survival or that of their young.</p> <p>If surveys conducted immediately prior to construction do not reveal any bat species present within the project area, then the action will begin within three days to prevent the destruction of any bats that could move into the area after the survey.</p>	Special-Status Species of Bats	<p>Yosemite National Park, Project Manager</p> <p>Yosemite National Park, Project Manager</p> <p>Yosemite National Park, Project Manager, Contractor</p> <p>Yosemite National Park, Project Manager</p>	<p>Prior to project activities</p> <p>Concurrent with project activities</p> <p>Concurrent with project activities</p> <p>Prior to and concurrent with project activities</p>
<p>The NPS will apply for and comply with all federal and state permits required for construction-related activities.</p>	Federal and State Permit Requirements	Yosemite National Park, Project Manager	Prior to project activities
<p>The Park will adhere to the <i>Park Programmatic Agreement Among the National Park Service at Yosemite, the California State Historical Preservation Officer, and the Advisory Council on Historic Preservation Regarding Planning, Design, Construction, Operations, and Maintenance, Yosemite National Park, California</i> (1999 PA) to mitigate adverse effects.</p> <p>Mitigation measures include avoiding impacts and designing new development to be compatible with surrounding historic resources. Standard mitigation measures, as defined in the 1999 PA, include photo documentation, salvage, and reevaluation of National Register status (updating National Register Nomination form).</p>	Historic Properties	<p>Yosemite National Park, Project Manager</p> <p>Yosemite National Park, Project Manager</p>	<p>Prior to and concurrent with project activities</p> <p>Prior to and concurrent with project activities</p>

Mitigation Measure	Impact Topic	Responsibility	Critical Milestones
<p>Continue to consult with culturally associated American Indian tribes throughout the site-specific design process and project implementation to avoid or mitigate damage to American Indian traditional resources.</p> <p>Precede removal of trees and vegetation with site-specific reconnaissance to protect and maintain the view corridors and avoid potential impacts to historic landscape resources.</p> <p>Design all new construction within historic districts and landscapes or adjacent to historic sites to be compatible in terms of architectural elements, scale, massing, materials, and orientation.</p> <p>Undertake all treatments within historic landscapes in keeping with the Secretary of The Interior's Standards for the Treatment of Historic Properties.</p>	<p>Historic Properties</p>	<p>Yosemite National Park, Project Manager</p>	<p>Prior to, concurrent with and following project activities</p>
		<p>Yosemite National Park, Project Manager</p>	<p>Prior to project activities</p>
		<p>Yosemite National Park, Project Manager</p>	<p>Prior to project activities</p>
		<p>Yosemite National Park, Project Manager</p>	<p>Prior to project activities</p>
<p>Cover and/or seal truck beds and stockpiles to minimize blowing dust or loss of debris.</p> <p>Limit truck and related construction equipment speeds in active construction areas to a maximum of 15 miles per hour and strictly adhering to park regulations and posted speed limits in other areas while inside park boundaries.</p> <p>Maintain adequate dust suppression equipment and using clean water to control excess airborne particulates at staging areas, active construction zones, and unpaved roads leading to/from active construction areas.</p>	<p>Dust Abatement Measures</p>	<p>Contractor</p>	<p>Concurrent to project activities</p>
		<p>Contractor</p>	<p>Concurrent to project activities</p>
		<p>Contractor</p>	<p>Concurrent with project activities</p>
<p>Develop an emergency notification plan that complies with park, federal, and state requirements and allows contractors to properly notify park, federal, and/or state personnel in the event of an emergency during construction activities. This plan will address notification requirements related to fire, personnel, and/or visitor injury, releases of spilled material, evacuation processes, etc. The emergency notification plan will be submitted to the park for review/approval prior to commencement of construction activities.</p> <p>Notify utilities prior to construction activities. Identify locations of existing utilities prior to removal activity to prevent damage to utilities. The Underground Services Alert and NPS maintenance staff will be informed 72 hours prior to any ground disturbance. Construction-related activities will not proceed until the process of locating existing utilities is completed (water, wastewater, electric, communications, and telephone lines). An emergency response plan will be required of the contractor.</p>	<p>Emergency Notification Measures</p>	<p>Yosemite National Park, Project Manager</p>	<p>Prior to project activities</p>
		<p>Yosemite National Park, Project Manager</p>	<p>Prior to and concurrent with project activities</p>
<p>Use approved siltation and sediment control devices in construction areas to reduce erosion and surface scouring.</p> <p>Use approved siltation and sediment control devices appropriate to the situation in grading areas to capture eroding soil before discharge to riparian channels.</p> <p>Conserve and salvage topsoil for reuse. Materials will be reused to the maximum extent possible.</p>	<p>Erosion Control Measures</p>	<p>Contractor</p>	<p>Concurrent with project activities</p>
		<p>Contractor</p>	<p>Concurrent with project activities</p>
		<p>Contractor</p>	<p>Concurrent with project activities</p>

