FINAL ENVIRONMENTAL IMPACT REPORT
Donner Memorial State Park
High Sierra Crossings Museum

April 2006

State of California
DEPARTMENT OF PARKS AND RECREATION
Acquisition and Development
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1.0 INTRODUCTION

1.1 Introduction

This ~~Draft~~ Final Environmental Impact Report (~~D~~ FEIR) has been prepared by the California Department of Parks and Recreation (DPR) to evaluate the potential environmental effects of the proposed High Sierra Crossings Museum Project at Donner Memorial State Park (SP), Nevada County, California. This document has been prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code (PRC) §21000 *et seq*., and the State CEQA Guidelines, California Code of Regulations (CCR) §15000 *et seq*. As described in the CEQA Guidelines §15121(a), an EIR is a public information document which will inform the public and agency decision-makers of the significant environmental effects of a proposed project, consider reasonable alternatives, and identify ways to avoid or reduce adverse impacts.

1.2 Lead Agency

The lead agency is the public agency with primary approval authority over the project. In accordance with CEQA Guidelines §15051(a), "If the project will be carried out by a public agency, that agency shall be the lead agency even if the project would be located within the jurisdiction of another public agency." The lead agency for the proposed High Sierra Crossings Museum Project at Donner Memorial SP is DPR.

It is the responsibility of the lead agency to determine if the proposed project has the potential to result in a significant effect on the environment [CEQA Guidelines §15063(a)]. Under CEQA, the term "project" refers to the whole of an action, which has a potential for resulting in either a direct physical change or a reasonably foreseeable indirect physical change in the environment. The proposed museum construction is a project to be directly undertaken by a public agency, as defined in the CEQA Guidelines §15378(a)(1).

If the lead agency determines there is substantial evidence that any aspect of the project, either individually or cumulatively, may cause a significant effect on the environment, regardless of whether the overall effect of the project is adverse or beneficial, the lead agency shall either prepare an Environmental Impact Report (EIR) for the project or demonstrate that a previously-prepared EIR adequately analyzes the project at hand [CEQA Guidelines §15063(b)]. In recent years, DPR prepared two EIRs for Donner Memorial SP, including a General Plan (2003) and an EIR for a previous version of the High Sierra Crossings Museum project (2005). Although these documents contain substantial information pertinent to the current proposal, additional environmental impact analysis was necessary for CEQA compliance. This subsequent EIR includes the results of prior studies and evaluates potential environmental effects of siting the new museum near existing facilities including the Emigrant Trail Museum and Pioneer Monument.

1.3 Public Notice and Review

As noted in Section 15201 of the CEQA Guidelines, public participation is an essential part of the CEQA process. To insure adequate public review of the proposed project during the initial scoping process, DPR filed a Notice of Preparation of a Draft EIR with the State Clearinghouse on December 2, 2005 (SCH# 2004082055) for distribution to state reviewing agencies (see Appendix F). The Notice was also sent directly to various local and federal responsible and trustee agencies and published in the *Sierra Sun* newspaper, which serves the Town of Truckee. DPR published this notice on its website: http://www.parks.ca.gov/default.asp?page_id=981.

A public scoping meeting was held on December 8, 2005 at the existing Emigrant Trail Museum in Donner Memorial SP, to advise the local community of changes from the prior proposal, present information on project objectives, preliminary design and operational scope, and solicit input from attendees. A DPR press release announcing the meeting was published in the *Sierra Sun* three times between November 25 and December 2, 2005. DPR sent copies of the press release to a mailing list of over 800 recipients, including agency representatives as well as private organizations and individuals with interest in the project area.

The DPR project manager and Sierra District Superintendent contacted local agency officials with information during the project scoping period, and presented the proposal in a Truckee Town Council meeting on December 1, 2005.

DPR received written responses from 41 individuals and organizations during the scoping period. Seven of the respondents specifically expressed support of the plan to situate a new facility near the existing Emigrant Trail Museum in the park's core area. Seventeen of the respondents asked that the EIR include consideration of a proposal to create a paved bicycle and pedestrian connection into the park from South Shore Drive over an existing unpaved pathway. Although the bike path proposal is outside the scope of the HSC Museum project, the district is considering undertaking this project in the near future (See Section 5.2.2 for anticipated projects in the vicinity).

Eight of the written responses contained suggestions for development of the museum facility, exhibits, and potential programs. We appreciate this input and have provided it to the project's interpretive specialists and designers. One of the respondents expressed concern over DPR's ability to mitigate indirect environmental effects; particularly those with a potential to affect water quality. Please see Section 4 of this DEIR, particularly section 4.7, for an analysis of potentially significant environmental impacts and the measures developed to avoid or mitigate them.

One of the respondents expressed concern about the use of public funds to construct a new museum at this time, and another suggested that a smaller building would still meet project objectives and be less costly to operate. See Sections 2.3 and 2.4 for a discussion of the need for, and objectives of, the project. The proposed primary funding source for the High Sierra Crossings Museum is a federal Transportation Enhancement Act (TEA) grant. TEA grant funds are designated solely for a specific range of project

types which include construction of museums and visitor centers such as the one proposed for Donner Memorial State Park.

One respondent expressed concern over any removal of trees near the Pioneer Monument. Although certain trees would necessarily be removed to implement the project design, the elements of this proposal described in Section 2.5.5 include new and replacement on-site plantings, including native trees (see preliminary site plan, Appendix B). New trees may be planted at the perimeter of the Monument area. The density of vegetation outside the immediate project area will not be reduced by the HSC Museum project. One respondent asked whether provision could be made for free or reduced cost day use parking by local residents visiting the park solely for access to the beach at the east end of Donner Lake. This question has been forwarded to DPR's Sierra District managers responsible for park operations.

DPR ~~has filed this~~ filed the draft DEIR and associated Notice of Completion (NOC) with the Governor's Office of Planning and Research – State Clearinghouse (SCH) on February 9, 2006 [SCH #2004082055]. SCH distributes copies to state agency reviewers. It ~~is also being~~ was also sent directly to interested local and federal agencies. DPR ~~is providing~~ provided public notice of the availability of the DEIR for public review, in compliance with CEQA Guidelines §15087 and ~~invites~~ invited comments from private organizations and individuals. Copies of the DEIR Notice of Availability were sent to all parties on the project mailing list, including those who had been added by request during the scoping period. The public review period ~~will~~ extended for 45 days from the date the NOC ~~is~~ was filed with the SCH, ending on March 27, 2006.

No written comments on the DEIR were received from members of the public; one state agency comment letter was submitted by the California Department of Forestry and Fire Protection (CDF) (see Appendix I). Through this letter, CDF informed DPR that the project will not require a Timberland Conversion Permit or Timber Harvest Plan. No changes to the EIR were necessary in response to this letter. One comment letter was received after closure of the review period; from the Town of Truckee (see Appendix I for this letter and DPR's response). Changes were made to the DEIR, Sections 2.7, 4.1.2.1 and 4.1.5.4 in response to this letter.

~~The DEIR and associated supporting documents will remain posted on the State Parks website at: http://www.parks.ca.gov/default.asp?page_id=981 during the review period.~~

DPR has filed this FEIR and associated Notice of Determination (NOD) documenting its approval of the project, with the SCH. It is also being sent directly to interested local and federal agencies. DPR is mailing the NOD to the project mailing list and publishing the same in the *Sierra Sun*, in compliance with CEQA Guidelines §15087. The review period will extend for 30 days from the date the NOD was filed with the SCH. The FEIR and associated supporting documents will remain posted on the State Parks website at: http://www.parks.ca.gov/default.asp?page_id=981 during the review period.

This ~~D~~ FEIR is available for public review at the DPR Northern Service Center, One Capitol Mall, Suite 410, Sacramento, CA 95814. Printed copies will be also be available during the review period at Donner Memorial State Park and the Truckee Library, or by request from the contact below. ~~The 2003 Final EIR for the Donner Memorial SP General Plan and information on the general plan process is currently available on the State Parks website for Donner Memorial SP at: http://www.parks.ca.gov/default.asp?page_id=22145 .~~

All inquiries regarding environmental compliance for this project should be addressed to:

Environmental Coordinator
California Department of Parks and Recreation
Northern Service Center
One Capital Mall, Suite 500
Sacramento, CA 95814
Fax: (916) 445-8883
CEQANSC@parks.ca.gov

All comments on this ~~D~~EIR must be in writing and may be submitted by regular mail or email to the address indicated above, or by fax to (916) 445-8883. Submissions must be postmarked or received by fax no later than May 7, 2006. The originals of any faxed document must be received by regular mail within ten working days following the deadline for comments, along with proof of successful fax transmission during the designated comment period. Emailed submissions must include the sender's full name and mailing address. Comments received during the ~~public~~ FEIR review period will become part of the public record~~ and will be included in the final EIR~~.

1.4 Responsible and Trustee Agencies

As noted in Section 1.2 above, the lead agency has primary approval authority over the proposed project. Other public entities, known as Responsible or Trustee agencies, may also have jurisdiction and discretionary approval authority over all or part of proposed project activities or resources potentially affected by a project.

The following agencies and authorities may have jurisdiction over aspects of the proposed project, requiring consultation, coordination, and/or permits before the project may be approved and/or implemented:

- California Department of Fish and Game (DFG)
- California Department of Forestry and Fire Protection (CDF)
- Department of the State Architect - California Access Compliance
- Lahontan Regional Water Quality Control Board (RWQCB)
- Northern Sierra Air Quality Management District (NSAQMD)
- State Fire Marshall
- State Historic Preservation Officer (SHPO)
- State Water Resources Control Board (SWRCB)
- Tahoe-Truckee Sanitation Agency

- Town of Truckee ~~Donner~~ Planning Department
- Truckee Donner Public Utility District
- Truckee Fire Protection District
- Truckee Meadows Water Authority
- Truckee Sanitary District
- United States Army Corps of Engineers (USACE)
- United States Fish and Wildlife Service (USFWS)
- The proposed use of federal funds for implementation of the project will also require extensive interaction with the following agencies:
    - California Department of Transportation (Caltrans)
    - United States Department of Transportation - Federal Highway Administration (FHWA)

1.5 Organization and Scope

The CEQA Guidelines §§15122-15132 identify the information that must be contained in an EIR. A Draft EIR (DEIR) must include discussion of the following:

- Table of Contents
- Summary of Proposed Actions and Consequences
- Project Description
- Environmental Setting
- Consideration and Discussion of Environmental Impacts
- Consideration and Discussion of Significant Environmental Impacts, including Growth-Inducing Impacts
- Consideration and Discussion of Mitigation Measures Proposed to Minimize Significant Effects
- Consideration and Discussion of Alternatives to the Proposed Project
- Effects Found Not to be Significant
- Organizations and Persons Consulted
- Discussion of Cumulative Impacts
- Economic and Social Effects

The purpose of the DEIR for this project ~~is~~ was to evaluate the potential environmental effects of the proposed High Sierra Crossings Museum at Donner Memorial SP. Based on recent CEQA documents prepared for the HSC Museum project and other work within the park, DPR determined that the proposed project could have a significant environmental effect on the environment and that an EIR is required. Therefore, pursuant to CEQA Guidelines §15063(a), an Initial Study was not required and has not been prepared for the proposed project.

The environmental effects addressed in the DEIR were established through review of the project scope, site evaluations, analysis of other projects in the general area, public agency responses to the Notice of Preparation (NOP), preliminary consultation with responsible and trustee agencies, public comments received during the project scoping period, and comments received during the previous CEQA review for the High Sierra

Crossings Museum (DPR 2005). The final Donner Memorial SP General Plan (DPR 2003a) also contains evaluations germane to this project and is, therefore, incorporated into the DEIR by reference.

In compliance with CEQA Guidelines §15132, this final EIR is comprised of the Draft EIR with minor editorial changes (additions underlined, deletions lined through), and an added Appendix (I) identifying the two public agencies commenting on the draft EIR, and providing copies of the comment letters and DPR's responses to significant environmental points raised in the review and consultation process.

This document is organized as follows:

Section 1 - Introduction

This chapter provides a summary of the proposed action and environmental consequences, identifies CEQA requirements, and describes the purpose and organization of this document.

Section 2 - Project Description

This chapter describes the purpose and need for the project, location, background, project scope, objectives, implementation, and regulatory requirements.

Section 3 - Alternatives to the Proposed Project

This section identifies and provides analysis of reasonable alternatives for the proposed project, including a discussion of significant environmental impacts that could result from implementation of each alternative and a comparative analysis. It also includes a discussion of those alternatives considered, but deemed infeasible.

Section 4 - Environmental Analysis

This section describes the resources and conditions present in the project area and potential impacts identified during environmental analysis for the proposed project. Each subsection contains a description of the baseline conditions (environmental setting) as it relates to a specific topic; identifies and determines the significance of anticipated impacts; and specifies conditions and mitigation measures, where appropriate, to avoid or reduce potential impacts to the lowest level feasible.

The following is a list and descriptive summary of the environmental topics addressed in the Environmental Analysis:

- Aesthetics/Visual Resources - Addresses visual impacts of the proposed project, including construction activities and nighttime illumination.
- Air Quality - Addresses the incremental and cumulative effect the proposed project could have on the air quality in the vicinity of the project site and within the Northern Sierra Air Quality Management District.
- Biological Resources - Addresses potential impacts on the plant and animal species within the project's area of potential effect, threatened and endangered species, jurisdictional wetlands, and habitat.
- Cultural Resources - Addresses potential impacts to significant historic and archaeological resources in the project area.
- Geology and Soils - Addresses geotechnical impacts associated with site development, including changes in topography, soil erosion and potential loss of mineral resources, and potential geologic and seismic impacts during both construction and operation of the facilities.
- Hazards and Hazardous Materials - Addresses potential environmental impacts to the surrounding area and community residents due to the transportation and/or use of hazardous materials, exposure to toxic materials, or increased fire danger during construction or facility operation.
- Hydrology and Water Quality - Addresses changes in drainage patterns, absorption rates and runoff, surface water quality, and quality/quantity of groundwater.
- Land Use and Planning - Addresses the potential impacts on land uses within the project site and in the surrounding community, including land use compatibility issues and consistency of the proposed project with existing plans and policies.
- Noise - Addresses the level of noise generated during construction and operation of the proposed facilities, as well as the effect of existing noise conditions on those using the proposed facilities.
- Public Services and Utilities - Addresses potential impacts of the proposed project on local public services; availability of utilities, including community sewer, water, and solid waste disposal facilities and services; and recreational opportunities.
- Transportation, Circulation, and Traffic - Addresses effects of the proposed project on existing road conditions, vehicular circulation and flow, safety hazards, emergency access, and alternative modes of transportation.

Section 5 - Growth-Inducing and Cumulative Impacts

This section identifies and discusses ways in which ~~the~~ a proposed project may foster economic or population growth or increase the need for new housing construction. It will also trace any chain of cause and effect arising from project-related economic or social changes that could result in physical changes in the environment.

Section 5 identifies and discusses the cumulative impacts associated with the proposed project. This includes both temporary construction and long-term operational impacts resulting from the proposed project. It also identifies any additional impacts imposed by separate projects and activities planned or in progress in the general vicinity, by DPR or other public/private entities that, combined with impacts from the proposed project, could result in a significant environmental impact.

Section 6 - Significance of Environmental Impacts

This section identifies both direct and indirect significant effects of the proposed project on the environment, during the construction phase and over the long-term operation of the proposed facilities. These include significant environmental effects that cannot be avoided and significant irreversible environmental changes that would be caused if the proposed project is implemented.

Section 7 - Report Preparation

This section identifies those who contributed to and/or were responsible for the preparation, analysis, and accuracy of the information contained in this document.

Section 8 - References

This section identifies the references used and sources cited in the preparation of this DEIR.

Appendices

The Appendices contain supporting documentation and reference material for information, evaluations, and determinations presented within the body of the DEIR. They include project graphics, a traffic report, a draft stormwater pollution prevention plan, ~~the NOP and agency~~ CEQA notices, comments and responses, plant and animal species lists, a geological glossary and a list of acronyms.

1.6 Findings

CEQA Guidelines §15091 directs that no public agency will approve or carry out a project for which an EIR has been certified, which identifies one or more significant environmental effects of the project, unless the public agency makes one or more written findings for each of those significant effects, accompanied by a brief explanation of the rationale for each finding. Findings may include changes or alterations that have been required in, or incorporated into, the project which avoid or substantially lessen the significant effect. Proposed findings have been incorporated into this DEIR in Section 4.0, Environmental Analysis, at the end of the subsection for each topic that identifies a significant environmental impact.

Upon certification of ~~a final version of this~~ this final EIR, DPR will also adopt a Mitigation Monitoring and Reporting Plan (MMRP) for the project in keeping with CEQA Guidelines §15091(d). The MMRP identifies the changes the agency has either required in the project or made a condition of its approval, to avoid or substantially lessen significant environmental effects. The MMRP will individually list these changes ("Conditions" and "Mitigation Measures"), indicate the timing of their implementation, responsible parties, and the method of monitoring and/or enforcing each.

2.0 PROJECT DESCRIPTION

2.1 Introduction

The intent of this document is to evaluate the environmental effects of the proposed High Sierra Crossings Museum Project at Donner Memorial State Park (SP). The project consists of the construction of a new museum/visitor center to introduce the public to the natural features and cultural history of Donner Memorial SP and the surrounding area. Associated site work ~~would~~ may include a reconfigured main park entrance, expanded parking area and landscape improvements, and additions/improvements to outdoor interpretive exhibits, walks, and signage.

2.2 Local and Regional Setting

Donner Memorial SP is located in Nevada and Placer Counties, primarily at the eastern end of Donner Lake (see Vicinity Map in Appendix A). It is bordered by Donner Pass Road (Old Highway 40) on the north, which parallels Interstate 80 (I-80), and Donner Lake to the east, and includes multiple shared boundaries with the Tahoe National Forest. The park is approximately 100 miles east of Sacramento and 30 miles west of Reno and is situated within the Truckee town limits, just west of the downtown area.

Donner Memorial SP offers both camping and day use opportunities for park visitors, with three separate campground loops, picnic sites spread throughout the park, a sandy beach and interpretive trail along the lakeshore, a campfire center at the base of Schallenberger Ridge, and an interpretive nature loop trail from the existing Emigrant Trail Museum to the Murphy Cabin site, returning to the museum through a wetland area along Donner Creek. There is a total of 1.7 miles of existing trails in the park; interpretive information can be found along 1.5 miles of these trails.

The proposed project site is located in Nevada County, within the Donner Memorial SP boundaries (see site location Map in Appendix A). It covers a generally rectangular area approximately 500 feet wide by 1,060 feet long bordered by Donner Pass Road to the north, extending south approximately 500 feet. The western edge of this rectangle is approximately 560 feet west of the existing park entrance on Donner Pass Road; the eastern edge is approximately 500 feet east of the entrance. The relocated main park entrance would encroach onto Donner Pass Road, approximately 300 feet west of the existing park entrance.

The topography of the project site slopes gently downward to the southeast. The elevations at the site vary from about 5,920 to 5,950 feet above mean sea level (amsl). Soils on the site are predominately sandy loam (or granular soil), with scattered rocks and boulders. Vegetation in nearby areas of the park generally consists of a Lodgepole pine forest, with scattered Jeffery pine and quaking aspen, and an understory containing a diversity of shrub species, including gooseberries and currants, *ceanothus*, serviceberry, and bitter cherry. The water bodies nearest the project site are Donner Lake and Donner Creek. The proposed HSC Museum would be situated between the existing Emigrant Trail Museum and Donner Pass Road to the north.

Historic Land Uses

Native Americans used the area around Donner Lake for thousands of years prior to Euroamerican contact, occupying this part of the Sierra Nevada as early as 9,000 B.C. The primary archaeological site within the park extends throughout its core area. Analyses of artifacts recovered from the site since the 1950s indicate a time depth ranging from the Martis Phase, circa 4000 B.C., to the mid-20th century [See §4.4, Cultural Resources, for source citations and additional detail regarding site history].

Beginning with the Stevens-Murphy-Townsend Party in 1844, overland emigrant travelers entered California on foot or with wagons, crossing the route up the Truckee River, along the northern shore of Donner Lake, up and over Donner Pass, and down into the Central Valley. The site of the Murphy and Breen-Keseberg Cabins, which together represent one of three camps established by the Donner Party during the winter of 1846-1847, is within Donner Memorial SP. The park's Pioneer Monument is located near the existing Emigrant Trail Museum in the proposed project area. Due to its association with events of national historic significance, the area that includes the cabins and monument was designated a National Historic Landmark in 1961. The Monument itself has been a California Historical Landmark since 1934. More than 50,000 people traveled to California by this route between 1844 and 1925. Nearly all of the emigrants passed through or near what is now Donner Memorial SP. Segments of the California Emigrant Trail have been identified within or immediately adjacent to the park boundaries.

The first toll road in the Donner Lake area, along the north shore of Donner Lake and over Donner Pass, was established in 1857 and operated until 1859. This short segment, which was later incorporated into the Dutch Flat and Donner Lake Wagon Road (DF&DLWR), formed the final link in a continuous freight and passenger road from Dutch Flat to Virginia City. In 1925, the Victory Highway opened, allowing automobiles to travel through the Truckee River Canyon, along the same route first taken by the Stevens-Murphy-Townsend Party in 1844. This road closely followed the original route of the DF&DLWR and although it functioned as a main thoroughfare, it was still primitive and largely unpaved. Over the next 15-20 years, the road was modified and improved into the road currently known as Old Highway 40, Donner Pass Road, or the Old Lincoln Highway. Today, this road bounds the park on the north and provides access to the park's main entrance. After construction of I-80 in 1964, Old Highway 40 (Donner Pass Road) ceased to be the main thoroughfare for the Donner-Truckee area and is now primarily used for local business, residential, and recreational access.

As early as 1867, advance railroad gangs of the Central Pacific Railroad temporarily settled at Donner Lake's west end, completing the Truckee-Reno railroad by May 1868. As the rails reached Donner summit in 1866-67, a number of lumber mills established operations in the Truckee Basin to supply the railroad with cordwood for fuel, lumber for construction, and ties for the roadbed. Timber was logged from the Donner Lake Basin. Angus McPherson established a water-powered sawmill at the east end of Donner Lake in 1864, near a currently-popular beach within state park boundaries. McPherson also operated a hotel along the old wagon road (now Donner Pass Road), near his sawmill.

A butcher shop, store, and a blacksmith shop were located adjacent to his hotel. The Towle brothers established a second sawmill at the east end of Donner Lake, perhaps as early as 1865. From 1866 to 1880, the Towle mill, complete with narrow gauge railroad, reportedly operated a double mill steam plant with four saws, providing the capacity to produce 100,000 board feet daily. Other early businesses and residences were also constructed along the wagon road, near Donner Lake's east end.

On July 21, 1894, land was donated and "expressly deeded for the purpose of a site for a monument to the Donner Party." Ceremonial ground breaking took place in 1909 and the monument was jointly dedicated on June 6, 1918 by the Native Daughters and Native Sons of the Golden West. The Donner Ice Company owned the land surrounding the Donner monument from 1895 to 1907, when the company sold it to the Pacific Fruit and Express Corporation. Six years after dedication of the statue, the Pacific Fruit Express Corporation conveyed 10 acres around the monument to the Native Sons of the Golden West for "state park purposes." This brought the total acreage of the prospective state park up to 11 acres.

In 1920, the Native Sons signed a lease for a concession next to the monument. The concessionaire maintained a graveled road that provided public access from Highway 40. The road went due south, circled the monument, and ended at an oiled parking area southwest of the monument. A rectangular wood concession building was located just west of the monument, and included a lunchroom and souvenir shop. This basic land use and development pattern around the monument remained in place until 1949, despite another change in ownership.

On May 5, 1927, the Governor signed legislation allowing state acquisition of the "Donner Monument and lands contiguous thereto." On May 23, 1928, the Grand Parlor of the Native Sons of the Golden West conveyed the 11-acre parcel of land to the People of the State of California with very few conditions. The deed was recorded June 28, 1928, for a nearly square parcel adjacent Old Highway 40. Another 5.1 acres was added to the park northeast of the monument. Later that year, the Department of Finance transferred the park to California's newly formed Division of Beaches and Parks.

In 1930, the concession lease with the Native Sons was cancelled and the concession building converted into park headquarters. It was later designated a museum. In August 1947, the Division of Beaches and Parks (precursor to the California Department of Parks and Recreation) acquired the 1.6 acre Murphy Cabin site and, on September 28, 1948, also purchased 344 acres from the Donner Lake Development Company. This acquisition created contiguous state park land from the monument area to Donner Lake.

In 1961, Charles DeTurk, Chief of Beaches and Parks, formally applied to the National Park Service (NPS) to designate Donner Memorial State Park as a National Historic Landmark. The park's historic core was thus designated by NPS on January 20, 1961. The Emigrant Trail Museum was built in the core area and dedicated in September 1962. Its exhibits tell of the Sierra Nevada trail blazers, wagon parties, mining activities,

the influence of the railroad, the Chinese community, development of the town of Truckee, lumber interests, and the Native Americans that inhabited the area.

The park was expanded again in 1990 when the state acquired privately owned lands in Coldstream Canyon from The Nature Conservancy. In 1992, the trail route used by the Donner Party and other emigrants, along a segment of the California Trail that passes through Donner Memorial SP, was designated as a part of the California National Historic Trail (established by Congress in 1992 as an amendment to the National Trail System Act [16 U.S.C. 1271-1287]).

2.3 Background and Need for the Project

The existing 5,850 square foot (ft^2) Emigrant Trail Museum was constructed in 1962, before the construction of I-80 altered the configuration of local roads and park access and provided an easier way for travelers to seek out the Sierra Nevada wilderness. The building was designed to accommodate 60 to 70 people at one time in an open lobby, 30 to 40 people in an open exhibit space, and up to 100 people at one time in an open theater/assembly room. However, open space has been gradually reduced to accommodate expanding collections and gift shop offerings. During the day, it is common to find over 100 people at a time in the museum, with an average stay of one hour. School groups averaging 55 people at one time often visit during the school year, with several school groups visiting at one time.

Only 4508 ft^2 of the museum building is currently used as a visitor center, theater, museum exhibit and interpretive areas, bookstore, and gift shop. The remaining space is used by park staff for cultural resource artifact work, park operations, staff offices, and storage areas. The building also has an attached 1574 ft^2 exterior porch, terrace, and hallway that is open to the public and provides access to the public restroom facilities.

The Donner Pass Road exit off I-80 is the primary access route to the park, intersecting Donner Pass Road just east of the museum and main park entrance. Annual average visitation to the museum is approximately 80,800 persons. Daily average visitation is over 340 people between June 1 and September 30, with occasional peaks of up to 500 per day. The existing parking lot accommodates only 45 automobiles, and is also used by those visiting the Pioneer Monument, Murphy Cabin Site and Trail, and the Nature Trail. There is no designated bus parking area, only one designated ADA space, and four spaces for employee/operations parking. Parking often overflows onto the park entry road, causing congestion at the park entry kiosk and traffic backups out onto Donner Pass Road.

There are numerous conditions that seriously detract from the operational and experiential aspects of the existing facility. These conditions have been reported by visitors and staff and are well documented. Most importantly, the existing museum space is inadequate to provide a quality recreational and interpretive experience for the visiting public.

In summary, the existing Emigrant Trail Museum and visitor center has the following problems:

- The building has poor circulation patterns which interfere with the operations of the entire facility.
- There is no central heating and air conditioning system to provide comfortable internal environment for staff and visitors and protection for museum artifacts and collections.
- The theater does not meet various building codes, including current fire code and accessibility standards. Additionally, it has poor ventilation, poor audio/visual capabilities, and inadequate seating facilities.
- The exhibits in the Exhibit Hall are over 40 years old and do not portray events, artifacts, and the area's natural history in an accurate and effective manner. Space for the natural history exhibits is especially limited.
- Security is poor, which is a threat to the collections in the facility and personnel safety.
- The storage of artifacts is inadequate to maintain availability and protect the integrity of the collections.
- The location of the existing museum was selected before the construction of I-80 changed the configuration of local roads and access to the park. The main park entrance is awkwardly located, contributing to local traffic congestion and circulation difficulties within the park.
- The parking lot does not accommodate peak visitor parking requirements of 60 –70 cars and 2-3 school buses, nor does it have proper driveway circulation. Overflow parking ends up on the shoulders of two-lane Donner Pass Road.
- The space available for bookstore and gift shop operations and building management is inadequate for current demands.
- The building and its exhibits do not meet Americans with Disabilities Act (ADA) accessibility requirements.
- Restrooms are inadequate for the number of people visiting the facility, do not meet accessibility standards, and are not heated during the winter months.

Through the analysis conducted for the park's General Plan, DPR determined that the building housing the Emigrant Trail Museum had outlived its usefulness as a museum and should be replaced with a larger facility that could improve exhibit space and interpretive opportunities, resolve traffic and circulation issues, and better meet the current and future needs of park visitors and staff.

2.4 Project Objectives

The intent of this project is to provide a high quality physical environment where children and adults can explore and discover the relationships between humans and the historical and natural uses of the area, with an emphasis on the historic transportation crossings of the Sierra. DPR proposes to construct a new museum, in order to:

- Increase space for exhibits, interpretive programs, visitor services, and facility operations.
- Provide climate-controlled interior spaces to improve visitor and staff comfort.
- Reduce congestion at the main park entrance.
- Improve access from Donner Pass Road, improve traffic circulation patterns, and provide adequate parking for automobiles, buses, and recreational vehicles.
- Improve security and lighting for the safety of visitors and staff, and protection of the museum resources.
- Improve accessibility to exhibits, interpretive programs, and museum facilities for all park visitors, in compliance with ADA requirements.
- Support public use of the property by the community and area visitors, while encouraging the understanding, appreciation, and protection of the park's natural and cultural resources.
- Develop a sustainable project that minimizes long-term management complexity, maintenance, and risk.

Additionally, this project furthers the DPR mission by contributing to the following objectives:

- Protect and preserve the historical and cultural qualities of the site.
- Support public understanding of the significance and value of the state's natural and cultural resources through education, interpretation, and leadership.
- Provide for managed public access, designed to ensure that quality recreational opportunities are available and that wildlife values are protected.
- Improve the quality of life in California through diverse, high quality recreation experiences and opportunities.

2.5 Project Description

The intent of this project is to construct the High Sierra Crossings Museum, a new facility providing expanded exhibit space, interpretive opportunities, and improved services to visitors at Donner Memorial State Park. The structure would meet current seismic safety codes, comply with accessibility, life safety and fire standards, and satisfy energy conservation regulations and guidelines. Modifications and additions to existing parking facilities could provide space for up to 100 vehicles, at least 3 ADA parking spaces, one of which would be van-accessible, and bus/RV parking to accommodate up to 3 buses. Utilities, consisting of water, sewer, gas, electric power, and communication lines, would be installed underground to the facility from existing providers to the park.

2.5.1 Building Design and Construction

The High Sierra Crossings Museum structure would enclose approximately 10,000 ft^2 of floor space. The new building would provide room for the following functions:

- Lobby and Reception area
- Exhibit area
- Multi-purpose area
- Gift shop
- Storage area(s)
- Restrooms
- Entrance foyer
- Mechanical room
- Offices
- Possible connection (e.g. plaza, walkway) to Emigrant Trail Museum building

Associated site work would include:

- Entrance plaza connecting new museum to Pioneer Monument and outdoor interpretive areas
- Outdoor interpretive exhibits, directional signs
- Reconfigure existing and new parking
- Reconfigure road entrance
- Appropriate landscape planting and site enhancements

2.5.2 Road, Bike/Pedestrian Paths, and Parking Construction

Either a new two-lane entrance road would be constructed from Donner Pass Road or the existing entrance road would be widened and modified to provide non-congestive public vehicle access to the museum building and parking area as well as the existing campground and day use areas of the park. The parking area would also provide space for buses to unload and vehicles to drop off passengers near the museum.

The existing parking lot will be demolished. The main parking lot for the museum would be constructed in approximately the same location, adjacent to the southern side of the new museum, extending in a generally curved rectangular shape inland, but fairly parallel with Donner Pass Road (see Preliminary Site Plan in Appendix B). An additional overflow and day use parking lot is proposed for construction near the campground kiosk, at an approximate 45 degree angle from Donner Pass Road. All new parking lot pavement would be a minimum of 100 feet from the edge of any stream.

The footprint for the parking areas and access road would be cleared and grubbed, followed by 95% compaction of the sub-base soil. Trees and understory growth would be removed prior to the start of actual construction (see Section 2.5.5). A combination of aggregate base and asphalt concrete (AC), not to exceed a depth of 12 inches, would be installed, per Caltrans standards. The parking lot surface would be striped to provide approximately 70-100 standard parking spaces; at least three ADA-accessible parking spaces, one of which would be van-accessible; and loading/unloading zones for vehicles/buses, trash pick-up, and small delivery trucks. The day use/overflow parking

would accommodate up to approximately 30 vehicles with up to 2 ADA-accessible parking spaces. The parking lot and access road would have approximately 75,000 - 85,000 total square feet of AC-paved area. The road, from the Donner Pass Road encroachment to the edge of the parking area, would be approximately 610 feet in length and 24-30 feet wide.

An AC-paved bicycle/pedestrian path, approximately eight feet wide would be constructed from Donner Pass Road to the new plaza area and bike storage racks near the entrance to the museum.

Donner Pass Road would be widened in the vicinity of the relocated entrance road encroachment to accommodate a left turn lane for westbound traffic. The existing road surface and base would be removed, roadbed recontoured, and an aggregate base with AC overlay installed and finished in a manner consistent with the adjacent road surface and in accordance with Town of Truckee road construction standards and maintenance requirements. Damage to the surface of the adjacent roadbed resulting from project activities would be repaired as necessary to provide a safe, compatible road surface. (See Section 2.5.3 Utilities/Sewer below for temporary road repairs following utility trenching).

During the course of construction, a temporary staging area for contractor work trailers and equipment shall be established in areas either currently covered with paving or areas projected for new pavement or bio-swales. The existing entrance drive shall be used until the new entrance drive is installed. To accommodate phasing of site work and seasonal changes, the staging area may be relocated during the construction period. Areas where staging may take place include the existing parking lot area, new primary parking lot area, new overflow parking area, and paved surfaces within the maintenance area. Temporary connections may be made to existing electrical and telephone service lines. Portable toilet facilities shall be installed adjacent to the work trailers and in the general work area. A chain link security fence shall be installed surrounding the staging area, with a gate at the site entrance. After use of an area for staging, the ground shall be recontoured as necessary in preparation for the finished surface (see Section 2.5.4). Drainage patterns shall be re-established in areas outside the bio-swale footprint and revegetated to prevent erosion and increase screening of the parking lot and museum building. Access to the existing Emigrant Trail Museum would remain open for most of the construction period.

2.5.3 Utilities

Utilities for the new building include water, sewer, gas, electric power, and communication lines. These would be extended underground from existing facilities within the park and along Donner Pass Road.

Sewer – Wastewater treatment for the proposed facilities would be provided by the Truckee Sanitary District (TSD), through connection at a manhole with the existing TSD sewer line on Donner Pass Road. As noted above, temporary portable toilets would be provided and maintained under contract for the duration of the construction process. Portables would be maintained in a manner consistent with Environmental Health requirements.

- Pavement on Donner Pass Road would be repaired as necessary following trenching and utility installations. Depending on the timeline for the sewer line and other utility connection work, temporary repairs may be used, with permanent resurfacing done in conjunction with construction of the left turn and acceleration/deceleration lanes (see 2.5.2 above).
- Untreated wastewater would be transported via the existing main sewer line to the TSD sewage treatment plant for processing.

Water – Water for both the construction and operation of the new Museum facilities would be provided by the Truckee-Donner Public Utilities District (TDPUD) through connection to an existing 18-inch TDPUD main supply line along the south side of Donner Pass Road.

- A 2 foot wide by 4 foot deep multi-purpose trench, approximately 200 feet in length, would be excavated from the building site to the TDPUD water main connection point alongside Donner Pass Road. The trench would house the water line and natural gas line. Electric and communication line conduits and cables that would provide utility service to the museum building would be installed in a separate trench.
- A 6-inch branch line would be installed for fire protection. An additional domestic water supply line would be installed to the building within the common trench. This would be metered at the TDPUD line. Backflow preventers would be installed, per TDPUD requirements.

Open-trench excavation would probably be used for all installations. Most of the project area has a high water table; standard dewatering procedures, including best management practices (BMPs) to control erosion, would be employed as necessary (see 4.5.4 Geology and Soils, Impacts and Mitigations), along with the use of waterproof conduit and/or cable. Extracted waters shall be dissipated onsite (See § 4.4.5.1).

Natural Gas – Approximately 600 feet of inch natural gas line would be installed from the new Museum building to the existing Southwest Gas main supply line, located along Donner Pass Road. The gas line would be buried in the same trench as the water line (see 2.5.3 Water, above). Southwest Gas would install all gas lines and connections.

Electricity – Electrical power would be supplied by TDPUD from an existing high voltage overhead power line. An underground electrical conduit would be run from the existing TDPUD power pole, located approximately 80 feet east of the centerline of the existing entrance road and 40 feet south of the edge of Donner Pass Road, to the

proposed museum building. It would require a 2 feet wide by 3 feet deep trench 950 feet long. A pad-mounted transformer would be installed at the building site.

Exterior Lighting – Approximately six light stanchions would be installed within the parking area. Full cut-off lighting fixtures would be used, with the light directed onto the parking surface. The lights would be housed in fixtures with glare shields to prevent up-lighting and limit the visual impact. Trenches would be dug 6 inches wide and 24 inches deep to connect all fixtures. Electrical cable would be installed in conduit with lighting conductors.

Decorative and functional exterior lighting may also be installed at several locations on and adjacent to the building, patio, and pedestrian walkways.

Communication Lines – The telephone and telecommunications service for the proposed museum would be provided by SBC. An underground conduit system would be installed in the common electrical trench (referenced above), then extended to connect with the existing supply pole, line, and/or fiber optic cable, located on the north side of Donner Pass Road.

Security - An electronic security system would be installed within the proposed museum building, in conjunction with electrical and telecommunications systems. Gates may be installed at the entrance to the parking lot, as necessary, to control vehicle access.

2.5.4 Drainage and Erosion Control

The parking facility, bike/pedestrian path, and entrance road for the site would contain approximately 70,000 - 80,000 square feet of impervious surface. Stormwater runoff from impervious areas shall be collected and treated before discharge in the surrounding ground. The system shall be designed to prevent contaminated water from reaching the streams flowing in the project vicinity.

The main source of contamination is expected to be the asphalt/concrete pavement of the parking lots and paved roads within the site. The stormwater runoff systems shall be designed with enough capacity to handle runoff water from a 20-year, 1-hour storm event, which would produce 0.07 inches of water. This is approximately 33,000 gallons of water in one hour.

Due to the southeast slope of the site, various stormwater inlets would be installed in the main parking area and proposed new entrance road to direct the water flow to a stormwater collection vault and/or primary treatment area, southeast of the main parking lot. The vault shall be sized to handle the storm surge, remove sand, grease, and oil from the water, and remove floating debris.

The cleaned stormwater would then be transported from the primary collection/ treatment area, via a pump station, to an area bordered by the main parking lot on the south, the new museum building on the east, and the new entrance road on the west.

In this area the treated stormwater would enter underground infiltration chambers to slowly seep back into the ground. Some runoff stormwater may also be distributed on bioswales in the northern portion of the site. Both the bioswales and the buried infiltration chambers would provide natural biologic degradation of contaminants and traps for silt and sediment from runoff that cannot be processed by the stormwater vault.

Runoff stormwater in smaller, isolated areas that does not flow to the stormwater vault by the southeast corner of the main parking lot, shall be diverted directly to bioswales adjacent to these areas. Runoff from the proposed new museum building shall be directed to bioswales south and east of the building. Crushed rock or similar material shall be placed beneath areas that the roof runoff water strikes, to prevent erosion in these areas. The rainwater runoff from the building roof would be clean and would not need additional filtering or treatment.

Following clearing and grubbing of the site, soil would be recontoured to define basins and swales and promote adequate drainage into containment areas. Swales would be designed to retain the estimated maximum capacity water volume for 24 hours. Appropriate native vegetation would be planted to reduce flow velocity of runoff and promote infiltration.

2.5.5 Landscaping and Signage

Improvements would be made in the areas surrounding the Museum to facilitate circulation, protect and interpret resources, provide for staging of groups and tours, enhance the experience of the Pioneer Monument as an interpretation and contemplation area, and provide areas for visitors to rest, observe wildlife, and picnic.

Signage

Directional signage would be installed along the access road, in the parking area, along trails, and within the museum complex to facilitate both pedestrian and vehicular circulation. Interpretive signage and elements would be installed along trails to provide information on the area's natural and cultural resources and guideposts will be brought up to ADA-accessibility standards for self-guided tours. Signs may include individual, stand-alone signs and markers; informational kiosks/shelters; low-profile panels; and/or display wall boards.

Tree Removal

Some trees of various sizes and species would be removed to allow for the placement of the museum, parking lot, site amenities, utilities and access road. The environment of the project vicinity is comprised largely of a conifer forest with stands of trees of varying sizes. Trees and understory shrubbery would be removed within the project footprint as necessary to remove construction obstacles. Minor "light-touch" thinning would occur immediately adjacent to the project site, while retaining screening vegetation between the parking area and Donner Pass Road. Additional tree and lower branch removal would also occur between the building and the monument to maximize the view and protect the facility from blow-down damage.

The following tree removal count only applies to the project site. It does not reflect tree removal associated with ongoing forest thinning and fuel reduction projects in the park.

Tree Size	Quantity
1-2' DBH*	50-65
2-3' DBH	5-15
> 3' DBH	2-10

(* DBH = diameter at breast height)

Landscaping
Landscaping would be used to define public spaces, improve existing habitat, screen parking and utility areas, prevent erosion, and assist in bio-filtration of stormwater runoff. Native species would be planted to revegetate disturbed areas (including created bioswales and strips) and supplement existing vegetation. New plantings would aid in screening the facility from the view of travelers on Donner Pass Road and local residences, as well as to screen the view from the park to Donner Pass Road, I-80, and nearby residences and businesses. Wherever feasible, to preserve genetic integrity of species, plant materials utilized for landscaping would be indigenous to the area, compatible with the existing conifer forest, and from local genetic stock.

Day use amenities and visitor facilities, including benches, picnic tables, and drinking water fountains, are proposed adjacent to the new Museum building and/or along interpretive trails. Facilities would be built to ADA specifications and secured as necessary to prevent unauthorized removal. Metal bicycle racks would be installed near the Museum entrance to provide secure temporary storage for 5-10 bicycles.

Paved surfaces would be installed adjacent to and abutting the new building to provide outside gathering areas, patios, and walkways. Paved walkways and a plaza area would also be constructed from the parking area to the Museum. All areas would be constructed to ADA specifications.

2.5.6 Operations

The proposed HSC Museum is expected to begin operation in late summer or early fall of 2008, following completion of construction. Trail work, landscaping, and sign installation may continue after the museum building is opened to the public.

The Museum would operate seven days a week and would be open to the public from 9 am until 4 pm daily. The facility may remain open until 5 pm during the summer months, if staffing is available. Staff may use the building at any time and the facility and grounds may be used outside normal operating hours for special events, with reservations and a DPR Special Event Permit. Large groups would be strongly encouraged to make reservations. Normal scheduled usage, such as school children and organized groups, would generally be restricted to 200 people at any one time; unscheduled visitors could increase that number to approximately 225.

The parking lot at the Museum would be open to the public from sunrise to sunset daily and may be made available for use when the Museum is closed. The lot could be gated

at the intersection with Donner Pass Road and the park's ranger patrol would clear the lot at closing and lock/unlock any gates daily. The lot would only be lighted during normal public access hours or as needed during special events. If it is decided that this would be a pay-for-use lot, a single self-service Pay Station machine would be installed at a central location within the parking area.

Security at the new facility would be provided be California State Park rangers, who are peace officers, per Commission on Peace Officer Standards and Training (POST) certification requirements. Rangers patrol the park and its facilities 24 hours a day, 7 days a week. The facility complex and grounds would be included in the regular park security patrol schedule. Rangers would also be the first responder to any security alarm at the proposed facility, with backup from the Town of Truckee Police Department (Truckee PD) and Nevada County Sheriff's patrol. Electronic alarm signals may also be directly connected to the Truckee PD dispatch office.

Maintenance of the proposed Museum complex would be performed by the park's regular maintenance staff and incorporated into the normal work schedules for all park facilities. Park staff would also be responsible for snow removal on pedestrian walkways, patios, parking areas, and access road. Snow would be stored adjacent to and on designated portions of the parking lot, reducing the availability of standard parking spaces. However, visitation is lower during the winter months and sufficient spaces would remain available to provide adequate parking for the anticipated number of visitors. Bus and handicapped parking spaces would remain available at all times. Regular servicing of the stormwater handling and treatment facilities, including increased inspection and maintenance after major storms, would also be handled by park maintenance staff.

2.5.7 Operational Reuse of Emigrant Trail Museum

The proposed HSC Museum complex is intended to replace the interpretive and public use functions of the existing Emigrant Trail Museum. The interior of the existing structure would be modified to provide increased office space for park operations, resource management staff, interpretive work areas, and storage facilities for exhibits and interpretive materials. However, plans for any changes to the structure have not been finalized and activities associated with that work are not part of this project. A separate project-specific environmental review and appropriate CEQA document would be prepared prior to the start of any repairs and/or renovation on the Emigrant Trail Museum building and/or grounds.

2.5.8 Pre-Construction Testing and Studies

A preconstruction geotechnical investigation was conducted in 2005 (Geocon 2005) to evaluate the site-specific soil properties within the foundation and parking lot footprint and re-evaluate the potential for expansive soils and liquefaction at specific foundation and parking lot locations. The final choice of foundation materials and proposed footing and foundation designs may need to be modified to accommodate findings. Groundwater levels are determined as part of the geotech testing, to establish the

extent of dewatering needed during trenching and other excavations. Extracted waters shall be dissipated onsite (See § 4.4.5.1).

The proposed project site is located in and near a significant historic and archaeological area of Donner Memorial SP, listed on the National Register of Historic Places (NRHP). Because NRHP listing imposes additional conditions on development of historic properties, the presence or absence of significant cultural resources in the project's area of direct impact must be determined prior to the start of project-related ground-disturbing activities. Archaeological testing and possible data recovery (see §4.4.5 Cultural Impacts and Mitigations) would be performed within the project's Area of Potential Effects (APE) during the snow-free months of 2006-2007.

Any necessary preconstruction surveys for nesting birds and identification of wildlife trees (see §4.3.4, Biological Impacts and Mitigations) will be conducted in appropriate seasons prior to the start of construction.

2.6 Project Implementation

The proposed project includes new construction, upgrades to existing facilities, resource studies, and alteration of an existing public road. DPR will conduct archaeological testing and continue its natural resource studies in the park through 2006, with site preparation and construction scheduled to begin in Spring 2007 and continue through Summer or Fall 2008. Unfavorable conditions, such as inclement weather, and funding constraints may extend completion of the project.

Work would generally occur Monday through Friday, during daylight hours. Weekend or holiday work may be implemented to accelerate the construction schedule or address emergencies or unforeseen circumstances. This may also require minimal use of exterior construction lights on a limited basis. Glare shields would be used on all light sources and work areas would be confined to a maximum of a few hundred feet at any one time when working under lights.

Heavy equipment, such as a backhoe, excavator, grader, bulldozer, or dump truck, would be used during construction. Most equipment would be transported to the site and remain until the associated work is completed. Transport vehicles for material or equipment, delivery trucks, and crew vehicles would also be present intermittently at the site.

During the course of construction, a temporary staging area for contractor work trailers and equipment shall be established in areas either currently covered with paving or areas projected for new pavement or bioswales (see Preliminary Site Plan, Appendix B). The existing entrance drive shall be used until the new entrance drive is installed. To accommodate phasing of site work and seasonal changes, the staging area may be relocated during the construction period. Areas where staging may take place include the existing parking lot area, new primary parking lot area, new overflow parking area, and paved surfaces within the maintenance area.

In addition to standard building requirements and regulations, work would be conducted in accordance with the Architectural and Transportation Barriers Compliance Board 36 CFR Part 1191 (Docket No 98-2) RIN 3014-AA21; ADA Accessibility Guidelines for Buildings and Facilities; the Department of Parks and Recreation's "Access to Park's Guidelines" and "Trails Handbook;" Title 24; and the latest edition of all California Building Code Volumes.

2.7 Regulatory Requirements, Permits, and Approvals

The proposed project site is part of Donner Memorial SP and is located within the Town of Truckee limits in Nevada County. The project vicinity contains sensitive natural and cultural resources, scenic vistas, and a growing urban population. Access to the project site and operation of the facility would require encroachment onto a public road and services from local agencies. Design plans and activities that might affect natural or cultural resources, traffic, aesthetics, and air or water quality could be subject to review and approval by local, state, and/or federal responsible/trustee agencies. Consultation,

permits, and/or approvals may be required from the following agencies and organizations:

2.7.1 Road Work

Town of Truckee

The Town of Truckee owns Donner Pass Road (Old Highway 40), the primary access road for the proposed facility. The park's existing encroachment for its main entrance could be moved approximately 300 feet west to accommodate a more efficient, proposed reconfigured driveway. Immediately east of the relocated driveway, Donner Pass Road would be widened by approximately 12 feet to accommodate a new left turn lane for westbound traffic. If funding is not available for relocating the entrance drive, the entrance will be modified and widened at its present location.

Trenching for utility lines and conduits would require removal, backfill, and subsequent repair of a narrow portion of the road surface for both lanes of Donner Pass Road. DPR will consult with the Town of Truckee Engineering Department, to submit plans for Town approval and coordinate traffic controls and staging. Permits from the Truckee-Donner Planning Department would be required for the encroachment and all roadway modifications.

<u>According to the Town of Truckee General Plan (1996) Circulation Policy 1.16, DPR shall pay traffic impact fees assessed by the Town at the time of encroachment permit issuance (see §4.11.2 of this document). These fees shall serve as mitigation for any cumulative effects determined by the Town to be associated with the project.</u>

2.7.2 Utilities

Truckee-Donner Public Utilities District (TDPUD)

TDPUD would supply water for both construction and operation of the proposed HSC Museum from existing lines along Donner Pass Road. A "will serve" letter, affirming the availability and intent to provide water to the facility, and water connection permit would be required, along with payment of the appropriate connection fees. Plans and installations must conform to TDPUD specifications and would be subject to review, inspection, and approval.

TDPUD would also supply electricity and telecommunications connections for the proposed facility from existing lines along Donner Pass Road. No permits are required; only approval for the service connections, execution of the applicable service contracts, and payment of the appropriate fees.

Truckee Sanitary District (TSD)

TSD would supply wastewater collection, transport, and treatment for the proposed facility, through connection to an existing TSD sewer line on Donner Pass Road. A "will serve" letter, affirming the availability and intent to provide sewer connections to the facility, and sewage line connection permit would be required, along with payment of the appropriate connection fees. Plans and installations must conform to TSD specifications and would be subject to review, inspection, and approval.

Southwest Gas (SWG)

SWG would provide natural gas for the proposed facility, through connection to an existing SWG gas supply line along Donner Pass Road. The only permits required relate to installation impacts to Donner Pass Road (see Section 2.7.1, above). Otherwise, only approval for service, installation of the distribution tie-in, execution of the applicable service contracts, and payment of the appropriate fees are required.

2.7.3 Air Quality

Northern Sierra Air Quality Management District (NSAQMD)

DPR will consult with the NSAQMD Truckee Area office to identify potential impacts and required mitigation measures. No air quality-related permits are required.

2.7.4 Water Quality

State Water Resources Control Board (SWRCB) and California Regional Water Quality Control Board - Lahontan Region (Lahontan RWQCB)

The proposed project includes construction activities that would result in more than one acre of ground disturbance. This requires a National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated With Construction Activity (CGP). Prior to the start of construction, a Notice of Intent would be filed with the SWRCB and a Stormwater Pollution Prevention Plan (SWPPP) would be prepared and submitted to SWRCB and Lahontan RWQCB for review, comment, and approval. If approved, the project would proceed under General Permit 99-08-DWQ. Lahontan RWQCB would oversee the project for the SWRCB. Once the project is completed, a Notice of Termination would be filed with both the State and Regional Board and Lahontan RWQCB would conduct a final inspection of the project.

Section 4.1(4c - Truckee River Hydrologic Unit) of the Lahontan Basin Plan prohibits the discharge or threatened discharge of soil, silt, clay, sand, or other organic or earthen materials within the 100-year floodplain of the Truckee River or its tributaries. The project has been designed to avoid encroachment on the floodplain as it is currently understood, and DPR has contracted with David Evans and Associates, Inc. for specific delineation of the floodplain boundary in the project vicinity. The project footprint will be modified if necessary to ensure that the proposed construction activities will not result in such discharge.

Lahontan RWQCB restricts removal of vegetation or disturbance of existing ground surface conditions between October 15 and May 1, except for emergencies to public health or safety. DPR may request a variance to this water pollution control restriction from Lahontan RWQCB in order to complete the required archaeological work within a single field season. In any event, the number of archaeological units open at a time will be kept to a minimum and all erosion waste shall be controlled so that there is no discharge from the study area (see § 4.4.5.1, Cultural Resource Mitigation Measure 1).

No wetlands or Waters of the U.S. were identified on the project site during reconnaissance conducted by a DPR-qualified biologist. No proposed project activities

would result in any discharge, fill or dredge in~~to~~ Waters of the U.S; therefore, no U.S. Army Corps of Engineers Clean Water Act Section 404 permit or Water Quality Certification 401 Permit are required. The project will have no direct effects on wetlands in the project vicinity, and implementation of Best Management Practices (BMPs) will ensure avoidance of indirect effects (see § 4.7, Hydrology and Water Quality and Appendix D, Stormwater Pollution Prevention Plan).

California Department of Fish and Game (DFG)
DFG is responsible for regulating activities that would substantially obstruct or divert the natural flow of a river, stream, or lake; substantially change or use any material from the bed, channel, or bank of a river, stream, or lake; or deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into a river, stream, or lake. These conditions would not occur as a result of any proposed project activities; therefore, no Streambed Alteration Permit would be required for this project.

2.7.5 Plant and Wildlife Protection

U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Game (DFG)
The USFWS is responsible for the protection of federally listed threatened and endangered species and Species of Special Concern and the DFG is responsible for upholding federal protections and protecting state special-status species and other sensitive natural resources. Both federal and state special-status species or potential habitat are present in the project vicinity. DPR would consult with both agencies prior to project approval, but project activities would not result in “take” of a rare, threatened, or endangered species (as defined in Section 2080 of the California Fish and Game Code). A California Endangered Species Act (CESA) Incidental Take Permit is not required for this project.

3.0 ALTERNATIVES TO THE PROPOSED PROJECT

The California Environmental Quality Act (CEQA) requires that an EIR describe a range of reasonable alternatives to the proposed project, or to the proposed project location that would feasibly attain most of the basic project objectives, but would avoid or substantially lessen any of the significant project-related effects. The EIR must also evaluate the comparative merits of the alternatives. DPR, as the lead agency, is responsible for selecting a reasonable range of potentially feasible alternatives for analysis and must publicly disclose its reasoning for selecting those alternatives. The EIR should also identify any alternatives that were considered by the lead agency, but were rejected as infeasible during the scoping process, and briefly explain the reasons underlying the determination [CEQA Guidelines, §15126.6(a,c)].

The advisability of constructing a new museum and visitor center was evaluated and determined feasible and advisable in the park's General Plan (DPR 2003a), and preferred alternative sites were identified. This section describes and provides analysis of the "no project" alternative, including a discussion of potential environmental impacts that could result if the proposed project is not implemented. It incorporates, by reference and summary, the analysis of two additional alternatives included in the Donner Memorial SP General Plan. Impacts inherent in each feasible alternative were considered during the General Plan process, identifying comparative strengths and deficiencies. An alternative deemed infeasible is also discussed in this section.

3.1 Alternative 1: No Project

The California Environmental Quality Act requires an evaluation of the specific "no project" alternative and its impact [CEQA Guidelines §15126.6(e)(1)]. The "no project" alternative describes the existing conditions, as well as, "what would be reasonably expected to occur in the foreseeable future if the proposed project is not approved." The no project alternative discussion allows decision-makers to compare the impacts of approving the proposed project with the impacts of not approving the project.

If the proposed High Sierra Crossings Museum project is not implemented, the existing undeveloped area would continue to be naturalized open space with no developed trails or park facilities constructed on the parcel.