Mitigation Measure	Impact Topic	Responsibility	Critical Milestones
An Oil and Hazardous Materials Spill Prevention, Control, and Countermeasure Plan shall be prepared by the Construction Contractor for the project to address hazardous materials storage, spill prevention and response. The Plan shall be submitted for park review and approval prior to construction.	Hazardous Materials Measures	Contractor	Prior to and concurrent with project activities
Store and use all hazardous materials in compliance with federal regulations. All applicable Materials Safety Data Sheets will be kept on site for inspection.		Contractor	Concurrent with project activities
Hazardous or flammable chemicals shall be prohibited from storage in the staging area, except for those substances identified in the Oil and Hazardous Materials Spill Prevention, Control, and Countermeasure Plan. Hazardous waste materials shall be immediately removed from project site in approved containers.		Contractor	Concurrent with project activities
Comply with all applicable regulations and policies during the removal and remediation of asbestos, lead paint, and polychlorinated biphenyls.		Contractor	Concurrent with project activities
Ensure that all construction equipment has functional exhaust/muffler systems.	Noise Abatement Measures	Contractor	Concurrent with project activities
Submit a construction work plan/schedule that minimizes construction-related noise in noise-sensitive areas to the park for review/approval prior to commencement of construction activities.		Contractor	Prior to project activities
Use hydraulically or electrically powered construction equipment, when feasible.		Contractor	Concurrent with project activities
Locate stationary noise sources as far from sensitive receptors as possible.		Contractor	Concurrent with project activities
Limit the idling of motors except as necessary (e.g., concrete mixing trucks).		Contractor	Concurrent with project activities
To the extent possible, perform all on-site noisy work above 76 A-weighted decibels (dBA) (such as the operation of heavy equipment) between the hours of 8:30 a.m. and 5:00 p.m. to minimize disruption to nearby park users.		Contractor	Concurrent with project activities
Fence construction staging areas and construction activity areas to visually screen construction activity and materials.	Scenic Resources Protection Measures	Contractor	Concurrent with project activities
Consolidate construction equipment and materials to the staging areas at the end of each work day to limit the visual intrusion of construction equipment during nonwork hours.		Contractor	Concurrent with project activities
Develop and implement a comprehensive spill prevention/response plan that complies with federal and state regulations and addresses all aspects of spill prevention, notification, emergency spill response strategies for spills occurring on land and water, reporting requirements, monitoring requirements, personnel responsibilities, response equipment type and location, and drills and training requirements. The spill prevention/response plan will be submitted to the park for review/approval prior to commencement of construction activities.	Spill Prevention/Response Measures	Contractor	Prior to project activities