The "no project" alternative would reduce the physical changes to the proposed museum site and level of use associated with construction and operation of a new museum/visitor center facility. Overall impacts, especially potentially significant irreversible changes to archaeological resources, would be substantially reduced. However, it would not preserve existing environmental conditions.

If the proposed HSC Museum project is not implemented, the existing Emigrant Trail Museum would continue to be the only museum facility within the park. Overcrowding would continue to interfere with interpretive programs, including educational outreach. Collections and exhibits would continue to deteriorate and opportunities to expand or significantly improve existing facilities would not exist. Visitor services would continue

to be limited by lack of adequate facility, display, and office space. Overall access would not comply with ADA requirements.

Parking and traffic circulation at the Emigrant Trail Museum would remain inadequate and contribute to congestion and safety concerns at the main park entrance. Lack of sufficient bus parking would interfere with student visitation and tour group access. Parking facilities would not be sufficient to meet future visitor demands.

3.2 Alternative 2: Expand Existing Emigrant Trail Museum

Alternative 2 was discussed and analyzed during development and certification of the Donner Memorial SP General Plan (DPR 2003a:136-37). The intent is comparable to the proposed project, but would expand the existing museum at its current location and increase associated parking facilities, instead of constructing a new facility at a new location.

The alternative presented two scenarios:

1) Remodeling the existing structure and adding a second story; or
2) Demolishing the existing structure and rebuilding a new, two-story facility on the existing footprint.

In both cases, the resulting structure would provide additional square footage to accommodate museum exhibits and visitor services, staff office space, and storage. The existing parking facilities would also have to be enlarged for either scenario.

Since the General Plan was certified, it has been determined that expanding the existing structure on its current foundation would not be a viable option. Even if it were structurally feasible and practical, the resulting facility would not provide an effective design or adequate space to meet projected visitor and staff demands.

The remaining option, to demolish the existing building and construct a new facility on the same site, could be accomplished, but at a greater overall adverse environmental impact than new construction at the location proposed in this project. If it were possible to build completely within the existing footprint and “reuse” the existing foundation, impacts to significant archaeological resources in the area would be reduced. However, as with the remodeling option above, current building codes would require a new foundation and even a two-story structure built on the same footprint would not be sufficient to meet future demands.

Expansion of the building footprint would negate most of the protection that was intended for archaeological resources in the area surrounding the existing building. This alternative would require extensive ground disturbance and removal of a portion of the asphalt and concrete surfaces that currently “cap” an area within a designated National Historic Landmark. It is reasonable to assume that impacts to archaeological resources would be significant, irreversible, and greater in scope than impacts at the proposed location.

In addition, an expanded museum without the site improvements proposed in the preferred alternative would increase uncontrolled visitor impacts to the trail system around the historic core, including soil compaction, trampling of vegetation, and disturbance to wildlife. As noted in the General Plan, this could result in increased erosion and sediment loading to Donner Creek and nearby wetland habitat, significantly impacting water quality and aquatic habitat.

Construction of a two-story building on the existing Museum site could have a negative visual impact to park visitors and adjacent landowners, as it would become the dominating feature in the landscape. All buildings in the historic core are currently one story high and do not compete with the Monument. A large, two-story structure would not be in keeping with existing park structures.

The museum's location, just inside the main park entrance and within 250 feet of Donner Pass Road, is visible to motorists and all visitors entering and leaving the park. Construction activities for any location within the park would be similar, but the visual impacts would vary, based on the project location.

3.3 Alternative 3: New Construction - China Cove Road

The proposed alternative location for construction of a new museum/visitor center, as identified in the park's General Plan, would be along China Cove Road, near Donner Lake's south shore. This alternative would provide most of the same features as the proposed plan except that the future museum would be located further inside the park, without easy access to Donner Pass Road or the park's historic core. Limited access to this area in winter has encouraged its use as winter habitat and travel corridor for a number of sensitive species.

This site would require a more extensive infrastructure system than other alternatives, as well as modification of the existing road system and associated road and trail maintenance procedures to provide year-round access. The soil is highly erodible, increasing the potential for significant adverse impacts related to stormwater runoff and sediment loading to Donner Creek and Donner Lake during both construction and operation.

The China Cove location is midway between the Ridge Campground and Splitrock Campground. Noise and visual impacts during construction and increased use of the facility and nearby day use areas would interfere with quiet outdoor recreation experiences. Permanent facility lighting may also be visible at the campgrounds, degrading the visitor experience. Screening around the building and parking area may not be visually compatible in the open pine forest habitat.

Natural resource inventories have been prepared; surveys and management plans are on-going. Study results to date suggest that impacts to natural resources would be equal in intensity to the proposed location. In addition, potential impacts to water quality, noise, visual resources, circulation, accessibility, and recreation are equal to or exceed similar impacts for other alternatives.

3.4 Alternatives Found to be Infeasible

A site at the east end of Donner Lake was included in the General Plan as a preferred location within existing park boundaries for a Museum/Visitor Center. This site was identified as one of the least culturally sensitive areas within a larger cultural site north of Donner Creek and had been previously developed as a mill site prior to the parcel's sale to State Parks. However, due to the incompatibility of the location with the needs of the local community, this project alternative was determined infeasible.

3.5 Findings

The alternatives presented in this EIR, including those discussed in the Donner Memorial SP General Plan and incorporated by reference, are the only feasible alternatives reasonably available to accomplish the intent of the proposed project. No single alternative completely preserves existing conditions at any location and only the "no project" alternative has the least significant environmental impacts for all resources. As determined during the General Plan process, the proposed project appears to provide the most effective balance for achieving the project's intent while avoiding potential adverse environmental impacts or reducing them to the lowest level feasible.

4.0 ENVIRONMENTAL ANALYSIS

This section contains an analysis of the environmental effects and potential adverse impacts resulting from the implementation of the proposed project, as identified during initial project planning. Each subsection contains a description of the environmental setting as it relates to the specific topic; identifies and determines the significance of potential environmental impacts; and specifies conditions and mitigation measures, where appropriate, to reduce potentially impacts to the lowest level feasible. The environmental setting describes "baseline conditions" in the vicinity of the project, as they existed at the time the Notice of Preparation of ~~this~~ this Draft EIR was published (SCH#2004082055, filed December 2, 2005) [CEQA Guidelines §15125(a)].

4.1 AESTHETICS

This section describes existing local and regional conditions and the potential impacts of the proposed project on aesthetics and visual resources, along with mitigations proposed to reduce the significance of potential impacts.

4.1.1 Existing Conditions

Donner Memorial SP is a high-Sierra recreational area, situated just over Donner Summit, on the eastern side of the Sierra Nevada range. Donner Lake bounds the west and south sides of the park, with the Town of Truckee to the east. Donner Pass Road, a two-lane historic highway, runs along the northern border. The park also shares multiple boundaries with the Tahoe National Forest. The Truckee-Donner area epitomizes the beauty of the high mountain terrain: mountain peaks crowned with snow in winter and stark granite sculptures in summer, forested slopes and valleys, and placid lakes fed by rushing streams and rivers. Manmade developments, for the most part, have been controlled to echo the natural elements of the area and provide for historical perspective. Historic preservation ordinances and zoning designations are intended to control intrusive growth.

Figure 4.1-A View from above Highway 80 looking over the park and beyond into the mountains.

Land use in the area surrounding the park consists primarily of residential (private single-family homes, apartments, and condominiums) and small commercial/ recreational development along the shoreline. Service stations and other commercial

developments are adjacent to the Park property on Donner Pass Road. Historic downtown Truckee is approximately two miles east of the main entrance to Donner Memorial SP.

Figure 4.1-B View from Donner Pass Road looking Southeast towards nearby businesses

The proposed project location is situated near the park entrance in the vicinity of the current visitor center and the Pioneer Monument. Views are framed by stands of lodgepole pine, with scattered Jeffrey pine, cedar and fir. Private residences and businesses are partially visible to the north. Park residences and maintenance areas are near the site.

Figure 4.1-C View across Highway 80 looking into project site nestled in the trees.

Figure 4.1-D View from project site towards existing monument and visitor center.

Donner Pass Road and the elevated portion of I-80 are visible to the north, partially screened by existing vegetation. Schallenberger Ridge, with the Southern Pacific Railroad line mid-ridge, lies to the south with only minimal views above the tree tops. Donner Creek is located nearby.

Figure 4.1-E View towards Donner Pass Road and I-80

The proposed project site is visible from various locations on Donner Pass Road, eastbound I-80, the Southern Pacific Railroad line on Schallenberger Ridge, and along South Shore Road, within Donner Memorial SP. It currently appears as a Lodgepole pine forest, with scattered Jeffrey pine and light understory vegetation. A split rail fence loosely defines the park boundary along Donner Pass Road, adding to the rustic feel of the property.

Figure 4.1-F View along Donner Creek

Along Donner Creek and the meadow area, deciduous trees and shrubs, including willows, cottonwood, mountain alder, red osier dogwood, and twinberry are common.

Figure 4.1-F Emigrant Trail Museum

Existing Park Facilities

Existing facilities within the park near the project area include the Emigrant Trail Museum building which will be converted to staff administrative functions, and an entry kiosk where campers pay registration fees. Also nearby are park maintenance facilities and employee residences. Existing and newly planted vegetation will be used as a screen to minimize views between park admin/residences and visitor use areas.

Figures 4.1 G & H Existing kiosk and maintenance buildings

Figure 4.1-I Existing park entrance w/existing visitor center in distance and proposed project site to the left.

I-80

The proposed project area is in a filtered line of sight to motorists on eastbound I-80, which runs east-west along an elevated area on the north side of the park. The roadway is situated within the middle ground (3-5 miles) and foreground (0 –3 miles) viewshed of the park. Because of traffic speeds, generally in excess of 55 miles per hour (mph), viewing time is quite short and viewers are generally unable to pick out details. The existing tree canopy between the site and roadway also obscures visibility of the proposed site

There is a small scenic overlook on the south side of I-80 eastbound, above the west end of the lake, that offers travelers a distant view of the lake and the Donner basin. The overlook is approximately three miles away from the proposed project area, at a significantly higher elevation. The view of the area containing the site is distant and forested.

Figure 4.1-J View in front of project site along Donner Pass Rd with 1-80 at the top of the slope

Donner Pass Road

Historic Highway 40, now known as Donner Pass Road, parallels the northern park boundary, adjacent to the proposed project site. The area south of the roadway is forested, with understory vegetation and limited glimpses of park structures and the Pioneer Monument. Vehicles generally travel between 25-45 mph, with regular slow-downs to accommodate vehicles turning into local residences, recreational facilities, and businesses. The road is also part of the U.S. Forest Service-designated "Yuba-Donner Scenic Byway", but is not designated a state scenic highway. The view from the highway into the proposed project site is partially obstructed by a stand of lodgepole pine forest and associated understory vegetation.

Southern Pacific Railroad line (Amtrak)

Trains traveling along the Southern Pacific rail line across Schallenberger Ridge offer passengers an elevated distant view of Donner Memorial SP, including the proposed project site. Forested areas along the tracks and a covered snow shed intermittently block visibility.

Community Views
The proposed project site is visible, in varying degrees, from points along Donner Pass Road. Partial views of the new museum will be available from Donner Pass Road, giving park visitors a sense of destination. The proposed parking lot will be set back from the road and screened by existing and strategic planting.

Figure 4.1-K View of Donner Memorial Monument from Donner Pass Road

Pioneer Monument
A primary feature of the park for visitors is the Pioneer Monument. The monument was built to commemorate those who emigrated to California from the east in the mid-1800s.

Figure 4.1-L View of prominent Pioneer Monument

Figure 4.1-M View towards project site with proposed parking remaining in nearly the same location.

Figure 4.1-N View from West looking East into proposed site

4.1.2 Regulatory Setting

Donner Memorial SP General Plan
DPR developed the Donner Memorial SP General Plan to identify park-wide goals and general policy guidelines for future development, management, and protection of park resources and visitor facilities. This included determining the best location(s) for the Museum/Visitor Center proposed in this EIR. As noted in Section 1.5 of this document, the Donner Memorial SP General Plan has been incorporated into this EIR by reference.

Issues regarding aesthetics within and adjacent to the park and related policy and development guidelines that should be incorporated as applicable during planning and implementation of the proposed project include:

4.1.2.1 Policy and Development Guidelines

Goal
Preserve and perpetuate distinctive landscape qualities in the park, and guide appropriate design for renovation of existing facilities or future construction.

Guidelines
- Building and structure design should reflect the native qualities of the individual building site. Structures should not extend higher than existing tree canopy, and/or should be designed to fit comfortably into an ultimate planting/native vegetation scheme.
- Buildings and structures should be integrated into existing landforms wherever possible, and take advantage of existing contours for energy efficiency (wind protection) and low visual impact, where appropriate.
- Care should be taken when designing structures and public use areas to preserve and present views of natural elements.
- Where appropriate, screen parking lots, roads, and operations structures from public use areas. Use plantings, rocks, elevation change, and other methods that either use or mimic natural elements to minimize negative visual impacts of these facilities.
- For buildings and structures, use designs that utilize native materials or faithfully replicate materials such as native stone and timber, as appropriate. Bury any rocks or boulders used in landscape design to mimic a natural setting, where rocks are usually partially buried.
- For buildings, structures, and site design, use colors that reflect the natural surroundings, such as the green and brown of the pines, the colors of the native rock, and the blues of the sky and lake. Bright colors can be used as accents, but should not be a dominant feature of any structure.
- Use design principles of scale, rhythm, proportion, balance, and composition to enhance the complementary integration of any new facilities into the environmental context of the site.
- Vary the textures of walking and driving surfaces to identify or give a different quality to different spaces. This should especially be considered in the construction of parking lots and walkways around the new visitor center. Consider the use of

contrasting pavement textures throughout the park to direct attention to interpretive opportunities.
- Vary the elevations of circulation elements to separate different types of circulation by sight, where possible or appropriate.

4.1.2.2 General Plans – Guidelines and Policies

Donner Memorial SP General Plan
The Donner Memorial SP General Plan identifies several elements of the proposed project as posing a potential for significant aesthetic impacts. These include:
- Construction of a new museum/visitor center
- Construction of parking for the new museum/visitor center and buses
- Entrance roads
- Interpretive exhibits/facilities, including trails
- Adaptive reuse of the existing Emigrant Trail Museum
- Informational signage

Specific impacts that would need to be avoided or mitigated include inappropriate design features, lack of screening for parking areas, glare from artificial lighting, high profile signage, changes in visual character of the site, and visibility of structures within the local landscape.

Town of Truckee General Plan
A good portion of Donner Memorial SP and all of the proposed project location fall within the Town of Truckee limits and are subject to the Town of Truckee General Plan (Truckee 1996) and Truckee Development Code (Truckee 2003), as it applies to state-owned land and State Park facilities, as well as portions of the project that extend outside state-owned property. The Conservation and Open Space (C/OS) Element of the Truckee General Plan addresses the following goals and policies for development within the town limits, as they relate to the town's aesthetics and visual resources:

- Distribution, location and extent of the uses of land for...open space, natural resources, recreation and enjoyment of scenic beauty,...and other categories of public and private uses of land.

Policies address open space elements applicable to the proposed project, including:
- Open space for outdoor recreation including areas of outstanding scenic, historic and cultural value, trails, and scenic highway corridors

- The Open Space, Natural Resources, Scenic Resources, and Trails Diagram (Figure 4.1-I, shown as Plate 5 of the Truckee GP) delineates major waterways, scenic resources, and existing/proposed trails, and includes the proposed project area.

- The guiding principles of the Truckee GP, as it relates to conservation and open space, is to protect sensitive resources - particularly ridge lines, the Truckee River,

Donner Lake, and significant open vistas. Policies and goals that relate specifically to the proposed project include:

- C/OS Goal 2 - Protect and conserve forest and rangeland resources for their production of wood products, livestock uses, and recreational, aesthetic, and biological values.

- C/OS Goal 4 - Protect and preserve important views and visual resources. Preserve significant scenic features in open space where appropriate.

Truckee Development Plan
The Town of Truckee Development Code is the primary tool used by the Town to carry out the goals, objectives, and policies of the Truckee General Plan. The Truckee Town Council intends that the Development Code be consistent with the Truckee General Plan, and that any land use, subdivision, or development approved in compliance with this Development Code would also be consistent with the Truckee General Plan. The following Chapters of Article III, Site Planning and General Development Standards may be applicable to the proposed project:

- 18.24 - Design Guidelines
- 18.30 - General Property Development and Use Standards
- 18.34 - Flood Plain
- 18.38 - Lake and River/Stream Corridor Development
- 18.40 - Landscape Standards
- 18.42 - Landscape Design Guidelines
- 18.44 - Noise
- 18.48 - Parking and Loading Standards
- 18.50 - Parking Design Guidelines
- 18.54 - Signs
- 18.56 - Sign Design Guidelines
- 18.58 - Standards for Specific Land Uses

Nevada County General Plan (1996)
There are no Nevada County GP policies or guidelines applicable to the aesthetic issues of this project.

4.1.3 Thresholds of Significance

A project would be considered to have a potentially significant adverse environmental impact to aesthetics and visual resources if it would:

- Have a substantial adverse effect on a scenic vista.
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway.
- Substantially degrade the existing visual character or quality of the site and its surroundings.
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area.

4.1.4 Environmental Impacts and Mitigation Measures

Based on §4.1.3 above, all potential impacts associated with the proposed project would be less than significant (see §4.1.5 below).

4.1.5 Effects Considered to be Less than Significant

4.1.5.1 Scenic Vistas

Aesthetic Impact Visual-1

Views from the site to the north are generally of Donner Pass Road and an elevated portion of I-80, neither of which qualify as a scenic vista. The project would take place on or immediately adjacent to Donner Pass Road, which may offer a limited view, mostly obscured by tree canopies, from the scenic vista point on eastbound I-80. However, the project site would only constitute a small area within the overall view from the I-80 vista point or trains on Schallenberger Ridge. The presence of construction equipment and staging areas would be temporary. Project impacts to scenic vistas would be less than significant.

4.1.5.2 Visual Character and/or Quality of the Site

Aesthetic Impact Visual-2

As noted in Existing Conditions (§4.1.1), the proposed project location is situated near the park entrance in the vicinity of the current visitor center and the Pioneer Monument. Views are framed by stands of lodgepole pine, with scattered Jeffrey pine, cedar and fir. Private residences and businesses are partially visible to the north. Park residences and maintenance areas are near the site.

As with any construction project, there would be a temporary decrease in the visual appeal of the area immediately affected by the work being performed. Construction activity would be visible through the trees over the course of the project. It could also

be briefly visible to motorists on I-80 or from trains on the Southern Pacific rail line across Schallenberger Ridge. Views of the site for those traveling Donner Pass Road would be most heavily impacted. Vegetation along the edge of the roadway is relatively sparse and would provide little screening at the northern edge of the park boundary. Removal of trees and understory vegetation as part of the proposed project may also increase visibility of the construction activities and change the overall appearance of the property. Elements of the project would take place on or immediately adjacent to Donner Pass Road, which would be in plain view of Donner Pass Road and eastbound I-80 motorists.

Construction of the proposed structures would not, however, block or interfere with local views from any existing buildings and would only constitute a small area within the overall view from the mostly obscured I-80 vista point or trains on Schallenberger Ridge. The presence of construction equipment and staging areas would be temporary. Disturbed areas outside the facility footprint would be revegetated in a manner compatible with native vegetation and additional strategic screening would be planted along the northern edge of the parking lot and building area to reduce visibility of the facilities when viewed from Donner Pass Road. Impacts from project-related construction activities would therefore be less than significant.

Construction of the proposed project would substantially and permanently alter the appearance of the existing site from its current partially-developed state when viewed from Donner Pass Road and the in-park day use area. However, the changes would not equate to a degradation of the existing visual character or quality of the site and its surroundings, since the parking area would now be screened from Donner Pass Road by strategic plantings and the new museum. Vegetation within and surrounding the proposed project site would remain a predominantly lodgepole pine forest, although the density would be reduced by removal of trees and understory for construction and as a result of fuel reduction activities. Riparian areas along Donner Creek and Donner Lake would remain generally undisturbed.

Building materials would be compatible with the natural surroundings and with structures in the park and the general project vicinity.

Neither construction nor operation of the proposed High Sierra Crossings Museum would substantially degrade the existing visual character or quality of the site and its surroundings. Less than significant impact.

4.1.5.3 Lighting

Aesthetic Impact Visual-3

Both interior and exterior permanent lighting are components necessary for the operation of the completed facility, but exterior lighting would be limited to fixtures and levels necessary for security and public safety and would be shielded to limit light distribution. The majority of facility use would occur during normal business (daylight) hours, reducing the amount of both interior and exterior illumination created during regular operation or after dark. Operation of the museum facilities for special events would result in increased interior illumination and possible extended nighttime

illumination, outside normal operating hours, but would remain comparable to other buildings and residences within visual range. The lighting associated with this project would not add significantly to the current local or overall nighttime illumination of the area, or create a defining point of illumination. Exterior lighting fixtures would be designed to direct light downward to reduce the potential for sky fog.
It is expected that all construction work for the proposed project would be limited to daylight hours, eliminating the need for work lights. However, unavoidable delays or emergency situations could require minimal use of exterior construction lights on a limited basis. Glare shields would be used on all light sources and work areas would be confined to a maximum of a few hundred feet at any one time.

Neither construction or operation of the proposed High Sierra Crossings Museum would create lighting conditions that would adversely affect day or nighttime views in the area. Less than significant impact.

4.1.5.4 Design Compatibility

Aesthetic Impact Visual-4

New construction in the project area has the potential for incompatibility with surrounding uses and existing Town of Truckee architecture. The Town of Truckee Development Code Chapter 18.24 for design guidelines, states that desirable character elements include:

- Wood or brick exterior cladding;
- Exposed wooden structural elements;
- One- and two-story elements in a single structure;
- Stone bulkheads/foundations/walls;
- Standing-seam metal roofs/treated wood shake/thick composition shingles;
- Gable-roofed entryways with exposed braces;
- Earth tone colors; and
- Multi-light windows and doors.

Inappropriate styles include:

- Geodesic dome structures;
- Medeterranean or Spanish motifs;
- Tudor or half-timbered Tudor;
- Highly ornate Victorian;
- Colonial;
- Pueblo; and
- Other historical or period design motifs that have a strong connection or association with other regions that have no historical or climate connection with Truckee.

The proposed High Sierra Crossings Museum design will include elements compatible with those identified as desirable in Chapter 18.24, and none of the “inappropriate styles” listed above (see also §4.1.2.1 of this document). Less than significant impact.

4.2 AIR QUALITY

This section describes existing local and regional conditions and the potential project impacts on air quality, along with pertinent air quality standards and regulations, and mitigations proposed to reduce potentially significant impacts.

4.2.1 Existing Conditions

Climate

Donner Memorial SP is located on the eastern side of the Sierran crest, adjacent to the Donner Lake. Mountains surround the Donner-Truckee area, especially to the west and south of the park.

The bowl-like terrain creates temperature inversions, which can trap pollutants in the low-lying areas. A temperature inversion is created when a layer of warm air forms a "cap" over colder air at the surface, preventing normal mixing and transport of the air in and out of an area. An inversion can result on cold, clear nights when the ground cools faster than the air above it. This is called a radiation inversion. It can also occur as a subsidence inversion, when high pressure system stalls over an area, trapping, compressing, and heating layers of air. It is possible for both conditions to occur at once, intensifying the accumulation of stagnant air at the surface.

Weather conditions for the general vicinity range from cool, snowy winters to warm dry summers, with weather systems moving primarily from west to east. However, local conditions tend toward greater extremes of temperature, increased rain and snow, and higher winds, especially along the ridgetops above the town of Truckee. High temperatures peak in July and August, with averages between 82°-90°, although several days near or above 100° are not unusual, and winter lows averaging in the low teens to single digits, with short stretches below zero from November through March. Seasonal snowfall is variable, with a maximum of 444 inches reported in 1951-52 and minimum of 73.5 inches recorded in 1991-92. Snow is usually gone by May, leaving summer thunderstorms with little precipitation, between May and October.

Local and Regional Air Quality

Donner Memorial SP is located in Nevada and Placer Counties, within the Mountain Counties Air Basin (MCAB). The Nevada County portion of the park falls under the jurisdiction of the Northern Sierra Air Quality Management District (NSAQMD) and the area within Placer County is regulated by the Placer County Air Pollution Control District (PCAPCD). The park is also under the jurisdiction of the United States Environmental Planning Agency (USEPA) Region IX. For regional planning purposes, it is considered part of the Truckee Air Basin, which encompasses most of the urban Town of Truckee and surrounding rural areas.

The proposed project area is in Nevada County, within the Truckee city limits, and is, therefore, under the jurisdiction of the NSAQMD. The NSAQMD maintains ambient air quality standards (AAQS) monitoring equipment ($PM_{2.5}$ samplers, Ozone Monitor, Beta

Attenuation Monitor, and Weather Station) at the downtown Truckee fire station, within two miles of the project site, to measure ozone, PM_{10}, and $PM_{2.5}$ (particles of particulate matter with an aerodynamic diameter of 10 microns/2.5 microns or less). Air quality monitoring in the Truckee area has been ongoing since 1986.

The MCAB is the recipient of significant pollution from upwind areas, primarily the Broader Sacramento Area (BSA), San Joaquin Valley Air Basin (SJVAB) and the San Francisco Bay Area Air Basin (SFBAAB), and is classified as non-attainment for the pollutant ozone, by virtue of overwhelming transport from BSA and SFBAAB. Overwhelming transport means that violations of the California AAQS (CAAQS) are occurring that would not be generated by pollution sources within the target air basin alone or occur in the absence of transport. Despite transport issues, the overall air quality in the vicinity of the proposed project during 2003 was generally good. There are few polluting industries in the Truckee area and the SJVAB contributes little, if any, to the NSAQMD portion of the MCAB. Local sources of ozone are generally related to regional highway corridors, including Interstate 80 (I-80) and the effects of topographical and weather-related phenomena, such as inversion layers. There have been no exceedances of the National AAQS (NAAQS) for ozone in the Truckee in the past twelve years and only one exceedance of the CAAQS, which was due to a significant incursion of smoke from a wildfire northeast of Truckee. Due to faulty equipment, no reliable data was available for ozone in the Truckee area for seven months of 2003. Ozone levels are expected to increase slightly over the coming years due to increased traffic, residential growth, and continued transport of pollutants from the BSA or Reno, Nevada areas, resulting in rare CAAQS exceedances.

The MCAB, including the Truckee area, is classified as non-attainment for CAAQS of PM_{10} during 2003, due, primarily, to the use of woodstoves and forestry management burns. Increased vehicle traffic also contributed to the seven CAAQS PM_{10} exceedance situations in the Truckee area for 2003; however, the number of CAAQS exceedances may have been higher, because the data for 2003 was incomplete due to equipment failure. The recent adoption of a Nevada County ordinance to phase out the use of non-EPA-certified woodstoves and availability of natural gas for heating is expected to have a positive effect on PM_{10} levels for the Truckee basin. However, improved monitoring devices are expected to provide more accurate, and probably higher, readings for particulate matter, resulting in continued CAAQS non-attainment, and possible NAAQS exceedances for both PM_{10} and $PM_{2.5}$. These conditions will be exacerbated by the projected increase in development and prescribed burns in the Truckee area over the next 5-10 years.

Nevada County is currently in CAAQS attainment for carbon monoxide, nitrogen dioxide, sulfates, lead, and hydrogen sulfate; and unclassified for $PM_{2.5}$ and visibility-reducing particles (VRPs). However, the entire MCAB is in CAAQS non-attainment for PM_{10} (which includes dust and smoke particles) and is a VRP, indicating a reason for serious concern in this area.

Table 4.2A below provides attainment designations for Nevada County, including the Town of Truckee.

Table 4.2A. Nevada County Air Quality Designations		
Pollutant	**2003 State Levels**	**2004 National Levels***
Ozone (O_3) - 1 hour	NonA	A
Ozone (O_3) - 8 hour	N/A	W. Nevada Co. -Non E. Nevada Co.(incl. Truckee) - A
Carbon Monoxide (CO)	A	A
Nitrogen Dioxide (NO_2)	A	A
Sulfur Dioxide (SO_2)	A	A
Particulate Matter (PM_{10})	NonA	U
Particulate Matter ($PM_{2.5}$)	U	U
Sulfates	A	N/A
Lead (Pb)	A	N/A
Hydrogen Sulfate	A	N/A
Visibility-Reducing Particles (VRP)	U	N/A

A = Attainment NonA = Nonattainment U = Unclassified/Unclassifiable N/A = Not Applicable

* As of September 27, 2004

Sources: California Air Resources Board, U.S. Environmental Protection Agency, NSAQMD

4.2.2 Description of Pollutants

People exposed to toxic air pollutants at sufficient concentrations and durations may have an increased chance of getting cancer or experiencing other serious health effects. These health effects can include damage to the immune system, as well as neurological, reproductive (e.g., reduced fertility), developmental, respiratory and other health problems. Like humans, animals may experience health problems if exposed to sufficient quantities of air toxics over time. The following pollutants are monitored by the U.S. Environmental Protection Agency and the California Air Resources Board.

Ozone

Ground-level ozone is an air pollutant that causes human health problems, and damages crops and other vegetation. It is a key ingredient of urban smog. Ozone (O_3) is a gas composed of three oxygen atoms. It is not usually emitted directly into the air, but at ground level is created by a chemical reaction between oxides of nitrogen (NO_x) and volatile organic compounds (VOC) in the presence of sunlight. Ozone has the same chemical structure whether it occurs miles above the earth or at ground level and can be "good" or "bad," depending on its location in the atmosphere. "Good" ozone occurs naturally in the stratosphere approximately 10 to 30 miles above the earth's surface and forms a layer that protects life on earth from the sun's harmful rays. In the earth's lower atmosphere, ground-level ozone is considered "bad."

VOC + NOx + sunlight = ozone

Motor vehicle exhaust and industrial emissions, gasoline vapors, and chemical solvents as well as natural sources emit NO_x and VOC, that help to form ozone. Sunlight and hot weather cause ground-level ozone to form in harmful concentrations in the air. As a result, it is known as a summertime air pollutant. Many urban areas tend to have high levels of "bad" ozone, but even rural areas are also subject to increased ozone levels because wind carries ozone and pollutants that form it hundreds of miles away from their original sources.

Ozone can irritate lung airways and cause inflammation. Other symptoms include wheezing, coughing, pain when taking a deep breath, and breathing difficulties during exercise or outdoor activities. People with respiratory problems are most vulnerable, but even healthy people that are active outdoors can be affected when ozone levels are high. Repeated exposure to ozone pollution for several months may cause permanent lung damage. Anyone who spends time outdoors in the summer is at risk, particularly children and other people who are active outdoors. Even at very low levels, ground-level ozone triggers a variety of health problems including aggravated asthma, reduced lung capacity, and increased susceptibility to respiratory illnesses like pneumonia and bronchitis.

Ground-level ozone interferes with the ability of plants to produce and store food, which makes them more susceptible to disease, insects, other pollutants, and harsh weather. Ozone damages the leaves of trees and other plants, ruining the appearance of cities, national parks, and recreation areas. Ozone reduces crop and forest yields and increases plant vulnerability to disease, pests, and harsh weather.

Carbon Monoxide (CO)

Carbon monoxide is a colorless, odorless gas that is formed when carbon in fuel is not burned completely. It is a component of motor vehicle exhaust, which contributes about 56 percent of all CO emissions nationwide. Other non-road engines and vehicles (such as construction equipment and boats) contribute about 22 percent of all CO emissions nationwide. Other sources of CO emissions include industrial processes (such as metals processing and chemical manufacturing), residential wood burning, and natural sources such as forest fires. Woodstoves, gas stoves, cigarette smoke, and unvented gas and kerosene space heaters are sources of CO indoors. The highest levels of CO in the outside air typically occur during the colder months of the year when inversion conditions are more frequent. The air pollution becomes trapped near the ground beneath a layer of warm air.

Carbon monoxide can cause harmful health effects by reducing oxygen delivery to the body's organs (like the heart and brain) and tissues. The health threat from lower levels of CO is most serious for those who suffer from heart disease, like angina, clogged arteries, or congestive heart failure. For a person with heart disease, a single exposure to CO at low levels may cause chest pain and reduce that person's ability to exercise; repeated exposures may contribute to other cardiovascular effects. People who breathe high levels of CO can develop vision problems, reduced ability to work or learn, reduced

manual dexterity, and difficulty performing complex tasks. At extremely high levels, CO is poisonous and can cause death. Additionally, CO contributes to the formation of smog ground-level ozone, which can trigger serious respiratory problems.

Particulate matter

Particle pollution (also called particulate matter or PM) is the term for a mixture of solid particles and liquid droplets found in the air. Some particles, such as dust, dirt, soot, or smoke, are large or dark enough to be seen with the naked eye. Others are so small, they can only be detected using an electron microscope.

Particle pollution includes "inhalable coarse particles," with diameters ranging from 2.5 micrometers (µm) to 10µm and "fine particles," with diameters equal to or smaller than 2.5 µm. How small is 2.5 micrometers? Think about a single hair from your head. The average human hair is about 70 micrometers in diameter – making it 30 times larger than the largest fine particle.

These particles come in many sizes and shapes and can be made up of hundreds of different chemicals. Some particles, known as primary particles are emitted directly from a source, such as construction sites, unpaved roads, fields, smokestacks or fires. Others form in complicated reactions in the atmosphere of chemicals such as sulfur dioxides and nitrogen oxides that are emitted from power plants, industries and automobiles. These particles, known as secondary particles, make up most of the fine particle pollution in the country.

Particle pollution contains microscopic solids or liquid droplets that are so small that they can get deep into the lungs and cause serious health problems. The size of particles is directly linked to their potential for causing health problems. Small particles less than 10 micrometers in diameter pose the greatest problems, because they can get deep into your lungs, and some may even get into your bloodstream. Fine particles (PM 2.5) are the major cause of reduced visibility (haze) in parts of the United States, including many of our treasured national parks and wilderness areas.

Nitrogen Oxide (NO_x)

Nitrogen oxide is the generic term for a group of highly reactive gases, all of which contain nitrogen and oxygen in varying amounts. Many of the nitrogen oxides are colorless and odorless. However, one common pollutant, nitrogen dioxide (NO_2) along with particles in the air can often be seen as a reddish-brown layer over many urban areas.

Nitrogen oxides form when fuel is burned at high temperatures, as in a combustion process. The primary manmade sources of NOx are motor vehicles, electric utilities, and other industrial, commercial, and residential sources that burn fuels. NOx can also be formed naturally.

NOx causes a wide variety of health and environmental impacts because of various compounds and derivatives in the family of nitrogen oxides. Impacts include formation

ground-level ozone, creation of acid rain, water quality deterioration, contribution to global warming, aerial toxic chemical contribution, and visibility impairment.

Sulfur Dioxide

Sulfur dioxide**,** or SO_2, belongs to the family of sulfur oxide gases (SOx). These gases dissolve easily in water. Sulfur is prevalent in all raw materials, including crude oil, coal, and ore that contains common metals like aluminum, copper, zinc, lead, and iron. SOx gases are formed when fuel containing sulfur, such as coal and oil, is burned, and when gasoline is extracted from oil, or metals are extracted from ore. SO_2 dissolves in water vapor to form acid, and interacts with other gases and particles in the air to form sulfates and other products that can be harmful to people and their environment.

Over 65% of SO_2 released to the air, or more than 13 million tons per year, comes from electric utilities, especially those that burn coal. Other sources of SO_2 are industrial facilities that derive their products from raw materials like metallic ore, coal, and crude oil, or that burn coal or oil to produce process heat. Examples are petroleum refineries, cement manufacturing, and metal processing facilities. Also, locomotives, large ships, and some nonroad diesel equipment currently burn high sulfur fuel and release SO_2 emissions to the air in large quantities.

SO_2 causes a wide variety of health and environmental impacts because of the way it reacts with other substances in the air. Particularly sensitive groups include people with asthma who are active outdoors and children, the elderly, and people with heart or lung disease.

Lead

Lead is a metal found naturally in the environment as well as in manufactured products. The major sources of lead emissions have historically been motor vehicles (such as cars and trucks) and industrial sources. Due to the phase out of leaded gasoline, metals processing is the major source of lead emissions in the air today. The highest levels of lead in air are generally found near lead smelters. Other stationary sources are waste incinerators, utilities, and lead-acid battery manufacturers.

People, animals, and fish are mainly exposed to lead by breathing and ingesting it in food, water, soil, or dust. Lead accumulates in the blood, bones, muscles, and fat. Infants and young children are especially sensitive to even low levels of lead.

Visibility-Reducing Particles (VRPs)

Visibility-reducing particles consist of suspended particulate matter, which is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary greatly in shape, size and chemical composition, and can be made up of many different materials such as metals, soot, soil, dust, and salt.

Sulfates

Sulfates (SO_4) are the fully oxidized ionic form of sulfur. Sulfates occur in combination with metal and / or hydrogen ions. In California, emissions of sulfur compounds occur

primarily from the combustion of petroleum-derived fuels (e.g., gasoline and diesel fuel) that contain sulfur. This sulfur is oxidized to sulfur dioxide (SO_2) during the combustion process and subsequently converted to sulfate compounds in the atmosphere. The conversion of SO_2 to sulfates takes place comparatively rapidly and completely in urban areas of California due to regional meteorological features.

The sulfates standard is designed to prevent aggravation of respiratory symptoms. Effects of sulfate exposure at levels above the standard include a decrease in ventilatory function, aggravation of asthmatic symptoms, and an increased risk of cardio-pulmonary disease. Sulfates are particularly effective in degrading visibility, and, due to fact that they are usually acidic, can harm ecosystems, and damage materials and property.

4.2.3 Regulatory Setting

Air Quality Standards

The California Air Resources Board (CARB) and the United States Environmental Protection Agency (USEPA) have both established health-based ambient (outdoor) air quality standards (AAQS) for six air pollutants: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), lead (Pb), suspended particulate matter (PM_{10} and $PM_{2.5}$; particles with an aerodynamic diameter of 10 microns/2.5 microns or less), and sulfur dioxide (SO_2). In addition, the State has set standards for sulfates, hydrogen sulfide (H_2S), vinyl chloride (VC), and visibility-reducing particles (VRPs). An air quality standard defines the maximum amount of a pollutant that can be present in outdoor air without harming the public's health. California law [California Health & Safety Code (H&SC) §39606] authorizes CARB to set AAQS equal to or more stringent than the USEPA standards, and to set standards for pollutants not addressed by federal AAQS, to provide increased protection for the State's citizens.

Both the USEPA and CARB designate specific areas of the state, usually Air Basins, AQMDs, and in some cases, counties, as in attainment, nonattainment, unclassified/unclassifiable, or not applicable for any AAQS. For state designations (per H&SC §39608), an area is designated in attainment if the state standard for the specified pollutant was not violated at any monitoring site during a three-year period. Monitoring results are reviewed and designations revised annually. A state nonattainment designation indicates that pollutant concentrations exceeded the standard at least once during the previous three years, excluding any occasions that qualify as an "exceptional event", such as major forest fires. An area is designated unclassified if the data is incomplete or does not support a designation of attainment or nonattainment.

For federal designations [Clean Air Act (CAA) §107(d)(i-iii)], attainment applies to an area that has not violated the established AAQS for a pollutant. Nonattainment applies to any area that does not meet (or that contributes to ambient air quality in a nearby area that does not meet) the national primary or secondary ambient air quality standard for the pollutant. An area is designated unclassifiable if there is insufficient information to determine if the area meets the national primary or secondary AAQS for the pollutant

and not applicable (N/A) is used when standards do not exist for a specific pollutant. Ozone nonattainment areas are also identified by classifications indicating the severity of the violation: marginal, moderate, serious, severe, and extreme, which determine the amount of time allowed for the area to meet national AAQS for ozone [CAA §181(a)]. National designations are not reviewed at specific intervals, but are revised when a state advises the USEPA that an area has exceeded the federal standards.

Federal Clean Air Act (CAA)

The original federal CAA was passed in 1963 as a means to provide grants to local Air Quality Control Districts and has been expanded over last 50+ years to encompass all aspects of air pollution identification and control as it relates to public health and environmental protections. Since its enactment, the Act has been amended five times, including the latest amendment in 1990. The 1990 CAA amendments were intended to address the changing environment and scientific understanding of the potential concerns associated with air pollution. A number of new programs were initiated to curb urban ozone, rural acid rain, the depletion of stratospheric ozone, toxic air pollutant emissions and vehicle emissions, and establish a new, uniform national permit system.

Title 1 of the CAA deals specifically with the attainment of NAAQS, including the selection of criteria pollutants, adoption of standards, and attainment classification of air basins or their components. The NAAQS apply to all states, but it is generally the responsibility of the individual states to implement the regulations. In return, the USEPA assists the states by providing scientific research, expert studies, engineering designs, and funding to support clean air programs. Permits are also generally issued and enforced by the states. However, the USEPA retains primary enforcement powers for violations of CAA regulations. In 1997, stricter NAAQS for ozone and particulate matter were initiated to address increased concern regarding public health risks associated with these pollutants. The Department of Parks and Recreation (DPR) must consider the potential impact a proposed project might have on NAAQS attainment within the appropriate air basin and AQMD.

California Clean Air Act (CCAA)

The CCAA requires the adoption of California AAQS and is patterned after the federal CAA. Enacted in 1988, the CCAA was intended to provide the framework for how air quality would be managed in California over the next 20 years. As noted in Air Quality Standards above, California has adopted standards that are generally more stringent than the NAAQS and has established additional criteria pollutants. DPR must consider the potential impact a proposed project might have on CAAQS attainment within the appropriate air basin and AQMD.

Northern Sierra Air Quality Management District (NSAQMD) Rules & Regulations

The NSAQMD (1991) has adopted rules and regulations addressing activities that could have a potentially adverse impact on the air quality of the District. These include guidelines for compliance with state regulations; permitting requirements; and operational procedures, conditions, and constraints. The proposed project site is within the NSAQMD jurisdiction. Therefore, DPR must consider the potential impact a proposed project might have on CAAQS and NAAQS attainment within the MCAB and

NSAQMD. It is also responsible for compliance with applicable NSAQMD permit and operational requirements.

Truckee 1996 General Plan

The Truckee General Plan identifies objectives and policies regarding air quality protection within town boundaries. The proposed project is within the Truckee town limits and may need to consider some or all of these objectives and policies during planning and implementation, and in cooperation and support of community interests. Policies, or elements of policies, related to general air quality or project-specific activities are listed below (Truckee 1996, Volume 1, Chapter 4 - Conservation and Open Space Element):

- **Conservation and Open Space (C/OS) Goal 11** - Achieve and maintain ambient air quality standards established by the USEPA and CARB; and minimize public exposure to toxic, hazardous, or odoriferous air pollutants.
    - **C/OS Policy 11.2** - Multi-family residential, commercial, industrial, and other discretionary development shall be consistent with the goal and policies of the Town Particulate Matter Air Quality Management Plan.
    - **C/OS Policy 11.4** - Non-paved roads for new development...shall be paved to the extent necessary to offset 100% of the PM_{10} emissions generated by the development traffic.
    - **C/OS Policy 11.6** - Work to reduce motor vehicle air pollution by developing programs to improve traffic flow during peak travel times and special events.
- **Conservation and Open Space Goal 12** - Encourage project design that protects air quality and minimizes direct and indirect emissions of air contaminants.
    - **C/OS Policy 12.2** - All discretionary development applications shall be reviewed to determine the need for pedestrian/bike paths connecting to adjacent development and services in order to provide alternatives to automobile transportation.
    - **C/OS Policy 12.3** - Require significant developments to assess and mitigate long-term and short-term air quality impacts, including particulate matter impacts in accordance with the objectives and control strategies of the Particulate Matter Air Quality Management Plan. Cooperatively review these studies with the NSAQMD.

Truckee Particulate Matter Air Quality Management Plan (PMAQMP)

On July 15, 1999, the Truckee Town Council adopted the Particulate Matter Air Quality Management Plan, by Council Resolution No. 99-39 (Truckee 1999). This air quality management plan and the recommended control strategies can be considered the first phase in the Town's strategy in addressing its particulate matter air pollution problem. Strategies are included to comprehensively address particulate matter pollution by

establishing regulatory mechanisms, offering financial incentives and assistance, and providing education and information.

The proposed project area is within the Truckee town boundaries and may need to consider some or all of the PMAQMP objectives and policies during planning and implementation, and in cooperation and support of community interests. Policies, or elements of policies, related to general air quality or project-specific activities are listed below (Truckee 1999):

- **Particulate Matter Air Quality Management Plan, Objective 1:**

  "New development will mitigate to the maximum extent feasible its particulate matter emissions from solid fuel burning devices and re-entrained road dust."

  Current particulate matter emissions from existing development and sources produce PM_{10} concentrations that routinely exceed State standards and near Federal standards. It is recognized that emission levels from existing development and sources must be lowered in order to achieve the plan's goal. New development including single family residences on existing lots should not cumulatively add emissions to current emission levels since emissions from new development would negate any progress made in the reduction of emissions from existing development. "Maximum extent feasible" requires emissions from a project be mitigated or offset 100% or as much as possible (by a reduction of emissions elsewhere in the air basin) if particulate matter emissions can be reasonably measured and there are feasible measures to reduce emissions. However, for a large residential development, mixed use project (e.g. Planned Community 2), or commercial project, both solid fuel burning device and re-entrained road dust emissions could be measured and mitigated.

- **Particulate Matter Air Quality Management Plan Objective 2:**

  "Particulate matter emissions from solid fuel burning devices and re-entrained road dust represent the Town's greatest opportunity to reduce emission levels since emission savings (i.e. a reduction of emissions below current levels) can only occur with a reduction of emissions from existing sources. Emissions from these sources will be reduced to the extent necessary to meet the attainment goal of this plan. Control strategies in the near-term should focus on these sources, and all feasible control strategies should be utilized."

  Emphasizing the point that emission levels from existing development must be lowered in order to achieve the plan's goal, this objective asserts that control strategies will not focus solely on new development and strategies will also target existing development and sources in the near-term to reduce emission levels.

- **Particulate Matter Air Quality Management Plan Objective 5:**

"Innovative technologies for heating and building energy conservation practices will be encouraged to reduce reliance on solid fuel burning devices and other heating devices which generate particulate matter emissions."

- **Particulate Matter Air Quality Management Plan Objective 7:**

"Control strategies for regulated PM will be coordinated with strategies addressing other air pollutants and air quality issues."

Control strategies for one type of pollutant will usually result in benefits to the reduction of other types of pollutants. For example, control strategies to reduce carbon monoxide emissions from vehicles may reduce particulate matter emissions at the same time.

Nevada County General Plan

The Nevada County General Plan identifies goals, objectives, and policies regarding air quality protection within county boundaries. The proposed project is within Nevada County, although portions of Donner Memorial SP extend into neighboring Placer County, and may need to consider some or all of these goals, objectives, and policies during project planning and implementation. Policies, or elements of policies, related to general air quality or with project-specific activities are listed below (Nevada County 1996 GP, Volume 1, Chapter 14 - Air Quality, and portions of Chapters 1, 4, and 12):

- **Air Quality (AQ) Goal 14.1** - Attain, maintain, and ensure high air quality.
    - **AQ Objective 14.1** - Establish land use patterns that minimize impacts on air quality.
        - **Policy 14.1** - Cooperate with the NSAQMD during review of development proposals. As part of the site plan review process, require applicants of all subdivisions, multi-family, commercial, and industrial development projects to address cumulative and long-term air quality impacts, and request the District enforce appropriate land use regulations to reduce air pollution.

Related goals, objectives, and policies in the areas of Land Use and Circulation would also be considered as they relate to air quality concerns.

Donner Memorial State Park General Plan

DPR developed the Donner Memorial SP General Plan to identify park-wide goals and general policy guidelines for future development, management, and protection of park resources and visitor facilities. This included determining the best location(s) for the Museum/Visitor center proposed in this EIR. As noted in Section 1.5 of this document, the Donner Memorial SP General Plan has been incorporated into this EIR by reference.

Issues regarding air quality within the park and possible project-specific impacts discussed in the General Plan included:

- The effect of fugitive dust, generated during site preparation and construction of facilities, on local and regional PM levels. It was determined that any potential impacts could be substantially reduced by the use of dust control measures and other construction best management practices. Dust control measures have been incorporated into the proposed project in compliance with this directive.
- The effect of increased park visitation and the potential for an associated increase in total vehicle emissions for the region. It was determined that any overall increase would be less than significant. Potential project-specific impacts have been evaluated as part of this EIR.

4.2.4 Thresholds of Significance

An impact to the air quality of the area would be considered potentially significant if implementation of the proposed project would result in any of the following:

- Conflict with or obstruct implementation of the applicable air quality plan or regulation.
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in non-attainment under an applicable federal or state AAQS (including releasing emissions which exceed quantitative thresholds for ozone precursors).
- Expose sensitive receptors (e.g., children, the elderly, individuals with compromised respiratory or immune systems) to substantial pollutant concentrations.
- Create objectionable odors affecting a substantial number of people.

Where available, the significance criteria established by NSAQMD will be relied upon to make these determinations.

Table 4.2 - 1
NSAQMD Thresholds for Significant Contribution to Regional Air Pollution

Criteria Pollutant	Threshold
Oxides of Nitrogen (NO_x)	A = >24 tons/day B = 24-136 tons/day C = <136 tons./day
Reactive Organic Gases (ROG)	A = >24 tons/day B = 79-136 tons/day C = <136 tons./day
Particulate Matter (PM_{10})	A = >79 tons/day B = 79-136 tons/day C = <136 tons./day

Source: NSAQMD 2004

4.2.5 Environmental Impacts and Mitigation Measures

4.2.5.1 Emissions

Air Quality Impact AQ-1

The proposed project would occur adjacent to the existing museum, within the boundaries of Donner Memorial SP. Work proposed by this project, and any associated emissions, would not conflict with or obstruct the implementation of any applicable air quality management plan.

Construction

Project activities would not emit air contaminants at levels that would, by themselves, violate any local, state, or federal ambient air quality standard, or contribute to a substantial permanent or long-term increase in any air contaminant. However, project construction would generate short-term emissions of fugitive dust (PM_{10}) and involve the use of equipment that would emit ozone precursors (i.e., reactive organic gases [ROG] and nitrogen oxides, or NOx). Construction-related emissions would generally be of short duration, but could still cause adverse air quality impacts.

Ozone precursors (chemicals, which contribute to the creation of ozone) from project vehicles would increase in the general vicinity of the site. Project and worker vehicles would range from 5-25 daily, with 1-3 trips per vehicle. Most heavy equipment would remain on the site for the duration of the work. Suppliers would drop off equipment and materials and leave the same day, with an average of 1-3 deliveries per day. Traffic counts conducted on Donner Pass Road, adjacent to the proposed facility entrance, for 4 days in September 2005 (including the peak use Labor Day weekend) indicated the peak hour traffic volume count of 2607, with an increase of 46 for project related trips. (Fehr and Peers 2005). Based on these figures, maximum project traffic would only increase total traffic volume, and vehicle emissions, in the vicinity of the construction site by approximately five percent. This increase would constitute a less than significant impact at the site and negligible impact on the air quality in Nevada County, neighboring Placer County, or the MCAB.

NO_x emissions and diesel particulate matter (diesel PM) would also be emitted when diesel-powered heavy equipment is operated on or enroute to and from the project site. Diesel PM has been identified by CARB as a toxic air contaminant with chronic and carcinogenic risks to public health. A significance threshold for diesel PM has not been established. Emissions can vary widely, depending on the length of time each piece of equipment would be operated, condition of the equipment's engine and exhaust, weather, and type of operation. However, because of the limited size and duration of this project, it is expected that the project's operational emissions would not exceed the NSAQMD's Threshold A for Significant Contribution to regional air pollution (ROG, NO_x, and PM_{10}).

The proposed project location is relatively level, which would reduce the amount of grading necessary to prepare the site and travel on unpaved areas. However, dry conditions during the summer months, when most excavation and grading would occur,

would increase the potential for creation of fugitive dust. In addition to immediately airborne dust particles, soil could also be carried out onto Donner Pass Road during construction of the entrance and access road to the new facility, and by the movement of project vehicles into and out of the site. Vehicle traffic would then crush the soil, contributing to the area levels of PM_{10} and $PM_{2.5}$. Grading and excavation would occur prior to and in conjunction with construction of the museum, infrastructure, landscaping, and trails.

Increased emissions of particulate matter, ROG, and NOx related to activities proposed as part of this project could contribute to existing nonattainment conditions and interfere with achieving the projected attainment standards. Consequently, construction emissions would be considered a potentially significant short-term adverse impact. See Condition AQ-1(a,b,c) below.

Air Quality Project Condition AQ-1a Ozone-related Emissions

The extent feasible, the number of large construction equipment operating during any given time period would be minimized, truck trips would be scheduled to reduce peak hour use, optimum construction work periods would be identified, and construction would be phased to reduce concentrated periods of emissions.

i. DPR and its contractor(s) would maintain all construction equipment in good mechanical condition, according to manufacturer's specifications. Construction equipment exhaust emissions would not exceed NSAQMD Regulation II, Rule 202 - Visible Emissions limitations.

ii. All off-road and portable diesel-powered equipment, including but not limited to bulldozers, graders, cranes, loaders, scrapers, backhoes, generator sets, compressors, auxiliary power units, would be fueled with CARB-certified motor vehicle diesel fuel.

iii. Idling time for all diesel-powered equipment would be limited to five minutes, except as necessary to maintain a continuous workflow or for safety considerations.

iv. The use of diesel construction equipment meeting the CARB's 1996 or newer certification standard for off-road heavy-duty diesel engines would be maximized to the extent feasible.

v. Electric and/or gasoline-powered equipment or equipment using alternative fuels, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane, or biodiesel, would be substituted for diesel-powered equipment, when feasible.

Air Quality Project Condition AQ-1b **Particulate Matter Fugitive Dust Emissions**

DPR and its contractors would limit the emission and/or airborne transport of fugitive dust in compliance with the requirements of NSAQMD Regulation II, Rule 226 - Fugitive Dust, Part 2. Reasonable precautions would be taken to prevent dust emissions, including, but not limited to, cessation of operations, cleanup, sweeping, sprinkling, compacting, enclosure, chemical or asphalt sealing, and use of wind screens or snow fences. As identified in this Rule, reasonably available control measures (RACM) included in this mitigation measure and applicable to this project would include:

i. Vehicle speed for all construction vehicles would not exceed 15 mph on any unpaved surface at the construction site.

ii. Excavation and grading activities would be suspended when sustained winds exceed 25 mph, instantaneous gusts exceed 35 mph, or dust from construction might obscure driver visibility on public roads.

iii. Disturbed areas of the site would be watered at least twice daily, using water trucks and/or sprinkler systems, to prevent airborne dust from leaving the site. If available, reclaimed (non-potable) water will be used.

iv. All dirt stockpiles would be covered (tarped) or watered daily, as necessary to prevent dispersion of windblown dust (see also §4.5, Geology, for discussion of Best Management Practices for erosion and sedimentation controls).

v. All trucks hauling dirt, sand, soil, or other loose materials would be covered or would maintain at least two feet of freeboard (minimum vertical distance between top of load and top of trailer), in accordance with California Vehicle Code Section 23114.

vi. All disturbed areas in inactive portions of the site would be covered, seeded, and/or watered until a suitable cover is established or construction activities are resumed. Non-toxic soil stabilizers could be used in accordance with county, RWQCB, and CARB standards.

vii. Permanent dust control measures identified in landscape plans would be implemented as soon as possible following completion of any soil disturbing activities.

viii. Best Available Control Measures (BACM), as identified in the Truckee PMQMP, would be used as a guideline for developing and implementing dust control mitigations, especially as they apply to transport onto public roadways. Because broom or mechanical sweeping does not control particulate matter emissions but rather propels dust into the air, broom or mechanical sweeping would not be considered a BACM without other measures to control dust during sweeping.

- Streets would be swept with water sweepers at the end of each day if visible soil material is carried onto adjacent paved roads. Water sweepers will use reclaimed water when available.
- Wheel washers would be installed where vehicles enter and exit unpaved roads onto streets, or trucks and equipment would be washed off when leaving the site.

ix. Paved access points or aprons onto Donner Pass Road would be installed at the beginning of construction. The apron would be flushed and swept at least once daily.

x. All Air Quality mitigation measures would be included as part of the appropriate construction contracts. In addition, DPR or its contractor(s) would designate a person or persons to monitor the dust control program and increase watering, as necessary, to prevent transport of dust off-site. The name and telephone number of such persons will be posted on site throughout construction and provided to the NSAPCD Truckee representative. Mitigation measures would also be implemented during holidays, weekend periods, or times when work is temporarily suspended, as necessary to control site conditions generating fugitive dust.

Air Quality Project Condition AQ-1c
Particulate Matter/Emissions from Burning of Wood, Slash, or Solid Fuels

i. No wood waste from trees, vines, bushes, or construction materials related to project activities would be disposed of by burning. Existing PM non-compliance conditions in the Truckee area have resulted in suspension of NSAQMD Air Quality Regulation II, Rule 308 for development projects.

ii. No non-EPA Phase II Certified solid fuel-burning appliance would be installed on-site or within the facilities proposed as part of this project, except for a pellet-fueled wood heater or open masonry fireplace supplied with gas and fitted with artificial logs, in compliance with the Truckee Particulate Matter Air Quality Management Plan, Chapter 7.03.020.

4.2.6 Effects Considered to be Less than Significant

4.2.6.1 Emissions

Auto traffic traveling to and from the proposed Museum facility would affect local air quality along streets within the project vicinity. The Truckee area is in non-attainment for CAAQS 1-hour ozone and PM_{10}. DPR estimates a potential for up to a 20% increase in visitation over the first five years the Museum is in full operation, adding approximately 17 vehicles per hour to Donner Pass Road during the peak hours of the summer months. This would have minimal impact on overall levels of ozone precursors or PM_{10} in the Truckee area or the area's ability to meet NAAQS/CAAQS. Maintenance demands for the new facility would not significantly increase use or idling of diesel-powered equipment. There are no solid fuel fireplaces or wood burning appliances associated with this project. Operational emissions for the new facility would be less than significant. No mitigation required.

4.2.6.2 Sensitive Receptors

The location of a development project is a major factor in determining whether the project would result in localized air quality impacts. The closer project activities (or their byproducts) are to a sensitive receptor, the greater the potential for adverse air quality impacts. A sensitive receptor is a person in the population who is particularly susceptible to health effects resulting from exposure to an air contaminant, when compared to the population at large. Sensitive receptors (and the facilities that house or attract them) that are located near sources of carbon monoxide, particulate matter, toxic air contaminants, or odors are of particular concern. These include the elderly, children, and those with compromised immune systems, asthma, or severe allergies. Hospitals, schools, convalescent facilities, and day care centers are examples of sensitive receptor locations.

As noted in Impact AQ-1 above, project construction would generate dust and equipment exhaust emissions for the duration of the project. Park visitors with conditions that make them sensitive to these emissions would have the option of avoiding the park altogether or remaining in portions of the park that would be upwind or protected from blowing dust or other emissions. Although the project site is currently open to the public as open space; access will be restricted during construction to protect public health and safety.

Area residences are sufficiently distant from proposed construction activities to be safe from serious exposure. Although there are six schools, at least three child care facilities, and one hospital within two miles of the project site, none are within one-quarter mile of the proposed facilities. Impacts from the project would be less than significant. Project Condition AQ-1(a-c) would further reduce the significance of any potential impact. No mitigation required.

4.2.6.3 Objectionable Odors

Construction-related activities and emissions would result in a short-term generation of odors, including diesel exhaust, fuel vapors, and evaporative emissions from asphalt paving materials. These odors could be considered objectionable by some park visitors and employees. However, construction activities would be short-term; odorous emissions would dissipate rapidly in the air, with increased distance from the source; and visitor exposure to these odors would be extremely limited [see Impact AQ-2 above]. Impacts from project-generated odors would be less than significant. No mitigation required.

4.3 BIOLOGICAL RESOURCES

This section provides information on biological resources that occur or could occur within the proposed project site, or could be impacted by project activities at Donner Memorial SP. This includes specific information on the biological resources and potential impacts to these resources from construction and operation of a new museum/visitor center, parking lot, and related support facilities near the existing Emigrant Trail Museum.

4.3.1 Existing Conditions

4.3.1.1 Methods

The biological investigation for this EIR consisted of field surveys and a review of existing biological databases and inventories. General biological surveys included a reconnaissance of the project site to determine the potential for wetlands and special status plant and wildlife species. Focused surveys were conducted for mountain yellow-legged frogs *(Rana muscosa),* and for bald eagle (*Haliaeetus leucocephalus*) nest sites and winter roosts in the project site reviewed in the 2005 Environmental Impact Report. Previous studies conducted in the area were reviewed and are included in references.

An assessment was made of the special status plant and animal species and natural communities that could occur within the project area. The sources used to make this assessment included park species lists (DPR 2003), the California Department of Fish and Game's (DFG) Natural Diversity Database (CNDDB) for the Norden and Truckee USGS 7.5 minute quadrangles, the California Native Plant Society's (CNPS) Electronic Inventory of Rare and Endangered Plants of California (2001), and U.S. Fish and Wildlife Service list of federally listed species that may occur in the vicinity of Donner Memorial SP (USFWS 2004a, 2004b).

4.3.1.2 Vegetation And Wildlife Habitat

Vegetation

The vegetation at Donner Memorial SP is largely coniferous forest and woodland, typical of the mid-elevation eastern Sierra Nevada Mountains. Lodgepole pine (*Pinus contorta* ssp. *murrayana*), and Jeffrey pine (*Pinus jeffreyi*) dominate the park's wooded areas, including the proposed project site. Interspersed within the woodlands and forests are areas of shrubs that may include wax currant (*Ribes cereum* var. *cereum*), greenleaf manzanita (*Arctostaphylos patula*), serviceberry (*Amelanchier alnifolia*), and bitter cherry (*Prunus emarginata*). Big sagebrush (*Artemisia tridentata*), rubber rabbitbrush (*Chrysothamnus nauseosus*), antelope bitterbrush (*Purshia tridentata*), and prostrate ceanothus (*Ceanothus prostratus*), are found on drier sites scattered among Jeffrey pines.

Meadows occur in low-lying areas of the park with relatively poorly drained soils. Grasses, sedges (C*arex* spp.), rushes (*Juncus* spp.), and numerous other herbaceous plants dominate these areas. Along Donner Creek and the shore of Donner Lake, deciduous trees and shrubs, including various willows (*Salix* spp.), cottonwood (*Populus balsamifera* ssp. *trichocarpa*), mountain alder (*Alnus incana* ssp. *tenuifolia*), red osier

dogwood (*Cornus sericea* ssp. *sericea*), and twinberry (*Lonicera involucrata*), are common. Small ponds support spikerushes (*Eleocharis* spp.).

As defined by Sawyer and Keeler-Wolf (1995) in "A Manual of California Vegetation," the vegetation within the project site is a mixture of a Jeffrey Pine Series and a Lodgepole Pine Series. Jeffrey pine (*Pinus jeffreyi*) is the dominant tree in the canopy of the Jeffrey Pine Series, while lodgepole pine (*Pinus contorta* ssp. *murryana*) dominates the Lodgepole Series. Both vegetation types exhibit a very open canopy, although trees are more closely spaced in the lodgepole pine forest. Commonly encountered shrub and herbaceous species for both forest types include wax currant, big sagebrush, rubber rabbitbrush, prostrate ceanothus, greenleaf manzanita, and squirreltail grass (*Elymus elymoides* ssp. *californicus*).

The project is situated on a nearly level upland area of coniferous forest upslope from a mosaic of wet meadow and riparian vegetation that borders nearby Donner Creek. This vegetation mosaic, whose edge is more than 100 feet from the project boundary, varies from areas dominated by grass, sedge, and rush species to willow dominated areas along the banks of Donner Creek. Small stands of lodgepole pine are interspersed within this mosaic where the depth to the water table is greater.

Wildlife Habitat

Habitats are described according to the California Wildlife Habitat Relationship System (Mayer and Laudenslayer 1988). Habitats at the project site are a mixture of Lodgepole Pine and Jeffrey Pine types. Several large, mature Jeffrey pines occur within the project area, providing important wildlife habitat. Along Donner Creek is a montane riparian type that intergrades with a wet meadow type.

Wetlands, Riparian Zones, and Waters of the U.S.

Donner Creek and Donner Lake are identified as waters of the U.S., as defined in 33 CFR 328. Both Donner Creek and Donner Lake are outside the project boundary.

4.3.1.3 Special Status Biological Resources

Special status biological resources include plants and animals that have been afforded special recognition by federal, state, or local resource agencies and organizations. Also included are habitats that are of relatively limited distribution or are of particular value to wildlife.

For the purposes of this EIR, special-status species are defined as plants and animals that are legally protected under the federal Endangered Species Act (ESA), the California Endangered Species Act (CESA) or other laws, or that are otherwise considered sensitive by federal, state, or local resource conservation agencies and organizations. Specifically, this includes species listed as state and/or federally Threatened, Endangered, or Rare; those considered as candidates for listing; species identified by USFWS and /or DFG as Species of Special Concern; wildlife identified by DFG as Fully Protected or Protected; and plants considered by the CNPS to be rare, threatened, or endangered (i.e., plants on CNPS Lists 1 and 2). Special-status species

that are not federally protected or state listed as threatened, endangered, or rare do not receive protection under ESA or CESA; however, impacts to these species could still be considered significant under CEQA if it determined to be rare or endangered by the lead agency [CEQA Guidelines §15380(b)]. This CEQA section reads in part as follows:

A species can be considered:

"Endangered" when its survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, overexploitation, predation, competition, disease, or other factors.

"Rare" when either:

- the species is not presently threatened with extinction, but is existing in such small numbers throughout all or a significant portion of its range that it may become endangered if its environment worsens; or
- the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range and may be considered "threatened" as that term is used in the Federal Endangered Species Act.

4.3.1.4 Special-Status Plants

Special-status plant species that are known or that could potentially occur within or near the project area are based on the CNDDB (DFG 2005), the CNPS (2001), the Donner Memorial SP General Plan (DPR 2003), and the USFWS federally listed species that may occur in the vicinity of the park (USFWS 2005). The CNDDB reports occurrences of eight special-status plant species for the Norden and Truckee 7.5' minute quadrangles. The CNPS lists seven special-status species (all CNPS List 1B or 2) for these quadrangles, all of which appear on the CNDDB list. The USFWS lists three species, which also appear on the CNDDB list. None of the eight special-status plant species have been located within the park. The General Plan lists 37 species identified by the U.S. Forest Service (USFS) in a vulnerability analysis for the Tahoe and Eldorado National Forests. None of the species in the analysis has been documented to occur in the park, and suitable habitat does not exist within the project area for most of these species. None of these species are currently known to occur within, or in the immediate vicinity of, the project area.

There is no habitat within the project boundary for any of the species that appear on the CNDDB, CNPS, or USFWS lists. However, suitable habitat exists nearby in the wet montane meadow and riparian vegetation complex for two of the species that appear on the CNDDB and CNPS lists. These are marsh skullcap (*Scutellaria galericulata*) and Oregon fireweed (*Epilobium oreganum*).

Marsh skullcap - Marsh skullcap is a perennial herb of meadows and seeps that occurs within montane coniferous forest of the Sierra Nevada Mountains north to the Modoc Plateau. It is a CNPS List 2 plant that blooms from June through September. Suitable habitat for marsh skullcap occurs in areas of wet montane meadow along Donner Creek but outside the project boundary. The project will have no impact on this species.

Oregon fireweed - This perennial herb is a CNPS list 1B species and a Federal Species of Concern that inhabits bogs and fens and areas along small streams within montane coniferous forests. The range of this plant extends north into Oregon and inhabits the Coast, Sierra Nevada, and Cascade Ranges. The blooming period is June through September. Suitable habitat for Oregon fireweed occurs in areas of wet montane meadow along Donner Creek but outside the project boundary. The project will have no impact on this species.

4.3.1.5 Special-Status Wildlife

Special-status animal species, as defined above, that may occur within or near the project area include:

AQUATIC SPECIES

Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*) - This is a federal Threatened species and is native to Donner Lake and Donner Creek (USFWS 1994). The Recovery Plan for the Lahontan Cutthroat Trout shows that the western Lahontan basin population segment occupies the region encompassing the proposed project area. This population segment has unique traits that allow the fish to inhabit lake and stream environments. Lahontan cutthroat trout are at risk of extinction due to impacts, including altered stream flows, changes to stream channels, degraded water quality, and introduction of non-native fish (USFWS 1994, USFWS 2003b).

Lahontan cutthroat trout inhabit lakes and streams in the eastern Sierra Nevada of California, and in Nevada, Oregon, and Utah. The population in the Truckee River basin (which contains Donner Lake and Donner Creek) was estimated at 500 (USFWS 1994). This population inhabits approximately 13 km (8 mi) of streams and 283 ha (700 ac) of lake habitats, or 2.2% of historic streams and 0.2% of historic lake habitats (USFWS 1994). Naturally reproducing populations occur within the Truckee River system in Summit Lake and Independence Lake (located 4.8 km [3 mi], and 11 km [7 mi] from Donner Lake, respectively) (Peacock, *et al* 2001). There is not a self-sustaining population of Lahontan cutthroat trout in Donner Lake or Donner Creek (Caicco pers. comm.).

Lake and stream habitats in Donner Memorial SP are degraded due to introduced trout (predators and competitors), altered stream flows, barriers to fish in streams, and damaged riparian habitats. Lahontan cutthroat trout may occur in low numbers in Donner Lake and streams flowing through the park (Hanson pers. comm., Caicco pers. comm.). Restocking of Lahontan cutthroat trout into the Truckee River and tributaries has been attempted several times since the 1970's, and efforts by USFWS and DFG to reestablish self-sustaining populations are on-going (USFWS 2003b). USFWS advisories specify that development should not alter the habitat or prevent future re-colonization of the species (Caicco pers. comm.). No suitable habitat exists within 100 feet of the current project boundary. The project will have no impact on this species.

Mountain sucker (*Catostomus platyrhynchus)* - The mountain sucker is a California Species of Concern that is native to Donner Creek and Donner Lake, and may be present in low numbers (Epanchin pers. comm.). Suckers occur in a wide variety of habitats, but usually prefer cool, clear streams with clean rubble or sand bottoms, and are occasionally found in lakes (DFG 1995). No suitable habitat exists within 100 feet of the current project boundary. The project will have no impact on this species.

Mountain yellow-legged frog (*Rana muscosa)* - The Mountain yellow-legged frog is native to lakes and streams throughout higher elevations of the Sierra Nevada mountains. This species is proposed for federal listing as Threatened or Endangered. Populations have become extirpated from 70% to 90% of its historic range, due primarily to predation by bullfrogs and non-native fish (USFWS 2003a).

Mountain yellow-legged frogs may be found in lakes, ponds, and streams above 1370 m (4,500 feet) elevation, in the Sierra Nevada range. These highly aquatic frogs prefer stream and lake margins that slope gently to a depth of 5-8 cm (2-3 in) and are rarely found far from water. CNDDB lists 20 occurrences of mountain yellow-legged frogs in Nevada and Placer Counties, dating back to 1935 (DFG 2004a,b). Although survey data are not available for Donner Lake and Donner Creek, this species probably occupied these habitats before the introduction of game fish. Because game fish have inhabited Donner Lake and Donner Creek for more than a century, mountain yellow-legged frog populations may have been reduced or extirpated throughout most or all of this range (Hanson pers. comm.). Surveys were conducted in August 2004 by DPR within suitable habitat of the project site reviewed in the 2005 Environmental Impact Report, and no mountain yellow-legged frogs were observed. No suitable habitat exists within 100 feet of the current project boundary. The project will have no impact on this species.

BALD EAGLE AND OSPREY

Bald eagle (*Haliaeetus leucocephalus)* - The bald eagle is a Federal Threatened (proposed for delisting) and California Endangered species. In California, the bald eagle is associated with aquatic habitats, such as coastal areas, rivers, lakes, and reservoirs with forested shorelines. During winter, bald eagles occur throughout much of California, and during the spring and summer, are found primarily in northern California, where they nest in forests and woodlands near large bodies of water. Nesting habitat is found in forests up to 2,300 m (7,000 ft) elevation, within 1.6 km (1 mi.) of a fish-bearing water body. Suitable habitat includes forest with large diameter trees [> 0.6 m (2 feet) in diameter). Nest trees are usually within view of a water body and are often the tallest trees in the area. (Buehler 2000, DFG 2000)

The CNDDB contains two occurrences of occupied bald eagle nests in Nevada and Placer Counties, dating back to the 1990's (DFG 2004). Although no historic survey information is available for Donner Lake, bald eagles may have occupied these habitats before the severe population declines of the 1900's. However, each year, bald eagle pairs are discovered occupying new nesting territories. It has been observed that bald eagles return to areas following colonization by ospreys (R. Jurek pers. comm.). One to two pairs of ospreys have nested at Donner Lake during the previous 5 years (DPR

2004). The suitable nesting and roosting habitat found within 0.8 km (0.5 mi.) of the lakeshore may become occupied by breeding or wintering eagles in the future (Epanchin pers. comm.).

Bald eagle surveys were conducted in January - July 2004 within the project site reviewed in the 2005 Environmental Impact Report, following DFG guidelines (DFG 1999). During the survey periods, bald eagles were regularly seen making brief flights over the project area, but foraging or roosting was not observed, and no nests or winter communal roosts were found. Bald eagles were observed in winter, spring, and summer. The current project site is more than 0.5 miles from the nearest observed nesting and roosting sites for this species. The project will have no impact on this species.

Osprey *(Pandion haliaetus)* - The osprey is a California Species of Concern. Ospreys nest near Donner Lake. One pair nested successfully in 2003 and two pairs nested in 2004. Nests were located approximately 1.0 km (0.6 mi.) from the project site reviewed in the 2005 Environmental Impact Report (DPR 2004). These locations are more than 1.0 mile from the current project site. The project will have no impact on this species..

FOREST BIRDS (other than Bald Eagle and Osprey)

Cooper's hawk (*Accipiter cooperii)* - The Cooper's hawk is a California Species of Concern that uses riparian deciduous and other forest habitats near water. Cooper's hawks hunt near forest edges and nest in deciduous and coniferous forests near streams. This species is relatively tolerant of human disturbance and habitat fragmentation (Rosenfield and Bielefeldt 1993, Zeiner, *et al* 1990a). There are no records of nesting in the project area. Because nesting habitat for this species occurs in the project area, this project presents the potential for significant impacts to Cooper's hawks.

Sharp-shinned hawk (*Accipiter striatus)* - The Sharp-shinned hawk is a California Species of Concern that breeds in low numbers in northern California and winters throughout the state. Sharp-shinned hawks nest in forested habitats, usually containing conifers in dense stands, with a well developed canopy. These hawks feed primarily on small birds that are captured in forest openings and on woodland edges (Bildstein and Meyer 2000, DFG 2004, Small 1994). Sharp-shinned hawks nested approximately 1.6 km (1 mi.) from the project site in 2003 (DPR unpublished data). Because nesting habitat for sharp-shinned hawk does not occur in the project area, there will be no impacts on this species.

Northern goshawk *(Accipiter gentilis*) - The Northern goshawk is both a Federal and California Species of Concern, and an uncommon year-round resident of a variety of forest habitats, especially mature forest with large trees on moderate slopes. Northern goshawks have been historically observed nesting approximately 1.2 km (0.75 mi.) from the project site since the 1950's, but have not been observed there in recent years. Forest density has been reduced by timber harvest, and by natural influences, including drought stress and insect damage. The site where goshawks previously nested may no longer contain suitable habitat. (Small 1994; Squires and Reynolds 1997; Zeiner, *et al*

1990a). Although marginal nesting habitat for this species occurs in the project area, this project presents the potential for significant impacts to northern goshawks.

California spotted owl (*Strix occidentalis occidentalis*) - The California spotted owl is a Federal and California Species of Concern that inhabits old-growth and mixed stands of old-growth and mature trees (Gutiérrez, *et al* 1995). Spotted owls have been found on neighboring land, approximately 4.0 to 5.6 km (2.5-3.5 mi.) from the project area. Suitable habitat does not occur within the project boundary; this area has been impacted from facility development that includes residential housing, maintenance buildings, the current visitor center, and parking. The surrounding area includes a campground, Donner Pass Road, and Interstate 80 (0.6 km [0.3 mi.] away). The project will have no impact on this species.

White-headed woodpecker (*Picoides albolarvatus*) - The white-headed woodpecker is a Federal Species of Concern that is found in open conifer habitats of montane forests. These woodpeckers forage on live mature trees and snags (standing dead trees). Cavities excavated in snags are used for nesting. White-headed woodpeckers were considered a common inhabitant of the park in 1993, and were observed in 2004 near the project site reviewed in the 2005 Environmental Impact Report (Morrison 1993, Zeiner, *et al* 1990a, DPR unpublished data). Because marginal nesting habitat for this species occurs in the project area, this project presents the potential for significant impacts to white-headed woodpeckers.

Yellow warbler *(Dendroica petechia)* - The yellow warbler is a California Species of Concern that was once abundant in riparian areas. Nesting habitat includes riparian woodland and montane chaparral, which is not present in the project area. Although CNDDB shows a recorded sighting within approximately 0.6 km (0.4 mi.) of the project site, suitable habitat does not exist within the project area. The project will have no impact on this species.

MAMMALS

Sensitive bat species are Federal and/or California Species of Concern that may occur in Donner Memorial SP. The sensitive bat species that may roost in trees or snags in areas near the project site are the pallid bat (*Antrozous pallidus),* Townsend's big-eared bat (*Corynorhinus townsendii*), small-footed myotis (*Myotis ciliolabrum)*, long-eared myotis *(M. evotis),* western mastiff bat *(Eumops perotis),* fringed myotis *(M. thysanodes),* long-legged myotis *(M. volans),* silver-haired bat (*Lasionycteris noctivagans),* and Yuma myotis (*M. yumanensis)* (Zeiner, *et al* 1990b). There are no known roosts of sensitive bat species in the project area. The project will have no impact on these species.

Sierra Nevada red fox (*Vulpes vulpes necator*) - The Sierra Nevada red fox is a California Threatened Species and Federal Species of Concern. This fox occupies remote areas of the state and is rarely seen. Although little is known of its life history or habitat use, it has been found in red fir and lodgepole pine forests between 1,500 and 2,150 m (5,000 - 7,000 ft) and may hunt in forest openings, meadows, and rocky areas.

A Sierra Nevada red fox was observed approximately 4.8 km (3 mi.) northeast of the park in 1994 (DFG 2004). Suitable habitat may be present within the park, but because the species uses large areas and varied habitats, it is unlikely that the project site provides significant habitat for the Sierra Nevada red fox (DFG 2000; Zeiner *et al* 1990b). Therefore, the project will not significantly impact this species (Holm pers. comm.).

Sierra Nevada snowshoe hare *(Lepus americanus tahoensis)* - The Sierra Nevada snowshoe hare is a Federal and California Species of Concern that is found at high elevations and in northern latitudes. This species typically inhabits riparian communities with thickets of deciduous trees and shrubs, such as willows and alders. These hares also use dense young conifers and chaparral, and in the Lake Tahoe area, are found near brush adjacent to meadows and riparian deciduous vegetation. Surveys in 1993 found Sierra Nevada snowshoe hares within 0.4 km (0.25 mi.) of the project site (Morrison 1993; Zeiner, *et al* 1990b). The habitat types this species favors do not occur within the project area, but do exist nearby along Donner Creek. The project will not significantly impact this species (Holm pers. comm.).

4.3.2 Regulatory Setting

The project area includes biological resources that are protected and/or regulated by laws, regulations, and policies. Projects conducted in this area must comply with these laws, regulations, and policies. Formal or informal consultation with Responsible and/or Trustee agencies may also be required prior to project approval, issuance of permits, or project implementation. A "Responsible Agency" is a public agency, other than the Lead Agency, which has discretionary approval power over the project (CEQA Guidelines §15381). A “Trustee Agency” means a state agency having jurisdiction by law over natural resources affected by a project which are held in trust for the people of the State of California. For example, DFG is a trustee agency with regard to the fish and wildlife of the state, designated rare or endangered native plants, and game refuges, ecological reserves, and other areas administered by the Department.

Federal Endangered Species Act

Pursuant to the federal ESA, the USFWS has regulatory authority over projects that may result in the take of a federally listed species. Take is defined under Section 9 of the ESA as killing, harming, or harassment of a listed species. Under federal regulation, take is further defined to include habitat modification or degradation where it results in death or injury to wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. If incidental take is a possibility, then a Biological Opinion is prepared for take of listed species under Section 7 of the ESA. An incidental take permit can be authorized by the USFWS.

California Endangered Species Act

Pursuant to the CESA, an incidental take permit is required for projects that could result in the “take” of state-listed Threatened or Endangered species. Take of a species, under CESA, is defined as an activity that would directly or indirectly kill an individual of a species. It does not include "harm" or "harass" as provided under the federal ESA. As a result, the threshold for take under CESA is less stringent than under the ESA (i.e., habitat modification is not necessarily considered take under CESA). DFG has the authority to issue an incidental take permit under Section 2081 of the Fish and Game Code.

Migratory Bird Treaty Act and Bald Eagle Protection Act

The Migratory Bird Treaty Act (MBTA) establishes a Federal prohibition to pursue, capture, kill, possess, sell or purchase, transport, or export any migratory bird or any part, nest, or egg of any such bird (16 U.S.C. 703). In conjunction with this Act, Public Law 95-616 ratified a treaty specifying that the U.S. (and the Soviet Union) will take measures to protect identified ecosystems of special importance to migratory birds against pollution, detrimental alterations, and other environmental degradations (Convention Between the United States of America and the Union of Soviet Socialist Republics Concerning the Conservation of Migratory Birds and Their Environment; T.I.A.S. 9073; signed on November 19, 1976, and approved by the Senate on July 12, 1978; 92 Stat. 3110.). Species (or species habitat) protected under the MBTA that may be present within or in the vicinity of the project area include bald eagle, osprey, Cooper’s hawk, Northern goshawk, and white-headed woodpecker.

In addition to protections under the federal ESA and the MBTA, bald eagles are protected by the Bald Eagle Protection Act, which prohibits any form of “take”, possession, or commerce in the birds, including disturbance. A permit from the Secretary of the Interior is required prior to taking, possession, and/or transportation of these eagles for wildlife protection, scientific study, resource development, or wildlife recovery operations. The proposed project would not qualify for a take permit under this Act.

Clean Water Act

The federal Clean Water Act (CWA) was established in 1972 to maintain the chemical, physical, and biological integrity of the nation’s waters [Federal Water Pollution Control Act/Clean Water Act, 33 U.S.C. 1251, §101(a), 2002]. It was also intended to provide a mechanism for regulating discharges of pollutants into the waters of the U.S and gave the USEPA authority to implement pollution control programs, such as setting wastewater standards for industry and water quality standards for all contaminants in surface waters.

Section 400 *et seq.* of the Clean Water Act applies to permits and licenses required for activities that may impact the nation’s surface water (Waters of the U.S.). Activities that might result in any discharge into navigable waters is covered under CWA Section 401.

The California State Water Resources Control Board (SWRCB) and Regional Water Quality Control Board’s (RWQCB) enforce the federal Clean Water Act, including administration of the National Pollutant Discharge Elimination System (NPDES) permits for various discharges into waters of the U.S. (CWA §402). The new NPDES Stormwater Phase II requires implementation of BMPs to maintain water quality control of runoff from (post-construction) operations, in addition to construction-related discharge protections. A Notice of Intent is filed with the SWRCB when a project is subject to an NPDES permit and a Stormwater Pollution Prevention Plan (SWPPP) must be approved prior to the start of work. (See Section 4.7, Hydrology and Water Quality for additional information regarding NPDES requirements.)

Waters of the U.S. are also subject to Section 404 of the CWA. Section 404 establishes a requirement to obtain a permit prior to any activity that involves any discharge of dredged or fill material into the waters of the U.S., including wetlands. In general, if the fill to be placed into waters of the U.S. is limited to an area of no more than 0.2 ha (0.5 ac), such fill can be approved through the USACE Nationwide Permit (NWP) program. USACE districts use NWPs to authorize categories of activities with minimal effects on the aquatic environment.

The USACE defines wetlands as lands that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Typically, USACE jurisdictional wetlands meet three criteria:

hydrophytic vegetation, hydric soils, and wetland hydrology. Donner Creek and Donner Lake are defined as Waters of the U.S. and are under USACE jurisdiction.

No wetlands or Waters of the U.S. occur within the project boundary.

4.3.3 Thresholds of Significance

An impact to the biological resources of the area would be considered potentially significant if implementation of the proposed project would result in any of the following:

- Project activities would have a substantial adverse effect, either directly or through habitat modification, on any species identified as a sensitive, candidate, or special status species in local or regional plans, policies, or regulations, or by the DFG or the USFWS.
- The project would have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the DFG or the USFWS.
- The project would have a substantial adverse effect on federally protected wetlands, as defined by CWA §404, including, but not limited to marsh, vernal pool, coastal, etc., through direct removal, filling, hydrological interruption, or other means.
- The project would interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- The project would conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- The project would conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

4.3.4 Environmental Impacts and Mitigation Measures

4.3.4.1 Forest Birds

Biological Resources Impact Bio- 1

Sensitive forest birds may nest within 0.4 km (0.25 mi.) of the project site and their breeding may be significantly impacted by construction activities.

Biological Resources Mitigation Measure Bio- 1

Nest protection for Forest birds

a) Surveys would be conducted by a DPR-qualified biologist to identify active nests of Cooper's hawk, northern goshawk, and white-headed woodpecker within 400 m (0.25 mi.) of the project area. Surveys would be conducted during the breeding season prior to the start of construction, with additional surveys conducted in subsequent breeding seasons if construction is still in progress.

b) If nesting sensitive forest birds are found, an appropriate buffer zone with activity restrictions would be established, in consultation with DFG. Restrictions would remain in place from May 1 to August 31, or as determined by DFG.

4.3.4.2 Wildlife Trees

Biological Resources Impact Bio- 2

A variety of sensitive animal species depend on large trees or snags for foraging, nesting, or roosting. These trees are characteristically the largest trees on site (height and/or diameter), exhibit natural cavities, have structure suitable for wildlife use (broken top, large limbs), may have crevices and/or loose bark (suitable for bats), show signs of rot (conk, brooms) or insect infestation, and may have signs of active wildlife use. It is important to identify and retain these “wildlife trees”, which are important wildlife habitat that support sensitive species populations and contribute to the biodiversity of the area. Without protective measures, project activities could result in significant cumulative damage to this habitat.

Biological Resources Mitigation Measure Bio- 2

Wildlife Tree and Habitat Protection

A survey would be conducted by a DPR-qualified biologist prior to the start of tree removal or construction to identify any wildlife trees on the project site. Wildlife trees in the active construction zone would be flagged and protected with fencing or weed-free straw bales, as necessary to provide reasonable protection from disturbance or damage to the tree or its root system.

a) Any wildlife tree scheduled for removal would be felled outside of breeding season for the species determined to be inhabiting or using the tree for habitat (generally April through August). If possible without significantly interfering with project objectives, the felled tree would be retained intact on the ground at or near its original location (or within the general vicinity), to function as coarse woody debris.

4.3.5 Effects Considered to be Less than Significant

The Sierra Nevada red fox has been observed in a location about 3 miles northeast of the park. Although suitable habitat is present within the park, the project site is in an area that lacks significant habitat for this species. Therefore, the project will not significantly impact this species.

Surveys for the Sierra Nevada snowshoe hare have located this species about .25 miles from the project site. However, the habitat types favored by the snowshoe hare are outside the project area and the project will not significantly impact this species.

4.3.6 Findings

For biological resources evaluated as part of this environmental document, the potential existed for significant adverse impacts to forest birds and wildlife habitat trees as a direct or indirect result of proposed project activities. However, changes and mitigation measures have been required as part of the project which avoid or substantially lessen these potentially significant environmental effects. Full implementation of all proposed mitigation measures would reduce any potential impacts to biological resources to a less than significant level.

4.4 CULTURAL RESOURCES

This section provides information on cultural resources that occur or could occur within the proposed project site, or could be impacted by proposed project activities at Donner Memorial SP. This includes specific information on the historical and archaeological resources in the project's Area of Potential Effect (APE), identified during initial project planning, and potential impacts to these resources from construction and operation of a new museum/visitor center, parking lot, and related support facilities.

4.4.1 Background

4.4.1.1 Prehistory

The prehistoric chronology of the eastern Sierra Nevada first was identified a half century ago in the high country between Lake Tahoe and Truckee (Heizer and Elsasser 1953; Elsasser 1960; Elston 1971; Elston *et al* 1977, Elston 1994). In succeeding years, the chronology has been developed into four prehistoric phases that reach back nearly 11,000 years into Pre-Archaic times. In descending order, the archaeological record of the eastern Sierra Nevada Mountain Range is characterized by assemblages of ground and flaked-stone artifacts associated with the Washoe/ Kings Beach, Martis, Spooner and Tahoe Reach prehistoric phases. Though overlapping in chronological order, these phases sequence into the Pre-Contact Period or Proto-Historic Period; and, the Late, Middle, Early and Pre-Archaic Periods of California prehistory as follows:

Proto-Historic / Late Archaic Periods

Artifacts from the Pre-Contact Period or Proto-Historic Period and latter Late Archaic Period are associated with the Washoe/ Kings Beach prehistoric phases and stone artifacts are usually made of chert and other cryptocrystalline materials. The Kings Beach Phase is divided into Late (A.D. 1800 - 1250) and Early (A.D. 1250 - 650) periods that are mainly distinguished by different projectile point types. Late assemblages contain small desert Side-Notched and Cottonwood points, and early assemblages contain relatively larger Rose Springs and Eastgate points. Artifacts common to both time divisions include chert and cryptocrystalline flaked-stone cores, utilized flakes, and small expediently shaped flaked-stone tools (Elston *et al* 1994; Markley and Henton 1985; Moratto 1984). Projectile points associated with the Late Archaic Period tend to define a gradient between California and Great Basin archaeology as these types of artifacts are found across a much broader range of territory.

Late / Middle Archaic Periods

Earlier artifacts from the Late Archaic Period and Middle Archaic Period are associated with the Martis Prehistoric Phase and stone tools are usually made from basalt. The Martis Phase is divided into Late (A.D. 650 - 2050 B.C.) and Early (A.D. 2050 - 4050 B.C.) periods (Elston *et al* 1994) that are also distinguished by different projectile point types. Late assemblages contain large *atl-atl* (spear) points of the Martis and Elko series, and early assemblages contain projectile points of the Steamboat series. Artifacts common to both time divisions include key-shaped drills, large bifaces and

retouched flakes (Elston *et al* 1994; Markley and Henton 1985; Moratto 1984). The distribution of Martis artifacts within the Sierra Nevada Mountain Range is not fully understood and it has been noted that projectile points from prehistoric sites as far west as the Sacramento Valley of California are similar in both style and material type (Markley and Henton 1985; Wohlgemuth 1984).

Early / Pre-Archaic Periods

Artifacts from the Early Archaic Period are associated with the Spooner Prehistoric Phase (3050 - 6050 B.C.). This phase is comparatively sparse in prehistoric data and remains largely undefined (Elston 1971). Artifacts identified with this phase tend to consist of light colored stone-tools and basalt projectile points of the split stem Pinto and Humboldt Concave Base series (Elston *et al* 1977,1994; Markley and Henton 1985; Moratto 1984). Dating artifacts to the Spooner Phase is problematical as the overall sample size of Pinto and Humboldt projectile points (arrowheads) is relatively small and the range of dates assigned them varies greatly between the regions in which they are found. To an extent, this has impacted their function as reliable time markers in the Sierra Nevada Mountain Range (Elston *et al* 1994). Artifacts from the Pre-Archaic Period are associated with the Tahoe Reach Phase (6050 - 8050 B.C.). Archaeological information from this phase of Sierra Nevada prehistory is comparatively sparser than the Spooner Phase and assemblages have been briefly described as consisting of projectile points of the Parman and Great Basin Stemmed series (Elston *et al* 1994).

4.4.1.2 Ethnography

Territory and Language

Though likely used by other Native American groups, Donner Lake was largely inhabited by the Washoe of the Great Basin. Washoe territory encompassed the eastern Sierra Nevada and extended from the Sierra Nevada crest to Honey and Pyramid lakes on the north, and Walker River on the south (Carlson 1986; d'Azevedo 1986). Their expansive territory brought them into contact with surrounding people, including the Paiute of the Great Basin and the Maidu and Miwok people of California. The Washoe differed significantly from their neighbors as they were the only Great Basin people who were not Numic speakers. In origin, Washoe language is Hokan and it is believed their populations were displaced by later Numic speakers, such as Northern Paiute and the Penutian speaking Maidu and Miwok. Language studies have indicated that the Washoe diverged from the main language body some 4,500 years ago (Kroeber 1976 [1925]).

Socio-Political Structure

The Washoe traditionally consisted of three geographical divisions: the Welmelti or Northerners, the Hugaleti or Southerners, and the Pauwalu or Valley Dwellers. These divisions were not demographically static, as family groups and individuals moved about the entire Washoe territory. Beyond territorial divisions, traditional Washoe society was structured around the Band or Bunch. Bands or Bunches consisted of a group of villages that cooperated in subsistence activities, such as hunting, fishing, and gathering of plant resources. Washoe villages were small and ranged in size from as little as two

households to as many as 10. The household, in turn, was the smallest unit of Washoe society and usually consisted of one extended or nuclear family (Carlson 1986).

Subsistence and Related Ceremonies

The Washoe had extensive knowledge and understanding of their land, which led to a subsistence calendar that was divided into three separate "years": The Fishing Year, Gathering Year, and Hunting Year (Downs 1966:12). Fish were, by far, the most important source of food and the numerous lakes and streams in the Truckee Basin provided an abundance of many species during the spring spawning season. Due to the concentration of such resources, the Fishing Year became a time of heightened social interaction. Dancing and games were held, marriages initiated, and news was exchanged. The Fishing Year was a time when Washoe populations massed together to engage in the same activity (d'Azevedo 1986; Downs 1966). Although fishing would continue throughout the year, many families moved to more arid lowlands as the summer wore on. Here began the Gathering Year, with the ripening of grasses and seeds in the valley. Hunting began in the spring with the appearance of animals and the main focus of subsistence living occurred between late summer and the first snows of winter. Hunting was an exclusively male activity and required years of training and skill, as well as thorough knowledge of associated ritual and magic for continued success (Carlson 1986; Downs 1966).

Religion

While the Washoe embraced a complete theology; their religion dealt largely with matters of daily life, such as hunting, conflict, birth, and death. The Washoe expressed religion in everyday life, as opposed to organized ceremonies on a large scale (Carlson 1986). Myth also played a significant role in Washoe life and Lake Tahoe was central to most myths and legends. Elders passed on religious and secular beliefs through storytelling. The Washoe have at least four creation myths (Downs 1966; Price 1980; Nevers 1976). According to Price (1988) "...the Washoe were primarily concerned [in religion] with understanding origins and active supernatural relationships in the daily world, the maintenance of food available to humans, and controlling diseases acquired by individuals."

Childhood Education

Children were primarily taught lessons of behavior from stories told to them by adults. Such lessons taught respect for elders; avoiding fights; playing quietly; and, refraining from boasting, lying, and stealing. Children also learned their basic roles within Washoe society. The division of labor was relatively well defined, with men primarily as hunters and women frequently as gathers. Training for these roles began in early childhood, with boys taught by their fathers and girls taught by their mothers (Carlson 1986).

European Contact

Although the Washoe first encountered Euro-American people in the mid-1820s, they remained relatively unaffected by contact, as a group, until the Comstock Silver Strike of 1859. During the late 19th century, the expanding economies of mining, ranching, and their related industries had begun to restrict access to the Washoe traditional lands

(d'Azevedo 1986). The tribe managed to coexist in a relatively nonviolent and isolated environment throughout the late 19th century, when it was reported in 1928 (Downs 1966) that "the failure of the Washoe to unite against the white man seems to have resulted in the latter's failure to take notice of the Washoe as a group (Carlson 1986). During the 20th century, the Washoe maintained ties to their traditional lands. Today, they retain links to their ancestral lands, actively promote the development of native traditional practices, and retain strong concerns for the protection of ancient archaeological localities (Carlson 1986).

4.4.1.3 History

The earliest documented exploration of the proposed project area by the United States (U.S.) Government was conducted by the U.S. Army in the mid-1840s. Commanded by John C. Frémont, the expedition made camp south of Donner Lake in Coldstream Valley in December 1845. In the context of national history, Frémont's expedition reflected a growing interest in the American west that emerged in the early to mid 19th century. During this period of history, the Federal government began a program of documenting the geography, resources, and indigenous people who occupied many "uninhabited" regions of the American west such as Donner Lake and surrounding Sierra Nevada Mountains (DPR 2003a; Lindström 1987).

The Stevens-Murphy-Townsend Party of 1844 was the first of many emigrant wagon trains that utilized Donner Lake as a jumping-off point for crossing the crest of the Sierra Nevada Mountains. The route pioneered by the party first passed through the treacherous terrain of the Truckee River Canyon between Donner Lake and the current city of Reno, Nevada. Much of this route was the same as that used by old U.S. Highway 40 and present day U.S. Interstate 80 (I-80). Moses Schallenberger and a handful of men from the Stevens-Murphy-Townsend Party constructed a cabin that subsequently sheltered members of the ill-fated Donner Party two years later (DPR 2003a; Lindström 1987).

The Donner Party consisted of a group of California bound emigrants who were trapped by early snows in late October 1847. Led by wagon master George Donner, 20 wagons in the party unsuccessfully attempted to traverse Donner Pass during one of the earliest and worst recorded winters in local history. Forced to make camp at Donner Lake and nearby Alder Creek, 42 of the party's original 89 members perished with a few of the group reportedly resorting to cannibalism for survival. The entire Breen and Reed families were among the fortunate few to be rescued early the next spring. The isolated and heartbreaking story of the Donner Party in years since has been transformed into a major epic of Sierra Nevada folklore and today is memorialized as the namesake for the current state park (DPR 2003a; Lindström 1987).

Between 1841 and 1848 an estimated 2,600 people immigrated into California from the eastern United States (DPR 2003a; Lindström 1987, 2004). The popularity of Donner Pass, also known as the North Pass, as a trans-Sierra crossing route declined during the mid-1840s as California emigrants began utilizing Greenwood's Cutoff north of Donner Lake to avoid hazards of the Truckee River Canyon. By 1846, Emigrant wagon trains began following a trail that led south of Donner Lake through Coldstream Valley.

This route provided a means of accessing the crest of the Sierra Nevada via the saddle south of Donner Peak known as the Middle Pass or the saddle south of Mt. Judah known as the South Pass. Government Land Office (GLO) surveys from the mid-1860s depict the Emigrant Trail as winding through the Middle and South passes, seemingly suggesting that these were the preferable routes for movement into California. Mormon parties traveling east from California after 1848 established a trail through Carson Pass that eventually became the principal wagon route for travel into and out of California (Lindström 1987).

Seeking gold and other economic opportunities, it is estimated that more than 200,000 people immigrated into California between 1849 and 1860 (Lindström 1987). The *Dutch Flat Enquirer* reported in 1864 that the lower or east end of Donner Lake had developed into "quite a settlement" that included several dwellings, hotels, one store, a blacksmith shop, and an express office (DPR 2003a; Lindström 1987). In May 1860, Samuel King, an important early settler at Donner Lake, filed a Declaration of Intent to acquire 160 acres of unsurveyed land immediately east of the proposed project area in the middle of Township 17 North, Range 16 East, Section 17. A few years later, King also filed an official homestead claim on the property with the intent of taking possession of the land upon the completion of the 1866 GLO survey. An establishment identified as the Donner Lake House appears on the Placer County assessor's records as being situated at the east end of Donner Lake. Though unclear, the records may refer to a business operated by King and another individual identified only as Ingraham. King also purchased a ranch in the vicinity of his acquisition from Angus McPherson in 1864 Six years after his purchase in 1870, King was assessed for property at the foot of Donner Lake that consisted of a barn, hotel, horses, colts, and 20 tons of hay. King abandoned his acquisition in 1871 (Lindström 1987).

Other early settlers in the Donner Lake area included Billy Yeng who owned a house at the foot of the Donner Lake on Donner Lake Road; J.R. Cross who owned a combination dwelling and saloon; B. I. Meeder who operated a blacksmith shop on Donner Lake Road; Potter and Sawyer who operated a meat market a half mile east of Donner Lake that included a stable, four horses, and one butcher wagon; and, Sisson, Egbert and Company who owned a store at the foot of Donner Lake Road. An early business identified as Sisson, Wallace and Company later purchased title the Central Pacific Railroad (CPRR) to the north quarter of Section 17 in Township 17 North, Range 16 East (DPR 2003a; Lindström 1987).

In 1864 using capital most likely generated from the sale of his ranch to Samuel King, Angus McPherson established a water-powered sawmill near the east shore of the lake. This mill marked the beginning of the lumber industry at Donner Lake (DPR 2003a). McPherson also built a hotel in proximity to the lake to supplement his logging operation and to house work crews. McPherson's residence was identified as the Donner Lake Hotel in 1867 (Lindström 1987). Within three years, Angus and his brother John had purchased nearly all the land in the vicinity of Donner Lake and Donner Creek outlet. In 1868, the McPhersons sold their capital interests at Donner Lake to a business identified as the Donner Lake Saw Mill Company.

An early telegraph line was constructed by the California State Telegraph Company through the east and north shores of Donner Lake in 1865. The line made possible communications between Sacramento in California, and Virginia City and Eureka in Nevada (DPR 2003a; Lindström 1987). An 1865 report in the *Union* identified a telegraph office at Donner Lake (DPR 2003a). The location of the office is not known, but the line most likely spanned a portion of east Donner Lake in the vicinity of the proposed project area (Schwaderer *et al* 1987; Schwaderer 1988).

The *Truckee Tribune* reported in 1869 that an establishment identified as the Grant Hotel complete with a bath house and row boat rentals was located at the east end of Donner Lake (Lindström 1987). An 1870 report in the *Pacific Rural Press* placed the location of an establishment identified as the Grant House at 0.75 of a mile from the 1846-47 Donner Party cabins. Lindström (1987) speculates that the latter hotel may have been the earlier Donner Lake Hotel operating under the Grant name in the late 1860s. It is likely that the hotel is one of the two reported in the aforementioned 1864 *Dutch Flat Enquirer* article. The Grant Hotel was leased to Sam Welsch in the years between 1872 and 1877. In 1906, the *Truckee Republican* announced the opening of the Donner Lake House. According to Lindström (1987), the *Truckee Republican* article may have been referring to the previously named Donner Lake and Grant hotels.

As early as 1865, the Towle Brothers established a double steam plant with 4 saws at the east end of Donner Lake. Between 1866 and 1880, the Towle sawmill reportedly operated a double mill steam plant that had a daily capacity for production of 100,000 board feet. This rate of production may be questionable when compared to the productivity of other mills in the region (Lindström 1987). Tax records from 1869 indicate that the Towle sawmill included an engine and boiler, a boarding house and outbuildings, one truck or wagon, and 145,000 board feet of lumber. Somewhat typical of the times, the Towle brothers did not own the property on which their mill operated for several years. It is possible they leased it from the CPRR before finally purchasing the land in 1871. The mill ceased operation in the early 1870s, and the only recorded subsequent activity relating to the mill occurred in 1875 when the CPRR constructed a track to the location to collect 10,000 cords of wood that had been stacked for two years. The Towle brothers sold their remaining property in the Donner Lake area in 1889 (Lindström 1987). Lindström visited Donner Memorial SP in the early 1980s and noted the remains of what appeared to have been a saw mill at about 100 yards west of the Murphy Cabin Site. This area is south of the current Emigrant Museum and most likely is the historic location of Towle brothers sawmill (Lindström 1987).

In the decades between 1860 and the 1920s, ice harvesting also proved to be a successful industry at Donner Lake. In contrast to the surrounding Sierra Nevada, the production of ice was confined to shoreline operations as the main body of the lake never fully froze. Artificial ponds were built along the shore of Donner Lake and Donner Creek. Sawmill ponds that were not in use during the winter were also flooded for ice production (Lindström 1987). During this period, ice production peaked at 35,000 tons for a single year. Companies that worked in the area included the Donner Ice Company and the Sitka Ice Company. The latter is briefly mentioned in an 1874 reference to their building at the east end of Donner Lake being used as a datum point for taking depth

soundings on the lake. The Donner Ice Company (based in Chicago, Illinois) was an active producer of ice in the proposed project area. The company had purchased land in Section 17 of Township 17 North, Range 16 East as early as the mid-1890s, and their main pond was located below the confluence of Coldstream and Donner creeks in the south-half of the northeast-quarter of the section. The pond primarily was fed by Donner Creek and the location most likely has been obliterated by activities related to 20th century highway and interstate construction. Competition from artificial ice manufacturers gradually forced the closure of the ice business and by the late 1920s most companies in the region were no longer in business (Lindström 1987).

Construction of wagon roads between Sacramento and the Sierra Nevada increased rapidly after the mid-1800s. This road building work was the result of large numbers of people moving into the California gold-fields and the ever expanding economy of the state. In 1859, gold and silver were discovered in the Washo Mountains of Nevada, and travel to this region spurred construction of additional roads. The first toll road in the Donner Lake area was constructed between 1857 and 1859. This road was located along the north shore of Donner Lake and was laid out on segments of the latter Dutch Flat and Donner Wagon Road between the north shore of Donner Lake and Donner Pass (Lindström 1987). The opening of the Dutch Flat and Donner Wagon Road in June 1864 provided added impetus for construction of inns and hotels in the Donner Lake and Truckee areas as the road was the most reliable transportation corridor for moving products through the Sierra Nevada before development of the Central Pacific Railroad (CPRR) in 1868 (DPR 2003a).

The CPRR was surveyed and constructed between 1860 and 1869. A small settlement known as Donner City sprang from the camps of railroad gangs staking out in advance of main work crews. Located on the west shore of Donner Lake, it was reported in 1867 that Donner City consisted of “2 hotels, a general store and a saw mill.” The impact of the CPRR on the proposed project area largely was peripheral as this major historic event greatly contributed to the growth of the regional economy and supported the development of many businesses such as the fore mentioned logging and ice production industries (DPR 2003a; Lindström 1987).

Commercial fishing was another business that grew after completion of the CPRR. As early as 1871 two fish hatcheries had been operating in the Donner Lake area and that the facilities had also bred over a half million trout. Both hatcheries were abandoned within 10 years. Another fish hatchery is thought to have operated at the east side of Donner Lake in the late 1880s. According to records of a land transfer in 1889, an unspecified portion of Township 17 North, Range 16 East, Section 18, contained a fish hatchery that was owned by an individual identified as W.H. Krueger. While not within the proposed project area, Kruger’s operation included the fish hatchery, a saloon, a dwelling, a barn corral, a wharf, reservoir tanks, water pipe, hose, eight boats, and the rights to six springs (Lindström 1987).

The large quantities of fish produced by local hatcheries led to another burgeoning industry, tourism. The late 1800s saw a rise in popularity of outdoor activities as people began to focus more on the natural environment as a form of recreation. Unlike other

alpine lakes in the Sierra Nevada Mountains, Donner Lake had the added historical interest of being the site of the Donner Party Tragedy of 1846-47. An early proponent of the current park was Charles F. McGlashan. McGlashan was a Truckee journalist who lobbied for over 20 years to erect a monument to the Donner Party at the location of the Breen Cabin. In 1894 Joseph Marzen, who had owned the land on which the cabin was located, donated one acre surrounding the cabin to McGlashan for the monument.

In 1909, the town of Truckee held a ceremonial ground-breaking for constructing the Donner Monument and cement for the foundation was poured in 1910. Sculpted by John MacQuarrie of San Francisco, the monument was dedicated on June 6, 1918 by the Native Daughters and Sons of the Golden West. The concrete foundation, over 23-ft^2, was designed to cover the floor of the Breen Cabin (DPR 2003a).

In 1920 the Native Sons of the Golden West signed a lease to create a concession next the monument. This concession maintained a gravel road that provided public access to the monument from Highway 40. The Donner Ice Company owned the land surrounding the monument from 1895 to 1907. The Pacific Fruit Company purchased the property from Donner Ice Company in 1908. In 1924 the company conveyed 10 acres immediately surrounding the one-acre parcel to the Native Sons of the Golden West, increasing the monument's acreage to 11. The same year, ownership of the entire parcel was transferred from the then-administrating agency, California Department of Finance, to the newly formed California Division of Beaches and Parks. The Pioneer Monument itself was officially designated California Historic Landmark Number 134 six years later in 1934 (DPR 2003a).

The California Division of Beaches and Parks cancelled the Native Sons of the Golden West concession contract in 1930 and converted their building into the newly formed park's headquarters. By 1948, Donner Memorial SP consisted of the headquarters building, the Murphy Cabin Site, and a total of 344 acres of land. Early topographical survey maps depict the original park administration complex as located immediately north of the existing Emigrant Trail Museum. Development of formal campgrounds followed later land acquisitions, and by 1951 the Creek Campground was opened with two combination buildings that were built to serve public needs. More park improvements came in the early 1960s when the Ridge and Splitrock campgrounds were constructed. Donner Memorial SP was further enhanced on January 20, 1961 when the National Park Service (NPS) bestowed National Historic Landmark status on the Pioneer Monument. The landmark status was revised three years later in 1963 to include both the Murphy Cabin site and the Pioneer Monument. The current Emigrant Trail Museum was opened in 1962 with a goal of interpreting "man's quest to reach the Promised Land - California" (DPR 2003a). Since the mid-1960s, there have been a series of several small land acquisitions and improvements to Donner Memorial SP.

With the rise in visitation to places such as Donner Memorial State Park, came the demand for more reliable roads. In 1909 the State legislature responded to the needs of motorists by appropriating funds for constructing a state highway over Donner Pass to the west end of Donner Lake. The road closely followed the older Dutch Flat and Donner Wagon Road. This road was abandoned in 1925 in favor of the newly paved

Lincoln/ Victory Highway that re-opened the previously disfavored Truckee River Canyon route between Donner Lake and Reno, Nevada (DPR 2003a). The Lincoln/ Victory Highway eventually evolved into U.S. Highway 40 which in time brought a heavy influx of travelers and money. The influx, in turn, promoted many roadside concessions and services to be established along the right-of-way of the highway. California's increasing population throughout the 20th century also created a need for improved roads and highways. Populations pressures eventually resulted in the construction of a new trans-Sierran Highway designated U.S. Interstate 80. Consequently, the new interstate moved the flow of traffic away from Donner Lake and forced many of the roadside services along old Highway 40 out of business (DPR 2003a). Owned and maintained by the town of Truckee, old Highway 40 is currently named Donner Pass Road and is surrounded by open forest land and Donner Memorial SP in the vicinity of the proposed undertaking.

4.4.2 Existing Conditions

Background research, previous archaeological field work, and surface reconnaissance completed for the current undertaking indicate that the proposed project area is situated on two spatially large and adjacent cultural resources. Most project work would be implemented within the eastern most segment of archaeological site Ca-Nev-013/H. This area consists of a contrastingly smaller portion of the site previously identified as Archaeological Loci A, B, C, D and E; and several adjoining sections of land that also include the park residential and maintenance yard (Barker and Pilling 1952; Elsasser 1952; Gilbert *et al* 2001; Hines 1986; Lindström 2004; Riddell 1980; Schwaderer *et al* 1987; Schwaderer 1988). The proposed project area contains a portion of the National Register of Historic Places (NRHP) listed National Historic Landmark No. 66000218 and California Historical Landmark No. 134 (Larew 1978). The former property is identified as the *Donner Camp Sites* and the latter as the *Donner - Pioneer Monument*. The remaining acreage of the proposed undertaking involves a comparatively smaller and newly recorded segment of Donner Pass Road, identified as historical site Ca-Nev-012 (no historic [H] modifier indicated) (Lindström 2000). Ca-Nev-012 also is referred to as the Emigrant Trail, Lincoln/ Victory Highway, and "old" U.S. Highway 40 (Lindström 2000). The former resource (Ca-Nev-013/H) is located on state-owned land and within the boundaries of Donner Memorial SP. The latter resource (Ca-Nev-012) is currently owned and maintained by the Town of Truckee.