Mitigation Measure	Impact Topic	Responsibility	Critical Milestones
<p>To minimize the possibility of hazardous materials seeping into soil or water, check equipment frequently to identify and repair any leaks. Standard measures include hazardous materials storage and handling procedures; spill containment, cleanup, and reporting procedures; and limitation of refueling and other hazardous activities to upland/nonsensitive sites. Provide an adequate hydrocarbon spill containment system (e.g., absorption materials, etc.) on site, in case of unexpected spills in the project area. Ensure equipment is equipped with a hazardous spill containment kit. Ensure that personnel trained in</p>	<p>Spill Prevention/Response Measures</p>	<p>Contractor</p>	<p>Concurrent with project activities</p>
<p>The use of hazardous spill containment kits are on site at all times during construction activities.</p>			
<p>Develop and implement a comprehensive stormwater pollution prevention plan for construction activities that complies with federal and state regulations and addresses all aspects of stormwater pollution prevention. The plan will be submitted to the park for approval prior to construction activities. The plan will include measures such as: Take measures to control erosion, sedimentation, and compaction, and thereby reduce water pollution and adverse water quality effects. Use silt fences, sedimentation basins, etc. in construction areas to reduce erosion, surface scouring, and discharge to water bodies. To the extent possible, schedule the use of mechanical equipment during periods of low precipitation to reduce risk of accidental hydrocarbon leaks or spills. When mechanical equipment is necessary outside of low precipitation periods, use NPS-approved methods to protect soil and water from contaminants. Dispose of volatile wastes and oils in approved containers for removal from construction sites to avoid contamination of soils, and drainages. Inspect equipment for hydraulic and oil leaks prior to use on construction sites, and implement inspection schedules to prevent contamination of soil and water. Keep absorbent pads, booms, and other materials on site during projects that use heavy equipment to contain oil, hydraulic fluid, solvents, and hazardous material spills</p>	<p>Stormwater Pollution Prevention Measures</p>	<p>Contractor</p>	<p>Prior to and concurrent with project activities</p>
<p>Develop and implement a comprehensive traffic control and visitor protection plan for park review/approval that: Complies with necessary U.S. Department of Transportation, Federal Highway Administration Manual on Uniform Traffic Control Devices for Streets and Highways, Part VI-Traffic Control for</p>	<p>Traffic Control and Visitor Protection Measures</p>	<p>Yosemite National Park, Project Manager & Contractor</p>	<p>Prior to and concurrent with project activities</p>
<p>Construction and Maintenance Operations, and California Department of Transportation Standard Specifications, Section 12. Provides procedures for preparing and submitting specific street closure, traffic control, and detour plans for each specific area of project construction not less than three weeks before commencement of construction activities in each area. Provides procedures for managing staging areas to restrict public access and maintain site safety. Ensures that visitors are safely and efficiently routed around construction areas in the Valley. Outlines measures to largely offset the potential for public exposure to noxious materials or contaminants that may be present during construction in the project area (i.e., by providing established and maintained walkways and bridges across the site, covering walking paths with clean soil and asphalt, and providing barrier fencing along trails)</p>			

Mitigation Measure	Impact Topic	Responsibility	Critical Milestones
Provide protective fencing enclosures around construction areas, including utility trenches, to protect public health and safety.	Traffic Control and Visitor Protection Measures	Contractor	Concurrent with project activities
Install appropriate traffic signs.	Transportation Measures	Yosemite National Park, Project Manager	Concurrent with and following project activities
Locate construction worker parking outside of Yosemite Valley, with the exception of key supervisory personnel (approximately four to seven individuals).		Yosemite National Park, Project Manager; Contractor	Concurrent with project activities
Verify utility locations by contacting the Underground Services Alert prior to the start of construction.	Utility Measures	Yosemite National Park, Project Manager; Contractor	Prior to project activities
Promptly reconnect utility services that are interrupted because of construction activities and provide advance notification to all residents, concessioners, and others if utility service will be disrupted.		Yosemite National Park, Project Manager; Contractor	Concurrent with and following project activities
Develop and implement a visitor outreach and communication plan that addresses means for effectively communicating Tunnel View construction and other visitor facility closure, relocation, and detour schedules to the public.	Visitor Experience Measures	Yosemite National Park, Project Manager	Prior to and concurrent with project activities
To the extent possible, schedule/phase construction activities to allow for continued visitor access to the overlook.		Yosemite National Park, Project Manager; Contractor	Prior to and concurrent with project activities
To the extent possible, schedule necessary 24-hour construction activities in the immediate vicinity of campgrounds and lodging units such that they occur during periods when those areas are closed or not in use.	Night Sky Measures	Contractor	Concurrent with project activities
Direct and shield night lighting associated with construction equipment to minimize light scatter effects.		Contractor	Concurrent with project activities
Provide lights in developed areas for safety where pedestrians cross busy intersections.		Yosemite National Park, Project Manager	Concurrent with and following project activities
Develop and implement a comprehensive waste management plan that complies with federal and state regulations and addresses all aspects related to the transportation, storage, and handling of construction-related hazardous and nonhazardous liquid and solid wastes and submit the plan to the park for review/approval prior to the commencement of construction activities.	Waste Management Measures	Contractor	Prior to project activities
Require construction personnel to adhere to park regulations concerning food storage and refuse management.		Yosemite National Park, Project Manager; Contractor	Concurrent with project activities
Properly secure trash during the workday and remove all trash from site at the end of each workday.		Yosemite National Park, Project Manager	Concurrent with and following project activities