Ca-Nev-012 (Donner Pass Road, Lincoln Highway, Old U.S. Highway 40)

Ca-Nev-012 is a relatively large historic resource that encompasses an estimated 23,650 linear-feet of Donner Pass Road, South Shore Drive, and other connected side streets and paths. The road is currently owned by the Town of Truckee and spans an estimated distance of 3.5 miles between the I-80 interchange east of Donner Memorial SP and the base of Donner Summit. The Area of Direct Impact (ADI) for the proposed project involves a segment of Ca-Nev-012 that recently was recorded in support of the proposed undertaking (Brooke and Sykes 2004). The segment includes a 0.5 of a mile of Donner Pass Road located immediately west of the I-80 interchange. Proposed project work will involve construction of one access road/deceleration lane for the new facility. The proposed ADI consists largely of one currently operating roadway that, as a

result of frequent maintenance and development activities, has been structurally impacted numerous times within the last 50 years, as has the remaining portion of the site. Such alterations are exemplified by re-paving projects and the installation of numerous subsurface telephone, fiber optics cable, power, sewer, and water utility lines, poles, conduits, cables, and supporting facilities. The earliest 19th century elements have been obliterated by construction and upkeep of the current roadway; however, Donner Pass Road retains historic qualities related to early automotive transportation.

Ca-Nev-013/H

Ca-Nev-013/H is a large archaeological resource that has been surveyed, documented, and expanded numerous times since its initial recordation in the early 1950s (Barker and Pilling 1952; Elsasser 1952; Gilbert *et al* 2001; Hines 1986; Riddell 1980; Schwaderer *et al* 1987; Schwaderer 1988). In succeeding years of DPR management, definition of the resource has been modified, from three discrete locales to a single archaeological site (Gilbert *et al* 2001; Riddell 1980; Schwaderer *et al* 1987; Schwaderer 1988). A portion of Ca-Nev-013/H, located within the proposed project area and near the Emigrant Trail Museum, overlaps the boundaries of National Historic Landmark No. 66000218, and California Historical Landmark No. 134 (Larew 1978). Associated with the Donner Party Tragedy, the National Historic Landmark is identified as the Donner Camp Sites and includes the locations of the Murphy Cabin and Donner - Pioneer Monument. The California historical landmark is identified as the Donner - Pioneer Monument (Larew 1978).

Area of Direct Impact

Defined as the Area of Direct Impact (ADI), the portion of Ca-Nev-013/H on which proposed project work would be implemented is located in the easternmost portion of Ca-Nev-013/H and includes portions of the national and state historic landmarks. The bulk of the site in this area has been recorded as Archaeological Loci A, B, C, D, and E (Gilbert *et al* 2001; Schwaderer 1988; Schwaderer *et al* 1987). All ground in the current project area not so designated in previous cultural resource surveys was attached to adjoining loci to better facilitate archaeological data sampling and recording for the proposed undertaking. Background research and archaeological survey completed in support of the proposed undertaking identified a total of 26 previously recorded cultural features and nine new cultural features in the currently defined ADI. A total of 31 of the features are historic and the remaining four are prehistoric (Brooke *et al* 2005).

4.4.3 Regulatory Setting

Because the proposed undertaking would be primarily funded by an Intermodal Surface Transportation Enhancement Act (ISTEA) grant from the Federal Highway Administration (FHWA), certain federal “cross-cutting” environmental regulations apply. Among these is Section 106 of the National Historic Preservation Act (NHPA), which will guide DPR in studying and managing the effects of project work on cultural resources. DPR staff will coordinate its Section 106 compliance process with the California Department of Transportation (Caltrans). As administrator of ISTEA grants in California, Caltrans oversees Section 106 compliance on these grants on behalf of FHWA.

National Historic Preservation Act

As noted above, use of federal funds for the proposed undertaking requires compliance with Section 106 of the NHPA. Described in the Code of Federal Regulations (CFR), Title 36, Section 800; Section 106 compels all undertakings funded by federal agencies to take into account the effects of their actions on historic properties and provide the Advisory Council on Historic Preservation (ACHP) with the opportunity to comment on procedures implemented for cultural resource management. The NHPA defines an "historic property" as an archaeological, historic, or traditional cultural resource included in or determined eligible for inclusion on the NRHP. Historic properties can be, but are not limited to, a variety of resources, including districts, landscapes, sites, buildings, and objects. In brief, Section 106 (36 CFR 800) requires federally supported and implemented undertakings to:

- Identify the Area of Potential Effects (APE) for the proposed undertaking, as defined by 36 CFR 800.3; and identify all cultural resources within the APE that are included on or eligible for inclusion on the NRHP (as described in 36 CFR 800.4).

- For the duration of the proposed undertaking, enter into a program of consultation with appropriate parties to gain their input on the cultural resource identification process and provide an opportunity for comment on all steps of Section 106 compliance (as described in 36 CFR 800.3). Consulting parties include the State Historic Preservation Officer (SHPO) or Tribal Historic Preservation Officer (THPO); Native American groups and individuals affiliated with the project vicinity, local historical societies; local governments; and other interested groups and individuals.

- Prepare Determination of Eligibility (DOE) and Finding of Effect (FOE) documents (as described in 36 CFR 800.5) that identify the significance (NRHP eligibility) of cultural resources identified in the APE and any adverse effects the proposed undertaking would have on "historic properties" (see definition, below)

- Resolve adverse effects on historic properties by entering into a Memorandum of Agreement with the ACHP and the SHPO on measures that shall be taken to avoid, reduce, or mitigate the project's impacts on the qualities that make the properties significant.

National Register of Historic Places (NRHP)

The NRHP is a nationwide list of cultural properties that are at least 50 years in age and exhibit qualities of historical significance in the context of our national heritage. Buildings, historic districts, archaeological sites, etc. that meet one or more criteria for inclusion on the NRHP are defined as "historic properties" in the context of the NHPA. The National Register is maintained for the United States Department of the Interior (DOI) by the DOI - National Park Service (NPS). California, in turn, maintains an Office of Historic Preservation (OHP) to administer NRHP listings at the state level. Headed by the State Historic Preservation Officer (SHPO), the OHP manages NRHP listings by reviewing nominations and forwarding recommendations for inclusion to the Advisory Council on Historic Preservation (ACHP). To benefit future generations, the NRHP

serves as the primary record of our national heritage. Inclusion on the NRHP affords a property special considerations for federal tax incentives, grants, and loans.

Criteria for Evaluating the Historical Significance of a Cultural Resource

To achieve status as a Historic Property, a cultural resource is subjected to a two-step qualitative analysis of historic significance. First, the cultural resource must meet at least one of four Criteria for Evaluation, outlined in 36 CFR 60. These criteria indicate a specific category or categories of significance to which a given resource must be associated. The Criteria for Evaluation are defined as:

- **Criterion A:** Event(s) – Association with events that have made a significant contribution to the broad patterns of our history.

- **Criterion B:** Person(s) - Association with the lives of persons significant in our past.

- **Criterion C:** Design/ Construction – Resources that embody of distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction.

- **Criterion D:** Information Potential – Resources that have yielded, or may be likely to yield, information important in prehistory or history.

Each resource meeting one or more of the four criteria must also convey historical significance by exhibiting sufficient aspects of Integrity. Integrity refers to how much of the original physical and/ or cultural context of a resource is still evident. The integrity of a resource is assessed by identifying at least two of seven aspects of integrity. These aspects include location, design, setting, materials, workmanship, feeling, and association. An assessment of sufficient integrity demonstrates that satisfactory links to the physical and/ or cultural origins of a Historic Property remain in its present state.

The Native American Graves Protection and Repatriation Act of 1990 (43 CFR 10)

The Native American Graves Protection and Repatriation Act (NAGPRA) requires both consultation and consent from “appropriate” Native American tribes prior to the intentional excavation, or removal after inadvertent discovery, of Native American cultural Items. NAGPRA defines Native American cultural Items as human remains, associated funerary objects, unassociated funerary objects, sacred objects, and items of cultural patrimony. The Native American consultation process described above will include the development of agreements for managing inadvertent discoveries of Native American burials, funerary objects, and other cultural Items protected under NAGPRA.

California Environmental Quality Act (CEQA)

CEQA requires projects that are approved or funded by state agencies to assess the effects of project work on historical resources. A Historic Resource is defined as any cultural resource determined eligible for listing or listed on the California Register of Historical Resources (CRHR). Historic Resources are also defined in the California Public Resources Code (PRC), Section 5020.1(j) as, but not limited too, any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California. California PRC 5020.1 also includes NRHP-listed or eligible Historic Properties as Historic Resources.

As defined by California State Health and Safety Code, Section 7050.5, and PRC 5097.98, the inadvertent discovery of human remains requires cessation of project work relative to the find until an assessment of the remains, including determination of origin and deposition, is completed by the County Coroner, in consultation with the NAHC and/or appropriate Tribal representative(s). In the event of inadvertent discoveries, an ongoing program of Native American consultation provides an opportunity for Most Likely Descendants to participate in the identification, evaluation, and mitigation of impacts to human remains and funerary objects.

California Register of Historic Resources (CRHR)

The CRHR is a statewide list of Historic Resources with qualities assessed significant in the context of the state's heritage. The register is maintained by OHP and listings are managed in much the same way as described for the NRHP. Criteria for evaluating the historical significance of Historic Resources at the state level, including integrity, are also similar to NRHP requirements. As defined by PRC 5024.1(a), the CRHR functions as an authoritative guide that is intended to be used by state and local agencies to indicate types of cultural resources that require protection, to a prudent and feasible extent, from project-related substantial adverse changes.

4.4.4 Thresholds of Significance

An impact to the cultural resources of the area would be considered potentially significant under CEQA if implementation of the proposed project would result in any of the following:

- Cause a substantial adverse change in the significance of a historical resource, as defined in CEQA Guidelines §15064.5.
- Cause a substantial adverse change in the significance of an archaeological resource, pursuant to§15064.5.
- Disturb any human remains, including those interred outside of formal cemeteries.

Steps in Determining a Substantial Adverse Change to a Historic Resource

California PRC 5020.1(q) defines a substantial adverse change as one in which the demolition, destruction, relocation, or alteration of a cultural resource is such that its historical significance is impaired. CEQA requires all state funded or approved projects,

as well as those implemented by state agencies, that could result in impacts to Historic Resources to consider alternative plans and/ or measures for mitigation. As defined by PRC Title 14, Chapter 3, Section 15064.5, CEQA guidelines for determining if a proposed project would result in substantial adverse changes to Historic Resources is much the same as defined under federal regulations for Section 106 and entail the following actions:

- Identify cultural resources and previously documented Historic Resources/ Historic Properties in the proposed project area through a combination of background research, field survey, and consultation with appropriate Native American groups and other appropriate parties.

- Prepare a studied evaluation of the historical significance of cultural resources in the proposed project area that determines the resource status as Historic Resources/ Historic Properties eligible for listing on Federal and State registers.

- Prepare a determination of project impacts to eligible and listed Historic Resources/ Historic Properties and implement alternative project plans and/ or measures for mitigating substantial adverse changes to such properties.

4.4.5 Environmental Impacts and Mitigation Measures

4.4.5.1 Construction Impacts - Ca-Nev-013/H

Cultural Resource Impact Cult-1

The proposed HSC Museum project consists of three construction elements with the potential to significantly impact the contents and integrity of archaeological site CA-Nev-013/H, located within and surrounding the proposed project site. These activities include:

- General ground-disturbing activities associated with the construction of the museum building and support facilities, including walkways, bike/pedestrian paths, parking lot, and access road.
- Subsurface installation of sewer connections and pump station; water, gas, and electrical utilities; and storm-water collection and treatment system.
- Construction of temporary staging areas for equipment and material storage and on-site contractor work trailers.

The historical significance of archaeological data in the proposed project's Area of Direct Impact (ADI) has not been determined and therefore must be considered potentially eligible for the NRHP and CRHR. Before construction would begin on the proposed project, DPR will evaluate the significance of archaeological resources in the ADI, identify adverse effects the project would have on significant resources, adopt and implement measures to mitigate any such impacts or reduce them to the greatest feasible extent.

Impacts from the proposed project must be considered a potentially significant irreversible environmental change for the purposes of this environmental document for the following reasons:

- The proposed project area is known to contain archaeological resources that could be historically significant.
- There is a potential for substantial impacts to these resources from proposed project activities.
- The significance of the resources cannot be determined at this time.
- It is not known whether any potential impact can be mitigated to a less than significant level. If mitigable, it is not known if the required mitigations would be feasible or enforceable, as defined under CEQA.

Cultural Resource Mitigation Measure Cult-1

a) Evaluation of the proposed project's APE (see Figure 4.4-B) to determine the extent and significance of Ca-Nev-013/H and the potential for significant impacts to cultural resources contained within that site from implementation of the proposed project would proceed as follows:

<u>Phase I</u>

Background archival research of cultural literature, field survey, and consultation with appropriate parties would be performed, in compliance with the Regulatory Setting for Section 106 of the NHPA. DPR-qualified cultural resource specialists would inventory archaeological data and elicit concerns of Native American groups, historical societies, governing agencies and other individuals relevant to the proposed action. Information gathered from this process would be used to identify the full scope of archaeological resources in the proposed ADI. The findings of Phase I studies would ultimately determine the amount of work necessary to complete the next phase of cultural resource evaluation. The findings would be presented in an Archaeological Survey Report (ASR) that meets Caltrans format and content requirements, prior to the commencement of Phase II.

<u>Phase II</u>

Archaeological data identified during the Phase I studies would be assessed for historical significance against Federal and State criteria. This process would be identified in a mandatory Phase II Research Plan that outlines the program for test excavation and determining NRHP eligibility of recovered materials. Procedures for the latter are described above in the Regulatory Setting under Criteria for Evaluation. Typically, test excavation programs would consist of a series of 1.0-cubic meter (m^3) excavation units that are dug in standard intervals of 10.0 or 20.0-centimeters (cm). The total quantity of units is ultimately dependent on the size of the proposed ADI; testing may consist of as many as nine units per acre. In compliance with Section 106, the results of the assessment of historical significance would be finalized in a Determination of Eligibility (DOE) report. The DOE indicates which archaeological data in the proposed ADI were found, during the Phase II management process, that qualify for listing on Federal and State historical

registers and, in the case of the current undertaking, if these data are also contributing elements to the Historic Property/ Historic Resource located near the Emigrant Museum. The need to implement Phase III of the proposed evaluation (see below) would be dependent on the findings of the DOE, which may conclude with either of the following:

1. If the DOE finds archaeological properties in the proposed ADI are not eligible for listing on Federal and State historic registers or contributing elements to the NRHP and CRHR listed properties near the Emigrant Museum, no further management activities would be required as impacts from the proposed action would be considered to have been reduced to a less than significant level with implementation of Section 106 management Phases I and II.

2. If the DOE finds archaeological properties in the proposed ADI eligible for listing on Federal and State historical registers or to be contributing elements to the NRHP and CRHR listed properties near the Emigrant Museum, the proposed action would result in a substantial adverse change to the identified archaeological resource or resources and Phase III (data recovery mitigation) would be implemented to mitigate the effects of the proposed action on the eligible property or properties.

<u>Phase III</u>

If the Phase II DOE results in a finding of eligibility [see Phase II(b) above], a Phase III Research Design would be prepared, identifying actions to be taken by DPR-qualified archaeologists to mitigate the affects of the proposed action on the potentially eligible property or properties. The Phase III Research Design would be prepared by DPR cultural staff and approved by Memorandum of Agreement (MOA) between DPR, Caltrans, California OHP, and the ACHP, prior to implementation. The Phase III Research Design would outline a frequency of excavation more exhaustive than completed for the previous phase of management work and define the level of analysis required to determine the extent of the impact from the proposed action on the potentially eligible property or properties. Implementation would occur prior to or in conjunction with the proposed construction activities, as defined in the Phase III Research Design. The results of this work would be finalized in a Data Recovery Report that, as for all previous phases of work, is required to be submitted for approval by Caltrans environmental staff before Phase III management would be considered complete.

As Caltrans represents the Federal Highway Administration (FHWA) in overseeing Section 106 compliance for the proposed undertaking, DPR would prepare and submit proposals and reports described above to Caltrans for federal lead agency review and approval before implementation.

b) Ground-disturbing work would be monitored by a DPR-qualified archaeologist as deemed necessary following completion of Cult-1(a) testing protocol. After the completion of Phase III work, archaeological monitoring will be implemented at the discretion of the DPR-archaeologist during construction as an added precautionary

measure. In the event that previously undocumented cultural resources are encountered during project construction (including but not limited to dark soil containing shellfish, bone, flaked stone, groundstone, or deposits of historic trash) and a DPR-qualified archaeologist or monitor is not on-site, the State Representative would be contacted immediately and work within the immediate vicinity of the find would be temporarily halted or diverted until the find has been evaluated and appropriate treatment and disposition of the artifact(s) has been implemented.

1. The DPR Northern Service Center Cultural Resource Section would be notified a minimum of three weeks prior to the start of ground-disturbing work to schedule monitoring, unless other arrangements are made in advance.

c) The Native American Heritage Commission and local Native American tribal representative(s) would be consulted prior to the start of work to determine their level of involvement [see Cult-1(a) Phase I above]. A Native American monitor would have the option of being present during all ground-disturbing activities, including test excavations.

4.4.5.2 Discovery of Human Remains and Associated Cultural Items

Cultural Resource Impact Cult-2

Previous archaeological work and field survey completed for the current undertaking identified no cemeteries or human remains in the proposed ADI (Barker and Pilling 1952; Brooke 2004; Elsasser 1952; Gilbert *et al* 2001; Hines 1986; Lindström 2004; Riddell 1980; Schwaderer *et al* 1987; Schwaderer 1988). Additionally, the high rate of precipitation and acidity of the soil in the Sierra Nevada tends to rapidly decay organic materials (United States Department of Agriculture, Soil Conservation Service and Forest Service [USDA, SCS & USFS] 1974:10, 75, 83). The potential for discovery of or impact to cemeteries or human remains in the project's APE is less than significant. However, should the proposed action result in an inadvertent discovery of human remains, their removal would constitute a significant irreversible environmental change.

Cultural Resources Mitigation Measure Cult-2
Protection and Remediation for Impacts to Human Burial Sites

In the event that human remains are discovered during project-related activities, project work must cease in the area of the find and the project manager/site supervisor would immediately notify appropriate DPR personnel. Any human remains, including apparent Native American burials and associated cultural items, would be left in place or returned to the point of discovery and covered with soil. The DPR Sector Superintendent (or authorized representative) will notify the County Coroner, in accordance with §7050.5 of the California Health and Safety Code, and the Native American Heritage Commission (NAHC) or Tribal representative. If a Native American monitor is on-site at the time of the discovery, the monitor would be responsible for notifying the appropriate Native American authorities.

The local County Coroner would make the determination of whether the human bone is of Native American origin, in consultation with the NAHC or Tribal representative. In

many of California's historic town sites and rural communities, discoveries have been made of non-Native American human bone, including non-Anglo. If the coroner or tribal representative determines the remains represent Native American interment, the Native American Heritage Commission (NAHC) in Sacramento and/or tribe would be consulted to identify the Most Likely Descendant(s) and assist in determining and appropriate disposition of the remains.

Work would not resume in the area of the find until proper disposition is complete (PRC §5097.98). No human remains or funerary objects would be cleaned, photographed, analyzed, or removed from the site prior to determination. If it is determined the find indicates a sacred or religious site, the site would be avoided to the maximum extent practicable. Formal consultation with the State Historic Preservation Officer and review by the NAHC and/ or the Tribal Cultural representatives would also occur as necessary to define additional site mitigation or future restrictions.

4.4.6 Effects Considered to be Less than Significant

4.4.6.1 Construction on Donner Pass Road (Ca-Nev-012)

The proposed action consists of constructing new entry and exit lanes along the shoulders of historical resource Ca-Nev-012. This resource is potentially eligible for the NRHP under Criteria A (events) and B (lives of important figures); and, while also impacted by numerous modern activities, under Criterion C (methods of construction), as the current roadway is exemplary of the use of topography in historical highway construction. Although Ca-Nev-012 retains its ability to convey a sense of time and place older than 50 years, and the road's structure, route and grade appear much the same as originally constructed for old U.S. Highway 40, no formal determination of NRHP eligibility has been proposed for this resource.

Implementation of the proposed action would not result in a substantial adverse change to Ca-Nev-012 and mitigation for the current undertaking is not necessary as the resource is part of a contemporary road system that has been frequently altered by maintenance and development activities within the last 50 years. As a modification to a contemporary roadway, the proposed action would be consistent with the present use of Donner Pass Road and would not impact attributes of the resource associated with important events (A), lives (B); would not change the placement of Ca-Nev-012 on the topography; and would not degrade any qualities that demonstrate exemplary methods of historic construction (C). The proposed action would not impact the integrity of the site as the route and grade of Donner Pass Road would remain within the present alignment and the proposed ADI does not contain any cultural elements, beyond the resource itself, that convey feelings of time and place older than 50 years.

The proposed action would be consistent with contemporary non-historic alterations to Donner Pass Road, and would not result in a substantial adverse change to the qualities that may make this linear, non-archaeological historical resource eligible for listing on the NRHP and/or CRHR.

4.4.7 Findings

For cultural resources evaluated as part of this environmental document, the potential existed for a substantial adverse change in the significance of an archaeological resource as a direct or indirect result of proposed project activities. As noted in 4.4.5.1 Impact Cult-1 above, impacts from the proposed project must be considered a potentially significant irreversible environmental change for the purposes of this environmental document for the following reasons:

- The proposed project area is known to contain archaeological resources that could be historically significant.
- There is a potential for substantial impacts to these resources from proposed project activities.
- The significance of the resources cannot be determined at this time.
- It is not known whether any potential impact can be mitigated to a less than significant level. If mitigable, it is not known if the required mitigations would be feasible or enforceable, as defined under CEQA.

Full implementation of the additional testing and recovery procedures recommended in the Phase II DOE and contained in the Phase III plan would reduce the potential effects on the site from proposed project activities to the greatest extent feasible.

The potential for the project to cause a substantial adverse change in the significance of a historical resource or to disturb any human remains was determined to be less than significant. However, should the proposed action result in an inadvertent discovery of human remains, their removal would constitute a significant irreversible environmental change. The recommended mitigations would reduce the potential effects of the removal of the human remains and any associated artifacts to the greatest extent feasible.

4.5 GEOLOGY AND SOILS

This section provides information on the geology and soils that occur or could occur within the proposed project site; identifies geologic hazards in the vicinity of the proposed project location, such as earthquake potential; and analyzes issues related to project activities, including potential exposure of people and property to geologic hazards, landform alteration, and erosion. This analysis is based on review of technical studies performed for the project applicant, published geotechnical studies, and field reviews. Related issues, including hydrologically-based soil erosion and impacts to water quality, also discussed in Section 4.7, Hydrology and Water Quality.

4.5.1 Existing Conditions

4.5.1.1 Regional Setting

Donner Memorial SP lies near the crest of the Sierra Nevada, in the Sierra Nevada geomorphic province. The Sierra Nevada range is a west-tilting, 350-mile long granitic block, intruded in the early Mesozoic, then uplifted from the east along the Frontal Fault system (see Figure 4.5-B) and faulted in the Tertiary during the formation of the Basin and Range province to the east. This granite batholith is composed almost entirely of Mesozoic granite to granodiorite plutons, which enclose remnants of older Mesozoic deep marine volcanic and sedimentary rocks (roof pendants). Donner Memorial SP lies within the Truckee basin, a downdropped region that formed by both warping and faulting in the Plio-Pleistocene (Birkeland 1963). The basin is bounded by faults as shown Figure 4.5-B.

A period of intense volcanic activity in the Late Cenozoic (Pliocene to Pleistocene) has covered portions of the granitic batholiths with a variety of volcanic rocks. During the Pleistocene, at least four major episodes of glaciation occurred in the Sierra Nevada. The Donner Creek valley was filled with a valley glacier that further carved it into its present, distinctive U-shape. Recessional moraines dammed Donner Creek and created Donner Lake.

The primary source for the geology of the Donner-Truckee area is an unpublished 1961 Ph.D. thesis by Peter Birkeland. The information from this thesis was included on the Chico Sheet (Burnett & Jennings 1962). Subsequent papers by Birkeland (1963, 1964) were reviewed as part of the preparation of this EIR, as well as other documents and data sources listed in the Reference Section.

4.5.1.2 Topography

Donner Memorial SP is located in the Town of Truckee, 12 miles west of North Lake Tahoe and 100 miles east of Sacramento, off Interstate 80 (DPR 2003a). The core area of the park is characterized by the relatively flat topography of the Donner Creek and Coldstream Valleys. Four low ridges, 10-20 feet high and spaced 600 to 1,500 feet apart, extend on a northeast trend across the core area of the park. These ridges are the remnants of recessional moraines left by the retreating Pleistocene glaciers. Between the ridges are low areas with small drainages and some marshy areas. The lowest elevation

of approximately 5,880 feet occurs where Donner Creek exits the park to the east. The highest point within the existing park is in excess of 7,400 feet, at the top of Schallenberger Ridge.

Slopes are gentle within the core area of Donner Memorial SP, ranging from 0% to 9%. To the south, Schallenberger Ridge rises abruptly, with slopes up to 88%. Some slopes within the Cold Creek drainage range from 36% to 88% on Schallenberger and parallel ridges.

The proposed project site is located to the northwest of the existing Visitor Center and parking area, and south of Donner Pass Road (Old Highway 40). The topography in the area of the proposed building site is relatively flat at an elevation of 5,934-5,936 feet above mean sea level and slopes downward to the east toward Donner Creek. The location of the proposed parking area to the south is also relatively flat and contains some large scattered boulders.

4.5.1.3 Rock Units and Ages

The oldest rocks in the Donner area are Triassic to Jurassic metamorphosed sedimentary and volcanic rocks, found in roof pendants associated with the granitic batholith (Birkeland, 1963). No known roof pendant rocks are present in Donner Memorial SP. The next oldest are the granitic rocks of Cretaceous age. These rocks do not appear to crop out within the park boundaries, but they do underlie the volcanic rocks at some depth. The youngest rocks are volcanics that were erupted during the Pliocene and the Pleistocene. Figure 4.5-D is a general geologic map of the Donner area (Burnett & Jennings 1962).

Granitic Rocks

The most abundant granitic rock in the Donner area is granodiorite, with lesser amounts of quartz diorite, diorite, and gabbro in smaller bodies (Burnett 1971). The age of these rocks is approximately 106 million, +/- 2 million years.

Volcanic Rocks

Extensive flows of Tertiary and Quaternary volcanics cover large expanses in the Donner area, forming thin caps on the high peaks. The Tertiary rocks are mostly massive, thickly-bedded volcanic mudflows (breccias), ranging in age from 2.6 to 7.4 million years (Burnett, 1971). The largest volume of volcanic mudflows in the Donner area was erupted in the late Pliocene (< 2 million years old). The younger, thinner flows of andesite, basalt, and latite were erupted after the close of the Pliocene, in Pleistocene time.

Birkeland (1963) also mentions Tertiary rhyolite and andesite tuffs in the Donner Pass area. Younger andesite tuff breccias and flows are also present. Volcanic rocks observed by the author on the unnamed ridge south of Schallenberger Ridge appeared to be basalt/latite and rhyolite tuff, possibly welded.

Pleistocene to Recent Alluvium

Alluvium associated with Donner Creek and Cold Creek have been regionally mapped, but not studied in detail within the park. The glacial moraine and outwash deposits cover

much of the core area of Donner Memorial SP. At least three recessional moraines have been identified within the park (Birkeland 1964) and a fourth seems evident, based on a 1959 topographic park map. Glacial moraine deposits, called till, are usually unstratified mixtures of clay, silt, sand, gravel, and boulders. Glacial outwash deposits are sand and gravel deposited by streams fed by the melting glacier.

The glacial deposits that occur in the core area of Donner Memorial SP have been identified as the Tioga Till, the youngest of the glacial deposits (Birkeland, 1964). The age of the Tioga Till is 19,000 to 26,000 years (Guyton 1998). Older tills are present to the east and may have occurred in the park, but have been removed or reworked during deposition of the younger deposit.

A preliminary geotechnical investigation (Geocon 2005) included six (6) soil borings in the area of the proposed new visitor center. The soils encountered are described as glacial till consisting of an upper zone of medium dense, dark brown silty sand with gravel, grading to dense to very dense sandy gravel to gravelly sand below 3 to 5 feet in most borings. All borings were terminated at 19.5 to 20 feet below ground surface (bgs). Groundwater was encountered in the boreholes at depths ranging from 10 to 18 feet bgs.

4.5.1.4 Geologic History and Tectonic Setting

Sierra Nevada Batholith

During the Paleozoic (575 to 270 million years ago), the area now occupied by the Sierra Nevada was beneath the ocean. Eroded sediments from the proto-North American continent (then part of Pangea) to the east were deposited in this ocean environment, resulting in accumulations up to tens of thousands of feet thick. At the end of the Paleozoic, the supercontinent of Pangea began to break up and the North American continental plate began to move westward. It overrode the Farallon plate, which was moving eastward. The Pacific Plate was even further to the west at this point in time. The Farallon plate was forced underneath the North American plate, forming a subduction zone. The resulting high pressures and temperatures generated during subduction caused melting of portions of both plates, creating plumes of magma. This magma rose through the overlying Paleozoic marine sediments, metamorphosing them and erupted on the surface to create a chain of volcanoes (island arc) called the Sierran Arc Volcanoes. These volcanoes eventually collided with and became accreted onto the North American continent.

Around 70 million years ago in the Cretaceous period, the North American Plate separated from Europe and sped up its westward movement. The Farallon plate subduction angle became shallower and continued to scrape along the underside of the North American Plate for 50 million years until it was completely subducted. As the Farallon plate was consumed, a transfer of stress eastward contributed to the uplift of the Rockies and ended the ongoing creation of the Sierran Arc Volcanoes. The magma chambers that fed the extinct Sierran Arc Volcanoes cooled slowly at depth over tens of millions of years to form granitic rocks.

About 4 million years ago during the Pliocene, a fault line along the boundary of the ancient Sierran Arc terrane and the Mono Basin became active. Earthquakes along the

Sierra-Mono Fault or Frontal Fault system caused the crust east of the fault to sink and west of the fault to tilt upwards, bringing the granitic basement rocks to the surface. This tilted block of granitic rocks, the Sierra Nevada batholith, has a very steep eastern slope and a gentler slope to the west. Periodic earthquakes continue to push the Sierra Nevada upward at a rate of about 1 mm/year, while the eastern Mono Basin continues to sink (U.S. Forest Service 2001).

Cenozoic Volcanic Activity

During the Pliocene and into the Pleistocene, a period of volcanic activity began. Extensive lava flows of varying composition, as well as mudflow breccias and ash deposits blanketed the granitic rocks. The composition of these rocks is discussed in the preceding *Rock Units and Ages* section.

The vents for these volcanic rocks are not known, except for the Quaternary (Pleistocene) cinder cones that have been identified (Burnett 1971). Since the volcanic rocks in the Truckee area correlate to rocks in Nevada (Birkeland 1963), some of the sources for the volcanic rocks may be to the east in the Carson Range of Nevada.

Pleistocene Glaciation

The Earth's most recent Ice Age occurred during the Pleistocene epoch (1.6 million to 10,000 years ago). Changes in several astronomical conditions that determine the amount of solar heating can trigger an ice age (Guyton 1998). The Pleistocene Ice Age saw the advance and retreat of the glaciers many times. At least four major glaciations have been recorded in the Donner-Truckee area (Birkeland 1964). They have been named, in order of oldest to youngest: Hobart, Donner Lake, Tahoe, and Tioga.

The type of glaciation that occurred in the Sierra Nevada was called mountain (or alpine) glaciation, in contrast to the continental glaciation that produced large ice sheets in the eastern United States. As the glaciers advanced down the existing Donner Creek Valley, they carved out rock on the sides and bottom, transforming the initial V-shaped stream-cut valley to the classic U-shaped glaciated valley we see today.

During the Tioga glaciation, the glacier advanced and retreated several times. At least three recessional moraines have been mapped within the main area of Donner Memorial SP. Donner Lake formed behind the natural dam created by a recessional moraine. It has been modified today with a manmade dam. The proposed building location and most of the project area lies to the east of one of the recessional moraines. The proposed new overflow parking lot may be within or adjacent to the moraine that borders Donner Creek.

4.5.1.5 Paleontological Resources

No known paleontological resources have been documented in Donner Memorial SP. Some fossils may be present in the volcanic ash and tuff, both in outcrop and in glacial till deposits.

4.5.1.6 Faults and Seismicity

The area around Donner Memorial SP is seismically active; micro-earthquakes of magnitude 2 to 3 are quite common. These earthquakes usually occur to the north of Donner Memorial SP on the unnamed faults shown on Figure 4.5-B. Some of the larger quakes occur in the Mohawk Valley Fault Zone (see Figure 4.5-A), which is part of the Frontal Fault system that marks the eastern boundary of the Sierra Nevada (Wakabayashi & Sawyer 2000).

Historical earthquakes (1769 to present) of higher magnitude have also occurred. In 1857, an earthquake of magnitude 6.3 (M-6.3) occurred approximately 13 miles southeast of the park and approximately 1.5 miles northeast of Martis Peak, near the Nevada border. In 1914, the Truckee region experienced two quakes within a two-month period; a M-5.5 in February followed by a M-6.0 in April. In 1966, a M-6.0 also struck near Truckee on a unnamed fault (or possibly the Dog Valley Fault), shown on Figure 4.5-B and labeled as S-6.

4.5.1.7 Seismic-Induced Effects

Surface Rupture and Ground Shaking

Since no known earthquake faults traverse Donner Memorial SP, the possibility of ground rupture is considered negligible. The closest known active fault and source of potential ground motion is the Mohawk-Honey Lake Fault Zone, located approximately 5 miles from the park (Geocon 2005). This fault is capable of generating an earthquake with a Maximum Moment Magnitude of 7.3 on the Richter scale, and is classified as a “Type B source”. According to the Seismic Shaking Hazard Maps of California (CGS 2005), the peak ground acceleration expected in the Donner-Truckee area for alluvium is 0.33g (g = acceleration due to gravity). Any new structures built in the park must take this potential ground acceleration into consideration and the appropriate seismic requirements in the most current edition of the California Building Code (CBC) must be followed. The CBC seismic design parameters for the project area have been provided in the preliminary geotechnical report (Geocon 2005).

Liquefaction

Seismic-induced ground motion can cause liquefaction. Liquefaction occurs when water-saturated sediments are subjected to extended periods of shaking, causing increases in the water pressure of soil pores and a temporary alteration from soil to a liquid state of the soil. The result is a loss of soil strength, which causes the failure of adjacent infrastructure, such as bridges and buildings. The degree of resistance to liquefaction depends on a number of factors, including soil grain-size, degree of compaction and cementation, depth of the saturated zone, characteristics of the vibration, and the occurrence of past liquefaction. Granular, unconsolidated, saturated sediments are the most likely to liquefy, while dry, dense, or cohesive soils tend to resist liquefaction. Liquefaction is generally considered to be a hazard where the groundwater is within 30 to 40 feet of the surface. Where the soil drainage is good, the pore pressure that builds up when ground motion shakes unconsolidated soil is more easily dissipated; thus, those soils with good drainage are less likely to liquefy.

The proposed building site is underlain by coarse-grained, dense to very dense glacial till deposits with varying amounts of gravel, cobbles, and scattered boulders, and groundwater at shallow depths. Based on the subsurface conditions at the site and the anticipated seismic conditions, the potential for liquefaction should be considered low (Geocon 2005).

Lateral Spreading

Lateral spreading is the lateral displacement of sediments as a result of subsurface liquefaction. It is most likely to occur where loose, sandy, water-saturated sediments are located near a free face, such as a stream channel cutbank or a cliff face. The proposed project site would not be subject to lateral spreading.

4.5.1.8 Subsidence

No known areas of subsidence are present in Donner Memorial SP. Subsidence is a gradual settling or sudden sinking of the Earth's surface. Common causes of land subsidence from human activity are pumping water, oil, and gas from underground reservoirs; dissolution of limestone aquifers (sinkholes); collapse of underground mines; drainage of organic soils; initial wetting of dry soils (hydrocompaction), and liquefaction of saturated loose sandy soils during an earthquake. Of the four, subsidence due to liquefaction would be the only potential cause in the proposed project area, and would most likely be limited to areas along stream channels or any areas of loose, sandy material, such as tailings from gravel mining operations, that are below the water table.

4.5.1.9 Soils and Erosion

All soils described on the existing Park soil map (AQB, Celio, Gefo, Jorge, Meiss, Waca, and Windy) have slight to moderate, and sometimes high (steeper slopes) erosion potential (see Figure 4.5-E). The duff layer helps to slow erosion, as well as provide nutrients to encourage growth of plants and trees. Disturbing the duff layer and the soil can increase the chance for erosion. The soils at the proposed site are mapped as the Celio Series, a gravelly, loamy, coarse sand (same as described in the geotechnical investigation) that develops on glacial outwash deposits. These soils are poorly drained, have slow runoff, rapid permeability (except where silica cementation has reduced permeability), and erosion potential can be moderate to high (NRCS 2003). Celio soils are very strongly to strongly acidic, with a pH range of 4.9 to 5.4 (USDA 1974). The results from the preliminary geotechnical investigation (Geocon 2005) indicate site soils are moderately corrosive to uncoated steel or ductile iron, and have negligible corrosive potential for cement.

The properties of certain alluvial materials within the park may cause constraints for new construction. Glacial till material is an unstratified mixture of grain sizes, including cobbles and boulders. The boulders and cobbles would have to be removed within the footprint of the building. Only one of the six borings from the preliminary geotechnical investigation encountered a cobble or boulder at depth that required a repositioning of the borehole.

Expansive soils are found in floodplains and low-lying regions, occurring naturally across much of the western United States. If allowed to become wet, the soils will expand,

shrinking as water is removed. The soils present at Donner Memorial SP are mostly non-plastic to slightly plastic, with low shrink-swell potentials; therefore, the potential for expansive soils is low.

4.5.1.10 Landslides

Landslides include a wide range of ground movement, such as rock falls, deep slope failures, and shallow debris flows. Gravity acting on an oversteepened slope is the primary cause, but other contributing factors include: erosion and undercutting of the landslide toe; saturation with water; earthquakes; effects from recent wildfires; and excess weight accumulation (snow or soil).

No known major landslides have been mapped within Donner Memorial SP. The flatter topography of the proposed project site would not be subject to landsliding. However, the steeper terrain along Schallenberger Ridge and in Coldstream (Cold Creek) and Lakeview Canyons could be prone to landsliding, especially in logged areas or in any area subjected to a forest fire.

4.5.1.11 Other Geologic Hazards

Volcanic Hazards

There are several areas in the Sierra Nevada and Cascade provinces that are still volcanically active and could potentially impact the Donner Memorial SP area. These include the Long Valley Caldera and Cascade and Modoc Plateau Province. Located approximately 139 miles to the southeast, the Mammoth Lakes area in the Long Valley Caldera has been active for millions of years, with formation of the caldera occurring approximately 700,000 years ago (Diggles, *et al* 1996). From 555-650 years ago, eruptions occurred along the Inyo volcanic chain at Mono Craters and Inyo Domes. Eruptions were characterized by initial explosive events that ejected pumice, ash (tephra), and pyroclastic flows, followed by ‘quieter’ flows of rhyolite lava (USGS 1999a). In 1980, increased volcanic unrest, as indicated by earthquake swarms, ground deformation, and carbon dioxide gas emissions, raised concerns that an eruption could occur in the near future (USGS 1999b). This activity is interpreted to indicate that magma is moving beneath the Long Valley Caldera. If an eruption does occur, the impact to Donner Memorial SP would likely only be from volcanic ash fallout. The predicted ash thickness at Donner Memorial SP would be a little over one-half inch (USGS 1999c).

To the northwest of Donner Memorial SP are the active volcanoes of the California Cascade Range: Mount Lassen, 107 miles from Donner Memorial SP and Mount Shasta, 175 miles distant. There is also the Medicine Lake Highlands volcanic area, located in the Modoc Plateau just east of the Cascade Province, 172 miles to the northwest near Lava Beds National Monument. The last known eruptions of these volcanoes were: Mount Lassen in 1914 to 1917; Mount Shasta about two hundred years ago; and Medicine Lake Highlands during the past 10,000 years (Diggles, *et al* 1996). The eruptions from the Cascade volcanoes have produced various types of flows, including explosive pyroclastic eruptions. Any impacts to the Donner area by Cascade volcanoes would be ash falls.

Avalanche Hazards

The north-facing slope of Schallenberger Ridge may be subject to avalanches, as indicated by the construction of snowsheds along the Southern Pacific railroad alignment (Donner THP 1994). Most avalanche starting zones are in steep, open, sparsely vegetated areas. Such areas have been identified within the Donner Timber Harvest Plan area. Three potential avalanche areas correspond to the north-facing slopes of Schallenberger Ridge above the three snowsheds and a fourth zone is located further to the west. The proposed project site is not within range of any known or mapped avalanche locations.

Hazardous Materials

While not a geologic hazard, contamination of geologic materials (soils and groundwater) has occurred within Donner Memorial SP and on adjacent properties. According to a report by EMCON (1995), in October 1991, an underground fuel storage tank (UST) was removed from the maintenance facility at Donner Memorial SP. Soil samples from the tank excavation were contaminated with gasoline components (toluene, ethylbenzene, and xylene) and motor oil. Soil was removed until no further contamination was detected. Groundwater contamination was confirmed by the installation and sampling of three monitoring wells. The groundwater contamination appeared to be limited to the area around the former UST.

Flooding

No portions of the project site are located within flood inundation hazard areas, according to maps from the Federal Emergency Management Agency (FEMA) or maps produced during a 2005 hydrologic study (David Evans & Associates 2005). See Section 4.7 Hydrology and Water Quality for specific information on flooding hazards.

4.5.2 Regulatory Setting

Donner Memorial State Park General Plan

The Donner Memorial SP General Plan, adopted in April 2003, identifies park-wide goals and guidelines for future development, management, and protection of park resources. As part of the General Plan process, areas of geological sensitivities were identified to insure that any planned projects would not negatively impact the park's natural environment or expose people and property to geologic hazards.

Projects proposed for development within the areas subject to the Donner Memorial SP General Plan are required to consider findings noted in the 2003 General Plan document and the most currently available scientific information to evaluate potential hazards to public safety and the park's resources. Specifically, the General Plan guidelines, applicable to geologic hazards, recommend site specific surveys to identify potentially hazardous areas, prior to any permanent facility development, and avoidance of these areas to the extent feasible. In addition, the General Plan requires all new development, including the proposed project, to comply with current building code standards for construction in seismically active areas and specifies that projects will not result in or expose people to substantial geologic hazards.

State Water Resources Control Board

See the discussion in Section 4.7 Hydrology and Water Quality.

Alquist Priolo Earthquake Fault Zone Act

The Alquist-Priolo Earthquake Fault Zone (APEFZ) Act was passed in 1972 to mitigate surface faulting hazards associated with structures intended for human occupancy (Hart and Bryant 1997). The APEFZ Act addresses only surface rupture hazards, rather than other earthquake hazards, the former being the most easily avoided seismic hazard. The APEFZ Act defines an active fault as one that has ruptured within the last 11,000 years. Many of these faults have documented surface displacement within historical records. According to the current APEFZ maps, the proposed project site does not lie within a Special Studies Zone. The nearest active faults are within the Mohawk Valley-Honey Lake Fault Zone, but they have not been zoned under the APEFZ Act.

Nevada County General Plan

Nevada County encompasses the Town of Truckee and the northern part of Donner Memorial SP, including the proposed project site. The Nevada County General Plan (NCGP) is supportive of the State Park System's mission and the park's purpose to provide public recreation (DPR 2003a). The NCGP contains policies to prevent the adverse impacts of grading, loss of soils, and erosion, and to provide for public safety from seismic hazards by requiring adherence to the seismic design criteria in the Uniform Building Code (or California Building Code).

Town of Truckee General Plan

A large portion of Donner Memorial SP and all of the proposed project location fall within the Town of Truckee limits and are subject to the Town of Truckee General Plan (and Truckee Development Plan), as it applies to state-owned land and State Park facilities. The Conservation/Open Space (C/OS) and Safety Elements of the town's General Plan addresses the following geologic and soil issues for development within the Town of Truckee limits:

- Seismically-induced surface rupture, ground shaking, ground failure, seiche, and dam failure
- Slope instability leading to mudslides and landslides
- Subsidence and other known geologic hazards
- Erosion

Policies applicable to the proposed project include:

<u>C/OS Goal 7</u> - Conserve and protect the Town's Soil Resources by minimizing soil erosion.

- <u>C/OS Policy 7.1</u> - Discretionary development shall be clustered away from slopes in excess of 30%. Discretionary development on all slopes in excess of 20% shall have a site-specific review of soil type, vegetation, drainage, slope, and building placement to determine proper site design.

- C/OS Policy 7.2 - On discretionary projects that require earthwork and grading, including cuts and fills for roads, developers shall be required to minimize erosion and sedimentation by conforming with the natural contours, maximizing retention of natural vegetation, and implementing Best Management Practices (BMPs).
- C/OS Policy 7.5 - Evaluate and implement methods for street cleaning that will minimize dust and sedimentation impacts....

Safety Goal 1 - Establish standards to reduce threat of hazards to life and property and direct new development away from natural hazard areas.

- Safety Policy 1.2 - Building construction associated with new discretionary development shall be located outside of avalanche hazard areas.

Safety Goal 2 - Coordinate with responsible agencies to reduce threats from natural and man-made hazards.

- Safety Policy 2.1 - Coordinate with emergency response agencies to develop an Emergency Response Plan, including measures to respond to...earthquake and other disasters.
- Safety Policy 2.3 - ...maintain the most current flood hazard and floodplain information as a basis for project review in order to limit development in such areas

Project design, implementation plans, and proposed mitigations would be consistent with the Town of Truckee General Plan's goals and policies.

4.5.3 Thresholds of Significance

The CEQA Guidelines establish that a project would have a significant impact related to geology and soils if the project would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
- Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zone Map issued by the State Geologist for the area or based on other substantial evidence of a known fault:
    - Strong seismic ground shaking.
    - Seismic-related ground failure, including liquefaction; or landslide.
- Result in substantial soil erosion or the loss of topsoil.
- Locate development on a geologic unit or soil that is unstable or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse.
- Locate development on expansive soil, as defined in Table 18-1-B of the California Building Code (2001 or current accepted edition), creating substantial risks to life or property.

- Have soils incapable of adequately supporting the use of septic tanks or alternative waste disposal systems, where sewers are not available for the disposal of waste water.

4.5.4 Environmental Impacts and Mitigation Measures

4.5.4.1 Seismic Hazards

Geology Impact Geo-1

The project site is located within the Sierra Nevada region, an area that experiences occasional large to moderate earthquake events. The chance of the surface rupture of an earthquake fault at the project site is highly unlikely, since no known earthquake faults traverse Donner MSP. The project site is not located within an Alquist-Priolo Earthquake Fault Zone (APEFZ) as designated by the California Geological Survey (CGS). Seismic ground-shaking is possible from earthquake events on the faults discussed previously. The probability of seismic-induced landslides, liquefaction, or other phenomena is moderate to low in this area.

The California Geological Survey has determined that the Mohawk-Honey Lake Fault Zone (see Figure 4.5-B) is capable of generating an earthquake of M 7.3 (Petersen, *et al* 1996). The expected ground acceleration at the project site is low, on the order of 0.33 g (CGS 2005). This project involves the construction of a new visitor center to replace the existing one. An increase in use by the public could result in a significant increased risk to the public. Damage to property and risk to the public can be reduced to less than significant by implementation of Mitigation Measure Geo 1(a,b) below.

Seismic-induced ground failure, such as liquefaction, usually occurs in unconsolidated granular soils that are water saturated. During seismic-induced ground shaking, pore water pressure can increase in loose soils, causing the soils to change from a solid to a liquid state (liquefaction). The site soils are described by the USDA (1974) and NRCS (2003) as Celio Series, a gravelly loamy coarse sand. Based on a recent preliminary geotechnical investigation (Geocon 2005) the density of the soils in the project area range from medium dense to very dense. The depth to groundwater ranged from 10 to 18 feet below ground surface in October and November of 2005. Based on this information, the potential for significant impact to the project from liquefaction is low. Implementation of Mitigation Measure Geo-1(a,b) would further reduce any risk to less than significant.

No known landslides are present within the core area of Donner MSP at either of the potential visitor center locations. Therefore, no reactivation of known landslides would occur due to an earthquake.

Geology Mitigation Measure Geo-1

a) The new HSC Museum facility would be constructed to conform to earthquake design requirements as specified in the current version of the California Building Code for Seismic Zone 3. All new equipment (hot water heaters, tall bookcases, etc) installed in the new visitor center will be secured to the walls and/or floor to prevent damage in the event of a large earthquake, per current California Building Code requirements.

b) A preconstruction (final) geotechnical investigation may be conducted to evaluate the site-specific soil properties within the foundation and parking lot footprint and re-evaluate the potential for expansive soils and liquefaction at specific foundation and parking lot locations. Approximately four borings to a depth below ground surface (bgs) of 25-30 feet would be drilled within the building footprint. An additional 3-4 shallower borings (5-10 feet bgs) would be drilled in the parking lot and entrance road areas. Borings would be advanced five feet into bedrock, if bedrock is encountered. The borings would be drilled using either a truck-mounted or track-mounted drill rig capable of reaching the target depths.

If a final geotechnical investigation is implemented, then for the purpose of obtaining relatively undisturbed samples for archaeological testing, up to six additional shallow borings would be drilled. Two additional borings to ten feet bgs would be advanced in the building footprint area, two additional borings to five feet bgs would be located in the parking lot area, and two additional borings to 5 feet bgs would be located in the access road alignment. These borings would be located adjacent to the proposed final geotechnical borings, would be continuously cored, and the soil samples would be archived in core boxes with boring number and depths indicated for later archaeological examination.

The final choice of building foundation depth and foundation design may need to be modified, based on the final geotechnical testing results. Groundwater levels will be monitored in the three piezometers installed during the preliminary geotechnical investigation (Geocon 2005). Groundwater levels will be used to establish the extent of dewatering needed during trenching and other excavations. The depth to groundwater is also a factor in the design of the proposed stormwater runoff infiltration system (bioswales).

4.5.4.2 Soil and Erosion Impacts

Geology Impact Geo-2

A temporary increase in erosion may occur during grading and trenching for utility lines, excavation for building footings or pile driving, road and parking lot construction, geotechnical investigations, installation of stormwater infiltration systems, and any other ground disturbing activities. Site soils have a moderate to high erosion potential (NRCS 2003), especially when the protective duff layer is disturbed.

The potential short-term impacts from construction and geotechnical investigations will be addressed through incorporation of temporary Best Management Practices (BMPs). Long-term impacts associated with erosion in this area would be addressed through incorporation of permanent BMPs, including implementation of a revegetation plan. Implementation of Mitigation Measure GEO-2 below will reduce soil erosion or loss of topsoil by the proposed project to a less than significant level.

Geology Mitigation Measure Geo-2

a) Temporary construction BMPs would be used in all areas to control soil and surface water runoff during trenching, grading, excavation, pile driving, and geotechnical

investigation activities. Grading and excavation activities should not be planned during the rainy season (October 31 to May 1), but if storms are anticipated during construction or if construction must occur during winter months, "winterizing" will occur, including the covering (tarping) of any stockpiled soils and the use of temporary erosion control methods to protect disturbed soil.

b) Should dewatering be necessary ...., the extracted water shall be dissipated later on high-capability lands within the project site.

c) Temporary erosion control measures (BMPs) must be used during all soil disturbing activities and until all disturbed soil has been stabilized (recompacted, re-vegetated, etc.) These BMPs will include DPR approved measures such as those found in the Stormwater Best Management Practice Handbook, Construction (CSQA 2003) to prevent soil loss and siltation into Donner Creek. The BMPs will be part of the Stormwater Pollution Prevention Plan required by the State Water Resources Control Board.

d) Permanent BMPs for erosion control will consist of properly compacting disturbed areas and re-vegetation of appropriate disturbed soil areas with native species using seed collected locally, where possible. Otherwise, if local seed is not available, a weed-free native mixture shall be used. Final design plans will include BMP measures to be incorporated into the project.

4.5.4.3 Unstable Soils

Geology Impact Geo-3

Site soils may be susceptible to liquefaction (see Section 4.5.2.1 above).

4.5.5 Effects Considered to be Less than Significant

4.5.5.1 Expansive Soils

Geology Impact Geo-4

None of the soils mapped by NRCS methods within the core area of Donner Memorial SP are considered expansive. All soils are nonplastic to slightly plastic, with a low shrink swell potential. The preliminary geotechnical investigation (Geocon 2005) indicates that potential impacts from expansive soils in the project area would be less than significant.

4.5.6 Findings

For geological conditions and soils evaluated as part of this environmental document, the potential exists for significant erosion impacts and increased risk of significant adverse impacts to people or property from seismic hazard as a direct or indirect result of proposed project activities. However, changes in project scope and mitigation measures have been required as part of the project which avoid or substantially lessen these potentially significant environmental effects. Full implementation of all proposed mitigation measures would reduce any geologically-based potential impacts to a less than significant level.

4.6 HAZARDS AND HAZARDOUS MATERIALS

This section provides information on potential hazards and hazardous materials that occur or could occur within the proposed project site and vicinity, or could be impacted by proposed project activities at Donner Memorial SP. It also identifies potential mitigation measures designed to avoid these impacts or reduce their significance to the greatest extent feasible.

A material is considered hazardous if it appears on a list of hazardous materials prepared by a federal, state, or local agency, or if it has characteristics defined as hazardous by such an agency. A hazardous material is defined in Title 22 of the California Code of Regulations (CCR) as:

> *...A substance or combination of substances which, because of its 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 reversible illness; or*
> *(2) pose a substantial present or potential hazard to human health or environment when improperly treated, stored, transported, or disposed of, or otherwise managed. (CCR, Title 22, §66260.10)*

Chemical and physical properties that can cause a substance to be considered hazardous include toxicity, ignitability, corrosivity, and reactivity. Factors that influence the health effects of exposure to hazardous materials include the dosage received, frequency of exposure, way a person is exposed, and individual susceptibility.

4.6.1 Existing Conditions

4.6.1.1 Hazardous Materials

The proposed project site at Donner Memorial SP surrounds the existing Emigrant Trail Museum to the south, west, and north. This area was along the route of Donner Pass Road, the first toll road in the vicinity. From the 1850s until the early 1900s, there were numerous buildings constructed along Donner Pass Road, and along the east end of Donner Lake (Brooke 2006). With the introduction of the automobile, there most likely were service stations along the road and possibly within the project area.

In 1909, the town of Truckee held a ceremonial ground-breaking for constructing the Donner Monument on the location of the Breen Cabin site (Brooke 2006). The Native Sons of the Golden West signed a lease in 1920 that established a concession near the monument. Amongst other services, their concession maintained a gravel road for public access from U.S. Highway 40 (Donner Pass Road). The land surrounding the one-acre monument was owned by the Donner Ice Company between 1895 and 1908 when it was purchased by the Pacific Fruit Company. The Pacific Fruit Company held title to the land for 16 years when in 1924 they conveyed the immediate surrounding 10-acres to the Native Sons of the Golden West (Brooke 2006). The California Division of Beaches and Parks cancelled the Native Sons of the Golden West concession contract in 1930 and

converted their building into the newly formed park headquarters. By 1948, Donner Memorial SP consisted of the headquarters building, the Murphy Cabin Site, and a total of 344 acres of land. Early topographical survey maps depict the original park administration complex as located immediately north of the existing Emigrant Trail Museum (Brooke 2006).

There has been no known industrial use or construction of buildings on the parcel in the last 100 years that could have been a major source of hazardous materials. There may have been some past minor spills or releases of gasoline, other vehicle fuels and oils associated with possible gas stations along Donner Pass Road or with maintenance activities at the original park headquarters buildings. No areas of contamination have been documented.

The closest potential source of current hazardous materials to the proposed project site is an underground pipeline that passes through Donner Memorial SP. The high pressure fuel pipeline, owned and operated by Kinder Morgan, carries a variety of materials, including jet fuels, diesel, and gasoline (Nevada State Office of Energy 2003). The pipeline enters park property off Donner Pass Road north of the project area and passes underneath the current entrance road and then parallels the park road along the south shore of Donner Lake.

Potential hazardous materials sites in the general vicinity of the project include an underground gasoline tank, originally located south of the proposed project site in the park maintenance area, that was removed in 1991. The surrounding soil was contaminated with volatile organic gasoline components (toluene, ethylbenzene, and xylene). Soil was removed from the site until no further contamination could be detected. Sampling of three monitoring wells also confirmed groundwater contamination that appeared to be limited to the area around the former underground storage tank (EMCON 1995). The project case has been closed by the Lahontan RWQCB.

A search of the State Water Resources Control Board Geotracker website of leaking underground fuel tanks (USTs) identified five USTs within a mile of the project site (SWRCB 2004). Most sites are gasoline tanks along Donner Pass Road. All are undergoing remediation at this time and were well outside the project's area of potential effect.

4.6.1.2 Hazardous Materials Sites

No part of Donner Memorial SP is included on a list of hazardous materials sites compiled pursuant to Government Code §65962.5 (Cortese List). No area within the project site is currently restricted or known to have hazardous materials present.

4.6.1.3 Transportation Corridors

I-80

The I-80 transportation corridor is an interstate highway that extends across California from the San Francisco Bay area to Reno, Salt Lake City, and points east. The eastbound lane passes approximately one-half mile north of the proposed project site; the Donner Pass Road/Donner Memorial SP exit is less than one mile to the east. In the vicinity of

Truckee, the road is a four-lane divided highway, with short stretches of truck lane(s) on steep uphill and downhill grades. Five off-ramps service the Truckee area. I-80 is a designated hazardous material transportation route, as well as a primary evacuation route for the Town of Truckee, including Donner Memorial SP.

Donner Pass Road

The primary access road for the proposed project is Donner Pass Road, a minor arterial two-lane road that runs generally parallel to I-80 though downtown Truckee, skirting the northern boundary of Donner Lake, Donner Memorial SP, and the proposed project area. It is a designated secondary evacuation route for the Town of Truckee and eastern Nevada County. Its proximity to sensitive natural resources, including Donner Lake, precludes its use as a hazardous materials route.

Southern Pacific Railroad

The Southern Pacific Railroad line that roughly parallel to I-80 is a designated hazardous materials route. It skirts the east and south boundaries of Donner Memorial SP, and is approximately 0.6 mile away from the proposed project site at its closest point.

4.6.1.4 Airports

The proposed project site is approximately five miles from the Truckee-Tahoe Airport and is not within the airport land use plan. However, the Donner Lake Bypass Arrival route extends directly over the proposed site at approximately 7,500 feet above mean sea level (see §4.11.1.4, Figure 4.11-F)(Truckee Tahoe Airport 2004). Normal activities within Donner Memorial SP generally do not affect arrivals or overflights, or change existing air traffic patterns. The proposed project area is not within two miles of a public airport or in the vicinity of a private air strip.

4.6.1.5 Schools

There are no schools located within one-quarter mile of the proposed project site. The closest school, Truckee Elementary School, is located approximately three quarters of a mile east on Donner Pass Road (Mapquest 2005).

4.6.1.6 Natural Hazards

Wildfires are the main natural hazard within the proposed project area. The vegetation at the project site is composed primarily of Lodgepole Pine. Jeffrey pine and quaking aspen occur as scattered individuals, with a diversity of shrub species, including gooseberries and currants, Ceanothus, serviceberry, and bitter cherry. The area surrounding the proposed project site has been designated by the California Department of Forestry and Fire Protection (CDF) as a very high fire hazard severity zone, with heavy fuel-burning characteristics (Nevada County GP, V2 §5). Once the rain and snow stop, generally in mid-April to early May, vegetation dries out during periods of low relative humidity and little precipitation. Under these conditions, the chance of wildfires increase dramatically, especially in forested recreation areas with moderate to heavy public use, such as campgrounds and day use areas. Donner Memorial SP has both campgrounds and day use areas within close proximity to the proposed project site. Sparks from campfires, barbeques, or automobile exhaust are all common causes of wildland fires. The proposed

project area is bounded on the north by Donner Pass Road. Although this minor arterial roadway is designated a secondary evacuation route for the Truckee area, it is also a potential source of wildfire ignition as cars park along the shoulders of the right-of-way.

4.6.2 Regulatory Setting

Federal, State, and Local Agencies

Laws and regulations governing environmental hazards and hazardous materials may originate with federal or state regulatory agencies, but are generally implemented and enforced at the local or regional level. Most hazardous materials regulation and enforcement in the County of Nevada is managed by the Nevada County Department of Environmental Health; extensive or multi-jurisdictional cases are referred to the Lahontan or Central Valley (RWQCB) or California State Department of Toxic Substances Control (DTSC). Situations involving air quality, asbestos abatement, or toxic air contaminants may also be referred to the Northern Sierra AQMD and both the federal and state Occupational Safety and Health Administrations (OSHA). The Office of Emergency Services also requires immediate notification of any inadvertent discharge of sewage or other reportable quantities of hazardous materials, in accordance with the spill reporting provision of the state toxic disaster contingency plan. Reporting requirements and response for hazardous material discharges are specified in the California Water Code Division 7, Chapter 4, Article 4, Sections 13260-13274.

Nevada County General Plan

The Nevada County General Plan has no applicable plans or policies for hazardous materials and public health, except for delegating related actions to the Nevada County Department of Environmental Health and appropriate regional, state, and federal agencies.

Town of Truckee General Plan

A good portion of Donner Memorial SP and all of the proposed project location fall within the Town of Truckee limits and are subject to the Town of Truckee General Plan (Truckee 2004), as it applies to state-owned land and State Park facilities. The Safety Element of the Town's General Plan addresses the following safety hazard goals and policies for development within the Town of Truckee limits:

- Wildland and urban fires
- Evacuation routes
- Emergency response

Policies applicable to the proposed project include:

Safety Goal 1 - Establish standards to reduce threat of hazards to life and property and direct new development away from natural hazard areas.

Safety Goal 2 - Coordinate with responsible agencies to reduce threats from natural and man-made hazards.

- Safety Policy 2.1 - Coordinate with...emergency response agencies to develop an Emergency Response Plan, including measures to respond to fire, earthquake, blizzard, dam failure, hazardous materials spills, and other disasters.
- Safety Policy 2.7 - Require that adequate emergency water flow, emergency vehicle access, and evacuation routes be available for any new development.
- Safety Policy 2.8 - Cooperate with the Fire District to attain and maintain "defensible space" to minimize wildland fire hazards. Defensible space may include re-vegetation with less flammable species, such as fire resistant native and adapted species, and the use of mulch to prevent erosion on bare soil.
- Safety Policy 2.9 - Reduce fire hazard through cooperative fuel management activities. Cooperate with the Truckee Fire Protection District, CDF, and USFS to identify opportunities for fuel breaks in very high fire hazard severity zones and ensure that fire breaks are provided where necessary and appropriate.
- Safety Policy 2.11 - Coordinate with the Nevada County Environmental Health Department in the review of all projects which require the use, storage, or transport of hazardous waste to ensure necessary measures are taken to protect public health and safety.

4.6.3 Thresholds of Significance

A project would be considered to have a potentially significant adverse environmental impact relating to hazards and hazardous materials if it would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- Create a significant hazard to the public or the environment through reasonably foreseeable upset or accident conditions involving the release of hazardous materials into the environment.
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
- Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment.
- Locate the project within an airport land use plan or, where such a plan has not been adopted; within two miles of a public airport or public use airport; or within the vicinity of a private airstrip, in such a manner as to result in a safety hazard for people residing or working in the project area.
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan.
- Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

4.6.4 Environmental Impacts and Mitigation Measures

4.6.4.1 Hazardous Materials

Hazards Impact Hazmat-1

Construction activities associated with the proposed project would require the use of certain hazardous materials, such as fuels, oils, or other fluids associated with the operation and maintenance of vehicles and equipment. These materials would generally be contained within vessels engineered for safe storage. Large quantities of these materials would not be stored at or transported to the construction site. However, spills, upsets, or other construction-related accidents could cause an inadvertent release of fuel or other hazardous substances, resulting in a significant hazard to the public and the environment. Implementation of Mitigation Measures Hazmat-1 would reduce the potential for adverse impacts from these incidents to a less than significant level.

Hazards Mitigation Measure Hazmat-1

a) All equipment would be inspected by the contractor for leaks immediately prior to the start of construction, and regularly inspected thereafter until equipment is removed from park premises.

b) The contractor(s) and/or DPR would prepare a Spill Prevention and Response Plan (SPRP) as part of the Stormwater Pollution Prevention Plan prior to the start of construction and maintain a spill kit on-site throughout the life of the project. This plan would include a map that delineates construction staging areas, where refueling, lubrication, and maintenance of equipment may occur.

c) Areas designated for refueling, lubrication, and maintenance of equipment would be at least 50 feet from Donner Lake and Donner Creek.

d) In the event of any spill or release of any chemical in any physical form at the project site or within the boundaries of Donner Memorial SP during construction, the contractor would immediately notify the appropriate DPR staff (e.g., project manager, supervisor, or State Representative) and implement appropriate spill containment procedures, as identified in the SPRP and SWPPP.

e) Equipment would be cleaned and repaired (other than emergency repairs) outside park boundaries. All contaminated water, sludge, spill residue, or other hazardous compounds would be contained and disposed of outside park boundaries, at a lawfully permitted or authorized destination.

4.6.4.2 Emergency Access

Hazards Impact Hazmat-2

The proposed project would construct a parking lot and access road for the HSC Museum facility, within the boundaries of Donner Memorial SP. A left turn lane and encroachment for the access road would also be constructed within the existing Donner Pass Road right-of-way. Approximately 700 feet of the existing Donner Pass Road would be widened to accommodate the proposed left turn lane. Utilities for the proposed Museum would be undergrounded to existing connections within the utility easements along Donner Pass Road. Electrical and telephone are aboveground in portions of the project area. The

damage and repairs to existing road surfaces due to proposed project activities could result in a significant impact to normal traffic flow and emergency access on Donner Pass Road. Implementation of Mitigation Measure TCT-1(a,b), §4.11.4.1 would reduce any potential impacts to emergency access to a less than significant level.

Mitigation Measures for Impact Hazmat-2

See Transportation Mitigation Measure TCT-1(a,b). No additional mitigation measures are required.

4.6.4.3 Wildland Fire Hazards

Hazards Impact Hazmat-3

The proposed project location is in a partially wooded area with some nearby riparian vegetation. Heavy equipment can get very hot with extended use; this equipment would sometimes be in close proximity to flammable vegetation. In addition, work would generally occur during periods of low relative humidity and little precipitation. Improperly outfitted exhaust systems or friction between metal parts and/or rocks could generate sparks, resulting in a wildland fire, exposing people or structures to a significant risk of loss, injury, or death. Implementation of Mitigation Measure Hazmat-3(a-d) below would reduce the potential fire-related impacts from this project to a less than significant level.

Hazards Mitigation Measure Hazmat-3

a) A fire safety plan would be developed by the contractor(s) and approved by DPR prior to the start of construction. This plan would include the emergency calling procedures for both the CDF and the Truckee Fire Department and any required employee training.
b) Spark arrestors or turbo-charging (which eliminates sparks in exhaust) and fire extinguishers would be required for all heavy equipment.
c) Construction crews would be required to park vehicles away from flammable material, such as dry grass or brush. At the end of each workday, heavy equipment would be parked over mineral soil, asphalt, gravel, or concrete to reduce the chance of fire.
d) Fire suppression equipment (fire extinguishers, fire hoses, etc.) would be available and located on park grounds. Park staff would be required to have a State Park radio on site, which will allow direct contact with the Truckee Fire Department or CDF, and a centralized DPR dispatch center, to facilitate the rapid deployment of control crews and equipment in case of a fire. Fire suppression equipment would also be available on park grounds.

4.6.4.4 Release of Sewage

Hazards Impact Hazmat-4

Construction of a new Museum and associated facilities adjacent to Donner Creek would require installation of a sewage gravity flow line from the proposed facility to the connection point with an existing manhole near Donner Pass Road. Improper installation or operation of the sewage pump station, incorrect or defective connection of the facility force main sewer line to TSD's gravity flow line, failure of the distribution lines during

operation, or damage to the lines during future ground-disturbing activities could result in potentially significant adverse environmental impacts.

Hazards Mitigation Measure Hazmat-4

In the event of any leak, spill, crack, rupture, or other potential for sewage discharge from any DPR-owned or operated equipment, or within or adjacent to DPR-owned or operated properties, DPR or its representatives would comply with the California Water Code Division 7, Chapter 4, Article 4, Section 13271, regarding reporting and response, including immediate notification of the Office of Emergency Services, in accordance with the spill reporting provision of the state toxic disaster contingency plan, adopted pursuant to Government Code Title 2, Division 1, Chapter 7, Article 3.7 (commencing with Section 8574.16). Containment, resource protection, clean-up, and restoration would be immediately initiated, as appropriate, consistent with DPR emergency procedures and other local, state, and federal regulations and requirements.

4.6.5 Effects Considered Less Than Significant

For hazards and hazardous materials evaluated as part of this environmental document, the potential exists for an inadvertent release of fuel or other hazardous substances, resulting in a significant hazard to the public and the environment; inadequate access for emergency vehicles, and ignition of a wildland fire, exposing people or structures to a significant risk of loss, injury, or death, as a direct or indirect result of proposed project activities. However, changes in project scope and mitigation measures have been required as part of the project which avoid or substantially lessen these potentially significant environmental effects. Full implementation of all proposed mitigation measures would reduce any hazard-based potential impacts to a less than significant level.

4.7 HYDROLOGY AND WATER QUALITY

This chapter contains a description of the existing hydrologic conditions and water resources in the project area, and evaluates the potential impacts to water quality associated with the proposed High Sierra Crossing Museum project.

4.7.1 Existing Conditions

4.7.1.1 Watershed

The project site is located within the North Lahontan Hydrologic Region, as defined by the California Department of Water Resources (DWR 2003). The main watershed is the Truckee River, of which Donner Creek is an important tributary. Donner Creek/Summit Creek (Summit Creek upstream of Donner Lake and Donner Creek downstream of the lake) was naturally dammed by a recessional moraine to create Donner Lake. The present day Donner Lake is a natural lake, approximately 2.6 miles long and 0.75 miles wide, with a maximum depth of about 220 feet. The Donner Creek watershed encompasses an area of approximately 14 square miles (8,960 acres). It includes Summit Creek, which flows into Donner Lake. Other intermittent streams and springs also contribute inflow. Several hundred feet of Donner Creek downstream of the dam has been altered and channelized.

4.7.1.2 Donner Lake Dam

The first known artificial dam on Donner Lake was constructed circa 1859 – possibly the "original dam of wood" associated with the Towle brother's sawmill operation. Senator Newland from Nevada purchased lakeside property at the Donner Lake outlet (including the excavated outlet) for the purpose of water reclamation. Under contract to Newland, the Truckee Lumber Company constructed a dam in 1889 that raised the lake level by 12 feet (Lindström 2004).

The present slab and buttress concrete dam, built in 1927-28, replaced the original wooden dam. The existing dam is currently is owned and operated by the Truckee Meadow Water Authority (TMWA). It is located on Donner Creek, approximately 650 feet downstream (east) of the outlet of Donner Lake. The dam crest is 45 feet long and 15 feet wide, with a height of 16 feet. The crest elevation is listed as 5938.5 feet (1927 datum) (DWR 2003). Operation of the dam flood control gates can result in a maximum lake level change of 12 feet. The dam is located upstream from the proposed project site. Failure of the dam could impact the proposed new visitor center location.

4.7.1.3 Hydrology

The runoff from the proposed project site currently either infiltrates into the subsurface or drains naturally toward Donner Creek and ultimately to the Truckee River. Flow rates for Donner Creek are usually highest in the late spring and early summer, when snowmelt and runoff are at their peak. Flow rates for Donner Creek are available from the U. S. Geological Survey website at http://waterdata.usgs.gov/nwis/rt; use station number 10338500. The surface soils at the proposed site are glacial till, composed of silty sand with gravel (Geocon 2005). The USDA classifies the project area soils as the

Celio Series. The Celio is described as poorly drained, with slow runoff, rapid permeability (except where silica cementation has reduced permeability), and a moderate to high erosion potential. The existing duff layer helps to slow erosion, as well as provide nutrients to encourage growth of plants and trees. Disturbing the duff layer and the soil can increase the chance for erosion. The existing impervious surfaces within the proposed project site are the existing entrance road and parking lot, the existing visitor center/museum building, existing asphalt pathways and other park roads, and the adjacent maintenance yard buildings and parking area. Some of these impervious areas will be removed, but overall there will be a net increase in impervious surfaces (new building and increased parking lot areas).

4.7.1.4 Water Quality

Surface water and groundwater quality is an important issue in the Tahoe and Truckee basins. Most of the water quality problems are related to non-point sources, such as soil erosion from timber harvest areas, stormwater runoff (soil and chemicals), and individual wastewater disposal systems. The Lahontan Regional Water Quality Control Board (LRWQCB) regulates water quality in the region and provides water quality standards and management criteria as required by the Clean Water Act. These standards and criteria are presented in the Water Quality Control Plan (Basin Plan) for the Lahontan Region (LRWQCB 2001). The Basin Plan identifies the beneficial uses and water quality objectives for Donner Creek and Donner Lake, which are listed in the table below:

Beneficial Use	Donner Creek	Donner Lake
Municipal and Domestic Supply (MUN)	X	X
Agricultural Supply (AGR)	X	X
Groundwater Recharge (GWR)	X	
Fresh Water Replenishment (FRSH)		X
Water Contact Recreation (REC-1)	X	X
Non-Contact Water Recreation (REC-2)	X	X
Commercial & Sport Fishing (COMM)	X	X
Wildlife Habitat (WILD)	X	X
Cold Fresh Water Habitat (COLD)	X	X
Rare, Threatened, or Endangered Species (RARE)*	X	X
Migration of Aquatic Organisms (MGR)	X	
Spawning, Reproduction and/or Early Development for Fish (SPWN)	X	X
Navigation (NAV)		X

*Species are: Lahontan cutthroat trout, mountain sucker, and Mountain yellow-legged frog
See Appendix G for definition of terms

Surface water quality was measured in Donner Lake and Donner Creek in 1968 (DWR 2003) and in 2003. Parameters measured by DWR included metals, nitrate, sulfate, nitrogen, total phosphate, turbidity, and total dissolved solids. All values appear to have been below the recommended limits in place at the time of the sampling. Miller, *et al*

(2003) measured organic compounds released by motorized watercraft and their toxicity following exposure to sunlight.

Groundwater quality within the project area is considered good to excellent and capable of supporting a variety of beneficial uses (DWR 2003).

4.7.1.5 Groundwater

The project site is within the Martis Valley Groundwater Basin, as defined by DWR (2003). Water-bearing formations consist of: 1) basement rocks (plutonic and metamorphic rocks); 2) sedimentary deposits (alluvial and glacial); and 3) volcanic deposits. Groundwater is present beneath the project area in the glacial and alluvial materials. Groundwater is very shallow near Donner Lake and has been observed in the small depressions near the lake edge. At the proposed project site, the groundwater ranges from 10 to 18 feet below ground surface (elevations of 5,919.5 to 2,250 feet amsl) as measured in October and November of 2005. The quantity of groundwater in the aquifer beneath the site is unknown. Water supply for the Park is obtained from the TDPUD water system, which does not draw groundwater from the aquifer beneath the park. As noted in Section 4.7.1.4 above, groundwater quality in the proposed project area is considered good to excellent.

4.7.1.6 Water Supply

Sometime in the 1920s, a concrete dam replaced the wooden crib dam at the lake's outlet. Between 1928 and 1929, more dredging of the outlet at the head of Donner Creek was done, allowing Donner Lake to be used fully as a reservoir for irrigation. The water in Donner Lake is currently managed by the Truckee Meadows Water Authority and provides a water supply for Reno and Sparks, Nevada, and for agricultural irrigation in Nevada.

Water for Donner Memorial SP, including the proposed project site, is supplied by TDPUD, who acquires its water from aquifers located hundreds of feet deep within the Truckee groundwater basin. The TDPUD also acquired the Donner Lake water system in May of 2001 and is in the process of rehabilitating the system. TDPUD water supply lines currently extend along Donner Pass Road near the proposed park entrance road.

4.7.1.7 Flooding

The proposed project area has not been specifically mapped by the Federal Emergency Management Agency (FEMA) as part of the National Flood Insurance Program (most mapping is not continued onto State Park boundaries). FEMA. has mapped the park as Zone D, an area of undetermined, but possible flood hazard. The 100-year and 500-year floodplains have been delineated along Donner Creek east of the park, but the mapped zone was not extended into the park A recent 100-year floodplain analysis for DPR by David Evans & Associates shows the proposed project site outside the boundaries of the 100-year flood.

The potential for flooding exists in the low-lying areas of the park along Donner Creek and Cold Creek. There are two flow gauges on Donner Creek; one located approximately 600 feet below the dam on Donner Lake and the other a mile

downstream at Highway 89. These gauges show the major flood years over the past 50 years: December 1955, December 1964, March 1986, and January 1997. These were all regional floods, caused by rain on snow events. The record high water level was 5938.7 feet (1927 datum) on 12/10/37. During the fall of 1937, Highway 40 (now Donner Pass Road) was flooded when the dam was bypassed (Lindström 2004).

In its function as a water storage reservoir, Donner Lake's level has fluctuated widely through the years for which records have been kept. The natural lake level, in the absence of any dam, is 5,924 feet elevation and the current lake level with the dam, at capacity, is 5,936 feet, entailing a rise of 12 feet (DPR 2003a).

4.7.2 Regulatory Setting

Donner MSP General Plan

The project is consistent with the Donner Memorial SP General Plan (DPR 2003a) park-wide goals and guidelines for watershed management and water quality. The project site is located in Planning Zone #1, the area of the park with the highest level of use. Park goals for Planning Zone #1 include facility development, protecting riparian areas, and avoiding construction within the 100-year floodplain.

Federal Regulatory Requirements

Clean Water Act (CWA)

The U. S. Environmental Protection Agency (USEPA) has granted regulatory authority to the State of California (CalEPA) to administer and enforce the provisions of the CWA and the National Pollutant Discharge Elimination System (NPDES). NPDES is the primary federal program that regulates point-source discharges to waters of the United States. The State of California adopts water quality standards to protect beneficial uses of state waters, as required by Section 303 of CWA and Placer County Water Quality Control Agency (PCWQCA). The State Water Resources Control Board (SWRCB) and the nine RWQCBs were established as the regulatory agencies (see discussion of the Porter Cologne Water Quality Control Act below).

CWA Section 401 Certification

The Federal Clean Water Act, in Section 401, specifies that states must certify that any activity subject to a permit issued by a federal agency, such as the U. S. Army Corp of Engineers (USACE), meets all state water quality standards. In California, the SWRCB and the nine RWQCBs are responsible for taking certification actions for activities subject to any permit issued by the USACE pursuant to Section 404 (or for any other USACE permit, such as permits issued pursuant to Section 10 of the Rivers and Harbors Act of 1899). Such certification actions, also known as 401 certification or water quality certification, include issuing a 401 certification that the activity subject to the federal permit complies with state water quality standards; issuing a 401 certification with conditions; denying 401 certification; or denying 401 certification without prejudice, should procedural matters preclude taking timely action on a 401 certification application. Should 401 certification be denied, the federal permit is deemed denied also. Once it has received a complete application for 401 certification, the state must

act on the application within 60 days, although it may request additional time to act from USACE, up to one year.

RWQCBs or their executive officers may issue 401 certifications. The SWRCB issues 401 certifications for projects that will take place in two or more regions. The regulations governing California's issuance of 401 certifications were updated in 2000, and are contained in Sections 3830 through 3869 of Title 23 of the California Code of Regulations. They are posted on the State Board's website at http://www.swrcb.ca.gov/water_laws/index.html. Under the current regulations, the state may no longer waive certification.

CWA Section 404 - Permits for Fill or Physical Changes to Waters

The USACE permit authority is derived from the Federal Rivers and Harbors Act of 1899, Section 404 of the Clean Water Act, and Section 103 of the Marine Protection, Research, and Sanctuaries Act. These Acts give the USACE jurisdiction over all waters of the United States including, but are not limited to, perennial and intermittent streams, lakes, ponds, as well as wetlands, marshes, wet meadows, and side hill seeps. Any person or public agency proposing to locate a structure, excavate, or discharge dredged or fill material into waters of the United States or to transport dredged material for the purpose of dumping it into ocean waters must obtain a USACE permit.

Nationwide Permits - A nationwide permit (NWP) is a form of the USACE 404 general permit, which authorizes a category of activities under the Nationwide Permit Program. The 401 certification is necessary for all of the USACE NWPs whether a project proponent must report its activity to USACE or not. The SWRCB, by letter dated March 12, 2002, has certified a number of NWPs for all of California, subject to conditions notification requirements specified in that letter. A copy of the letter is available at http://www.swrcb.ca.gov/news/index.html The RWQCBs are responsible for issuing 401 certification for all NWPs not certified by the SWRCB.

State and Local Regulatory Requirements

Porter-Cologne Water Quality Control Act

This Act, passed in 1969, established California's SWRCB and the nine RWQCBs, which are responsible for protection of the State's surface water and groundwater supply. Donner Memorial SP is within the Lahontan RWQCB jurisdiction. The SWRCB is required, under CWA §303 and the California Water Code (§13240), to adopt water quality standards. In response to these requirements, the RWQCBs have prepared Water Quality Control Plans (Basin Plans) that designate the beneficial uses of waters to be protected, establish water quality objectives for the reasonable protection of the beneficial uses, and establish a program of implementation for achieving the water quality objectives. These standards and objectives are listed in the Lahontan RWQCB Basin Plan (LRWQCB, 1994).

Lake and Streambed Alteration Agreement

Under Sections 1600 to 1616 of the Fish and Game Code, the lead agency for a proposed project must first notify the California Department of Fish and Game (DFG) before any state or local governmental agency or public utility can begin a construction

project that will: (1) divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake (2) use materials from a streambed or (3) result in the disposal or deposition of debris, waste, or other material containing crumbled, flaked, or ground pavement where it can pass into any river, stream, or lake. Generally speaking, the notification requirement applies to any work undertaken within the annual high water mark of a wash, stream, or lake that contains or once contained fish and wildlife or supports or once supported riparian vegetation.

Based on the information contained in the notification form and/or derived from a possible field inspection, the DFG may propose reasonable modifications in the proposed construction necessary for the protection of the fish and wildlife resources. Upon request, the parties may meet to discuss these modifications. If the parties cannot agree and execute a Lake or Streambed Alteration Agreement, then the matter may be referred to arbitration. This and other information regarding the DFG's Lake and Streambed Alteration Program is available on the Internet at http://www.dfg.ca.gov/1600/index.html.

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Nevada County Plans

The SWRCB (and Central Valley and Lahontan RWQCBs) are responsible for water quality of wetlands, rivers and streams, lakes and groundwater in Nevada County. Although the proposed project is not subject to specific Nevada County General Plan requirements, it would adhere to the goals and guidelines of the General Plan. Design plans and siting in flood-prone areas are subject to review for consistency with the Nevada County Comprehensive Site Development Standards.

Town of Truckee General Plan

A good portion of Donner Memorial SP and all of the proposed project location fall within the Truckee town limits and are subject to the Town of Truckee General Plan, as it applies to state-owned land and State Park facilities. Alterations to existing facilities and construction within the Donner Pass Road right-of-way are also subject to Town of Truckee engineering standards and guidelines. The Conservation/Open Space and Safety Elements of the Town's General Plan addresses the following hydrologic and water quality issues for development within the Town of Truckee limits:

- Seismically-induced dam failure
- Flooding
- Peak load water supply requirements
- Preservation of natural resources
- Public health and safety

Policies applicable to the proposed project include:

C/OS Goal 1 - Protect areas of significant wildlife habitat, fisheries, and biological resources.

- C/OS Policy 1.6 - ...establish a development setback from each side of all blue line permanent and seasonal waterways as shown on the USGS maps, exclusive of the Truckee River...(see Truckee Development Code for setback criteria)

C/OS Goal 6 - Protect water quality and quantity.

- C/OS Policy 6.1 - Minimize the loss of groundwater recharge areas from paving. Per the Truckee Development Code, establish coverage limitations and encourage the use of permeable paving materials.
- C/OS Policy 6.2 - Protect surface and groundwater from contamination through runoff by implementing the Lahontan RWQCB BMPs.

Safety Goal 1 - Establish standards to reduce threat of hazards to life and property and direct new development away from natural hazard areas.

Safety Goal 2 - Coordinate with responsible agencies to reduce threats from natural and man-made hazards.

- Safety Policy 2.3 - ...maintain the most current flood hazard and floodplain information as a basis for project review in order to limit development in such areas

See Section 4.5.2 Geology and Soils/Town of Truckee General Plan for goals and policies relating to soil erosion. Project design, implementation plans, and proposed mitigations would be consistent with the Town of Truckee General Plan's goals and policies.

4.7.3 Thresholds of Significance

An impact to the hydrology and water quality of the area would be considered potentially significant if implementation of the proposed project would result in any of the following:

- Violate any water quality standards or waste discharge requirements.
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge, such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted).
- Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, in a manner which would result in substantial on- or off-site erosion or siltation.
- Substantially alter the existing drainage pattern of the site or area, including through alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding.
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.
- Substantially degrade water quality.
- Place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map, or other flood hazard delineation map.
- Place structures that would impede or redirect flood flows within a 100-year flood hazard area.

- Expose people or structures to a significant risk of loss, injury, or death from flooding, including flooding resulting from the failure of a levee or dam.
- Result in inundation by seiche, tsunami, or mudflow.

4.7.4 Environmental Impacts and Mitigation Measures

4.7.4.1 Construction Impacts to Water Quality

Hydrology Impact Hydro-1(a) Sedimentation

The proposed project would comply with all applicable water quality standards and waste discharge requirements, as specified in the Lahontan Basin Plan and SWRCB guidelines. However, project-related ground-disturbing activities, including grading, trenching, drilling, and excavation, could result in a release of sediment to surface waters (Donner Creek), substantially degrading water quality.

Mitigation Measures for Impact Hydro-1(a)

Implementation of Mitigation Measures Bio-4(a-c)(§4.3.4.4), Geo-2(a-c) (§4.5.4.2), and Hydro-2(a,b) would reduce any potential impacts to water quality from ground-disturbing activities to a less than significant level. No additional mitigation measures required.

Hydrology Impact Hydro-1(b) Hazardous Material Spills

Construction activities would require the use of potentially hazardous materials, such as fuels, oils, and solvents, and the routine transportation of small amounts of diesel fuel to the work site. Spills, releases, or other construction-related accidents could result in a release of fuels or other hazardous substances into surface waters (Donner Creek), substantially degrading water quality.

Mitigation Measures for Impact Hydro-1(b)

Implementation of Mitigation Measures Bio-4(c-e) (§4.3.4), Geo-2(a-c), Hazmat-1(a-e) and Hazmat-4 (§4.6.4), would reduce any potential impacts from the release of potentially hazardous materials to a less than significant level. No additional mitigation measures required.

4.7.4.2 Alteration to Drainage Patterns

Hydrology Impact Hydro-2

Existing drainage patterns at the proposed project site would be altered by construction of impermeable surfaces (building, parking lot, access road, and trails) and recontouring of the site to accommodate bio-swales and detention basins associated with the stormwater drainage system. Although the overall drainage patterns would remain relatively intact, the amount of stormwater runoff would increase and existing localized drainage patterns would be altered. This could result in substantial on- or off-site erosion or siltation; substantially increase the rate or amount of surface runoff in a manner which would result in on- or off-site flooding; or provide substantial additional sources of polluted runoff. Implementation of Mitigation Measures Hydro-2(a,b), in conjunction with Mitigation Measures Geo-2(a-c) (§4.5.4.2) and Bio-4(a-c) (§4.3.4.4), would reduce these potential impacts to a less than significant level.

Hydrology Mitigation Measure Hydro-2

a) A stormwater drainage system would be designed for the proposed project and sized to handle water runoff from a 20-year, 1-hour storm. Bioswales, infiltration chambers, and a stormwater vault would be constructed to contain, divert, and treat stormwater runoff from impermeable surfaces in the project area. Contaminants would be filtered from the runoff by active filtration mediums and infiltration to the subsurface soil. Any surface runoff that would not require treatment or infiltration would be sent directly to the bioswales or infiltration chambers.

b) A Stormwater Pollution Prevention Plan (SWPPP) which includes erosion control and pollution control BMPs consistent with the Stormwater Best Management Practice Handbook, Construction (CSQA, 2003), would be prepared and in place prior to the start of work (see Draft SWPPP, Appendix E), as required by the SWRCB [see Mitigation Measures Geo-2(a,b) and Hydro-1]. The SWPPP would also incorporate Best Available Technology (BAT) to reduce constituent levels to the maximum extent possible, in compliance with Lahontan RWQCB requirements.

4.7.5 Effects Considered to be Less than Significant

4.7.5.1 Increased Water Usage

Hydrology Impact Hydro-3

Construction of the proposed project, including dust control, operation of the public restrooms at the new Museum and interim irrigation at the project site, would result in a marginal increase in overall park water usage, when combined with continued public use of the existing Emigrant Trail Museum restrooms. According to TDPUD, projected additional water usage is within the capacity of the current supply and would not substantially deplete groundwater supplies or the local aquifer, or lower the local groundwater table level. Installation of the impervious surfaces or other activities associated with the proposed project would not be extensive enough to interfere substantially with groundwater recharge for the area. Less than significant impact; no mitigation required.

4.7.6 Findings

For hydrological conditions and water quality evaluated as part of this environmental document, the potential exists for significant degradation of water quality from erosion, sedimentation, and release of hazardous materials into surface waters; and increased stormwater runoff that could substantially increase the risk of flooding or become a source of increased polluted runoff, as a direct or indirect result of proposed project activities. However, changes in project scope and mitigation measures have been required as part of the project which avoid or substantially lessen these potentially significant environmental effects. Full implementation of all proposed mitigation measures would reduce any hydrologically-based potential impacts to a less than significant level.

4.8 LAND USE AND PLANNING (INCLUDES AGRICULTURE AND MINERALS)

This section discusses land use and planning conditions and issues that apply to the proposed project and identifies potential mitigation measures designed to avoid or reduce the significance of any potential land use impacts to the greatest extent feasible.

The proposed High Sierra Crossings Museum project would provide a year-round public recreational facility within the boundaries of the Town of Truckee. It would replace the existing Emigrant Trail Museum, which currently serves nearly 70,000 visitors annually.

4.8.1 Land Use and Planning

4.8.1.1 Existing Conditions

The proposed project location is within the boundaries of Donner Memorial SP, which is zoned as a Public Facilities District (PF) in the Town of Truckee Development Code. Properties with this zoning are considered areas appropriate for public, institutional, and auxiliary uses that are established in response to the recreational, safety, cultural, and welfare needs of the Town. Allowable uses include public parks and facilities, schools, hospitals and government offices, and other appropriate uses for public agencies. The PF zoning district is consistent with the Public (PUB) land use classification assigned to this location in the Town of Truckee General Plan. The PUB designation is applied to areas under public ownership by government agencies. The PF zoning is also consistent with DPR's classification of the property surrounding the Pioneer Monument as a state park (i.e., Donner Memorial SP). This classification is described in the PRC §5019.53, as “relatively spacious areas of outstanding scenic or natural character, oftentimes also containing significant historical, archaeological, ecological, geological, or other such values.” Park land bounds the proposed project site to the east and south.

The proposed project location is designated as part of Planning Zone #1 in the Donner Memorial SP General Plan (2003a). DPR establishes planning zones within its park units to define conditions and/or activities that would occur chiefly within each zone or area and direct future development. The area generally located between Donner Pass Road and Donner Creek has been designated as Planning Zone #1. This zone includes the proposed project area, main park entrance area, Emigrant Trail Museum and parking lot, day use trails, and beaches along the east end of Donner Lake. It has been designated for recreational use, with emphasis on creating a successful combination of public access; facility development; interpretation, protection, and preservation of important cultural resources; and restoration of the vitality and health of natural ecosystems.

The roadway easements and corridors of Donner Pass Road and I-80, along the northern boundary of Donner Memorial SP and the proposed project site, provide a visual barrier from the residential communities (zoned RS-X Single Family Residential) further to the north. This residential area is part of the Tahoe-Donner subdivision, which

encompasses 4,000 acres and 10,000 privately-owned lots, and is used primarily for residences or second homes. There are also commercial establishments within the area to serve local residents. Caltrans has jurisdiction over the I-80 corridor and the Donner Pass Road right-of-way is owned and maintained by the Town of Truckee.

Donner Lake forms most of the park's western boundary, except in the northwest corner. The adjoining parcel, immediately adjacent to the western corner of the park and project boundary, along Donner Pass Road, is zoned Recreation (REC) District Development Standards. It is occupied by the Tahoe-Donner Beach Club, a private recreational facility consistent with the current zoning. Other than minimal park development (e.g., an in-park road, parking, and a small flow-control dam on Donner Creek), this is the only developed property immediately adjacent to the park and within 900 feet of the project site.

4.8.1.2 Regulatory Setting

Donner Memorial SP General Plan

The General Plan for Donner Memorial SP (DRP 2003a) provides guidelines for future land use and development with park boundaries and is consistent with local and regional general plans. The General Plan proposals are consistent with the existing Town of Truckee land use in the area, which allows a combination of open space, recreational, residential, and commercial development. Goals and guidelines for each Planning Zone are either site-specific or pertain to conditions and activities that occur chiefly within that zone. They apply to all projects and activities conducted within the identified areas. General goals and guidelines are also established that apply to all areas of the park. Protection and preservation of natural ecosystem elements and processes, including protection of listed and special status species and important cultural features, are integral components of the management of all planning zones. Goals and guidelines established specifically for Planning Zone #1 also include a general zone directive to develop and enhance park entrance, administrative, and interpretive facilities for improved access and public enjoyment, balanced with an appropriate level of protection and preservation of cultural and natural resources.

Town of Truckee General Plan and Development Code

The Land Use Element of the Town of Truckee General Plan sets forth specific goals and policies to guide the intensity, location, and distribution of land uses within the Town limits. As required by California Government Code §65302(a) and PRC §2762(a), the Land Use Element of the Town of Truckee General Plan addresses distribution, location, and extent of the land uses and standards of population density and building intensity for specified and use designations.

The Truckee Development Code (TDC) consists of Title 18 of the Truckee Municipal Code, and contains the Town's zoning, land use, and subdivision regulations. These provisions comprise most of the Town's requirements for the development and use of private and public land, buildings, and structures within the Town. Title 13 (Streets and Sidewalks) and Title 15 (Building and Construction) also contain additional requirements for building construction and other aspects of development and land use. Like the

Town's General Plan, provisions of the TDC apply, in varying degrees, to all development within the Town limits.

Nevada County General Plan

Nevada County encompasses the Town of Truckee and the northern part of the park, including the proposed project site. The Nevada County General Plan policies direct the county to coordinate future park and trail planning with federal, state, and local agencies to maximize the benefits from public land and facilities for public use and recreation. However, there are no plans or policies that specifically apply to the land use elements of the proposed project.

4.8.1.3 Thresholds of Significance

A project would be considered to have a potentially significant adverse environmental impact to land use and planning if it would:

- Physically divide an established community.
- Conflict with the applicable land use plan, policy, or regulation of any agency with jurisdiction over the project (including, but not limited to, a general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.
- Conflict with any applicable habitat conservation plan or natural community conservation plan.

4.8.1.4 Environmental Impacts and Mitigation Measures

Land Use and Planning Impact LU/P-1 Water Quality

a) Lahontan RWQCB restricts removal of vegetation or disturbance of existing ground surface conditions between October 15 and May 1, except for emergencies to public health or safety. Subsurface archaeological studies and/or mitigation proposed for this project could commence or continue during this time, and therefore could result in a significant land use impact.

Land Use and Planning Mitigation Measures LU/P-1

a) DPR shall request a variance from Lahontan RWQCB to conduct any ground-disturbing activities between October 15 and May 1, and must obtain such variance before any work would proceed during those months.

4.8.1.5 Effects Considered to be Less than Significant

Land Use and Planning Impact LU/P-2

The proposed project site is primarily within the boundaries of Donner Memorial SP, within the Town of Truckee boundaries, and approximately two miles west of the historic business district. The site does not contain or define an established community and project activities or operations following construction would not impede access to any adjacent parcels. Construction activities may temporarily delay traffic traveling in either direction on Donner Pass Road (see §4.11.4.1), a collector roadway from local Truckee streets to residential areas surrounding Donner Lake. Alternate routes between properties around the Donner Lake shoreline, I-80 access, and downtown Truckee are

less convenient than Donner Pass Road, but do exist, and any delays would be intermittent, of short duration, and would cease once construction is completed. Emergency access would be maintained at all times. Therefore, project activities would not divide any community or significantly disrupt community functions. Less than significant impact. No mitigation required.

4.8.2 Agriculture

4.8.2.1 Existing Conditions

The proposed project location is within the boundaries of Donner Memorial SP and the Donner Pass Road right-of-way. It contains no lands zoned for or in agricultural use. None of the land within Donner Memorial SP, or in the area immediately surrounding the property, is included in any of the Important Farmland categories, as delineated by the California Department of Conservation, under the Farmland Mapping and Monitoring Program (FMMP).

4.8.2.2 Regulatory Setting

California Department of Conservation

The California Department of Conservation, Division of Land Resource Protection (DLRP) provides assistance to landowners, local governments, and researchers in determining whether impacts to agricultural resources are significant environmental effects. Various programs track, evaluate, and assist in the conservation of California's farmland and are authorized or regulated by the following codes and acts:

- The California Farmland Conservancy Program Act (PRC §10200 *et seq.*
- Agricultural Land Stewardship Program - California Code of Regulations (CCR) Title 14, Division 2, Chapter 6
- Government Code §65570(b) - Requires collection of information on use and disposition of farmland
- PRC §612 - Requires preparation of Farmland Series Maps and other soils and land capability information.
- PRC §21060.1 (CEQA) - Defines agricultural lands for the purpose of assessing environmental effects using the FMMP Important Farmland Map categories.
- California Land Conservation Act of 1965 (Williamson Act)

Lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (2002), prepared by the California Department of Conservation as an optional model for use in assessing impacts on agricultural and farmland.

4.8.2.3 Thresholds of Significance

A project would be considered to have a potentially significant adverse environmental impact to agriculture if it would:

- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.

- Conflict with existing zoning for agricultural use or a Williamson Act contract.

- Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use.

4.8.2.4 Environmental Impacts and Mitigation Measures

The project is located wholly on State Park land or dedicated road easement and right-of-way and does not support any agricultural operations. No land adjoining the proposed project location is used for agricultural purposes, as defined by the United States Department of Agriculture land inventory and monitoring criteria (modified for California), and is not in conflict with existing zoning for agricultural use in the Nevada County General Plan, Town of Truckee General Plan, or any Williamson Act land contracts. No conversion of agricultural lands to non-agricultural uses would occur as a result of the project. No impact.

4.8.3 Minerals

4.8.3.1 Existing Conditions

The Truckee-Donner basin is located within the Sierra Nevada Province and contains base and precious metal deposits of gold, silver, copper, lead, and zinc, and tungsten deposits in roof pendants. Sand and gravel deposits from alluvial and glacial sources are present within the current park boundaries and other deposits exist to the east. Within the core area of the park, a borrow pit was developed to mine sand and gravel for construction of Highway 4. It was subsequently used as a rubbish pit and has been mostly filled in. The project area is not designated part of an Aggregate Resource Area, as identified in the Aggregate Resources Management Plan (SCGP, Mineral Resources). No deposits of economic importance are known in Donner Memorial SP and no mining activities are currently in progress.

4.8.3.2 Regulatory Setting

The Town of Truckee and Nevada County General Plans both contain protections for mining and use of mineral resources. Mineral resource extraction is not permitted under DPR Resource Management Directives.

4.8.3.3 Thresholds of Significance

A project would be considered to have a potentially significant adverse environmental impact to mineral resources if it would:

- Result in the loss of availability of a known mineral resource that is or would be of value to the region and the residents of the state.

- Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

4.8.3.4 Environmental Impacts and Mitigation Measures

There are no known mineral deposits of economic importance directly underlying the project site. Construction and operation of the proposed project would not result in the loss of availability of any known mineral resource. No impact.

4.8.4 Findings

For land use and planning conditions evaluated as part of this environmental document, the potential exists for conflict with an applicable land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect, as a direct or indirect result of proposed project activities. However, changes in project scope and mitigation measures have been required as part of the project which avoid or substantially lessen these potentially significant environmental effects. Full implementation of all proposed mitigation measures would reduce any planning and land use potential impacts to a less than significant level.

4.9 NOISE

This section contains a description of the existing noise conditions in the project area, and evaluates the potential noise impacts associated with the proposed High Sierra Crossing Museum project.

4.9.1 Existing Conditions

The proposed project area is located within Donner Memorial SP. The primary noise source in the proposed project area is surface traffic from the adjacent Donner Pass Road (Old Highway 40) and the constant roar of traffic on the elevated Interstate 80. The project site is bounded on the north by Donner Pass Road, a two-lane city/county road with moderate residential and recreational traffic. Truck traffic is limited on Donner Pass Road, with few semis. School buses use the route daily; tour buses use the section between the Donner Pass Road off-ramp from I-80 and the park's main entrance, but rarely venture further west. Heaviest usage in the project vicinity occurs during normal work/school commute hours and seasonally during holiday weekends.

Although noise from the Southern Pacific rail line to the south is intermittently audible, it does not significantly contribute to the overall ambient noise environment of the proposed project site. The sounds of power boats and personal watercraft (jet skis) on the lake also contribute to intermittent seasonal background noise at the project site. Aircraft overflights are also audible, but are intermittent and of limited duration. There are no other significant fixed or industrial noise sources that would contribute significantly to the ambient noise environment in the proposed plan area.

4.9.2 Noise Analysis

The proposed project location is within the Town of Truckee limits and is subject to noise standards and exemptions established by the Truckee Development Code, Chapter 18.44, §§040-070.

Figure 4.9-A (below) establishes the compatibility and acceptable planning limits of exterior noise for land uses within the Town of Truckee limits, based on a community noise equivalent level (CNEL), expressed in decibel units (dB or dBA). These community standards are consistent with the State (California) Office of Noise Control Guidelines. As noted in Figure 4.9-A below, the exterior noise limits at recreational facilities and regional parks, such as Donner Memorial SP, are 90 dBA from 7 am to 7 pm; 75 dBA from 7 pm to 7 am.

Figure 4.9-A Standards for Land Use Compatibility with Noise (dBA CNEL)				
	Exterior Noise Levels			
Land Use Category	**Zoning Districts**	**Time Period**	**Noise Level, dBA L_{eq}**	**Noise Level, dBA L_{max}**
Rural	A1, TPZ, AE, OS, FR, IDR	7 am -7 pm 7 pm -10 pm 10 pm -7am	55 50 40	75 65 55
Residential and Public	RA, R2, R1, R3, P	7 am -7 pm 7 pm -10 pm 10 pm -7am	55 50 45	75 65 60
Commercial and Recreation	C1, CH, CS, C2, C3, OP, REC	7 am -7 pm 7 pm -7am	70 65	90 75
Business Park	BP	7 am -7 pm 7 pm -7am	65 60	85 70
Industrial	M1, M2	any time	80	90

Source: 2005 Truckee General Plan Update, Noise Element

Figure 4.9-B below provides future noise contour distances along I-80 and Donner Pass Road in the park vicinity. The proposed Museum building and primary public gathering locations associated with this project would be located at least 60 feet (20 meters) from Donner Pass Road and approximately 120 feet (39 meters) from I-80.

Figure 4.9-B Future CNEL Range	
Roadway Segment	**100 Feet from Roadway Centerline**
Interstate 80 – east of Donner Pass Road	84
Donner Pass Road – east of Cold Stream Road	64

Source: 2005 Truckee General Plan, Future (2025) Noise Contours, Figure N-1

Although construction activities associated with the proposed project would result in temporary noise impacts, these need not be analyzed because Ch. 18.44.070 of the Truckee Development Code exempts non-residential construction from the established noise standards, provided time constraints are observed. There are no known sensitive receptors within one-quarter mile of the proposed project location.

4.9.3 Regulatory Setting

Donner Memorial SP General Plan

DPR developed the Donner Memorial SP General Plan to identify park-wide goals and general policy guidelines for future development, management, and protection of park resources and visitor facilities. This included determining the best location(s) for the Museum/Visitor Center proposed in this EIR. As noted in Section 1.5 of this document, the Donner Memorial SP General Plan has been incorporated into this EIR by reference.

The General Plan proposed new facility development in Planning Zone #1 that could potentially increase noise levels during construction and normal operation. It was recommended that temporary noise impacts associated with construction should be timed to avoid negative impacts to park visitors, neighbors, and any sensitive wildlife present in and near the project area. The General Plan concluded that, although a project-specific environmental review would be required prior to project implementation, the development of a museum/visitor center in the proposed location would not result in significant adverse noise impacts.

Town of Truckee

The Truckee Municipal Development Code has established a Municipal Noise Ordinance to limit the maximum permitted noise levels that could cross property lines and impact adjacent land uses. Chapter 18.44.040 of the Development Code specifies exterior noise standards for development within the Town (including the proposed project location) and specifies that reasonable noise mitigation measures shall be employed to satisfactorily reduce noise to acceptable levels. Ch. 18.44.060 specifies prohibited noise-related acts and Ch. 18.44.060 identifies exceptions to the regulatory sections indicated above.

Chapter 18.44.070(A) is applicable to the proposed project and specifies that noise generated by sources associated with non-single family residential construction are exempt from the noise standards contained in the provisions of Ch.18.44 indicated above. However, this only applies to activities that take place from 7:00 am to 9:00 pm on any day except Sunday, or 9:00 am to 6:00 pm on Sunday. Although the reviewing authority can impose further limitations on hours and days of construction or other mitigations, there are no known sensitive noise areas, as defined by the Development Code, in the proposed project area. Emergency work or work conducted to protect public health, safety, and welfare is also exempted from Ch. 18.44 by Ch. 18.44.070(C,F).

Elements of the Town's General Plan addresses noise-related goals and policies for development within the Town of Truckee limits. Policies applicable to the proposed project include:

- Noise Goal 1 - Provide appropriate exterior and interior noise environments for land uses to protect citizens from excessive noise.
  - Noise Policy 1.1 - All new development projects must comply with the standards identified in the Land Use Compatibility with Noise Table in the Noise Element of the Truckee General Plan and the California Noise Insulation Standards for interior noise levels.
- Noise Goal 2 - Minimize land use conflicts resulting from noise.
  - Noise Policy 2.2 - Regulate noise from non-emergency construction activities through the Municipal Noise Ordinance.
- Noise Goal 3 - Address noise issues in the planning and permitting process.
  - Noise Policy 3.1 - Mitigate all significant noise impacts as a condition of project approval.

Nevada County General Plan

Although the Nevada County General Plan addresses noise levels and constraints applicable to properties within Nevada County, the proposed project area is also within the Town of Truckee limits. Therefore, Truckee noise standards take precedence, consistent with the requirements of the Nevada County General Plan.

4.9.4 Thresholds of Significance

A project would be considered to have a significant impact related to noise if the project would:

- Generate or expose people to noise levels in excess of standards established in a local general plan or noise ordinance, or in other applicable local, state, or federal standards.
- Generate or expose people to excessive groundborne vibrations or groundborne noise levels.
- Create a substantial permanent increase in ambient noise levels in the vicinity of the project (above levels without the project).
- Create a substantial temporary or periodic increase in ambient noise levels in the vicinity of the project, in excess of noise levels existing without the project.
- Be located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport? If so, would the project expose people residing or working in the project area to excessive noise levels?
- Be in the vicinity of a private airstrip. If so, would the project expose people residing or working in the project area to excessive noise levels?

4.9.5 Environmental Impacts and Mitigation Measures

4.9.5.1 Temporary Construction Noise

Impact Noise-1

Construction noise levels at and near the project area would fluctuate, depending on the type and number of construction equipment operating at any given time, and would exceed ambient noise standards in the immediate vicinity of the work for brief periods of time. The distances from residences and small commercial ventures adjacent to the property boundaries to the proposed work sites are sufficient to prevent an objectionable level of noise. However, depending on the specific construction activities being performed, short-term increases in ambient noise levels could result in speech interference at the work site and a potential increase in annoyance to staff. As a result, construction-generated noise would be considered to have a potentially significant short-term impact. Implementation of Mitigation Measure Noise-1(a-c) would reduce potential temporary construction noise impacts to a less than significant level.

Mitigation Measure Noise-1

a) Construction activities would only occur from 7:00 am to 9:00 pm on any day except Sunday, or 9:00 am to 6:00 pm on Sunday, except for work associated

with emergency conditions or activities necessary to protect public health, safety, or welfare.

b) Internal combustion engines used for any purpose at the job site would be equipped with a muffler of a type recommended by the manufacturer. Equipment and trucks used for construction would utilize the best available noise control techniques (e.g., engine enclosures, acoustically-attenuating shields or shrouds, intake silencers, ducts, etc.) whenever feasible and necessary.

c) Stationary noise sources and staging areas would be located as far from sensitive receptors as possible. If they must be located near sensitive receptors, stationary noise sources would be muffled to the extent feasible and/or, where practicable, enclosed within temporary sheds.

4.9.6 Effects Considered to be Less than Significant

4.9.6.1 Operational Noise

As noted in the Donner Memorial SP General Plan, normal operations at the proposed High Sierra Crossings Museum would involve activities that would increase ambient noise levels at and adjacent to the proposed project location. Sources for this increase would generally include visitor conversations and arrival/departure of visitor vehicles, buses, delivery and refuse trucks, and maintenance vehicles. Although special events may occur at the Museum, outdoor concerts or amplified speech would not occur at levels or times that would violate the Town of Truckee exterior noise limits. No sensitive receptors are located in the proposed project's area of potential effect and screening provided by on-site vegetation would also reduce the transmission of noise from the facility. Less than significant impact; no mitigation required.

4.9.7 Findings

For noise sources and levels evaluated as part of this environmental document, the potential exists for potentially significant short-term, construction-generated noise impacts, as a direct or indirect result of proposed project activities. However, changes in project scope and mitigation measures have been required as part of the project which avoid or substantially lessen these potentially significant environmental effects. Full implementation of all proposed mitigation measures would reduce any noise-related potential impacts to a less than significant level.

4.10 PUBLIC SERVICES AND UTILITIES

This section discusses public services and utilities that would serve the proposed project and identifies potential mitigation measures designed to avoid or reduce the significance of any potential impacts to performance levels or objectives, response times, or available resources to the greatest extent feasible.

The proposed High Sierra Crossings Museum project would provide a year-round public recreational facility on the east shore of Donner Lake, within the boundaries of the Town of Truckee. It would replace the existing Emigrant Trail Museum, which currently serves nearly 70,000 visitors annually.

4.10.1 Public Services

4.10.1.1 Existing Conditions

FIRE PROTECTION AND EMERGENCY MEDICAL SERVICES

The Truckee Fire Protection District (TFPD) and the California Department of Forestry and Fire Protection (CDF) provide fire protection services for the proposed project area.

Truckee Fire Protection District (TFPD)

The Truckee Fire Protection District provides services within the Town of Truckee limits and adjacent urban areas of Nevada and Placer counties (including Donner Memorial SP and the proposed project area) for fire suppression; emergency medical care, rescue, and/or transportation; fire prevention; and public education. TFPD is the first responder for structural fires and medical emergencies, with CDF as lead for wildland fire suppression. CDF also provides backup to TFPD for structural fires.

Gateway Station 92, located at 11479 Donner Pass Road, is the closest fire station to the proposed project site at less than one mile away. It is TFPD's largest station, staffed full time, 24 hours a day -7 days a week, including two firefighter/paramedics. Equipment at this location includes (2) ambulances w/paramedic transport, (2) type-1 fire engines, (1) type-2 fire engine, (1) certified medium rescue unit, (1) 75' aerial ladder truck, and (1) 2.600 gallon water tender. However, there are a total of four TFPD fire stations within two miles of the proposed project site. In addition, TFPD's Station 96, at Truckee Tahoe Airport, less than five miles from the park, maintains a hazardous materials response vehicle and Careflight *A Star* air ambulance helicopter, with a pilot and two flight nurses. One air boat and a swiftwater/dive rescue boat are also available. Response time from Station 92 to the proposed project site is less than two minutes. Staffing and equipment levels are sufficient to meet current demands and it is not anticipated that any additional facilities will be necessary to accommodate future development in their service area, which includes the proposed project location.

California Department of Forestry and Fire Protection (CDF)

CDF is the agency charged with primary response to wildland fires throughout California. During fire season in the Truckee area (May 15 to November 1), CDF maintains two engines at the TFPD's Station 96 (Truckee-Tahoe Airport). Response time to the proposed project site would be 7-10 minutes or less. Although CDF is the primary responder to wildland fires, Truckee Fire is the backup for the project area, and the close proximity of the TFPD's Gateway Station would probably result in an immediate response from that location.