Appendix C: Special Status Species List

SPECIES NAME	Status
Plants	
TANBARK OAK	Park Sensitive
Amphibians	
CALIFORNIA NEWT	7
ENSATINA	7,11,12
Birds	
OSPREY	7,13
BALD EAGLE	3,5,13
SHARP-SHINNED HAWK	7
COOPER'S HAWK	7
NORTHERN GOSHAWK	7,12,13
SWAINSON'S HAWK	4,12
GOLDEN EAGLE	5,7,11,13
MERLIN	7
PEREGRINE FALCON	3,5,12,13
PRAIRIE FALCON	7
SPOTTED OWL	2,7,11,12,13
LONG-EARED OWL	7
SHORT-EARED OWL	7
BLACK SWIFT	7
VAUX'S SWIFT	7
WESTERN SCRUB-JAY	7
YELLOW WARBLER	7
SPOTTED TOWHEE	7
CALIFORNIA TOWHEE	23
SONG SPARROW	7
DARK-EYED JUNCO	7
Mammals	
ORNATE SHREW	17
BROAD-FOOTED MOLE	7
LITTLE BROWN MYOTIS	11
YUMA MYOTIS	11
LONG-EARED MYOTIS	11
FRINGED MYOTIS	11
WESTERN SMALL-FOOTED MYOTIS	11
WESTERN RED BAT	12
SPOTTED BAT	7,11
TOWNSEND'S BIG-EARED BAT	7,11,12
PALLID BAT	7,11,12

SPECIES NAME	Status
Mammals (continued)	
WESTERN MASTIFF BAT	7,11
LODGEPOLE CHIPMUNK	12
NORTHERN FLYING SQUIRREL	7,12
CALIFORNIA POCKET MOUSE	7
DEER MOUSE	7
CALIFORNIA VOLE	1,3,7
RINGTAIL	5
AMERICAN MARTEN	7,12
FISHER	7,11,12
MOUNTAIN LION	7
Reptiles	
SAGEBRUSH LIZARD	11
RUBBER BOA	4,12
RING-NECKED SNAKE	12
CALIFORNIA WHIPSNAKE(STRIPED RACER)	2,4
GOPHER SNAKE	7
CALIFORNIA MOUNTAIN KINGSSNAKE	7,12
COMMON GARTER SNAKE	1,3,5,7
Total Number of Wildlife Species: 51	
Total Number of Plant Species: 1	
Suitability: H = habitat supports relatively high population densities at high frequencies, M = medium population densities at medium frequencies, L = low population densities at low frequencies	
Status: 1=Federal Endangered 2=Federal Threatened 3=CA Endangered 4=CA Threatened 5=CA Fully Protected 6=CA Protected 7=CA Species of Special Concern	
8=Federally-Proposed Endangered 9=Federally-Proposed Threatened	
10=Federal Candidate 11=BLM Sensitive 12=USFS Sensitive 13=CDF Sensitive	



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