4.10.1.2 Regulatory Setting

State Fire Responsibility Act

Pursuant to PRC§4.15 *et seq*., commonly known as the State Fire Responsibility Act, the State Board of Forestry classifies all lands within the state, based on factors such as vegetative cover and fire risks and hazards. These classifications are used to determine areas where the State is primarily responsible for preventing and suppressing fires. State-adopted fire protection regulations establish minimum wildfire protection standards to reduce the potential for wildland fires, decrease response times, and improve firefighter's chances of extinguishing wildland fires. These regulations are applicable in all CDF service responsibility areas within the Truckee-Donner basin, including the proposed project area. They do not apply to existing structures, roads, streets, or private drives and facilities. However, they do apply to provisions for emergency access; road width, surface, grades, radius, and turnarounds; signage; one-way road designs; gate entrances; emergency fire use; fuel breaks, and greenbelts.

Town of Truckee General Plan

See Hazards §4.6.2 (Town of Truckee GP) for goals and policies related to fire protection, hazards, and response.

Nevada County General Plan

Nevada County General Plan has no regulations, policies, or guidelines applicable to fire protection and response at the proposed project site.

LAW ENFORCEMENT

California State Park Rangers

State Park Rangers provide immediate police protection within the park boundaries, on a 24-hour basis, with backup provided by the Truckee Police Department and supported, as needed, by the Nevada County Sheriff's Department. Rangers have law enforcement authority and patrol the park boundaries, police public use areas, enforce the public resource code, and guard against misuse of park property and resources. This includes the property containing the proposed project site and the new museum facilities, once they are in operation.

Truckee Police Department

The Truckee Police Department (PD) became fully operational in September 2001 and provides services, 24 hours a day, 7 days a week, within the Town of Truckee limits, including the proposed project area. The police station is located at 10183 Airport Road, in the Truckee Town Hall facility, less than two miles of the main park entrance. The Truckee PD has mutual assistance agreements with the Nevada County Sheriff's Department and California Highway Patrol (CHP) for backup and additional assistance. Response times range from 5-20 minutes, depending on the severity of the emergency.

Nevada County Sheriff's Department (Substation)

The Nevada County Sheriff's Department provides law enforcement services for all the unincorporated areas of Nevada County and, in the proposed project area, mutual assistance backup for the Truckee PD and CHP. There are two deputies and one supervising sergeant assigned to the Sheriff's Truckee substation.

Truckee Emergency Communications

The Nevada County Sheriff's Office Truckee substation houses the area's Emergency Dispatch Center. The Center handles emergency calls for the Truckee Police Department, Nevada County Sheriff's Department, local Truckee CHP, U.S. Forest service, the Town of Truckee, and fire and ambulance calls for the Truckee Fire Department.

California Highway Patrol (CHP)

The CHP office for the Truckee area is located at 10077 State Route 89 South in Truckee. Officers are responsible for patrol of the state's interstate highway system, including I-80, along with state and county roads. The CHP also provide backup for Nevada County Sheriff's officers and Truckee Police in the proposed project area. The CHP would render assistance for incidents along Donner Pass Road at the request of the Truckee PD.

PUBLIC SCHOOLS

Donner Memorial SP is located within the Tahoe Truckee Unified School District (TTUSD), serving 5,000+ students in grades K-12 in the eastern portions of Placer, Nevada, and El Dorado counties. There are six schools within a two-mile radius of the project: Glenshire Elementary, Prosser Creek Charter, Sierra High School, Sierra Mountain Middle School, Tahoe-Truckee High School, and Truckee Elementary. None of the schools are within one-quarter mile of the proposed project site.

PARKS

The Truckee-Donner area is rich in parks and recreational facilities in and around Donner Lake. Facilities range from an activity center for middle and high school students to local playground areas and ball fields, to a multitude of boat launching facilities and 37 public piers on the north side of Donner Lake. A detailed description of recreational venues within and surrounding Donner Memorial SP are included in the Land Use and Facilities section of the park's General Plan.

4.10.1.3 Thresholds of Significance

A project would be considered to have a potentially significant adverse environmental impact to public services if it would:

- Result in significant environmental impacts from construction associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, to maintain acceptable service ratios, response times, or other performance objectives

4.10.1.4 Environmental Impacts and Mitigation Measures

Public Services Impact PS-1
Increased Visitation and Additional Facilities

Fire and Emergency Medical Services

Use of construction equipment around flammable annual vegetation presents an increased fire risk that could result in additional demands on CDF and local fire response teams. However, any impact on services from construction-related activities would be temporary and nothing in the project scope would contribute to the need for an increase in the existing level of public service. In addition, State Park Rangers and park-maintained fire suppression equipment would also be available to support CDF and TFPD within the park. The potential impact to Fire Protection services would be less than significant. (See Hazards §4.6.5 for mitigations regarding fire hazards and protection of emergency access.) No mitigation required.

Law Enforcement

As noted in 4.10.1.1 above, State Park Rangers regularly patrol the proposed project area as part of their normal duties. Staffing is sufficient to provide security and enforcement at the new facilities once they are in operation. The Truckee Police Department responds to emergency calls and assists with criminal investigations, with backup from the Nevada County Sheriff's Department and CHP. Although the proposed project would result in a new park facility, it would be replacing similar functions currently provided by the Emigrant Trail Museum, so a substantial increase in visitors is not expected. The presence of the HSC Museum is not expected to result in any need for increased police services. Less than significant impact; no mitigation required.

Public Services Impact PS-2
Additional Demand for Services

Schools

Although six schools are located within two miles of the project area, no increased school enrollment is expected as a result of this project. The proposed project is designed to provide interpretive opportunities and a recreational destination for local residents and visitors to the area. The facility would be staffed with existing employees. Construction workers would be existing California State Park employees or employees of the contractor and would either commute, reside temporarily in the area, or already live in the general vicinity of the project. No changes would occur as a result of this project that would require additional schools or school personnel. No impact; no mitigation required.

Parks

None of the project elements, during construction or operation of the facilities, would interrupt normal activities at any of the area's many recreational venues or contribute to an increase of visitation beyond existing projections of future growth. The level of required services within Donner Memorial SP is expected to remain relatively static, subject to normal increases in visitation and annual fluctuations in visitor use. Existing staffing is sufficient to meet additional maintenance demands that would occur once the facility is in operation. Less than significant impact; no mitigation required.

Other Public Facilities

County administrative requirements would be equivalent to any other minor commercial construction project and most operational requirements would be duplicative of those already performed at various public departments and offices. The proposed project would have a less than significant impact on other public services. No mitigation required.

4.10.2 Recreation

4.10.2.1 Existing Conditions

As noted in 4.10.1.1 Parks above, the area surrounding the proposed project location contains many local and regional public parks; activity halls; ball fields and courts; hiking, bike, and equestrian trails; piers; golf courses; and boat-launching facilities. Both public and private campgrounds are available around Donner Lake and in nearby state and national parks and forests. Public gymnasium facilities are available in downtown Truckee and at the local high schools. Privately owned sports facilities, including golf courses; fitness centers; indoor and outdoor courts; boating facilities; and ski slopes are available throughout the Truckee-Donner area. There are, however, no developed recreational facilities or official access to existing recreational facilities on the proposed project site.

4.10.2.2 Regulatory Setting

Donner Memorial SP General Plan

DPR developed the Donner Memorial SP General Plan to identify park-wide goals and general policy guidelines for future development, management, and protection of park resources and visitor facilities. As noted in Section 1.5 of this document, the Donner Memorial SP General Plan has been incorporated into this EIR by reference.

Park-wide and project-specific goals and guidelines for recreation and the appropriate Planning Zone should be incorporated as applicable during planning and implementation of the proposed project. Protection and preservation of natural ecosystem elements and processes, including protection of listed and special status species and important cultural features, are integral components of the management of all planning zones.

The primary goal for all recreational opportunities within California's state parks is to encourage the state's diverse population to visit, enjoy, and better understand the significance of the park's resources, while maintaining the highest levels of natural and

cultural resource management. Development guidelines that may be applicable to the proposed project are as follows:

- Plan recreational opportunities within a regional context. Provide for recreational activities at the park that are appropriate for its size and varied terrain.

- Evaluate the need for, and current capacities of, existing recreational facilities, and consider construction of new and/or upgraded facilities in order to provide a quality visitor experience for the general public.

- Complete appropriate studies to provide a greater understanding of planning issues and natural and cultural resources for major development projects in the park, including trails. These plans and studies should include project area resource surveys and monitoring. They should take into account potential impacts of facilities and visitation increases on the resource base, the relationship of the new facility(ies) to those already existing, access and traffic loads on feeder roads, as well as those within the park, and disabled accessibility, where feasible.

- Avoid adverse impacts to critical resource areas when considering the need and/or location for new public facilities.

- Explore strategies to provide maximum feasible accessibility to campsites, trails, vistas, interpretive resources, and other park facilities.

Town of Truckee General Plan

There are no formal policies or guidelines within the Town of Truckee General Plan that apply to the proposed project, except general recommendations to: (1) develop outdoor recreation facilities open to public use; and (2) improve and maximize the use of existing recreational facilities and plan for new facilities to accommodate residents and visitors.

4.10.2.3 Thresholds of Significance

A project would be considered to have a potentially significant adverse environmental impact to recreation if it would:

- Increase the use of existing neighborhood and regional parks or other recreational facilities, such that substantial physical deterioration of the facility would occur or be accelerated.

- Include recreational facilities or require the construction or expansion of recreational facilities that could have an adverse physical effect on the environment.

4.10.2.4 Effects Considered to be Less than Significant

Recreation Impact Rec-2

Additional Demand for Services

Although the proposed project would result in a new park facility, it would be replacing similar functions currently provided by the Emigrant Trail Museum, so a substantial increase in visitors is not expected. Increases in visitation are likely to occur even if the new Museum is not constructed. It is also likely that some visitors will "discover" the new Museum when visiting other parks or attractions in the area. Because there are no developed recreational facilities on the proposed project site and most existing volunteer trails in the area would remain open during construction, there would be little displacement of current visitors to other facilities. There may be a minor increase in the use of other parks and recreational facilities as visitors to the Museum explore the local area. Impacts to other recreational facilities as a result of proposed project activities or operation of the facilities once work is completed would be less than significant. No mitigation required.

4.10.3 Utilities

WATER SERVICE

4.10.3.1 Existing Conditions

Water for Donner Memorial SP, including the proposed project site, is supplied by TDPUD, who acquires its water from aquifers hundreds of feet deep, within the Truckee groundwater basin. TDPUD also acquired the Donner Lake water system in May of 2001 and is in the process of rehabilitating the system. This may become the future primary water source for customers around Donner Lake, including Donner Memorial SP. Truckee water is pure and, according to the company's website, of a higher quality than most bottled drinking water. The District's water system has been designed with pump stations and storage reservoirs at different elevations to maintain high pressure for fighting urban fires and for all domestic water uses. TDPUD water supply lines currently extend along Donner Pass Road, adjacent to the location for the proposed HSC Museum.

4.10.3.2 Regulatory Setting

TDPUD operating agreements, customer contracts, state water quality requirements, the California Water Code, California Public Utilities Code, and the California Public Utilities Commission (PUC) provide the framework for water service to the proposed project. A connection fee and commercial facilities fee, as prescribed in Ordinance 2001-01 of TDPUD's 2001 Water Master Plan Update, would apply to the proposed project.

4.10.3.3 Thresholds of Significance

A project would be considered to have a potentially significant adverse environmental impact to water availability and services if it would:

- Require or result in the construction of new water treatment facilities or expansion of existing facilities that would cause a significant adverse environmental impact during construction or operation.

- Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities that would cause a significant adverse environmental impact during construction or operation.
- Have insufficient water supplies available to serve the project from existing entitlements and resources or require new or expanded entitlements?

4.10.3.4 Environmental Impacts and Mitigation Measures

Utilities Impact Util-1

Construction of Stormwater Drainage Facilities

Construction of a new Museum and associated facilities in a previously undeveloped area, adjacent to Donner Creek and in the general vicinity of Donner Lake, would require the construction of a stormwater drainage system to collect, treat, and distribute runoff from surrounding impermeable surfaces, including the patio, walkways, parking lot, and entrance road. Improper design or operation of the system, or activities associated with the system's actual construction, could result in significant adverse environmental impacts.

Mitigation Measures for Impact Util-1

Implementation of Mitigation Measures Bio-4(a-c) (§4.3.4.4); Geo-2(a-c) (§4.5.4.2); and Hydro-2(a,b), in conjunction with conditions included in the SWPPP (Appendix E), would reduce most potential impacts to a less than significant level.

4.10.3.5 Effects Considered to be Less than Significant

Utilities Impact Util-2

Increased Demand

The proposed HSC Museum would replace the existing Emigrant Trail Museum as the park's interpretive center, redirecting visitors to the new facility and significantly reducing water usage at the existing facility. However, conversion of the space in the existing building to staff offices and continued public use of the toilet facilities would result in some continued water usage. This use, combined with construction and operational requirements at the new facility, would increase total water demand by Donner Memorial SP. According to the TDPUD's 2001 Water Master Plan Update, supply facilities available in 2001 were impacted and insufficient to meet public demand for water service in the Donner Lake area, including Donner Memorial SP. It was determined that new system facilities would have to be constructed to meet current and future demand. As a result of this determination, and funded primarily by commercial facilities and connection fees, extensions and system upgrades were implemented. This expansion was unrelated to the proposed project, except as one of many projected future demands on the system. Projected usage at the new museum facility would be within anticipated supply availability and the existing TDPUD infrastructure is sufficient to accommodate the required supply line connections. Project impacts to existing water supply and treatment facilities would be less than significant. No mitigation required.

4.10.4 Wastewater Service

4.10.4.1 Existing Conditions

The Tahoe-Truckee Sanitation Agency (TTSA) is the umbrella agency for five sewage collections districts serving the Tahoe-Truckee area. Truckee Sanitary District (TSD) currently supplies wastewater collection services for Donner Memorial SP, which includes the proposed project area. DPR-owned sewer lines extend from the park's day use areas through the campgrounds, then to a connection with TSD mainlines at Donner Pass Road, near its intersection with Coldstream Road. TSD sewer mainlines also extend along the northern shoulder of Donner Pass Road, adjacent to the proposed project location for the Museum entrance road. Sewage is transported to TTSA's Water Reclamation Plant (WRP), located in the eastern part of Truckee, for treatment. The WRP provides primary, secondary, and tertiary sewage treatment. Treated wastewater is discharged into the Truckee River and organic sludge is transported to a landfill site in Nevada. The WRP reached capacity in 2004, but expansion of the treatment facility is underway, with completion expected in 2005. The expanded capacity is expected to be sufficient for projected demands within the TTSA service areas until 2015.

4.10.4.2 Regulatory Setting

TTSA operating agreements, customer contracts, Lahontan RWQCB wastewater treatment restrictions and standards, state water quality control requirements, California Water Code, and TTSA Ordinance 3-90 (amending Ordinance 2-80) provide the framework for wastewater collection and treatment service for the proposed project.

4.10.4.3 Thresholds of Significance

A project would be considered to have a potentially significant adverse environmental impact to wastewater collection and treatment services if it would:

- Exceed wastewater treatment restrictions or standards of the applicable Regional Water Quality Control Board.
- Result in a determination, by the wastewater treatment provider that serves or may serve the project, that it has inadequate capacity to service the project's anticipated demand, in addition to the provider's existing commitments.
- Require or result in the construction of new wastewater treatment facilities or expansion of existing facilities in conditions that would cause a significant adverse environmental impact during construction or operation.

4.10.4.4 Environmental Impacts and Mitigation Measures

Utilities Impact Util-3

Installation of Wastewater Connections

Construction of a new Museum and associated facilities in the park's previously developed core area, in the vicinity of Donner Creek and Donner Lake, would require installation of underground distribution lines from the proposed facility to the connection point with the TSD collection pipeline. Ground-disturbing activities associated with installation or future maintenance activities; improper installation or operation of the sewage pump station, connection of facility force main sewer line to TSD's gravity flow line, or failure of the

distribution lines during operation could result in potentially significant adverse environmental impacts.

Mitigation Measures for Impact Util-2

Implementation of Mitigation Measures Bio-4(a-c) (§4.3.4.4); Geo-2(a-c) (§4.5.4.2); Hazmat-4; and Hydro-2(a,b) would reduce most potential impacts to a less than significant level.

However, as noted in Impact Cult-1 (§4.4.5.1), the proposed project could result in adverse effects on a significant archaeological resource as a direct or indirect result of project-related ground-disturbing activities. Full implementation of Mitigation Measures Cult-1(a-c) and Cult-2 would reduce the potential effects on cultural resources to the greatest extent feasible.

4.10.4.5 Effects Considered to be Less than Significant

Utilities Impact Util-4

Increased Demand

The proposed HSC Museum would replace the existing Emigrant Trail Museum as the park's interpretive center, redirecting visitors to the new facility. However, continued staff and public use of the toilet facilities at the existing building would only reduce, not eliminate sewage from that location. This use, combined with operational requirements at the new facility, would increase total sewage output by Donner Memorial SP. The TTSA WRP is currently at capacity, but ongoing expansion will be sufficient to accommodate service demands for the new facility prior to the completion of construction in 2008. This expansion was unrelated to the proposed project, except as one of many projected future demands on the system. Increases associated with usage at the new museum facility would be within projected 2015 service levels (see 4.10.4.1 above) and the existing TTSA infrastructure is sufficient to accommodate the required mainline connections. Project impacts would not increase sewage collection or treatment requirements to a level requiring additional new or expanded facilities. Less than significant. No mitigation required.

Utilities Impact Util-5

Temporary Sanitary Facilities

As noted in Impact Util-3 above, the existing TTSA mainline can accommodate a new connection at that location and treatment facilities are sufficient for collection and treatment of wastewater from the proposed Museum project. However, there are no existing sewage collection lines or sanitary facilities at the proposed project site. Therefore, temporary portable toilets would be transported to the site and installed within the construction staging area (see preliminary site plan). The facilities would be regularly serviced, consistent with Town of Truckee Environmental Health Department requirements. The portables would be removed following completion of construction and would not result in any significant physical changes to the project area or increase sewage treatment requirements to a level requiring new or expanded facilities. No significant impact; no mitigation required.

4.10.5 Solid Waste Collection and Disposal Service

4.10.5.1 Existing Conditions

Solid waste collection for Truckee is provided by the Tahoe-Truckee Sierra Disposal, which serves much of the Lake Tahoe and Donner Lake areas. Tahoe Truckee Disposal (TTD), part of TTSD, collects household waste and recyclable materials. Waste is transported to the Eastern Regional Sanitary Landfill (ERSL) Material Recovery Facility (MRF), located approximately two miles south of I-80 in Truckee. Recycled materials are processed at MRF and non-recyclable waste is transported to the Lockwood Regional Landfill in Nevada, which has an estimated 200-year permitted capacity. The recently constructed MRF has an expanded total capacity of 180,000 tons per year, adequate to accommodate the projected increase in demand through 2025.

4.10.5.2 Regulatory Setting

TTSD operating agreements, customer contracts, and California's Integrated Waste Management regulations and requirements provide the framework for solid waste collection and disposal service for the proposed project.

4.10.5.3 Thresholds of Significance

A project would be considered to have a potentially significant adverse environmental impact to solid waste collection and/or disposal services if it would:

- Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs.
- Violate federal, state, and local statutes and regulations as they relate to solid waste.

4.10.5.4 Environmental Impacts and Mitigation Measures

Utilities Impact Util-6

Increased Demand

The proposed HSC Museum would replace the existing Emigrant Trail Museum as the park's interpretive center. However, continued use of the existing building would only reduce, not eliminate solid waste from that location. This use, combined with operational requirements at the new facility, would increase total solid waste output by Donner Memorial SP. However, disposal requirements for the facilities, both during and following construction, would be relatively low and would result in an insignificant increase in total processed tonnage. As noted in 4.10.5.1 above, the TTSD ERSL MRP was recently expanded, providing sufficient space to accommodate all area service demands, including the proposed HSC Museum, through 2025. Project impacts would not increase solid waste collection or processing requirements to a level requiring additional new or expanded facilities. Less than significant. No mitigation required.

4.10.6 Electrical, Natural Gas, and Telephone Services

4.10.6.1 Existing Conditions

Electricity

Electric service for Donner Memorial SP, including the proposed project, is provided by the Truckee-Donner Public Utility District (TDPUD). Power is supplied to approximately 12,000 customers in the Truckee area, using transmission lines owned by Sierra Pacific Power Company. TDPUD has an ongoing upgrade program for its facilities to keep pace with increasing demand. Its system is designed to accommodate the projected 3-4 percent annual increase in demand through 2015. A high-voltage power line currently extends along the park's northern boundary and a TDPUD power pole is located approximately 60 feet east of the centerline for the proposed entrance road and 60 feet south of the edge of Donner Pass Road.

TDPUD is a non-profit, publicly owned utility governed by officials elected by the registered voters of the District.

Natural Gas

Natural gas is provided to Donner Memorial SP by Southwest Gas, an investor-owned utility that supplies customers in Arizona, Nevada, and portions of California, including the Truckee-Donner area. A Southwest Gas main natural gas supply line runs along Donner Pass Road, adjacent to the proposed HSC Museum entrance road. Supplies are sufficient to accommodate current and projected service area demands.

Telecommunications

The telephone and telecommunications service for facilities within Donner Memorial SP, including the proposed museum, is provided by SBC. Service lines, including supply poles, lines, and/or fiber optic cable are located both above and below ground, on the north side of Donner Pass Road. Equipment and supply are sufficient to accommodate current and project customer demands.

4.10.6.2 Regulatory Setting

Operating agreements, customer contracts, the California Public Utilities Code, and the California PUC provide the framework for electrical, natural gas, and telecommunications service to the proposed project.

4.10.6.3 Thresholds of Significance

A project would be considered to have a potentially significant adverse environmental impact to electrical, natural gas, and telecommunication services if it would:

- Result in a determination, by the energy or service provider that serves or may serve the project, that it has inadequate capacity to service the project's anticipated demand, in addition to the provider's existing commitments.

- Require or result in the construction of new energy sources or expansion of existing production or distribution facilities under conditions that would cause a significant adverse environmental impact during construction or operation.
- Violate federal, state, and local statutes and regulations as they relate to the production or distribution of electricity, natural gas, or telecommunication services.

4.10.6.4 Environmental Impacts and Mitigation Measures

Utilities Impact Util-6
Installation of Underground Utilities

Construction of a new Museum and associated facilities in the park's previously developed core area, in the vicinity of Donner Creek and Donner Lake, would require installation of underground distribution lines from the proposed facility to connections with the TDPUD power lines and equipment, Southwest Gas main natural gas supply line, and SBC telecommunications lines, equipment, and/or fiber-optic cable. Activities associated with installation or future ground-disturbing activities could result in potentially significant adverse environmental impacts.

Mitigation Measures for Impact Util-6

Implementation of Mitigation Measures Bio-4(a-c) (§4.3.4.4); Geo-2(a-c) (§4.5.4.2); and Hydro-2(a,b) (§4.7.4.2) would reduce potential impacts to a less than significant level.

4.11 TRANSPORTATION, CIRCULATION, AND TRAFFIC

This section describes existing local and regional conditions and the impacts of the proposed project on transportation, circulation, and traffic, along with pertinent traffic standards and regulations, and mitigations proposed to reduce the significance of impacts. The analysis focuses primarily on impacts to vehicle traffic on roadways providing access to existing and proposed facilities.

A traffic study analyzing existing and projected traffic and circulation on Donner Pass Road, the primary access road for both the current Donner Memorial SP entrance and the proposed entrance, is included in Appendix D and is incorporated into this document by reference. Traffic impacts of the project were evaluated at key intersections in the vicinity of the project under existing and future (2025) conditions; project access and on-site circulation were also reviewed.

4.11.1 Existing Conditions

4.11.1.1 Roadway System

Figure 4.11-A shows the existing roadways in and adjacent to the proposed project area. Donner Pass Road (Old Highway 40) is the primary roadway that would provide access to the proposed project site.

Donner Pass Road

Donner Pass Road, in the vicinity of the proposed project, is a rural two lane, asphalt-surfaced, all-weather road with a left turn pocket at the existing Donner Memorial SP entrance. It is identified as an existing arterial road in the 1996 Truckee General Plan (Chapter 3 - Circulation Element, Plate 4) and a minor arterial road in the Nevada County General Plan (Chapter 4 - Circulation). Arterial roads are defined as roadways providing primary access from freeways and principal arterials to major origins and destinations, such as through industrial and commercial areas and between cities. Although designated as a (minor) arterial road, it also acts as a collector roadway from local Truckee streets to residential areas surrounding Donner Lake. The Town of Truckee provides maintenance, including snow removal, for this portion of Donner Pass Road. Donner Pass Road is part of a U.S. Forest Service-designated “Yuba-Donner Scenic Byway” that loops around the Sierra Nevada Crest, northwest of the park.

Based on the standard description for Level of Service or LOS (see Figure 4.11-B below), the portion of Donner Pass Road between Donner Lake Drive (west of the project site) and the I-80 intersection, to the east, maintains an average LOS of “A”, rural area type, with periods of LOS “B”. With existing summer weekday PM peak traffic conditions the intersection of the Donner Memorial Park entrance roadway with Donner Pass Road operates at LOS “B”. The posted speed limit on Donner Pass Road is 35 miles per hour (mph). Traffic on the road consists primarily of private automobiles, delivery trucks, and recreational vehicles (RVs). This is also a school bus route, with multiple stops along the shoulder of the road. Traffic is heaviest during morning and evening work/school commute hours and during holiday weekends from late spring to early fall.

Figure 4.11-B Level of Service Description	
LOS	Description
A	Represents free flow. Individual users are virtually unaffected by the presence of others in the traffic stream.
B	Stable flow, but the presence of other users in the traffic stream begins to be noticeable.
C	Stable flow, but marks the beginning of the range of flow in which the operation of individual users becomes significantly affected by interactions with others in the traffic stream.
D	Represents high density, but stable flow.
E	Represents operating conditions at or near the capacity level.
F	Represents forced or breakdown flow.

Source: *Highway Capacity Manual, Special Report 209,* Transportation Research Board, 1985, as presented in the 1996 Nevada County General Plan (Vol. 2, Chapter 2, Circulation)

The section of Donner Pass Road that borders Donner Memorial SP and the proposed project area is relatively straight and approximately one mile or less in length. There are no sight distance issues at the existing Park entrance or proposed project access road encroachment.

Figure 4.11-C - Parking along Donner Pass Road near site of proposed access road to HSC Museum

The proposed location for the Museum access road encroachment to Donner Pass Road is currently undeveloped. There is some uncontrolled parking along the road shoulder, outside the park boundary (see Figure 4.11-C above). A pedestrian access point is available just off the south side of the road, at the far western end of the park boundary.

- Donner Memorial SP Traffic Study (2005)

  A Traffic Study was conducted in the fall of 2005 to determine existing traffic conditions on Donner Pass Road at the Donner Memorial SP main entrance and adjacent intersections of Donner Pass Road with the Interstate 80 freeway ramps. The study identified the peak hourly and daily traffic volumes, and projected traffic volumes for the proposed Visitor Center and Museum, following conversion of the existing Emigrant Trail Museum to operational space and administrative offices. The study intersections operate at acceptable levels of service under existing conditions. The Traffic Study is included as Appendix D and incorporated into this document by reference.

Interstate 80 (I-80)

Interstate 80 is an inter-regional freeway connecting the Truckee area east toward Reno, Nevada and the eastern United States and west toward Sacramento and the San Francisco Bay Area. The section of I-80 near Truckee is a four-lane divided highway, with limited truck lanes. Speed limits are generally 65 mph for single vehicles and 55 mph for trucks and vehicles towing trailers. The annual traffic count along this stretch of I-80 averages 60,000-80,000 vehicles daily.

There are five interchanges serving the Truckee area; the Donner Pass Road (Truckee-Donner Park) eastbound off-ramp enters Donner Pass Road via the Coldstream Road intersection, approximately one-half mile east of the main park entrance. This intersection has all-way “STOP” sign controls, and currently operates at LOS “C” during the summer weekday PM peak hour condition. The corresponding westbound off-ramp intersection with Donner Pass Road has “STOP” sign control on the off-ramp approach, and also currently operates at LOS “C”.

Existing Park Entrance Road and In-Park Circulation

The existing Donner Memorial SP main entrance is a two-lane asphalt-surfaced roadway. The existing configuration for the Donner Pass Road/DMSP Entrance Road intersection is shown on Figure 4.11-D below. All vehicles entering the park currently use this single two-lane entrance road. There is a left turn lane on Donner Pass Road for those approaching the entrance from the east.

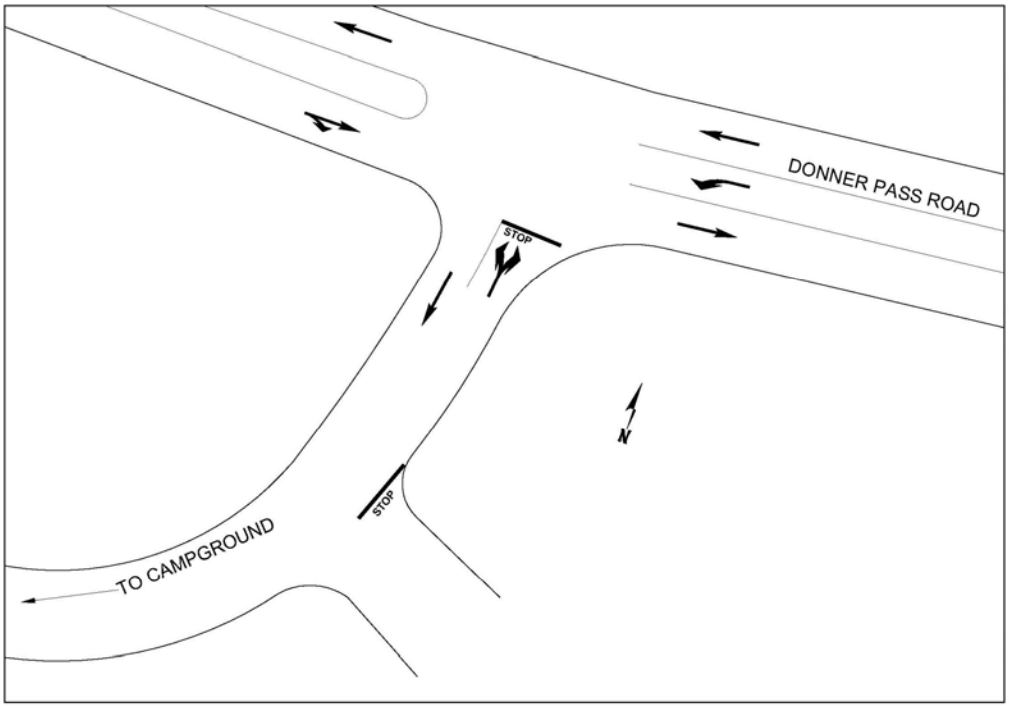

Figure 4.11-D - Donner Pass Road/Donner Memorial SP Entrance Road intersection

The Emigrant Trail Museum and parking lot are located to the left of the entrance road's "T" intersection, approximately 150 feet off Donner Pass Road. The entry kiosk for campground visitors is on the right, at the beginning of South Shore Road. The asphalt surfacing merges into the parking lot and South Shore Road. There is limited stack-up space between Donner Pass Road and the campground kiosk, which results in back-up of waiting vehicles onto Donner Pass Road on busy days and blockage of the access road to the museum parking lot.

The existing parking lot (see Figure 4.11-E below) is immediately adjacent to the Emigrant Trail Museum building, Pioneer Monument, Murphy Cabin Site and trail, and the Nature Trail. There is currently room for up to 45 vehicles, including one ADA-accessible space and four employee spaces. There is no specified bus parking area, although buses do park in the lot when groups visit the site. Parking is inadequate during heavy use periods, resulting in vehicles parking along the edges of the entrance road and shoulders of the Donner Pass Road right-of-way, outside park boundaries. This is an all-weather lot that is partially plowed in winter; portions of the lot are also used for snow storage. It serves those visiting the Emigrant Trail Museum and Pioneer Monument, and as a trailhead for those who use South Shore Road and park trails as ski or snowshoe tracks.

After HSC Museum construction is complete, parking areas for staff vehicles (an estimated 6-20 spaces), will be needed. Staff may park in the existing maintenance area during construction, and the area may be modified to provide long-term spaces for staff vehicles.

Figure 4.11-E - Emigrant Trail Museum parking lot

South Shore Road is a two-lane roadway, extending from the entrance kiosk to the China Cove campground and day use area. Volunteer trails extend along the edge of the road and from the day use parking area along Donner Creek, across the Donner Creek historic dam, to the proposed project site. The road is also used by hikers and bicyclists as an informal extension to the multi-use trail that extends from the China Cove campground and intersects South Shore Road. Traffic on the road is generally light, except as campers arrive at the beginning of heavy use periods, such as holiday weekends.

Snow Removal

Donner Memorial SP is located in the Truckee-Donner basin, at elevations generally above 5,900 feet amsl. This area receives snow throughout the winter season, with measurable precipitation as early as October and as late as June. Snow removal is absolutely necessary to maintain emergency access and the safe and orderly movement of local citizens and visitors.

The California Department of Transportation (Caltrans) is responsible for snow removal on Donner Pass Road, which provides primary access to Donner Memorial SP and the proposed project site. Snow pack is generally removed from the center of Town to local business areas and the State Highways. Pack is sometimes left as a drivable roadway surface requiring chains or snow tires. Openings to private right-of-ways are not cleared and may be blocked by berms created by street plowing. During storms with snowfall of up to 18", it may take 12 hours or more to clear the main thoroughfares. Streets may be closed and detours established as deemed necessary for public safety. Clearing required to maintain emergency access and public transportation will take priority. The Town of

Truckee Development Code (Truckee 2003) identifies minimum snow storage requirements for development with off-street parking.

DPR Sierra District maintenance staff is responsible for plowing roads and parking areas within the park and clearing berms at the park road encroachments to Donner Pass Road and other public roadways. The main park entrance, Emigrant Trail Museum, maintenance access roads, and staff residence driveways are kept open, as conditions allow. Parking areas are used for snow storage, so available space is reduced during snow season. Campgrounds are closed and trails are not plowed or maintained. I-80 and the Truckee-Donner Lake off-ramp are plowed and maintained by Caltrans.

4.11.1.2 Public Transportation

The Town of Truckee

The Town of Truckee contracts with Aztec Transportation to manage the Town's transit system. The system supports a demand response service, Dial-a-Ride, and the Truckee Trolley.

- Truckee Trolley

  The Truckee Trolley runs hourly, with twelve round trips through town per day, seven days a week, between 7:00 a.m. and 7:00 p.m. Transfers are available to North Shore, Sand Harbor, or Emerald Bay, via the North Shore Trolley or the Tahoe Area Regional Transit (TART) bus. The Truckee Trolley stops hourly in front of the main Donner Memorial SP entrance on Donner Pass Road.

- Truckee Dial-a-Ride

  The Dial-a-Ride bus operates five days a week, Monday through Friday, 8:00 am to 5:00 pm. This is a "by request" service that will deliver passengers throughout the Town of Truckee and adjacent residential communities. It is operated through a non-profit contract with Durham Transportation, Inc. The California Alta Regional, Inc., subsidizes the cost of its use by elderly, handicapped, and disabled passengers, but does not directly subsidize the overall operation of the service.

Tahoe Area Regional Transit (TART)

TART operates along 30 miles of Lake Tahoe shoreline, with shuttle service between Tahoe City and Truckee. Its buses and trolleys run seven days a week and offer free transfers to the Truckee Trolley and Truckee Dial-a-Ride. Buses also stops at the Greyhound and Amtrak stations at the downtown Truckee Depot. Bike racks are available on all buses and vehicles are accessible to people with disabilities.

Greyhound Bus Lines

Greyhound buses operates 10 daily departures/arrivals from the Truckee Intermodal Transit Center (Amtrak station) in downtown Truckee. Four buses serve the Truckee-Reno route and six operate between Truckee and Sacramento.

4.11.1.3 Rail Transportation

Southern Pacific Railroad
The Southern Pacific Railroad owns and operates a set of tracks that roughly parallels I-80, running generally east-west along the southern border of Nevada County. The line is used for the transport of both freight and passengers. Amtrak runs the California Zephyr passenger service along this route, with a single mid-day train in each direction, stopping at the downtown Truckee Depot. The rail line passes to the east and south of the Donner Memorial SP boundaries, more than a mile away from the proposed project site at its closest point.

4.11.1.4 Airports

Truckee-Tahoe Airport
The Truckee-Tahoe Airport is a Basic Utility-Stage II Airport serving Eastern Nevada County, including Truckee and the proposed project area. The airport does not have regular airline service, but does provide service for charter and private jets, and does have sufficient runway length to handle larger aircraft when necessary. Operations are voluntarily curtailed between the hours of 11 pm and 6 am; no services are provided between the hours of 1am and 5am daily. The airport is owned and operated by the Truckee-Tahoe Airport District; as a special airport district encompassing portions of eastern Nevada and Placer counties. Although the airport is approximately five miles from the proposed project area, the Donner Lake Bypass Arrival route extends directly over the proposed site at approximately 7,500 feet amsl (see Figure 4.11-F below). Normal activities within Donner Memorial SP generally do not affect arrivals or overflights, or change existing air traffic patterns. The park is not located within an airport land use plan, within two miles of a public airport, or in the vicinity of a private air strip.

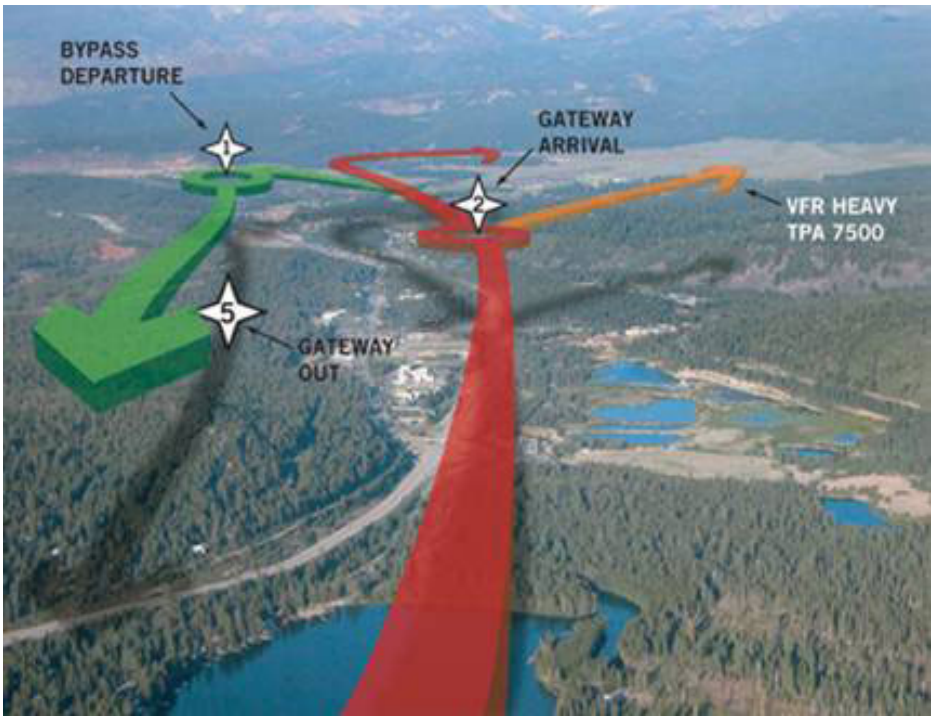

Figure 4.11-F - Donner Lake Bypass Gateway Arrival, Truckee-Tahoe Airport

4.11.2 Regulatory Setting

Donner Memorial SP General Plan (April 2003)

DPR developed the Donner Memorial SP General Plan to identify park-wide goals and general policy guidelines for future development, management, and protection of park resources and visitor facilities. This included determining the best location(s) for the Museum/Visitor Center proposed in this EIR. As noted in Section 1.5 of this document, the Donner Memorial SP General Plan has been incorporated into this EIR by reference.

Issues regarding transportation, circulation, and traffic within and adjacent to the park, policy and development guidelines, and possible project-specific impacts discussed in the General Plan included:

- **Policy guideline**: Ensure a high level of protection for the park's resources.
  - When developing road and/or trail plans, emphasis should be placed on creating opportunities for visitors to enjoy the park's diverse topography, biotic communities, scenic views, and cultural attractions with minimal or no impact to the park's natural or cultural resources.
  - Avoid loss of trees and impacts to important habitats and soil stability in all significant ecosystems within the park.

- **Development guidelines - Planning Zone #1**
  - Analyze existing traffic circulation at the park entrance; improve the park entrance road for increased traffic flow; create a circulation system that does not create traffic conflicts.
  - Screen or soften the visual effect of parking lots and operations and maintenance areas from public views.
  - Provide a new museum/visitor center on property east of the current park boundary, or at a site adjacent to Donner Lake; design the museum/visitor center building to highlight and interpret the major views of the historic passes used by the pioneers.
  - Develop a separate entrance from Donner Pass Road to the new museum/visitor center; develop a new trail from the museum/visitor center to other established trails and park facilities and provide appropriate trail connections.
  - Convert the existing Emigrant Trail Museum to park offices.
  - All project-related design elements and implementation activities would be consistent with the Donner Memorial SP General Plan goals and guidelines.

Town of Truckee 1996 General Plan

The Truckee General Plan identifies objectives and policies regarding circulation on transportation routes, correlated with the land use element, within town boundaries. The proposed project is within the Truckee town limits and may need to consider some or all of these objectives and policies during planning and implementation. Policies, or elements

of policies, related to general transportation issues or project-specific activities are listed below (Truckee 1996 GP, Volume 1, Chapter 3 - Circulation Element):

Circulation Goal 1 - Provide for the long-range development of the Town of Truckee's roadway system, consistent with adopted land use patterns (and) ensure the safe and efficient movement of people and goods...

- **Circulation Policy 1.2** - Ensure that existing and new streets and roads are dedicated, widened, and/or constructed according to roadway design and access standards adopted by the Town of Truckee.
- **Circulation Policy 1.5** - Coordinate with Caltrans to implement measures to coordinate transportation system changes during high traffic flow events and weather emergencies, including traffic directors, message signs, and temporary barriers.
- **Circulation Policy 1.6** – Strive to establish and maintain a Level of Service D or better at weekday, PM peak hour on arterial and collector road segments, and on primary through movements at intersections, in portions of the Town outside of the Downtown Study Area. Strive to establish and maintain a level of service E or better at weekday, PM peak hour on local, collector, and arterial road segments and on primary through movements at intersections within the Downtown Study Area.

  Discretionary projects which reduce the level of service below the applicable standards shall be considered by the Town Council.
- **Circulation Policy 1.7** - Maintain Donner Pass Road at a three-lane cross-section (two lanes of traffic with a left-turn lane). New project which could add significant traffic to Donner Pass Road must demonstrate that cumulative traffic impacts will not result in a need to widen Donner Pass Road.
- **Circulation Policy 1.8** - Prepare a traffic impact analysis to identify impacts and mitigation measures for projects that may result in significant traffic impacts. Level of Service shall be computed according to the planning methodology as documented in Circular 212, Interim Materials on Highway Capacity, Transportation Research Board, January 1980. Cumulative impacts shall be modeled assuming projected 20-year growth, based on the Truckee General Plan.
- **Circulation Policy 1.16** - Require proponents of new development projects to analyze the project's contribution to increased traffic and to implement improvements necessary to address the increase. Mitigation of significant project-related impacts may require improvements beyond those addressed by the capital improvement program and traffic impact mitigation fee program.
- **Circulation Policy 1.18** - Consider the visual impacts of off-street parking lots during project review and implement design standards to locate parking to the rear of buildings or provide substantial screening of parking areas.

Circulation Goal 2 - Minimize the negative impacts of transportation infrastructure upon aesthetic values and the natural, social, historic, and cultural features of Truckee.

- **Circulation Policy 2.1** - Coordinate with service providers to underground utilities along existing roadways.

- **Circulation Policy 2.3** - New roads and roadway improvements shall be located, constructed, and maintained in a manner which prevents adverse impacts to water quality and significant biological, scenic, and historic resources.

Circulation Goal 5 - Provide a safe, comprehensive, and integrated system of facilities for non-motorized transportation to meet the needs of commuters and recreational uses, and to provide an alternative to auto transportation.

- **Circulation Policy 5.6** - Establish pedestrian and bicycle access standards and require developers to finance and install pedestrian walkways...and multi-use trails in new development, as appropriate and necessary to address circulation needs.

The Town of Truckee is also responsible for approving and coordinating construction and maintenance on Donner Pass Road. Encroachment into the right-of-way and/or alteration of the existing road would require an encroachment permit, coordination, and approval from the Town's Engineering Department. All project-related design elements and implementation activities would be consistent with the Town of Truckee policies and guidelines, within its jurisdictional area.

Town of Truckee Public Improvement and Engineering Standards (PIES)

The Town of Truckee PIES set minimum design, construction, and improvement standards for public improvements and private improvements affecting the public infrastructure within the Town's jurisdictional areas. They apply to all work within the Town right-of-way, areas offered for dedication to the Town, and on all subdivisions and parcel maps. This applies to design, plan, preparation, construction, maintenance, and repair of roads, drainage, utility placement, and related improvements. Drainage and soils reports for private, commercial projects also must conform to PIES requirements.

PIES are not meant to apply to work within any other governmental jurisdiction, unless adopted separately or by reference by that jurisdiction. They are minimum standards and are not intended to relieve project proponents from designing facilities to meet actual conditions.

Project-related design elements and implementation activities within Town of Truckee jurisdictional areas would be consistent with the Town of Truckee PIES.

Nevada County General Plan (1995)

The Nevada County General Plan address fundamental traffic and circulation issues within county boundaries and may be applicable to elements of the proposed project. NCGP policies may be superseded or modified by Town of Truckee PIES. The following policies are relevant to the proposed project:

- **Goal 4.2 - Coordinate the circulation systems, existing and potential, with the land use patterns...**
  - **Objective 4.10 -** Provide for alternative routes for efficient service and for emergency access.

- Policy 4.23 - As determined with input from providers of fire, police, and emergency services, ensure that alternative access is provided where needed for all discretionary projects.

- **Goal 4.4** - **Minimize adverse impacts of the circulation system on the natural and historic environment.**
  - **Objective 4.16** - Protect the natural environment in development and maintenance of the transportation system.
    - Policy 4.37 - Nevada County shall continue to require environmentally sound practices for transportation facility construction and maintenance. New roads or improvements to the existing road system and all trails and pathways shall be located, constructed, and maintained in a manner compatible with the environment.
    - Policy 4.38 - Encourage Caltrans' efforts to reduce impacts to vegetation, wildlife, and water quality through the use of salt substitutes or other environmentally compatible materials for road deicing and snow removal.
    - Policy 4.39 - Recognize and protect, to the extent feasible, existing historical districts and other historical features during the development of roadway systems.

All project-related design elements and implementation activities would be consistent with the Nevada County General Plan policies and guidelines, within its jurisdictional area.

4.11.3 Thresholds of Significance

An impact to the transportation, circulation, and traffic of the area would be considered potentially significant if implementation of the proposed project would result in any of the following:

- Cause a substantial increase in traffic, in relation to existing traffic and the capacity of the street system (i.e., a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections).

- Exceed, individually or cumulatively, the level of service standards established by the county congestion management agency for designated roads or highways.

- Cause a change in air traffic patterns, including either an increase in traffic levels or a change in location, that results in substantial safety risks.

- Contain a design feature (e.g., sharp curves or a dangerous intersection) or incompatible uses (e.g., farm equipment) that would substantially increase hazards.

- Result in inadequate emergency access.
- Result in inadequate parking capacity.

- Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

4.11.4 Environmental Impacts and Mitigation Measures

4.11.4.1 Disruption of Traffic Flow and Increased Congestion on Donner Pass Road

Traffic Impact TCT-1 - Modification of Roadway

The proposed project would construct two new parking lots and a new access road within the boundaries of Donner Memorial SP. A left turn lane and encroachment for the new access road would also be constructed within the existing Donner Pass Road right-of-way, and the existing access road improvements would be removed. Approximately 400 feet of the existing Donner Pass Road would be widened to accommodate the proposed left turn lane at the new site access location. This widening would represent an extension of the current widening for the existing left turn lane. Utilities for the proposed Museum would be undergrounded to existing connections within the utility easements along Donner Pass Road. The damage and repairs to existing road surfaces due to proposed project activities could result in a significant impact to normal traffic flow and emergency access on Donner Pass Road. These activities would include, but not be limited to:

- Utility installation
- Widening of Donner Pass Road
- Construction of a left turn lane within the existing roadbed
- Construction of an access road encroachment apron from park property onto Donner Pass Road
- Removal of the existing access road encroachment apron
- Resurfacing work
- Modification and installation of traffic signs and pavement markings
- Use of heavy construction equipment and work crews within and immediately adjacent to the roadway,

Implementation of TCT1(a,b) would reduce any potential impacts resulting from roadway modifications to a less than significant level.

Traffic Mitigation Measure TCT-1(a)

Traffic Controls during Construction on Donner Pass Road

A minimum of one lane of Donner Pass Road would remain open at all times. Flaggers would be present during active construction within the right-of-way, or as necessary to protect motorists and work crews, and maintain a steady flow of traffic through the construction area. Signs defining the construction zone and advising motorists of hazards and/or driving restrictions would be posted in compliance with the Town of Truckee PIES and traffic safety guidelines. Traffic delays would not exceed ten minutes, with immediate or alternate access available for emergency vehicles at all times. Work expected to result in delays would be scheduled outside normal work/school commute hours to the extent feasible.

Traffic Mitigation Measure TCT-1(b)

Road Surface Repair

If construction results in an open trench, steel plates would be installed to allow traffic to pass. The final surface of Donner Pass Road, following completion of all construction work would be finished in a manner consistent with the adjacent road surface and in accordance with Town of Truckee road construction standards and maintenance requirements. Damage to the surface of the adjacent roadbed, resulting from project activities, would be repaired as necessary to provide a safe, compatible road surface.

4.11.5 Effects Considered to be Less Than Significant

4.11.5.1 Increased Congestion - Construction Vehicles

Traffic Impact TCT-2

Construction activities proposed as part of this project would require the availability of heavy equipment on-site. In addition, 10-12 crew vehicles would use Donner Pass Road to access the proposed project site, making 2-4 trips daily, along with intermittent visits from delivery trucks and equipment haulers (averaging 2-4 additional trips per day). Additional vehicles using Donner Pass Road could result in increased traffic congestion, especially when waiting to turn across on-coming traffic. Slow and/or large trucks and equipment could also impede the normal traffic flow. However, work crews and equipment would typically arrive or leave the site outside heavy traffic periods. Minimal delays could occur when vehicles arriving from the east on Donner Pass Road wait to turn left into the construction site, but no more than with the regular daily traffic congestion resulting from left turns into existing businesses or residences. Donner Pass Road is rated LOS-A, with brief periods of LOS-B. The addition of this limited number of vehicle trips would not significantly increase congestion or exceed, individually or cumulatively, the LOS standards for the roadway. Less than significant impact; no mitigation required.

4.11.5.2 Increased Traffic and Congestion During Facility Operation

Traffic Impact TCT-3

The proposed project includes construction of a new Donner Memorial SP entrance road off Donner Pass Road to provide access to the campgrounds, HSC Museum, and parking areas. Increased visitation to the park could increase traffic and congestion, however the volume of additional traffic resulting from the project (estimated at 21 peak hour trips) is not significant. The construction of a left turn lane on Donner Pass Road at the encroachment would remove visitor traffic from the normal traffic flow, reducing the potential for westbound delays. Impacts to eastbound traffic would not significantly increase existing delays for traffic exiting or turning into existing businesses and residences. The traffic operations analysis indicates that the study intersections will operate at acceptable levels of service with the project (LOS “C” or better, relative to the Town of Truckee LOS standard of “D”). There are no sight distance issues at the proposed new park access road encroachment. (Fehr & Peers Traffic Study - see Appendix D). Less than significant impact; no mitigation required.

4.11.5.3 Increased Parking Requirements

Traffic Impact TCT-4

Visitation to Donner Memorial SP following construction of the proposed HSC Museum is expected to increase slightly with initial interest in the new exhibits and facility. Returning visitors, groups of school children, and tour operations should remain relatively consistent.

Existing parking availability is limited and is not sufficient for the current number of visitors. Construction of the new facility could result in insufficient parking for projected visitors. However, the proposed project includes construction of a new parking area adjacent to the HSC Museum building, with space for approximately 70 vehicles, including 3 ADA-accessible spaces, and up to 3 buses. Funding permitting, an additional satellite parking lot of approximately 25 stalls will be constructed near the existing entrance kiosk, at least 100 feet from Donner Creek. Less than significant impact; no mitigation required.

4.11.6 Findings

For transportation, circulation, and traffic conditions evaluated as part of this environmental document, the potential exists for impacts due to construction activity and construction traffic, in relation to existing traffic and the capacity of the street system and access needs for emergency vehicles, as a direct or indirect result of proposed project activities. Full implementation of all proposed mitigation measures (TCT-1(a) and TCT-1(b)) would reduce any transportation-based potential impacts to a less than significant level. The future impact of additional project generated traffic is not significant.

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5.0 GROWTH-INDUCING AND CUMULATIVE IMPACTS

5.1 Growth-Inducing Impacts (Population, Housing, and Employment)

5.1.1 Existing Conditions

The proposed project area is part of Donner Memorial SP, within the Truckee town limits in eastern Nevada County. A recent evaluation of population and housing growth in the Truckee area from 1990 through 2004 (Truckee 2004a) determined that Truckee grew very rapidly between 1990 and 2000, with population increases of approximately 4.5% per year. The number of housing units increased at a slightly lower rate of 3.5% annually; however, growth slowed after 2000 (2.0% population growth and a 2.3% increase in housing units). Additionally, the size of households is slowly shrinking, from 2.68 to 2.63 persons per household in the past four years. Current population for those residing in the Town of Truckee is slightly more than 15,000 (see Figure 5.1-A below).

Figure 5.1-A

Town of Truckee Population and Housing Figures

	1990	2000	2004
Population	8,912	13,864	15,012
Housing Units	6,932	9,757	10,796
Occupancy Rate	47.2%	52.8%	52.8%
Persons per Household	2.70	2.68	2.63

(Source: Truckee 2004a)

The median home value in Truckee is $393,399, slightly below the state average of $428,300, and rising. Homes have appreciated 14.4% over the past 12 months, but there is a very high average vacancy rate of 52.7%, compared to the county rate of 36.5% and 5.8% average vacancy statewide. Approximately 36% of the homes in Truckee are occupied by the owners (US Census Bureau 2000), (Truckee 2004a). Within Donner Memorial SP, a limited number of residences are available for park staff — two residential duplexes, two residences, and two mobile home sites (DPR 2003). Other staff own or rent in the Truckee-Tahoe area.

Truckee is considered a small town, with a median household income of $58,113, slightly above both the county and state average. Unemployment is low, at 5.3%, with job growth over the past 12 months at a modest 1.4%. However, based on factors such as migration and economic growth patterns, job growth is expected to show an increase of 22% over the next 10 years. Art, entertainment, recreation, accommodations, and food service industries employ the most workers in the Truckee area, followed closely by construction-related companies and educational, health, and social services. Management, professional, sales, and office occupations account for over 50% of the positions held by Truckee residents, although more than half of all employed residents work outside the Truckee town limits (ESRI 2004).

5.1.2 Regulatory Setting

The proposed project area is wholly within the town limits and subject, in varying degrees, to elements of the Town of Truckee General Plan (Truckee 1996). The Housing Element of the GP identifies and establishes the Town's policies relative to the maintenance and development of housing to meet the needs of existing and future residents. It consists of, "an identification and analysis of existing and projected housing needs and a statement of goals, policies, quantified objectives and scheduled programs for the preservation, improvement, and development of housing," in compliance with California Government Code §§65580-65589.5.

Housing for State Park staff or the general public is not mandated in the Donner Memorial SP General Plan or other applicable plan or policy.

5.1.3 Thresholds of Significance

A project would be considered to have a potentially significant adverse environmental impact to population and housing if it would:

- Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).

- Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere.

- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

5.1.4 Environmental Impacts and Mitigation Measures

DPR has determined that the project will not result in significant growth-inducing impacts; therefore, no mitigation measures are required for such effects.

5.1.5 Effects Considered to be Less than Significant

Donner Memorial SP is both a local recreational resource and a destination park, used by community members and out-of-town visitors alike. Visitors have access to recreational activities offered by a private concessionaire in the park's day use areas. The concession operates from mid-June through the Labor Day weekend. Employment with this vendor is local and limited, with no significant expansion planned in the foreseeable future. Housing within the park boundaries is limited and restricted to park staff residences. There are no additional private businesses or residential opportunities offered within park boundaries. As a historic and recreational facility, the development of permanent housing is not a planned use of the park.

The proposed project would develop a new museum facility, allowing the existing Emigrant Trail Museum building to be used for park operations and staff offices. The appearance of the finished structures would be compatible with nearby buildings and residences, and the presence of the Museum is not likely to indirectly cause those residences to be sold or abandoned. The project would have no housing component and would neither modify nor displace any existing housing; no houses would be moved or removed to accomplish the project. There would be no additions or changes to the existing local infrastructure, other than the relocation of a single encroachment onto an existing road (the main park entrance) and extension of existing utilities.

Construction activities proposed by this project and operational requirements, once the facility is completed, are not expected to require new hires or relocation of employees to the Truckee area; additional positions, if any, would be minimal. No new public or private projects are expected to be initiated as a result of this project. Any impact on population and housing growth in the area would, therefore, be less than significant.

5.2 Cumulative Impacts

CEQA requires that an EIR contain an assessment of the cumulative impacts that could occur as a result of the proposed project, combined with the effects of one or more other projects in the same vicinity, or "...when the project's incremental effect is cumulatively considerable.." [CEQA Guidelines §15130(a)]. Cumulatively considerable effects are defined as substantial physical changes to the environment that result from individually minor, but collectively significant impacts, that take place over a period of time or that are the result of multiple actions from two or more projects within the same limited area (CEQA Guidelines §15355).

5.2.1 Existing Conditions

According to the Donner Memorial SP General Plan, implementation of the proposed HSC Museum project, which includes both construction and facility operations, could contribute to cumulatively considerable environmental impacts to cultural resources, sensitive species, wildlife habitat, water quality, and visual resources. Results from project-specific evaluations conducted as part of this environmental review indicate that impacts to air quality, human health and safety (hazards), noise, and traffic impacts could also become cumulatively considerable in the community surrounding the proposed project location and that this project would contribute to those impacts, when combined with other closely related past, present, and future projects.

The entire region, including the Truckee Basin and Tahoe Basin, is experiencing tremendous growth. Significant development is planned in the Town of Truckee, and areas surrounding the town within Nevada and Placer Counties. This development includes residential, commercial, industrial, and mixed use. There are also a number of recreation-based development projects planned throughout the region: Squaw Valley is proposed to become an international resort, with emphasis changing from primarily winter use to year-round use; the Northstar at Tahoe resort is expanding with the addition of new housing development; and international tourism and recreational

development interests are considering the Truckee Basin the next big focus for winter/summer recreational and resort development. This development would cumulatively result in increased traffic, vehicle emissions, noise, and increased exposure to health and safety hazards.

In an area rich with historic and natural resources, increased population and the resulting loss of open space and greater use of all facilities and infrastructure may also further impact these already sensitive resources. To the extent that water quality degradation and the loss of biological, cultural, and visual resources is occurring in the region (especially in Nevada and Placer counties) any loss, disturbance, or degradation of these resources would contribute to cumulative impacts. With the possible exception of archaeological resources, full implementation of the mitigation measures proposed in this document would avoid or reduce the project's contributing impacts in all areas to a less than significant level.

5.2.2 Projects in the Vicinity of the Proposed Project Location

- On September 19, 2003, DPR filed a Notice of Exemption for the Lake Shore Trail Repair Project at Donner Memorial SP with the State Clearinghouse (SCH # 2003098363). The project would provide an aggregate surface from the Emigrant Trail Museum Center to China Cove to meet Americans with Disabilities Act standards. The project would provide drainage outslope on this trail and replace existing dilapidated drainage crossings, including boardwalks and puncheons. The project would also pave an existing connector road from China Cove to South Shore Drive and reestablish the designed drainage at this location. No trees will be removed and all materials for the project will be imported and applied directly to the surface of the trail itself. Ground excavation for the project will be limited to previous area of disturbance.

- On July 7, 2004, DPR filed a Notice of Exemption for the East Lake Defensible Fuel Profile Zone (DFPZ) Project with the State Clearinghouse (SCH# 2004078111). The project will create a DFPZ by forest thinning and fuel reduction activities on 25 acres within Donner Memorial SP, directly east of Donner Lake. Trees and shrubbery will be felled and yarded by both hand methods and mechanized equipment. A 50-foot wide special treatment zone will be established along Donner Creek and the Donner Lake shoreline that would exclude mechanized equipment and the removal of trees greater than one foot diameter at breast height (DBH) within that area.

  The DFPZ project is designed to develop a fire safety zone that will not readily carry crown fire, while retaining native forest composition and structure. The propose HSC Museum site is outside the DFPZ area and the two projects are distinct and independent actions. This project may add to cumulative impacts on aesthetic, cultural, and natural resources, but the potential direct impacts from the project are less than significant, consistent with CEQA Guidelines §15304 for categorical exemptions.

- A list of current and proposed development projects within the Town of Truckee limits is posted and updated regularly on the Truckee Planning Department website,

located at http://www.truckee2025.org/planning/projects1.htm, and includes projects proposed and/or approved in accordance with the Truckee General Plan and Development Code.

- A list of current and proposed public and private public works improvement projects within the Town of Truckee limits is posted and updated regularly on the Truckee Town Engineer website: http://www.townoftruckee.com/engineer.html. If additional information is desired on any of the projects, contact the Town of Truckee, Engineering Department at (530) 582-7700. Approval and implementation of these projects requires compliance with the Truckee General Plan and Development Code.

5.2.3 Regulatory Setting

All elements of the proposed project are consistent with the Donner Memorial SP General Plan (2003), Town of Truckee General Plan (1996) and proposed General Plan Update (2005), Town of Truckee Development Code (2003), and Nevada County General Plan, and are consistent with the development density established by existing zoning, community plan, and general plan policies. In accordance with CEQA Guidelines §15183, no further analysis of cumulative impacts is required.

5.2.4 Effects Considered to be Less Than Significant

Impacts from environmental issues addressed in this DEIR do not overlap with these additional projects in such a way as to result in cumulative impacts that are greater than the sum of the parts or, with the exception of cultural resources, that result in a significant adverse impact that cannot be mitigated. Full implementation of all mitigation measures, conditions, and constraints associated with this and other projects will reduce any potential cumulative impact to a less than significant level.

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6.0 SIGNIFICANCE OF ENVIRONMENTAL IMPACTS

In accordance with CEQA Guidelines §15126.2, this DEIR identifies and analyzes the environmental effects of the proposed project and their significance, based on the physical conditions existing at and surrounding the proposed project location at the time the Notice of Preparation was published with the State Clearinghouse (SCH#2004082055) on December 2, 2005. Both direct and indirect potentially significant project-related effects are clearly described and the duration of these effects (long- or short-term) are noted. These include conditions specific to the proposed project area, physical changes, alterations to ecological systems, human use and development of the land, public service demands, health and safety issues, and overall natural, cultural, and aesthetic impacts.

6.1 Environmental Effects Found Not to be Significant

The following areas of potential environmental concern were found to have no potential for adverse impact or the potential for environmental impact was less than significant. "Significant" is defined in CEQA Guidelines §15382 as "...a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. Additional information on existing conditions and the basis for determining the significance of potential effects can be found in the individual sections of Chapter 4.

This DEIR identifies no potential for impacts to agriculture (§4.8.2) or minerals (§4.8.3). The document identifies potential impacts to aesthetics and visual resources (see §4.1); air quality (see §4.2); biological resources (§4.3); noise (see §4.1); public services (§4.10.1); and growth, including population, employment, and housing (§5.1), and finds these potential impacts to be less than significant.

6.2 Significant Environmental Effects

6.2.1 Significant Environmental Effects of the Proposed Project

6.2.1.1 Impacts to the Physical Environmental

The proposed project was evaluated for potential significant adverse impacts to the natural and cultural environment. It has been determined that the project will have the potential to:

- Degrade the quality of the environment: disrupt established drainage patterns; degrade water quality; increase siltation, directional runoff, and erosion (Geology and Soils -§4.5; Hydrology and Water Quality - §4.6; Utilities -§4.10.3; Recreation - §4.10.2);

- Reduce the number or restrict the range of a rare or endangered plant or animal, [Cooper's hawk (California Species of Special Concern), northern goshawk (California Species of Special Concern), and white-headed woodpecker (California Species of Special Concern] - (Biological Resources §4.3).

Full implementation of the proposed project conditions and mitigation measures included in this DEIR would reduce project-related adverse impacts on the natural environment to a less than significant level.

Impacts to cultural resources would remain primarily within the boundaries of Donner Memorial SP, within the western segment of archaeological site Ca-Nev-013/H. The remaining acreage of the proposed undertaking involves a comparatively smaller segment of Donner Pass Road, identified as historical site Ca-Nev-012 (no historic [H] modifier indicated) (Lindström 2000). Ca-Nev-012 is also referred to as the Emigrant Trail, Lincoln/ Victory Highway, and "old" U.S. Highway 40 (Lindström 2000). The former resource is located on state-owned land, primarily within the boundaries of Donner Memorial SP, and the latter is currently owned and maintained by the Town of Truckee. It is not yet known if significant cultural impacts would actually occur as a result of the proposed project (see §4.4.5); this would be determined during archaeological testing phase, prior to the start of actual construction.

Full implementation of the project conditions and mitigation measures proposed in this document would reduce the potential impacts to cultural resources to the lowest level feasible.

6.2.1.2 Impacts on the Human Environment (including Public Health and Safety)

Most project-related environmental effects have been determined to pose a less than significant impact on humans. However, possible impacts from the following activities have the potential to result in significant adverse effects on humans:

- Ozone-related emissions and increased particulate matter/fugitive dust from construction activities (Air Quality - §4.2).
- Exposure to seismic events, including soil liquefaction (Geology and Soils -§4.5).
- Construction accidents, involving the inadvertent release of fuel or other hazardous substances; inadequate access for emergency vehicles; and wildfire (Hazards and Hazardous Materials - §4.6).
- Increased noise levels from construction-related activities (Noise - §4.9)
- Substantial increase in traffic and congestion and inadequate access for emergency vehicles (Transportation, Circulation, and Traffic - §4.11).

Full implementation of the proposed mitigation measures included in this DEIR would reduce potential project-related adverse impacts on the human environment, including public health and safety, to a less than significant level.

6.2.1.3 Cumulative Impacts

Impacts from environmental issues addressed in this DEIR do not overlap with other projects anticipated in the vicinity in such a way as to result in cumulative impacts that are greater than the sum of the parts or, with the possible exception of cultural resources, that may result in a significant adverse impact that cannot be mitigated. The proposed project will itself result in environmental impacts, even with full implementation of the proposed mitigation measures. However, except as noted in §6.2.1.1 above, full implementation of all mitigation measures, conditions, and constraints associated with this and other projects, and consistency with the development density established by existing zoning, community plan, and general plan policies would reduce any potential cumulative impact to a less than significant level.

6.2.2 Significant Environmental Effects that Cannot Be Avoided if the Proposed Project is Implemented

The potential for adverse effects on significant cultural resources is unavoidable if the project is implemented at the preferred project site or any of the alternative sites. Only the "no project" alternative would guarantee a less than significant cultural resource impact. Full implementation of site testing and data recovery procedures developed by DPR archaeologists in consultation with historic preservation authorities would reduce the potential effects on significant cultural resources from proposed project activities to the greatest extent feasible (See also §6.2.3, below).

6.2.3 Significant Irreversible Environmental Changes Which Would be Caused by the Proposed Project Should it be Implemented

The proposed project would have the potential to eliminate important examples of major periods of California history or prehistory by disturbing the integrity and/or significance of archaeological features and/or artifacts. Although unlikely, disturbance of a human burial could result from subsurface work in the project site or its alternatives.

As noted in §4.4.5.1 Impact Cult-1, impacts from the proposed project must be considered a potentially significant irreversible environmental change for the purposes of this environmental document for the following reasons:

- The proposed project area is known to contain archaeological resources that could be historically significant.
- There is a potential for substantial impacts to these resources from proposed project activities.
- The significance of the resources cannot be determined at this time.
- It is not known whether any potential impact can be mitigated to a less than significant level. If mitigable, it is not know if the required mitigations would be feasible or enforceable, as defined under CEQA.

The potential for the project to disturb any human remains was determined to be less than significant. However, should the proposed action result in an inadvertent discovery of human remains, their removal would constitute a significant irreversible

environmental change. The proposed mitigation measures would reduce the potential effects of the removal of the human remains and any associated artifacts to the greatest extent feasible.

7.0 REPORT PREPARATION

7.1 List of Contributors

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7.2 Related Documents

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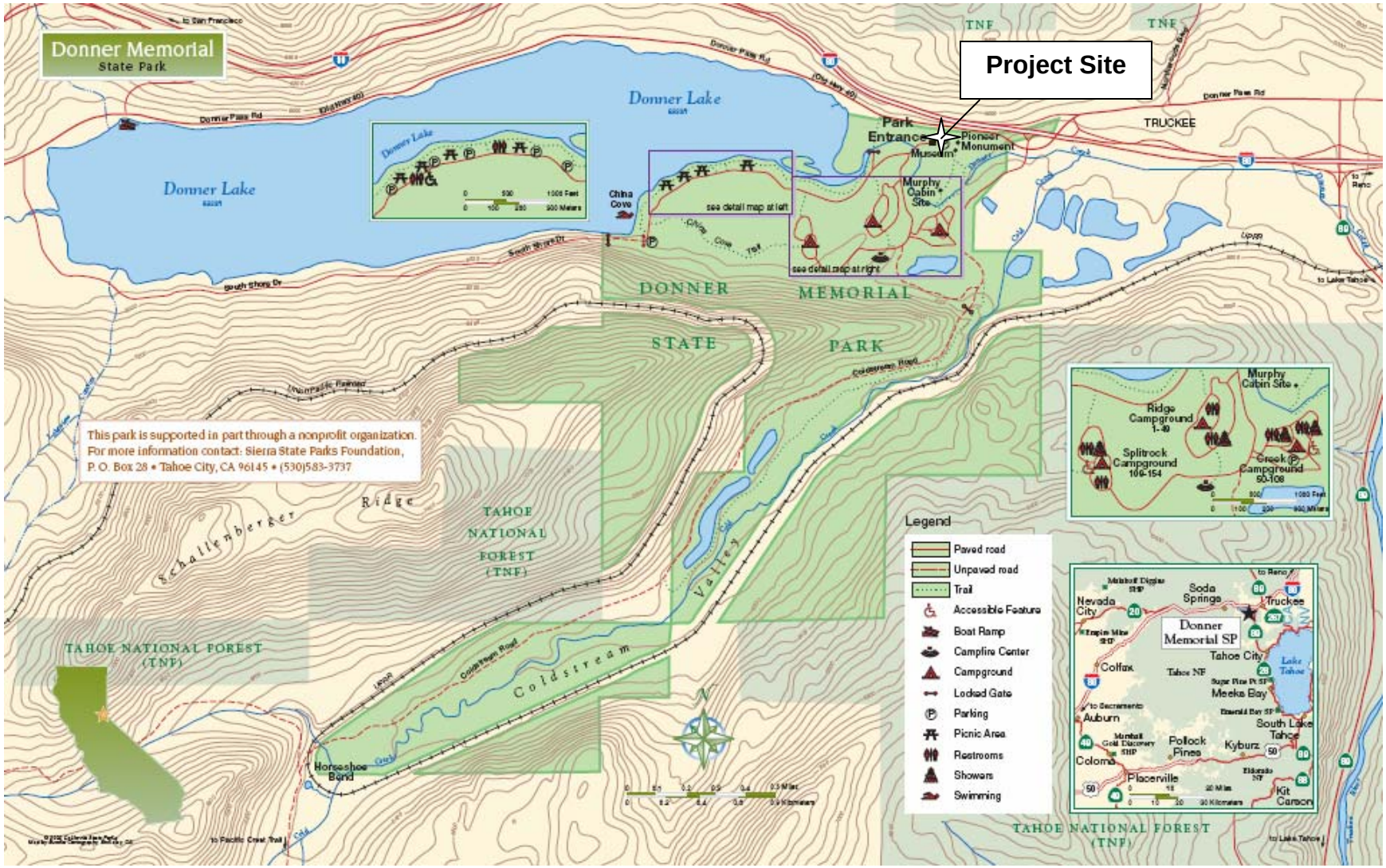
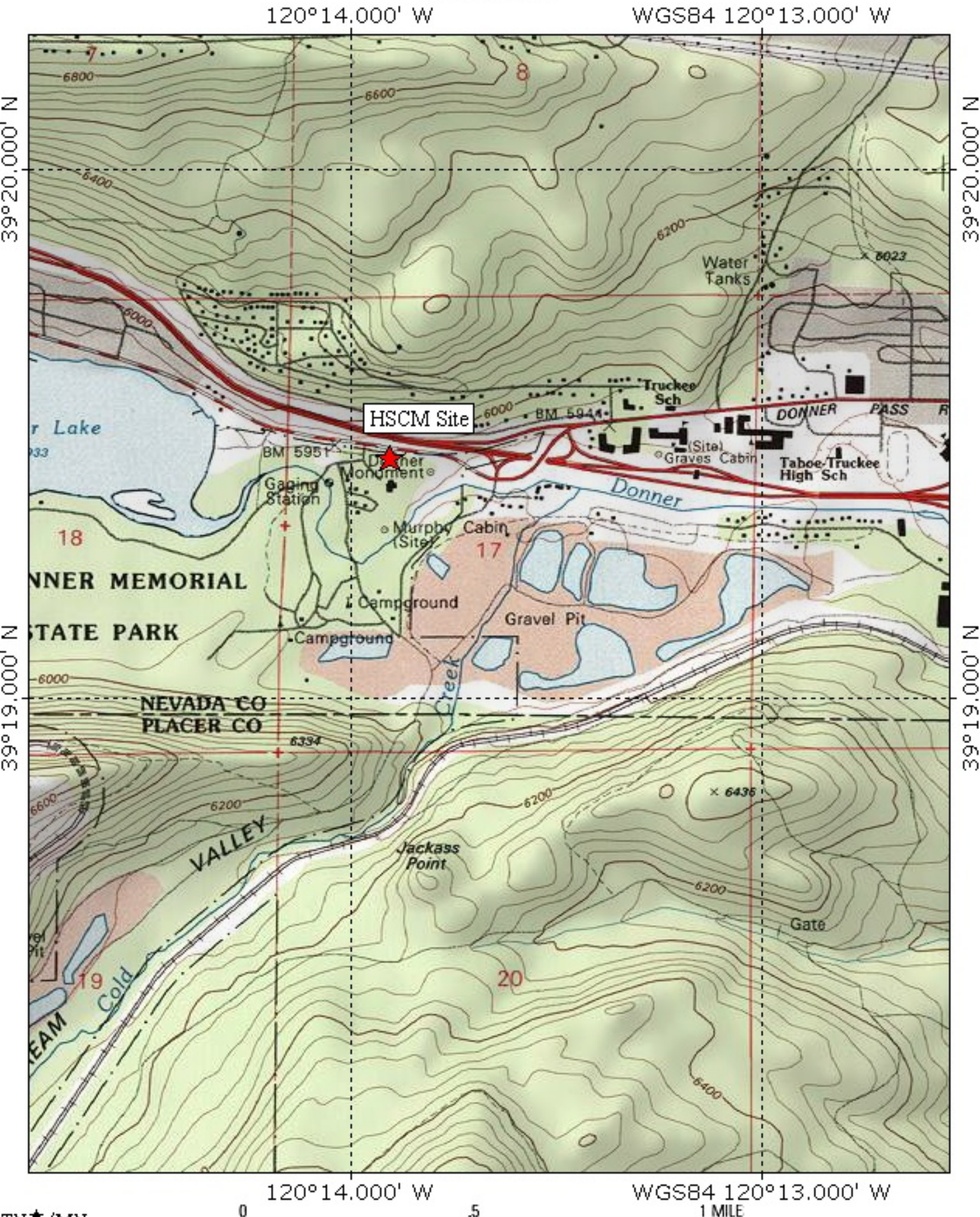


Project Vicinity Map – Proposed High Sierra Crossings Museum – Donner Memorial State Park

Donner MSP



TN / MN 15°

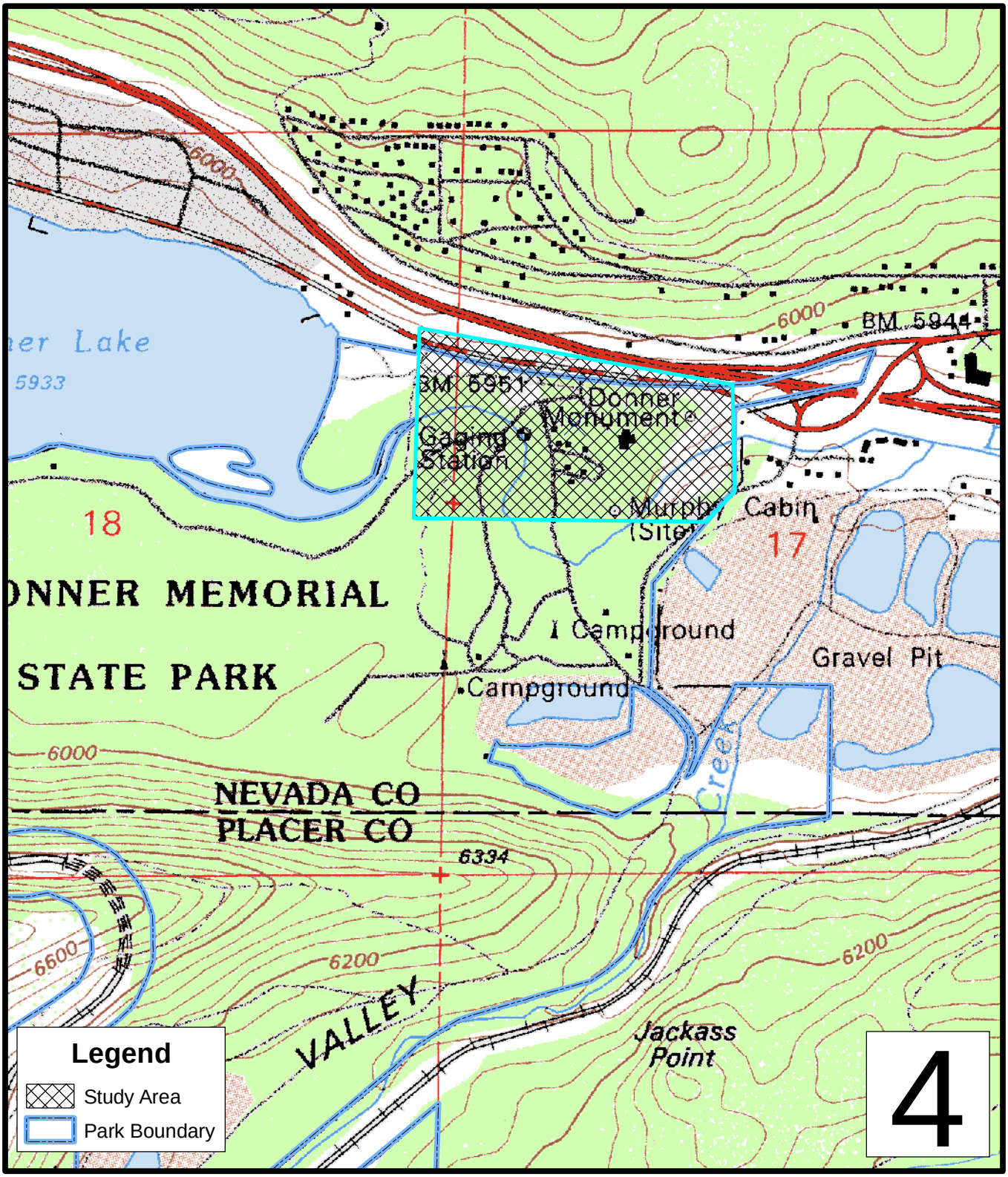
0 .5 1 MILE

0 1000 FEET 0 500 1000 METERS

Printed from TOPO! ©2001 National Geographic Holdings (www.topo.com)

Figure 4.4: High Sierra Crossings Museum Study Area

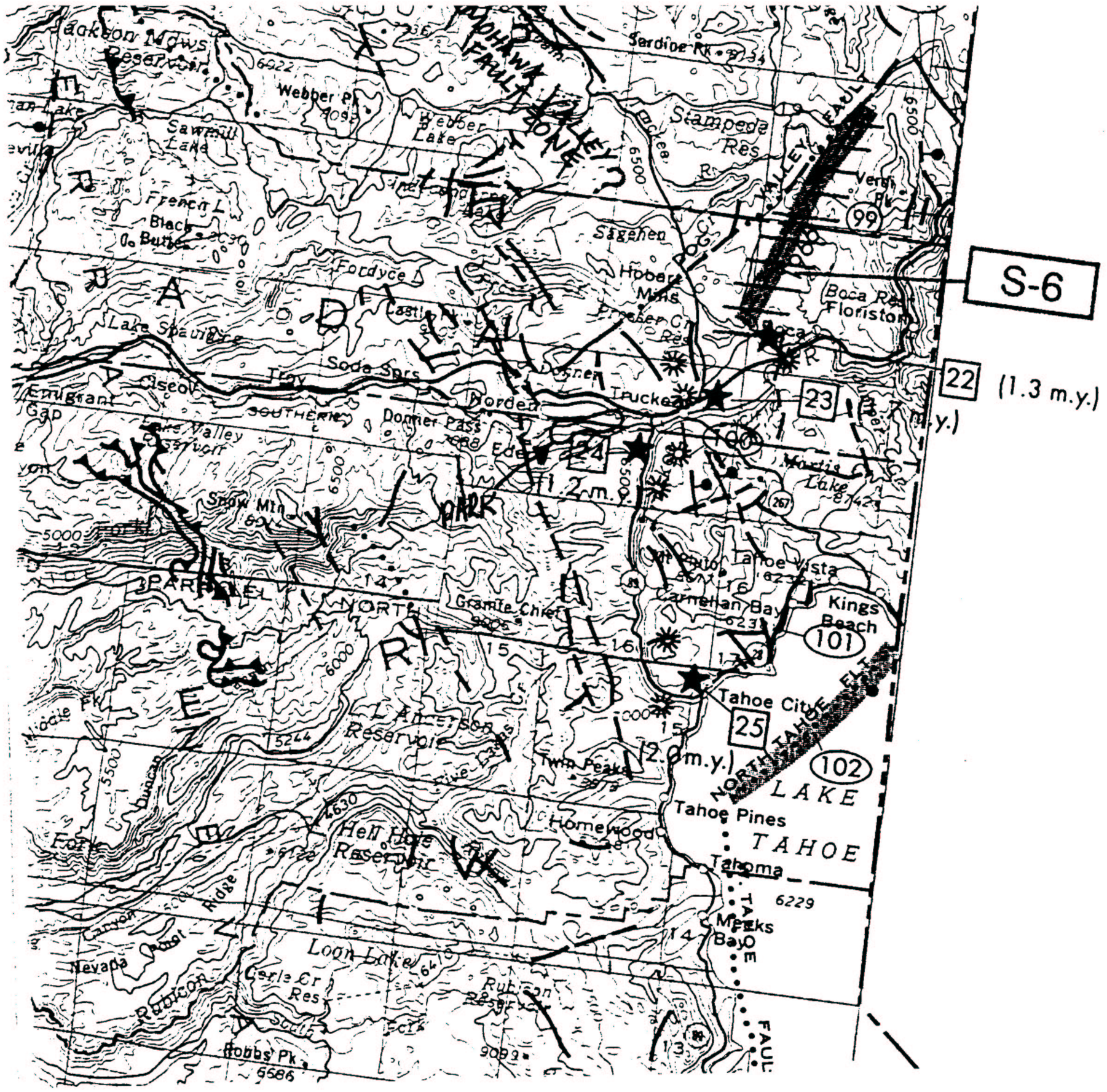
Scale 1:12,000 Depicted on USGS 7.5' Quads Norden, CA (far left) and Truckee, CA



0 95 190 380 570 760 950 Meters

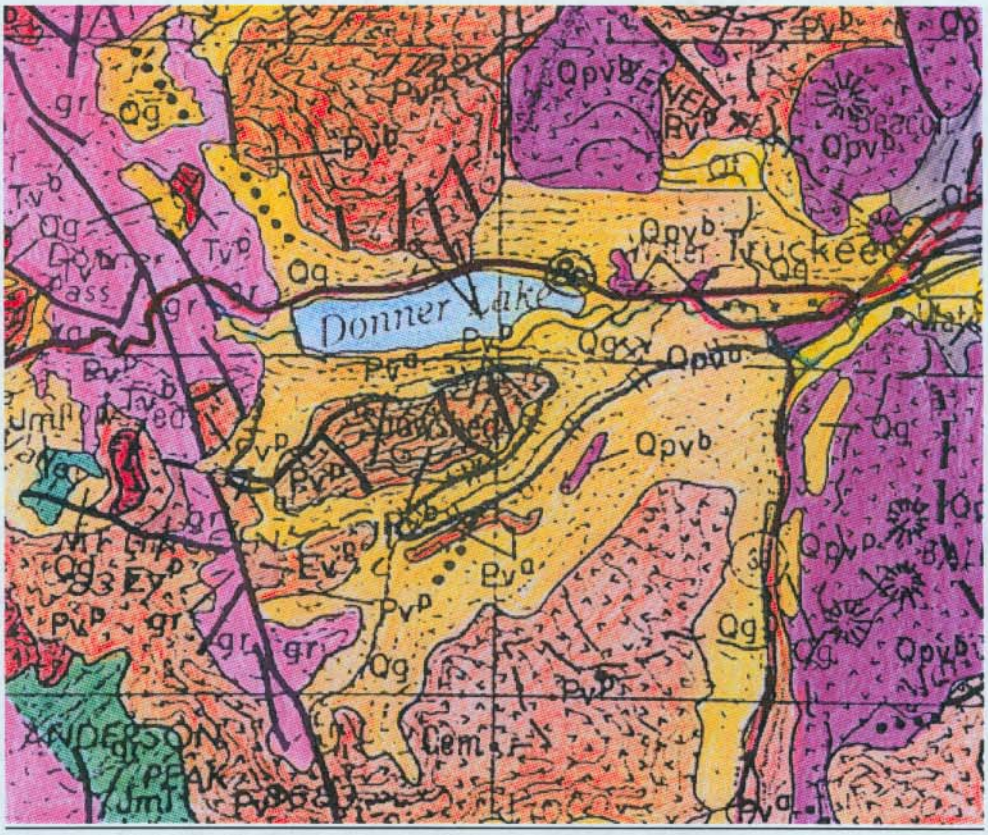
0 250 500 1,000 1,500 2,000 2,500 3,000 Feet

Figure 3: Faults and Recent Volcanism in the Donner-Truckee Area



From: Fault Activity Map of California and Adjacent Areas, CDMG Map Sheet, 1994, scale 1:750,000

Figure 4.5-D
General Geologic Map of the Donner-Truckee

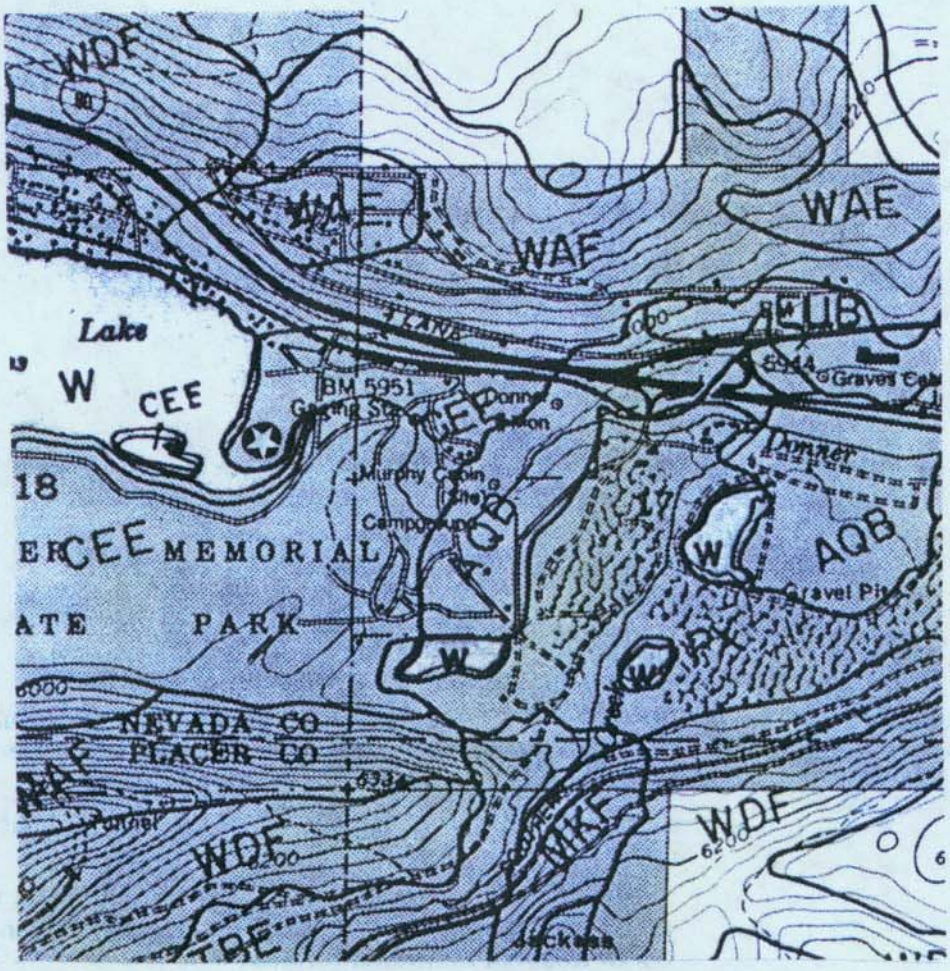


Source: Geologic Map of California, Chico Sheet, CDMG, Burnett & Jennings

0 1 2

- Qt — Quaternary Terrace Deposits
- Qg — Glacial Deposits
- Qpv — Pleistocene Volcanics: Qpv^b - basalt; Qpv^p - pyroclastic rocks
- Qc — Pleistocene Non-marine
- Pv — Pliocene Volcanics: Pv^a - andesite; Pv^p - pyroclastic rocks; Pv^b - basalt
- Ev — Eocene Volcanics: Ev^p - pyroclastic rocks
- Tv — Tertiary Volcanic: Tv^p - pyroclastic rocks; Tv^b - basalt
- gr — Mesozoic granitic rocks
- Jml — Middle-Lower Jurassic marine
- Faults - Dashed where inferred; Dotted where obscured
- Cinder Cones

Figure 4.5-E
Soils Map
Donner Memorial State Park



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SCALE–1:24,000

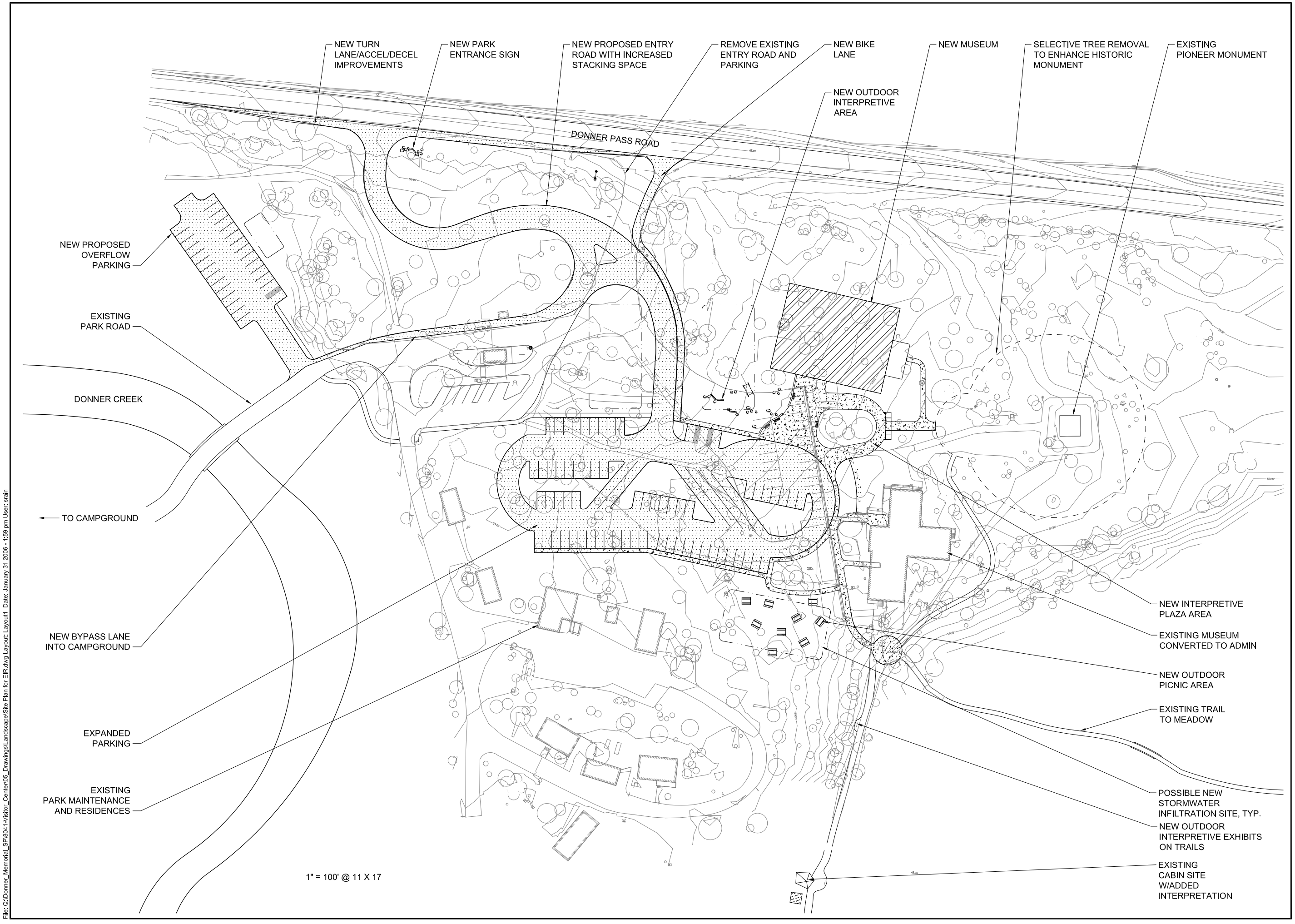
1 ½ 0 1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

N

Soil Symbols

✪ Project Location

CEE	Celio gravelly loamy coarse sand
WAE	Waca cobbly coarse sandy loam, 9-30% slopes
WAF	Waca cobbly coarse sandy loam, 30-50% slopes
WDF	Windy gravelly sandy loam



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CALIFORNIA STATE PARKS SINCE 1864

ACQUISITION & DEVELOPMENT DIVISION
One Capitol Mall
Sacramento, CA
95814-3229

CALIFORNIA STATE FIRE MARSHAL- APPROVED

Approval of this plan does not authorize or approve any omission of deviation from applicable regulations. Final approval is subject to field inspection. One set of approved plans shall be available on the project site at all times.

Reviewed by Date

DPR ACCESS COMPLIANCE REVIEW
ACCESSIBILITY SECTION
CERTIFICATION #

Reviewed by Date

ACCESSIBILITY COMPLIANCE AND STATE FIRE MARSHAL SIGNED ORIGINALS ARE ON FILE AT THE DEPARTMENT OF PARKS AND RECREATION, NORTHERN SERVICE CENTER

DESIGNED:	DESIGNER
DRAWN:	STAFF
CHECKED:	SUPERVISOR
DATE:	XX-XX-XXXX

REVISIONS	
	DATE

DONNER MEMORIAL STATE PARK

PRELIMINARY SITE PLAN

VISITOR CENTER IMPROVEMENTS

DRAWING NO.
XXXX.XXX

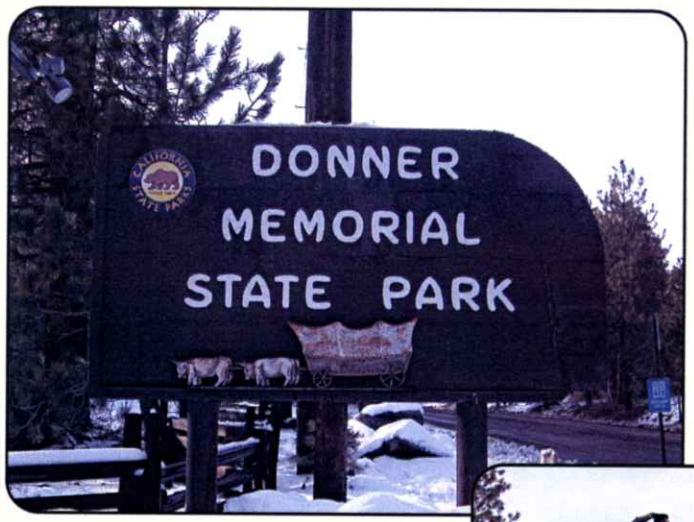
SHEET NO.

OF
XX

DONNER MEMORIAL STATE PARK

Visitor Center and Museum
Transportation Impact Analysis

December 2005



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PSOMAS
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FEHR & PEERS
TRANSPORTATION CONSULTANTS

DONNER MEMORIAL STATE PARK

VISITOR CENTER AND MUSEUM

TRANSPORTATION IMPACT ANALYSIS

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December 30, 2005

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1. INTRODUCTION

This study evaluates the transportation impacts associated with the construction of a new visitor center and museum building at the Donner Memorial State Park in Truckee, California. Potential impacts of project-related traffic are analyzed at key intersections in the vicinity of the project under existing and future (2025) conditions. Project access, on-site circulation, and parking are also evaluated.

PROJECT LOCATION AND DESCRIPTION

Donner Memorial State Park is located in the Town of Truckee in northeastern California, approximately 100 miles east of Sacramento, California, and 35 miles west of Reno, Nevada. As shown on the Project Location Map attached **Figure 1**, the park borders the east end of Donner Lake, and is just to the south of Interstate 80. Donner Pass Road, also known as old Highway 40, provides access to the park. The commercial district of Truckee is to the east of the park, along Donner Pass Road.

The proposed project is the construction of a new 10,000 square foot visitor center and museum building, together with related parking and site access improvements. The park access roadway intersection with Donner Pass Road would be relocated approximately 320 feet to the west of the current site access location. Alternative site improvements that would have retained the site access at its current location are discussed in **Chapter 6**.

The existing visitor center and museum building are proposed to remain in use by the California Department of Parks and Recreation for administrative office and storage purposes. The existing site plan is shown on attached **Figure 2**, and the proposed site plan is shown on attached **Figure 3**.

The other primary attractions of the park are three campgrounds having a total of 150 campsites, a day use beach area along the shore of Donner Lake, and a statue that commemorates the pioneer Donner party that camped at the site in 1846-47. The campgrounds and day use area are located southwest of the visitor center and museum building site.

SCOPE OF STUDY

Fehr & Peers coordinated with California Department of Parks and Recreation and Town of Truckee staff to identify the scope of this study. The following three intersections were selected for analysis relative to weekday PM peak hour conditions:

- Donner Pass Road/Park Entrance
- Donner Pass Road/Interstate 80 Eastbound Ramps/Coldstream Road
- Donner Pass Road/Interstate 80 Westbound Ramps

2. METHODOLOGY

Level of service (LOS) is a term that describes the operating performance of an intersection or roadway. LOS is measured on a scale from A to F, with "A" representing the best performance and "F" the worst. **Table 1** relates the LOS letter designation to a general description of traffic operations.

Signalized and unsignalized intersections were analyzed using the methodology contained in *Highway Capacity Manual (HCM) 2000* (Transportation Research Board, 2000). This methodology determines the level of service by comparing the average control delay for all vehicles approaching the intersection to the delay thresholds shown in **Table 1**.

TABLE 1

INTERSECTION LEVEL OF SERVICE DEFINITIONS

Level of Service	Description	Signalized Intersections (Average Control Delay) [1]	Unsignalized Intersections - (Average Control Delay) [2]
A	Represents free flow. Individual users are virtually unaffected by others in the traffic stream.	0 to ≤ 10.0 sec/veh	0 to ≤ 10.0 sec/veh
B	Stable flow, but the presence of other users in the traffic stream begins to be noticeable.	>10.0 to ≤ 20.0 sec/veh	>10.0 to ≤ 15.0 sec/veh
C	Stable flow, but the operation of individual users becomes significantly affected by interactions with others in the traffic stream.	>20.0 to ≤ 35.0 sec/veh	>15.0 to ≤ 25.0 sec/veh
D	Represents high-density, but stable flow.	>35.0 to≤ 55.0 sec/veh	>25.0 to ≤ 35.0 sec/veh
E	Represents operating conditions at or near the capacity level.	>55.0 to ≤ 80.0 sec/veh	>35.0 to ≤ 50.0 sec/veh
F	Represents forced or breakdown flow.	> 80.0 sec/veh	> 50.0 sec/veh

Sources:

[1] *HCM 2000*, Chapter 16, Signalized Intersections.

[2] *HCM 2000*, Chapter 17, Unsignalized Intersections.

Highway Capacity Manual methodology (2000 HCM) was used through HCS computer software for the evaluation of the study intersections. This methodology determines intersection level of service by analyzing the individual approaches and overall intersection delay.

Current Level of service standards are defined in the Circulation Element of the *1996 Truckee General Plan*. Policy 1.6 of that plan requires a LOS "D" or better for weekday PM peak hour conditions on arterial and collector road segments, and on primary through movements at intersections, in portions of Truckee outside of the Downtown Study Area.

Truckee is currently in the process of updating their General Plan. The Draft 2005 General Plan includes a comparable policy (P2.1) which establishes a LOS "D" standard for total intersection movements in those portions of the town outside of the Downtown Study Area. The draft policy also requires that individual turning movements shall not be allowed to reach LOS "F" and to exceed a cumulative vehicle delay of four vehicle hours.

The project would have a significant impact on traffic operations if it degraded the study intersections from acceptable levels of service to unacceptable levels or exacerbated conditions (i.e. substantially increased delay) at intersections already operating at unacceptable levels. Based on the level of service standards (in the current General Plan and draft update) operations at an intersection would be considered unacceptable if any of the following conditions were met:

- LOS E or F at primary through movements at intersections.
- LOS E or F for the overall intersection.
- Individual turning movements reach LOS F <u>and</u> exceed a cumulative vehicle delay of four vehicle hours.

3. EXISTING CONDITIONS

ROADWAY SYSTEM

Primary roadways in proximity to the site are shown on **Figure 1**.

Donner Lake Road is an east/west two lane arterial roadway with bicycle lanes adjacent to the project site. There is pavement widening and a westbound left turn lane at the park entrance. This segment of Donner Pass Road has a speed limit of 35 MPH. The road extends westerly along the north side of Donner Lake, and easterly across Interstate 80 through the primary commercial areas of Truckee.

Interstate 80 is an east/west multi-lane access-controlled freeway. There are eastbound and westbound freeway ramp connections with Donner Pass Road approximately a half mile to the east of the project site. Existing lane configurations and intersection controls at the intersections of the freeway ramps with Donner Pass Road are shown on **Figure 4**. To the west the freeway crosses the Sierra Nevada Mountains into central California, and to the east the freeway follows the Truckee River canyon into Nevada.

South Shore Drive is a two lane park roadway that provides access to the campground and day use areas along the shore of Donner Lake. The roadway is gated near the westerly park boundary.

Coldstream Road is a two lane roadway that provides access to a few commercial businesses located to the south of Donner Pass Road and the Interstate 80 freeway ramp connections.

Northwoods Boulevard is a two lane roadway that serves as the primary access to the large Tahoe-Donner residential development.

EXISTING CONDITIONS TRAFFIC VOLUMES

Turning movement counts were performed at the three study intersections from 2:30 p.m. to 6:30 p.m. on Friday, September 2, 2005, which was the start of the Labor Day holiday weekend. The start of the Labor Day holiday weekend was chosen to best capture a weekday summer peak PM hour condition. As anticipated, the turn count volumes did exceed those reflected in the Town of Truckee 2003 summer PM peak hour turning movement count data list. The observed peak hours were 3:30 p.m. to 4:30 p.m. at the Donner Pass Road/ Park Entrance and Donner Pass Road/Eastbound I-80 ramps/Coldstream Road intersections, and 4:15 p.m. to 5:15 p.m. at the Donner Pass Road/Westbound I-80 ramps intersection. The turning movement count data sheets are included as **Appendix A**.

The observed turning movements at the park entrance were increased to reflect an estimated peak use condition for the state park, as the campground occupancy and visitor center/museum usage were not at maximum in September when data collection was performed. In addition to the turning movement counts, machine volume counts were performed at the access to the campground/day use area and the access to the visitor center/museum parking area from Friday September 16, 2005 through Monday September 19, 2005. This count data was correlated with campground occupancy statistics provided by the California Department of Parks and Recreation. The increased turning movement volumes at the park entrance reflect 100 percent occupancy of the 150 campground spaces, as the park use data showed campground occupancy exceeding 95 percent on 18 nights during the 2005 summer camping season. Traffic count data collected in both 2004 and 2005 on the visitor center/museum parking area access road was also used to derive the estimated peak use entering and exiting volumes.

Attached **Figure 4** shows the existing traffic volumes, lane configurations, and traffic control devices at the three study intersections.

EXISTING CONDITIONS INTERSECTION OPERATIONS

Table 2 displays the existing weekday PM peak hour level of service for each of the study intersections. Copies of the level of service technical calculation worksheets are included in **Appendix B**.

TABLE 2

SUMMER PM PEAK HOUR INTERSECTION OPERATIONS – EXISTING CONDITIONS

Intersection	Control	Delay[1]	Level of Service
Donner Pass Road/Park Entrance	Side-street Stop[2]	12.9	B
Donner Pass Road/I-80 EB/Coldstream	All-way Stop[3]	15.8	C
Donner Pass Road/I-80 WB Ramps	Side-street Stop[2]	16.9	C

Notes: [1] Delay is reported in seconds per vehicle
[2] For side-street stop controlled intersections, the highest approach delay is reported.
[3] For all-way stop controlled intersections, the average intersection delay is reported.

Source: Fehr & Peers, 2005

All of the study intersections operate at acceptable levels of service under existing conditions.

4. EXISTING PLUS PROJECT CONDITIONS

TRIP GENERATION, DISTRIBUTION, AND ASSIGNMENT

State Department of Parks and Recreation staff have estimated that usage of the new visitor center/museum building would be 20 percent higher than usage of the present facility. Daily count data of vehicles exiting the visitor center/museum parking lot for a thirteen day period in late August and early September of 2004 reflected values from a low of 176 to a high of 428. Consistent with that data, the September, 2005, daily counts were 295 and 313. The average value for all of the count data was 295.

Based on the peak daily usage of 428 exiting vehicles described above, project directional volumes for the street traffic peak hour of 3:30 p.m. to 4:30 p.m. were calculated, resulting in 66 vehicle trips exiting and 42 vehicle trips entering the visitor center/museum parking area under current conditions. For the projected 20 percent increase in building usage associated with the project, the net increase of new peak hour vehicle trips is 21, with an additional 13 exiting vehicles and 8 entering vehicles resulting from the new visitor center/museum.

The directional distribution of project traffic from/to the site is based on the turning movements observed at the park entrance and assumptions regarding the split of traffic relative to the attractiveness of roadway connections to the east, locations of complementary land uses, and the magnitude of current turning movements at the study intersections. We assumed the following directional distribution:

- 20% to the west on Donner Pass Road,
- 10% to the west on Interstate 80,
- 30% to the east on Donner Pass Road,
- 30% to the east on Interstate 80, and
- 10% to the south on Coldstream Road.

Project trip distribution and assignment is shown on attached **Figure 5**; attached **Figure 6** displays the resulting existing plus project PM peak hour turning volumes at the study intersections.

EXISTING PLUS PROJECT INTERSECTION OPERATIONS

Level of service calculations were performed for existing plus project traffic at the study intersections assuming the existing lane configurations and intersection controls. **Table 3** displays the resulting levels of service.

TABLE 3
SUMMER PM PEAK HOUR INTERSECTION OPERATIONS – EXISTING PLUS PROJECT CONDITIONS

Intersection	Control	Delay[1]	Level of Service
Donner Pass Road/Park Entrance	Side-street Stop[2]	13.4	B
Donner Pass Road/I-80 EB/Coldstream	All-way Stop[3]	16.2	C
Donner Pass Road/I-80 WB Ramps	Side-street Stop[2]	17.2	C

Notes: [1] Delay is reported in seconds per vehicle
[2] For side-street stop controlled intersections, the highest approach delay is reported.
[3] For all-way stop controlled intersections, the average intersection delay is reported.

Source: Fehr & Peers, 2005

With the project, we expect the study intersections to operate at acceptable levels of service with the existing lane configurations and intersection controls. The calculations reflect very small incremental increases (less than a second) in vehicle delay.

5. FUTURE CONDITIONS

BACKGROUND TRAFFIC VOLUMES

Town of Truckee staff provided Truckee General Plan 2025 build out summer weekday PM peak hour turning movement volumes for the Donner Pass Road/Eastbound I-80 Ramps/Coldstream Road and Donner Pass Road/I-80 Westbound Ramps intersections. The volumes on Donner Pass Road were combined with the state park maximum use peak hour entering and exiting volumes to derive peak hour turning movements at the Donner Pass Road/Park Entrance intersection. The projected 2025 peak hour background traffic volumes are shown on attached **Figure 7.**

The most substantial change in 2025 relative to current conditions is reflected on Coldstream Road south of Donner Pass Road, where the peak hour volume entering the intersection is projected to increase from the current recent count of 148 to a future volume of 923. Donner Pass Road and the Interstate 80 ramp connections also show very large increases. The large increases in traffic volume result from the land use assumptions in the Truckee General Plan that Coldstream Road will provide primary access to an unknown large development within special planning area PC-1 in the future.

2025 INTERSECTION OPERATIONS

Table 4 below shows the level of service values for the 2025 background PM peak hour traffic volumes with the existing lane configurations and controls.

TABLE 4

SUMMER PM PEAK HOUR INTERSECTION OPERATIONS – 2025 BACKGROUND CONDITIONS

Intersection	Control	Delay[1]	Level of Service
Donner Pass Road/Park Entrance	Side-street Stop[2]	15.2	C
Donner Pass Road/I-80 EB/Coldstream	All-way Stop[3]	>100	F
Donner Pass Road/I-80 WB Ramps	Side-street Stop[2]	>100	F

Notes: [1] Delay is reported in seconds per vehicle
[2] For side-street stop controlled intersections, the highest approach delay is reported.
[3] For all-way stop controlled intersections, the average intersection delay is reported.

Source: Fehr & Peers, 2005

The Donner Pass Road/Park Entrance intersection remains at an acceptable level of service. With the large traffic volume changes anticipated over the next 20 years, the Donner Pass Road/I-80 Eastbound Ramps/Coldstream Road and Donner Pass Road/I-80 Westbound Ramps intersections degrade to level of service "F" with the existing lane configurations and intersection controls. Accordingly, the Town of Truckee and California Department of Transportation will be planning for intersection improvements at these two intersections in conjunction with the consideration of new area development. The draft Town of Truckee 2005 General Plan Circulation Element reflects future intersection improvements at the westbound ramps and a roundabout at the eastbound ramps intersections with Donner Pass Road. The draft General Plan also includes a future

improvement for the widening of Cold Stream Road to provide additional lanes between Donner Pass Road and planning area PC-1.

Additional level of service calculations were performed assuming roundabout improvements at the Interstate 80 ramp connections with Donner Pass Road. The results of those calculations are shown in **Table 5**.

TABLE 5
SUMMER PM PEAK HOUR INTERSECTION OPERATIONS – 2025 BACKGROUND CONDITIONS WITH IMPROVEMENTS

Intersection	Control	Delay[1]	Level of Service
Donner Pass Road/Park Entrance	Side-street Stop[2]	15.2	C
Donner Pass Road/I-80 EB/Coldstream	Two-Lane Roundabout[3]	3.7	A
Donner Pass Road/I-80 WB Ramps	One-Lane Roundabout[3]	10.0	A

Notes: [1] Delay is reported in seconds per vehicle
[2] For side-street stop controlled intersections, the highest approach delay is reported.
[3] For roundabouts, the average intersection delay is reported.

Source: Fehr & Peers, 2005

That analysis shows that with the roundabout improvements the Interstate 80 Ramp terminal intersections operate at levels of service "A". Roundabouts were tested for these intersections, as the draft Town of Truckee 2005 General Plan Circulation Element includes a goal (CIR-7) and policies (P7.1 –3) which call for the use of roundabouts instead of traffic signals.

2025 PLUS PROJECT INTERSECTION OPERATIONS

Table 6 shows level of service values for 2025 background plus project traffic volumes with the roundabout intersection improvements.

TABLE 6
SUMMER PM PEAK HOUR INTERSECTION OPERATIONS – 2025 PLUS PROJECT CONDITIONS WITH IMPROVEMENTS

Intersection	Control	Delay[1]	Level of Service
Donner Pass Road/Park Entrance	Side-street Stop[2]	15.8	C
Donner Pass Road/I-80 EB/Coldstream	Two-Lane Roundabout[3]	3.7	A
Donner Pass Road/I-80 WB Ramps	One-Lane Roundabout[3]	11.5	B

Notes:[1] Delay is reported in seconds per vehicle
[2] For side-street stop controlled intersections, the highest approach delay is reported.
[3] For roundabouts, the average intersection delay is reported.

Source: Fehr & Peers, 2005

The analysis reflects small increases in delay with the addition of project traffic. The project does not have a significant impact on the summer p.m. peak hour intersection operations.

6. PROJECT ACCESS, ON-SITE CIRCULATION AND PARKING

PROJECT ACCESS

The park access location onto Donner Pass Road is proposed to be relocated approximately 320 feet to the west with the development of the new visitor center/museum building and related site improvements. The proposed site plan is shown as the attached **Figure 3.** There are no other driveways in proximity to the new access location, nor any sight distance factors that would be adverse to the creation of this new entrance to the park. On Donner Pass Road at the existing park access there is a left turn lane for drivers entering the park. The existing roadway widening and pavement markings provide a storage lane length of approximately 100 feet and a deceleration length of approximately 210 feet. Donner Pass Road would be widened at the new entry location to provide the same left turn storage and deceleration lengths. A queuing analysis (see worksheets in **Appendix C**) for the left turn lane indicated an estimated maximum queue of two vehicles for the existing plus project and the 2025 plus project conditions. As the left turn lane will serve large vehicles and vehicles towing trailers or boat, the 100 foot storage length appears appropriate.

A queuing analysis was also performed relative to vehicles exiting the park onto Donner Pass Road. With a single lane exit to Donner Pass Road the estimated maximum queue is five vehicles with the existing plus project condition, and seven vehicles for the 2025 plus project condition. With separate left and right turn lanes for drivers leaving the park, the maximum queue for left turns is only two vehicles for the existing plus project and 2025 plus project analysis. Accordingly, a two lane approach from the park onto Donner Pass Road is recommended.

For drivers exiting the site, guide signing relative to Interstate 80, Truckee, and Donner Lake is recommended at or near the park exit/Donner Pass Road intersection. On Donner Pass Road, identification signing at the park entrance and in advance of the park entrance is appropriate.

ON-SITE CIRCULATION

The proposed park access road relocation will enhance the entry to the park by providing a longer distance between Donner Pass Road and the internal "Y" intersection, where the access roadways to the campground/day use area and visitor center/museum diverge. Guide signing with appropriate directional arrows to direct drivers to the different park features is recommended.

With the proposed site improvements, a current queuing problem at the campground entrance will be improved. There is now limited width on the entrance which restricts vehicle access to a single lane. At times, vehicles which would otherwise be able to enter the campground/day use area without stopping are impeded by drivers delayed at the entrance station who need to register for a campsite, pay fees, and/or obtain information. The proposed site plan includes a new bypass lane into the campground/day use area.

In the project concept evaluation review by the design team, alternative building location and site access relationships were considered. Keeping the site access at its present location is an alternative, but the proposed access road relocation will result in a better sense of entry to the park, provide more maneuvering distance for drivers, and improve conditions for vehicles stacking at both the park exit and campground entrance.

The proposed site plan reflects efficient circulation through the new visitor center/museum parking area. Access to the bus/combination vehicle parking spaces is convenient, and the proposed drop-off area proximate to the building entrance is well located relative to winter sun conditions.

PARKING

The proposed site plan shows an expanded parking area adjacent to the new visitor center and museum building that would serve approximately 70 vehicles. One afternoon observation on Saturday, September 3, 2005, reflected 88% occupancy of the existing 43 space parking area, and museum staff reports that it fills and overflows on peak use days. In addition to the projected increase in number of visitors, people spending more time in the new museum due to its increased size and enhanced exhibits would also increase the parking demand.

The proposed site plan shows several oversized (double length) parking spaces within the visitor center/museum parking area. This is particularly beneficial, as the current parking lot is not designed for the parking of buses, motor homes, or vehicles towing trailers. The museum currently hosts travel and school groups who arrive by bus.

A new overflow parking area for approximately 30 vehicles is also proposed just to the west of the campground entrance station. This parking area is proposed primarily to meet the needs of winter cross country skiers. The increased size of the visitor center/museum building parking area and addition of the overflow parking area will better serve current and future park visitor needs.

7. CONCLUSIONS AND RECOMMENDATIONS

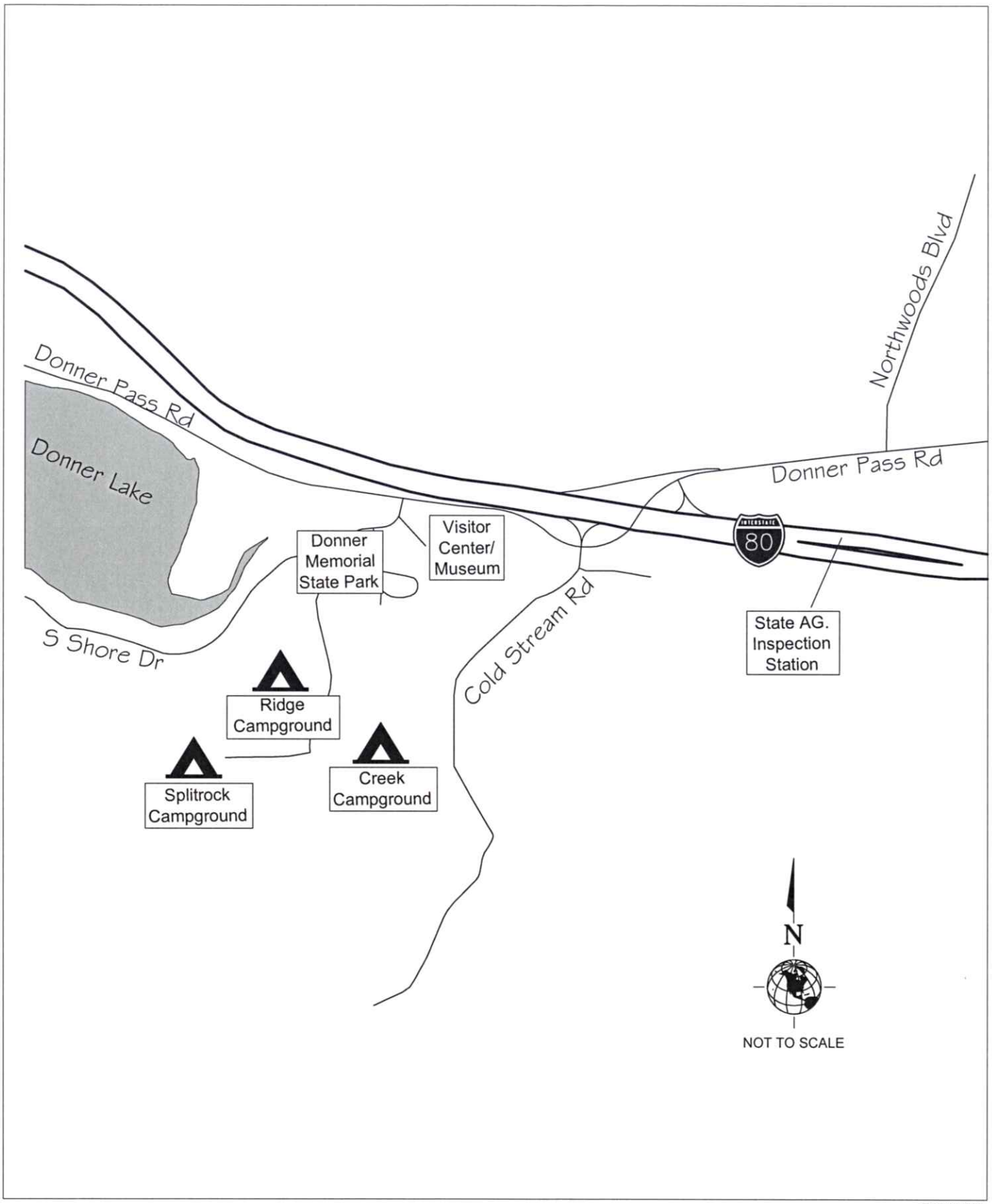
The transportation impact analysis for the proposed new visitor center and museum building at the Donner Memorial State Park involved the evaluation of current and projected 2025 pm peak hour traffic conditions at the intersection of the park access roadway with Donner Pass Road and the nearby intersections of Donner Pass Road with Interstate 80 freeway ramps. Project access, on-site circulation, and parking were also evaluated. The summary **conclusions** of that analysis are as follows:

- The study intersections operate at acceptable levels of service under existing conditions.
- With the project we expect that the study intersections will operate at acceptable levels of service with the existing lane configurations and intersection controls. The volume of additional traffic resulting from the project is not significant.
- With projected 2025 pm peak hour background traffic the intersection of Donner Pass Road with the park entrance roadway operates at an acceptable level of service.
- With projected 2025 pm peak hour background traffic the intersections of Donner Pass Road with the Interstate 80 freeway ramps operate at unacceptable levels of service (LOS F) with the existing lane configurations and intersection controls. The draft Town of Truckee General Plan Circulation Element reflects future intersection improvements at these locations. The intersections operate at acceptable levels of service with roundabout improvements.
- With projected 2025 pm peak hour background traffic plus project traffic and improvements at the intersections of Donner Pass Road with the Interstate 80 freeway ramp connections, all study intersections operate at acceptable levels of service. The project does not have a significant impact on projected 2025 pm peak hour traffic conditions.
- The proposed site access, circulation, and parking improvements will enhance conditions for park visitors.

Based on a review of site access, circulation, and parking conditions, the following **recommendations** are offered:

- At the Donner Pass Road/park entrance intersection, the left turn lane on Donner Pass Road should have a minimum storage length of 100 feet.
- On the park access roadway, separate egress left and right turn lanes are recommended for drivers leaving the park and turning onto Donner Pass Road.
- Site access design features at the intersection of the park access roadway with Donner Pass Road should comply with applicable Town of Truckee standards.
- Guide signing is recommended on Donner Pass Road and on the park access roadway.
- At the campground/day use area entrance, a bypass lane having a minimum length of 125 feet is recommended.
- The new visitor center/museum parking lot design should include a minimum of three oversized (10 feet by 40 feet) parking spaces for buses, motor homes, or vehicles with trailers.

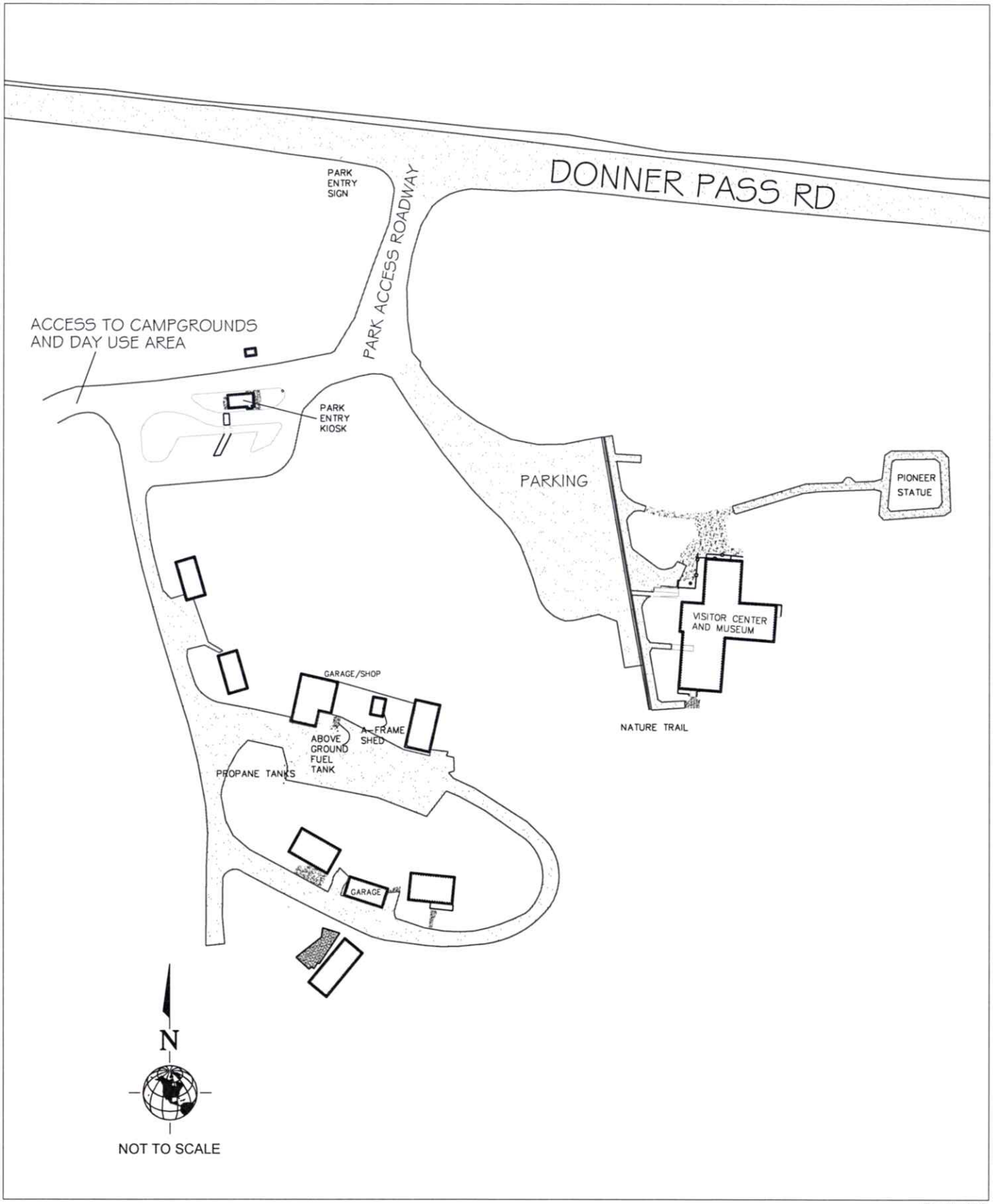
FIGURES



December 2005

FEHR & PEERS
TRANSPORTATION CONSULTANTS

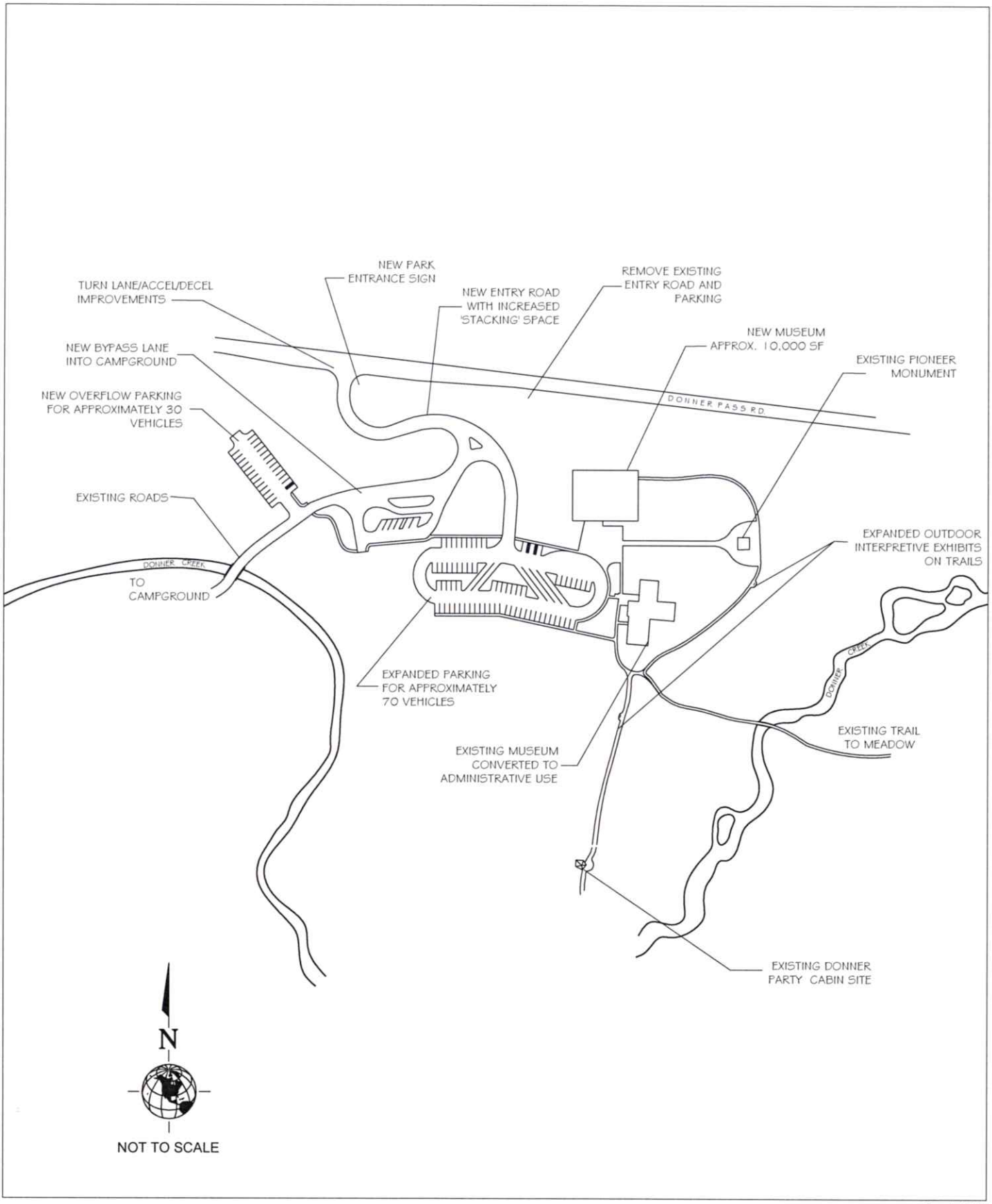
Donner Memorial State Park - Visitor Center And Museum
Transportation Impact Analysis
Project Location
Figure 1



December 2005

FEHR & PEERS
TRANSPORTATION CONSULTANTS

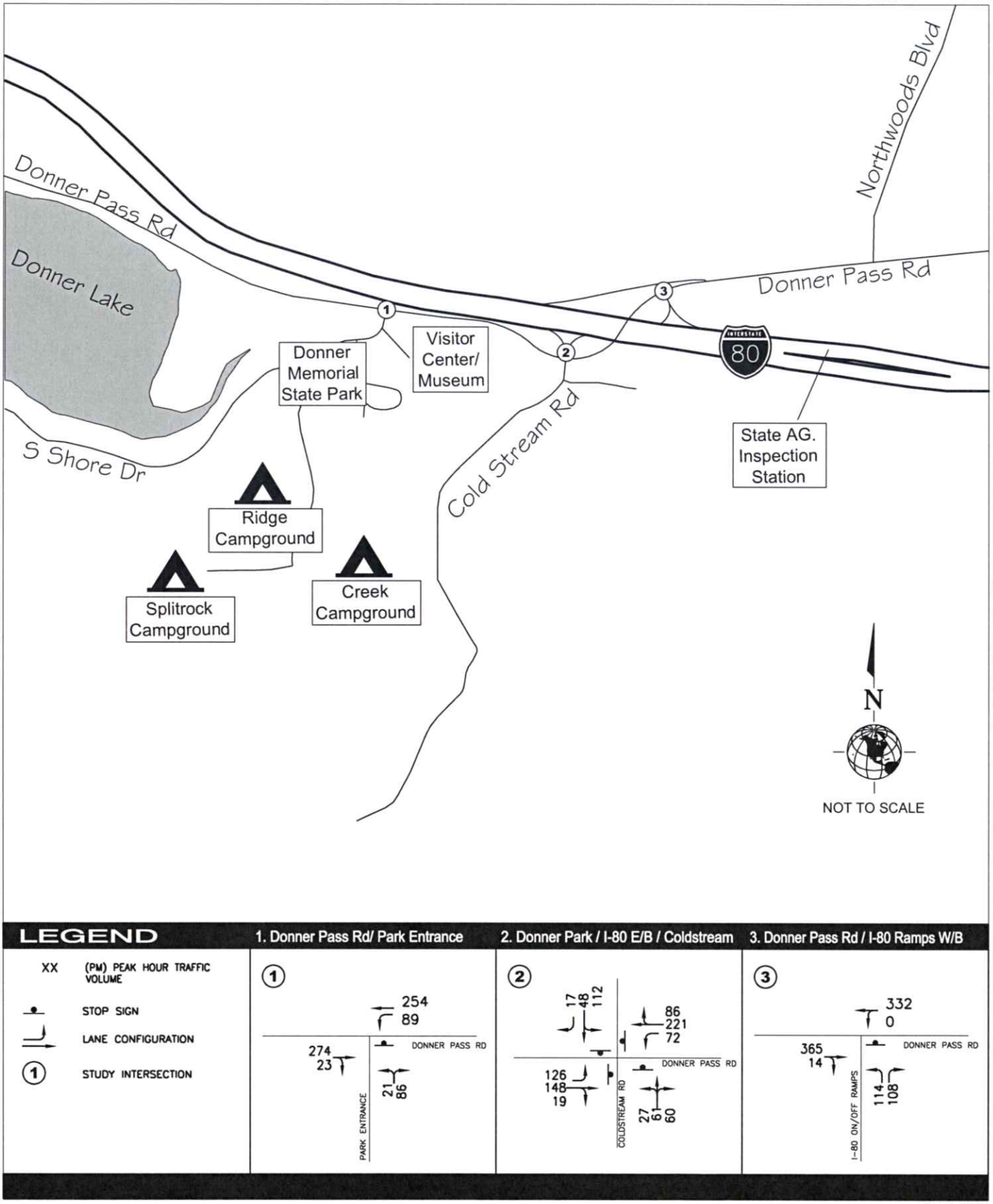
Donner Memorial State Park - Visitor Center And Museum
Transportation Impact Analysis
Existing Site Plan
Figure 2



Decmber 2005

FEHR & PEERS
TRANSPORTATION CONSULTANTS

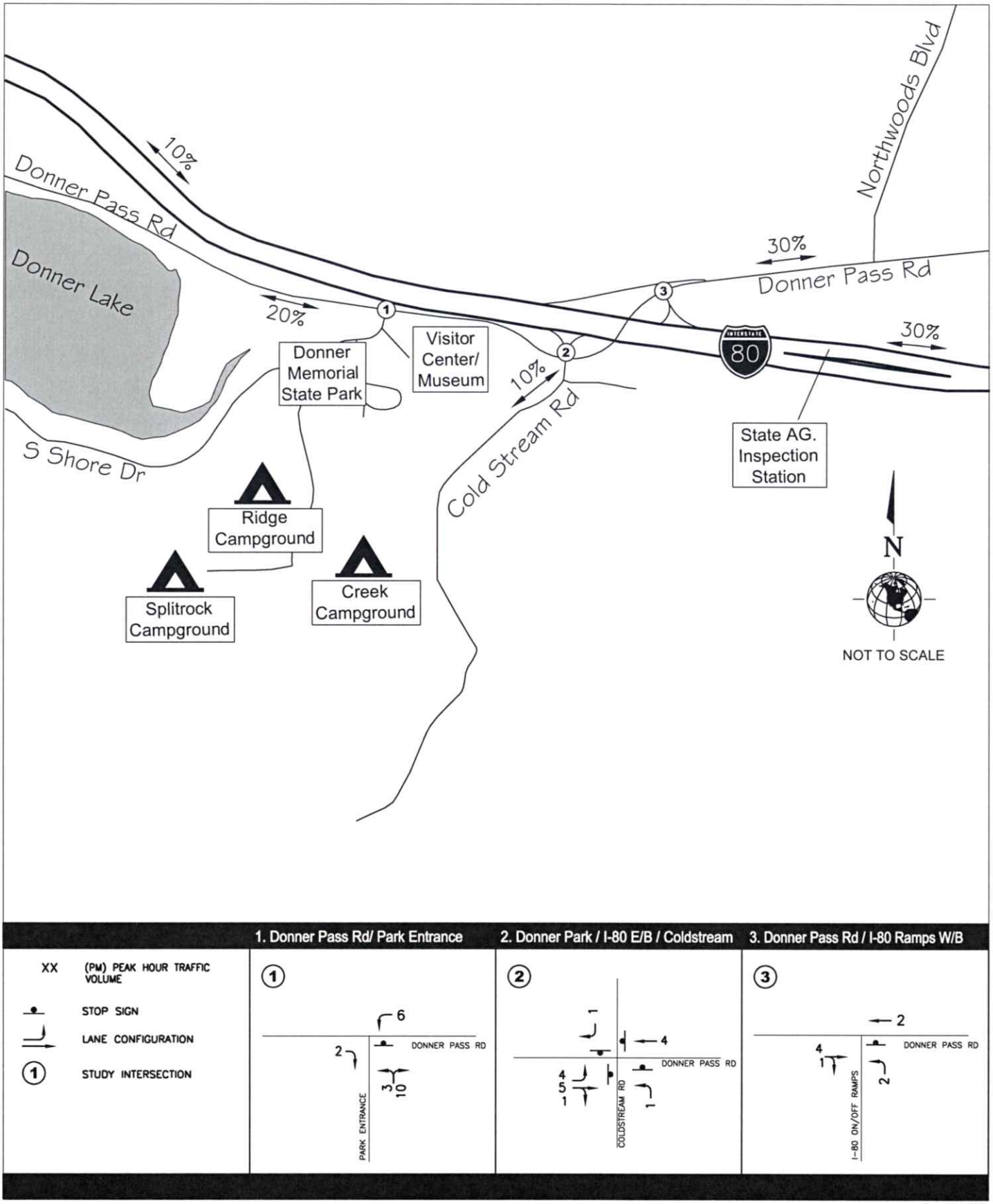
Donner Memorial State Park - Visitor Center And Museum
Transportation Impact Analysis
Proposed Site Plan
Figure 3



December 2005

FEHR & PEERS
TRANSPORTATION CONSULTANTS

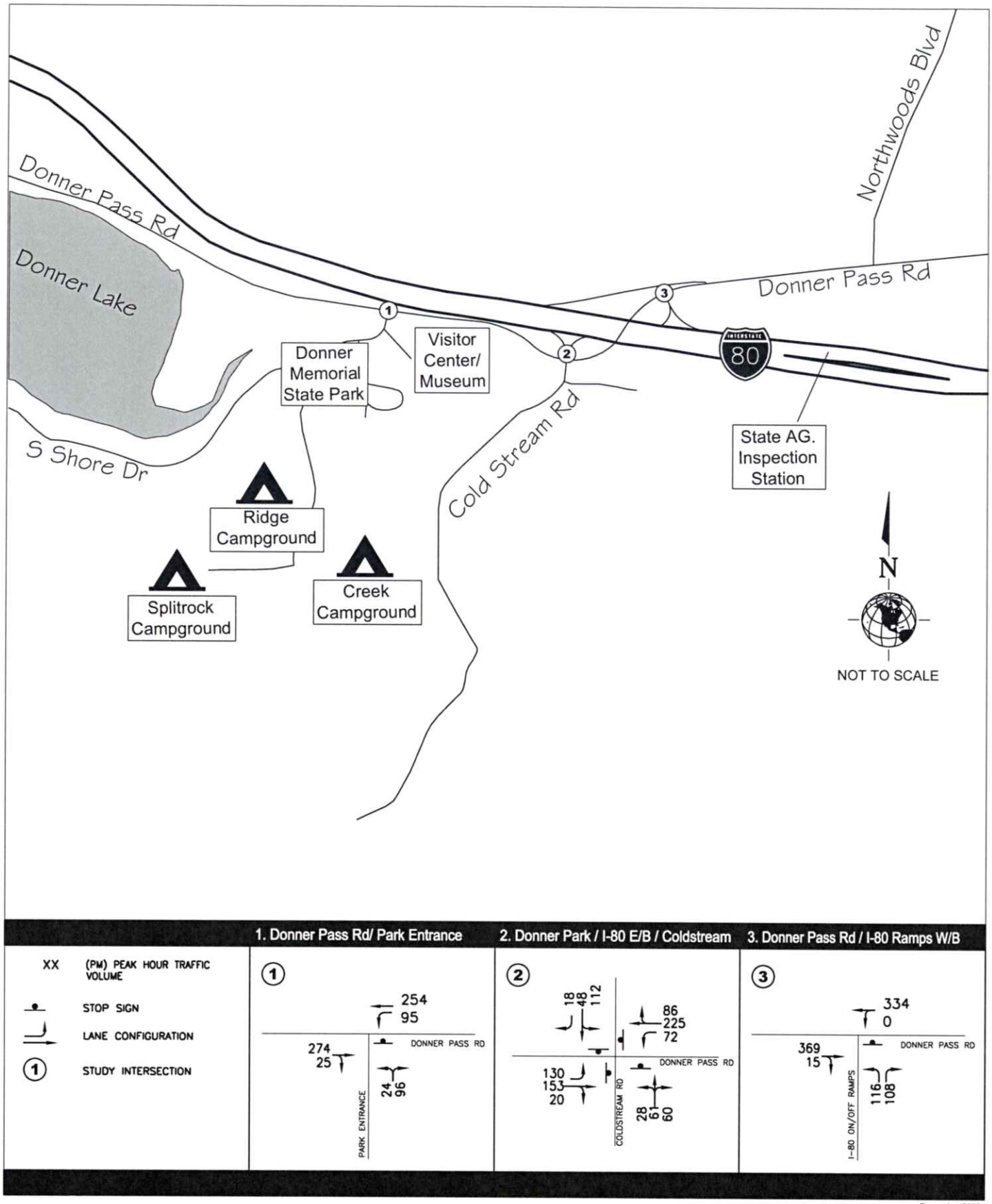
Donner Memorial State Park - Visitor Center And Museum
Transportation Impact Analysis
Existing Pm Peak Hour Traffic Volumes And Lane Configurations
Figure 4



December 2005

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Donner Memorial State Park - Visitor Center And Museum
Transportation Impact Analysis
Project Pm Peak Hour Trip Distribution and Assignment
Figure 5



December 2005

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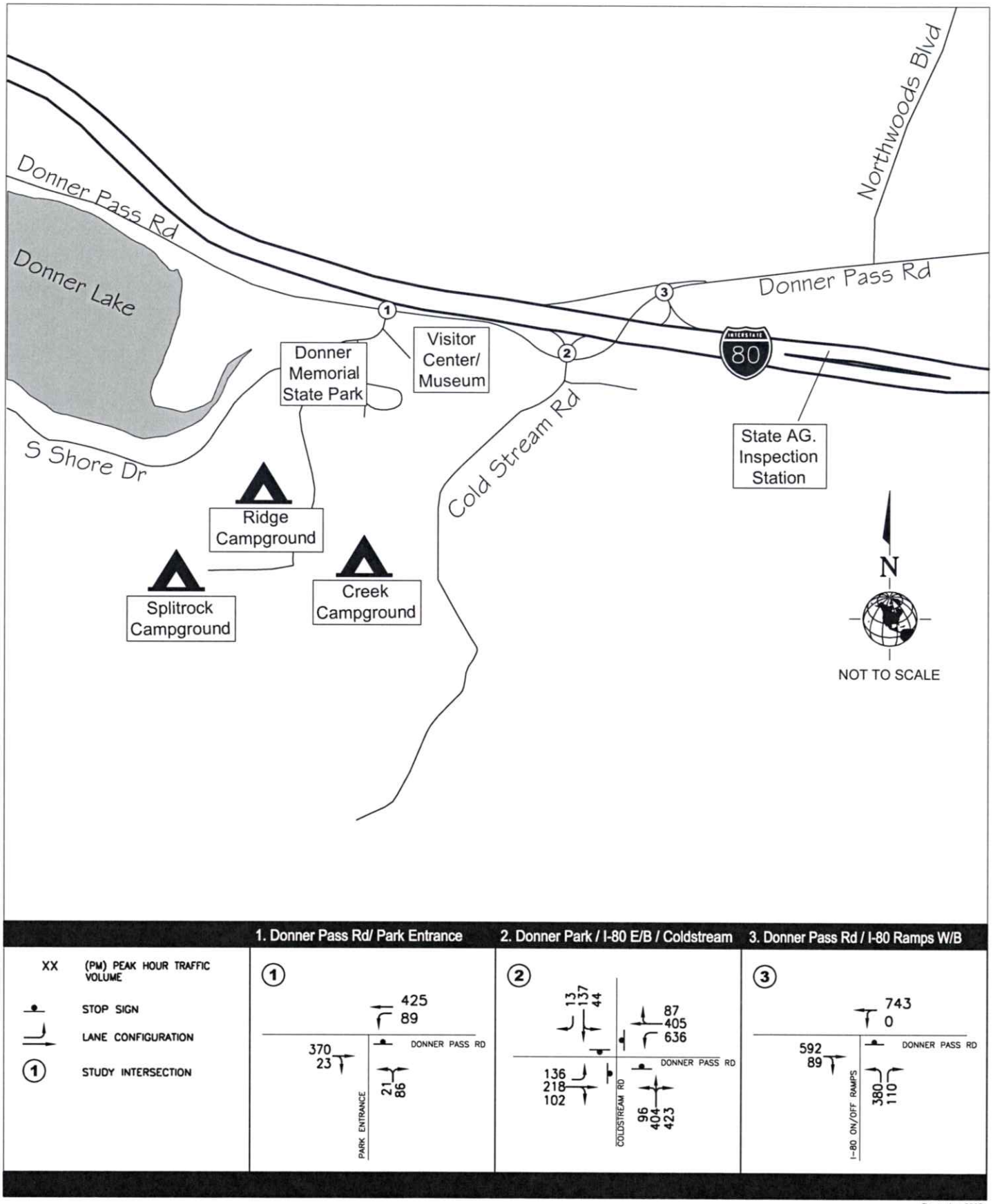
Donner Memorial State Park - Visitor Center And Museum
Transportation Impact Analysis
Existing Plus Project Pm Peak Hour Traffic Volumes and Lane Configurations
Figure 6



December 2005

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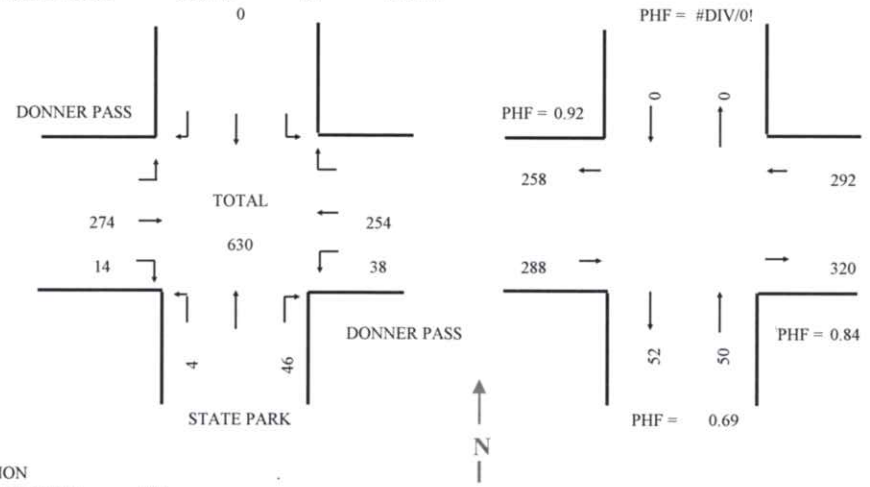
Donner Memorial State Park - Visitor Center And Museum
Transportation Impact Analysis
2025 Background Pm Peak Hour Traffic Volumes and Existing Lane Configurations
Figure 7

APPENDIX A:
TURNING MOVEMENT COUNT DATA SHEETS

FEHR & PEERS ASSOCIATES, INC.
INTERSECTION TURNING MOVEMENT SUMMARY

INTERSECTION:	**DONNER PASS / STATE PARK ENTRANCE**	**TIME:**	**2:30 PM to 6:30 PM**
JURISDICTION:		**DATE:**	**FRIDAY 9/2/2005**
PROJECT TITLE:		**PROJECT NO:**	**Rn05_0206**

PEAK HOUR PERIOD: 3:30 PM to 4:30 PM
PEAK 15 MINUTE PERIOD: 3:30 PM to 3:45 PM



INTERSECTION
PEAK HOUR FACTOR: 0.92

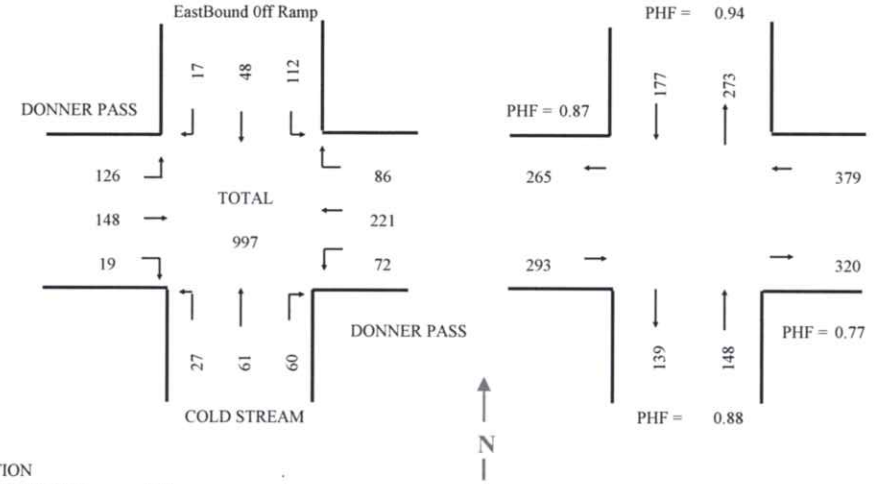
	DONNER PASS Eastbound			DONNER PASS Westbound			STATE PARK Northbound			Southbound			
RUNNING COUNTS	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Period End	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**TOTAL**
2:45 PM		65	2	4	40		0		6				117
3:00 PM		136	3	19	108		3		14				283
3:15 PM		190	3	25	153		5		22				398
3:30 PM		248	5	31	199		8		29				520
3:45 PM		321	7	39	269		9		46				691
4:00 PM		386	13	48	319		10		53				829
4:15 PM		460	17	59	376		12		61				985
4:30 PM		522	19	69	453		12		75				1150
4:45 PM		609	22	77	519		14		78				1319
5:00 PM		666	22	85	568		17		84				1442
5:15 PM		740	29	93	629		18		90				1599
5:30 PM		793	31	107	687		21		95				1734
5:45 PM		833	34	114	757		21		99				1858
6:00 PM		883	39	118	812		22		108				1982
6:15 PM		927	44	125	872		24		115				2107
6:30 PM		982	42	129	922		25		123				2223
PERIOD COUNTS													
Period End	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**TOTAL**
2:45 PM		65	2	4	40		0		6				117
3:00 PM		71	1	15	68		3		8				166
3:15 PM		54	0	6	45		2		8				115
3:30 PM		58	2	6	46		3		7				122
3:45 PM		73	2	8	70		1		17				171
4:00 PM		65	6	9	50		1		7				138
4:15 PM		74	4	11	57		2		8				156
4:30 PM		62	2	10	77		0		14				165
4:45 PM		87	3	8	66		2		3				169
5:00 PM		57	0	8	49		3		6				123
5:15 PM		74	7	8	61		1		6				157
5:30 PM		53	2	14	58		3		5				135
5:45 PM		40	3	7	70		0		4				124
6:00 PM		50	5	4	55		1		9				124
6:15 PM		44	5	7	60		2		7				125
6:30 PM		55	-2	4	50		1		8				116
HOURLY TOTALS													
Beginning At	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**TOTAL**
2:30 PM		248	5	31	199		8		29				520
2:45 PM		256	5	35	229		9		40				574
3:00 PM		250	10	29	211		7		39				546
3:15 PM		270	14	34	223		7		39				587
3:30 PM		274	14	38	254		4		46				630
3:45 PM		288	15	38	250		5		32				628
4:00 PM		280	9	37	249		7		31				613
4:15 PM		280	12	34	253		6		29				614
4:30 PM		271	12	38	234		9		20				584
4:45 PM		224	12	37	238		7		21				539
5:00 PM		217	17	33	244		5		24				540
5:15 PM		187	15	32	243		6		25				508
5:30 PM		189	11	22	235		4		28				489

FEHR & PEERS ASSOCIATES, INC.
INTERSECTION TURNING MOVEMENT SUMMARY

INTERSECTION: DONNER PASS EAST BOUND RAMPS
JURISDICTION:
PROJECT TITLE:

TIME: 2:30 PM to 6:30 PM
DATE: FRIDAY 9/2/2005
PROJECT NO: Rn05_0206

PEAK HOUR PERIOD: 3:30 PM to 4:30 PM
PEAK 15 MINUTE PERIOD: 4:15 PM to 4:30 PM



INTERSECTION
PEAK HOUR FACTOR: 0.90

RUNNING COUNTS	DONNER PASS Eastbound Left	Thru	Right	DONNER PASS Westbound Left	Thru	Right	COLD STREAM Northbound Left	Thru	Right	EastBound Off Ramp Southbound Left	Thru	Right	
Period End	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**TOTAL**
2:45 PM	17	31	4	24	46	19	8	13	22	54	14	1	253
3:00 PM	29	76	7	42	109	52	11	28	49	81	53	7	544
3:15 PM	54	107	9	57	159	82	15	51	63	113	57	10	777
3:30 PM	69	141	14	68	202	104	17	60	75	142	64	13	969
3:45 PM	105	183	20	87	255	122	28	71	94	168	77	19	1229
4:00 PM	135	209	23	103	295	147	35	84	107	201	89	21	1449
4:15 PM	161	247	29	121	346	163	39	110	119	226	99	28	1688
4:30 PM	195	289	33	140	423	190	44	121	135	254	112	30	1966
4:45 PM	222	329	36	156	476	212	51	139	146	286	123	34	2210
5:00 PM	239	357	41	170	527	242	56	152	163	314	139	37	2437
5:15 PM	261	404	46	179	585	256	63	171	174	347	155	43	2684
5:30 PM	274	435	48	193	636	278	68	194	180	369	176	47	2898
5:45 PM	291	455	51	206	696	291	75	202	193	393	193	48	3094
6:00 PM	298	480	52	216	727	303	76	222	200	412	202	49	3237
6:15 PM	312	505	54	228	769	315	80	241	212	443	216	50	3425
6:30 PM	334	537	57	238	814	331	85	262	225	470	228	53	3634

PERIOD COUNTS													
Period End	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**TOTAL**
2:45 PM	17	31	4	24	46	19	8	13	22	54	14	1	253
3:00 PM	12	45	3	18	63	33	3	15	27	27	39	6	291
3:15 PM	25	31	2	15	50	30	4	23	14	32	4	3	233
3:30 PM	15	34	5	11	43	22	2	9	12	29	7	3	192
3:45 PM	36	42	6	19	53	18	11	11	19	26	13	6	260
4:00 PM	30	26	3	16	40	25	7	13	13	33	12	2	220
4:15 PM	26	38	6	18	51	16	4	26	12	25	10	7	239
4:30 PM	34	42	4	19	77	27	5	11	16	28	13	2	278
4:45 PM	27	40	3	16	53	22	7	18	11	32	11	4	244
5:00 PM	17	28	5	14	51	30	5	13	17	28	16	3	227
5:15 PM	22	47	5	9	58	14	7	19	11	33	16	6	247
5:30 PM	13	31	2	14	51	22	5	23	6	22	21	4	214
5:45 PM	17	20	3	13	60	13	7	8	13	24	17	1	196
6:00 PM	7	25	1	10	31	12	1	20	7	19	9	1	143
6:15 PM	14	25	2	12	42	12	4	19	12	31	14	1	188
6:30 PM	22	32	3	10	45	16	5	21	13	27	12	3	209

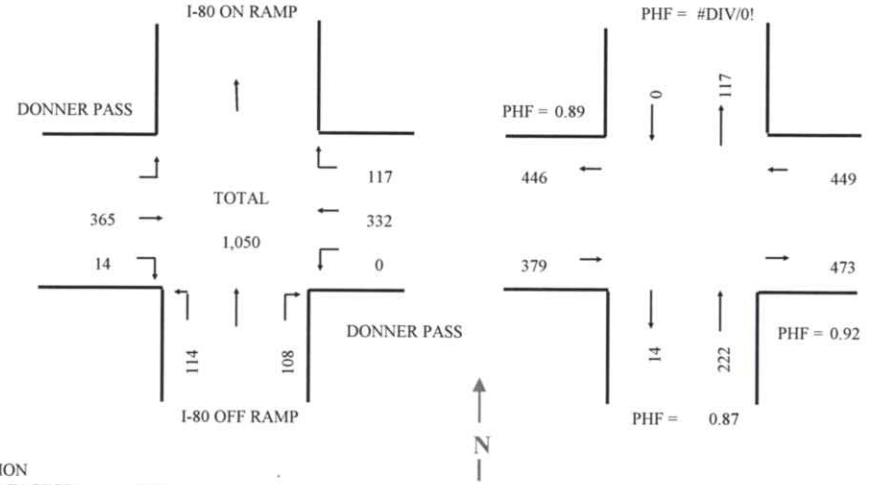
HOURLY TOTALS													
Beginning At	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**TOTAL**
2:30 PM	69	141	14	68	202	104	17	60	75	142	64	13	969
2:45 PM	88	152	16	63	209	103	20	58	72	114	63	18	976
3:00 PM	106	133	16	61	186	95	24	56	58	120	36	14	905
3:15 PM	107	140	20	64	187	81	24	59	56	113	42	18	911
3:30 PM	126	148	19	72	221	86	27	61	60	112	48	17	997
3:45 PM	117	146	16	69	221	90	23	68	52	118	46	15	981
4:00 PM	104	148	18	67	232	95	21	68	56	113	50	16	988
4:15 PM	100	157	17	58	239	93	24	61	55	121	56	15	996
4:30 PM	79	146	15	53	213	88	24	73	45	115	64	17	932
4:45 PM	69	126	15	50	220	79	24	63	47	107	70	14	884
5:00 PM	59	123	11	46	200	61	20	70	37	98	63	12	800
5:15 PM	51	101	8	49	184	59	17	70	38	96	61	7	741
5:30 PM	60	102	9	45	178	53	17	68	45	101	52	6	736

FEHR & PEERS ASSOCIATES, INC.
INTERSECTION TURNING MOVEMENT SUMMARY

INTERSECTION: DONNER PASS WEST RAMPS
JURISDICTION:
PROJECT TITLE:

TIME: 2:30 PM to 6:30 PM
DATE: FRIDAY 9/2/2005
PROJECT NO: Rn05_0206

PEAK HOUR PERIOD: 4:15 PM to 5:15 PM
PEAK 15 MINUTE PERIOD: 4:30 PM to 4:45 PM



INTERSECTION
PEAK HOUR FACTOR: 0.91

RUNNING COUNTS	DONNER PASS Eastbound Left	Thru	Right	DONNER PASS Westbound Left	Thru	Right	I-80 OFF RAMP Northbound Left	Thru	Right	I-80 ON RAMP Southbound Left	Thru	Right	
Period End	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**TOTAL**
2:45 PM		102	7	0	70	28	20		19				246
3:00 PM		200	12	0	146	68	44		43				513
3:15 PM		284	16	0	224	101	63		66				754
3:30 PM		363	21	1	297	131	94		84				991
3:45 PM		450	27	1	374	155	117		108				1232
4:00 PM		532	28	1	452	179	141		138				1471
4:15 PM		614	30	1	526	211	168		161				1711
4:30 PM		702	37	1	620	239	209		184				1992
4:45 PM		804	41	1	705	275	236		217				2279
5:00 PM		879	43	1	779	298	258		241				2499
5:15 PM		979	44	1	858	328	282		269				2761
5:30 PM		1043	46	1	927	351	316		297				2981
5:45 PM		1111	51	1	1008	384	340		324				3219
6:00 PM		1180	55	2	1073	415	367		346				3438
6:15 PM		1261	63	3	1150	446	397		369				3689
6:30 PM		1337	64	3	1194	742	418		385				4143
PERIOD COUNTS													
Period End	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**TOTAL**
2:45 PM		102	7	0	70	28	20		19				246
3:00 PM		98	5	0	76	40	24		24				267
3:15 PM		84	4	0	78	33	19		23				241
3:30 PM		79	5	1	73	30	31		18				237
3:45 PM		87	6	0	77	24	23		24				241
4:00 PM		82	1	0	78	24	24		30				239
4:15 PM		82	2	0	74	32	27		23				240
4:30 PM		88	7	0	94	28	41		23				281
4:45 PM		102	4	0	85	36	27		33				287
5:00 PM		75	2	0	74	23	22		24				220
5:15 PM		100	1	0	79	30	24		28				262
5:30 PM		64	2	0	69	23	34		28				220
5:45 PM		68	5	0	81	33	24		27				238
6:00 PM		69	4	1	65	31	27		22				219
6:15 PM		81	8	1	77	31	30		23				251
6:30 PM		76	1	0	44	296	21		16				454
HOURLY TOTALS													
Beginning At	**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**	**L**	**TOTAL**
2:30 PM		363	21	1	297	131	94		84				991
2:45 PM		348	20	1	304	127	97		89				986
3:00 PM		332	16	1	306	111	97		95				958
3:15 PM		330	14	1	302	110	105		95				957
3:30 PM		339	16	0	323	108	115		100				1001
3:45 PM		354	14	0	331	120	119		109				1047
4:00 PM		347	15	0	327	119	117		103				1028
4:15 PM		365	14	0	332	117	114		108				1050
4:30 PM		341	9	0	307	112	107		113				989
4:45 PM		307	10	0	303	109	104		107				940
5:00 PM		301	12	1	294	117	109		105				939
5:15 PM		282	19	2	292	118	115		100				928
5:30 PM		294	18	2	267	391	102		88				1162

APPENDIX B:
LEVEL OF SERVICE CALCULATION WORKSHEETS

TWO-WAY STOP CONTROL SUMMARY

Analyst: Sondra Rosenberg
Agency/Co.: Fehr & Peers Associates
Date Performed: 11/22/2005
Analysis Time Period:
Intersection: Donner Pass Rd/Park Entrance
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2005
Project ID: RN05-0206
East/West Street: Donner Pass Road
North/South Street: State Park Entrance
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		274	23	89	254	
Peak-Hour Factor, PHF		0.92	0.92	0.84	0.84	
Hourly Flow Rate, HFR		297	24	105	302	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	21		86			
Peak Hour Factor, PHF	1.00		1.00			
Hourly Flow Rate, HFR	21		86			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No	/		/
Lanes		0	0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		105		107				
C(m) (vph)		1230		560				
v/c		0.09		0.19				
95% queue length		0.28		0.71				
Control Delay		8.2		12.9				
LOS		A		B				
Approach Delay				12.9				
Approach LOS				B				

Phone: Fax:
E-Mail:

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: Sondra Rosenberg
Agency/Co.: Fehr & Peers Associates
Date Performed: 11/22/2005
Analysis Time Period:
Intersection: Donner Pass Rd/Park Entrance
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2005
Project ID: RN05-0206
East/West Street: Donner Pass Road
North/South Street: State Park Entrance
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street Movements	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		274	23	89	254	
Peak-Hour Factor, PHF		0.92	0.92	0.84	0.84	
Peak-15 Minute Volume		74	6	26	76	
Hourly Flow Rate, HFR		297	24	105	302	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street Movements	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	21		86			
Peak Hour Factor, PHF	1.00		1.00			
Peak-15 Minute Volume	5		22			
Hourly Flow Rate, HFR	21		86			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No	/		/
RT Channelized?						
Lanes	0		0			
Configuration		LR				

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	10	10	10	0
Lane Width (ft)	12.0	12.0	12.0	12.0
Walking Speed (ft/sec)	4.0	4.0	4.0	4.0
Percent Blockage	1	1	1	0

Worksheet 6-Impedance and Capacity Equations

Step 1: RT from Minor St.	9	12
Conflicting Flows	329	
Potential Capacity	717	
Pedestrian Impedance Factor	0.98	0.99
Movement Capacity	705	
Probability of Queue free St.	0.88	1.00

Step 2: LT from Major St.	4	1
Conflicting Flows	331	
Potential Capacity	1240	
Pedestrian Impedance Factor	0.99	1.00
Movement Capacity	1230	
Probability of Queue free St.	0.91	1.00
Maj L-Shared Prob Q free St.		

Step 3: TH from Minor St.	8	11
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor	0.99	0.99
Cap. Adj. factor due to Impeding mvmnt	0.91	0.91
Movement Capacity		
Probability of Queue free St.	1.00	1.00

Step 4: LT from Minor St.	7	10
Conflicting Flows	841	
Potential Capacity	338	
Pedestrian Impedance Factor	0.98	0.99
Maj. L, Min T Impedance factor		0.91
Maj. L, Min T Adj. Imp Factor.		0.93
Cap. Adj. factor due to Impeding mvmnt	0.90	0.81
Movement Capacity	304	

Worksheet 7-Computation of the Effect of Two-stage Gap Acceptance

Step 3: TH from Minor St.	8	11
Part 1 - First Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Probability of Queue free St.		
Part 2 - Second Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Part 3 - Single Stage		
Conflicting Flows		

Potential Capacity		
Pedestrian Impedance Factor	0.99	0.99
Cap. Adj. factor due to Impeding mvmnt	0.91	0.91
Movement Capacity		
Result for 2 stage process:		
a		
y		
C t		
Probability of Queue free St.	1.00	1.00

Step 4: LT from Minor St.	7	10
Part 1 - First Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Part 2 - Second Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Part 3 - Single Stage		
Conflicting Flows	841	
Potential Capacity	338	
Pedestrian Impedance Factor	0.98	0.99
Maj. L, Min T Impedance factor		0.91
Maj. L, Min T Adj. Imp Factor.		0.93
Cap. Adj. factor due to Impeding mvmnt	0.90	0.81
Movement Capacity	304	
Results for Two-stage process:		
a		
y		
C t	304	

Worksheet 8-Shared Lane Calculations

Movement	7 L	8 T	9 R	10 L	11 T	12 R
Volume (vph)	21		86			
Movement Capacity (vph)	304		705			
Shared Lane Capacity (vph)		560				

Worksheet 9-Computation of Effect of Flared Minor Street Approaches

Movement	7 L	8 T	9 R	10 L	11 T	12 R
C sep	304		705			
Volume	21		86			
Delay						
Q sep						
Q sep +1						
round (Qsep +1)						

HCS+: Unsignalized Intersections Release 5.2

Phone: Fax:
E-Mail:

ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: Sondra Rosenberg
Agency/Co.: Fehr & Peers Associates
Date Performed: 11/22/2005
Analysis Time Period:
Intersection: Donner Pass Rd/I80 EB Ramps
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2005
Project ID: RN05_0205
East/West Street: Donner Pass Road
North/South Street: I80 EB Ramps/Coldstream Rd

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	126	148	19	72	221	86	27	61	60	112	48	17

% Thrus Left Lane

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	L	TR	LTR		LT	R
PHF	0.87	0.87	0.77	0.77	0.88		0.94	1.00
Flow Rate	144	191	93	398	167		170	17
% Heavy Veh	0	0	0	0	0		0	0
No. Lanes	2		2		1		2	
Opposing-Lanes	2		2		2		1	
Conflicting-lanes	2		2		2		2	
Geometry group	5		5		4b		5	

Duration, T 1.00 hrs.

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	144	191	93	398	167		170	17
Left-Turn	144	0	93	0	30		119	0
Right-Turn	0	21	0	111	68		0	17
Prop. Left-Turns	1.0	0.0	1.0	0.0	0.2		0.7	0.0
Prop. Right-Turns	0.0	0.1	0.0	0.3	0.4		0.0	1.0
Prop. Heavy Vehicle	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Geometry Group	5		5		4b		5	
Adjustments Exhibit 17-33:								
hLT-adj	0.5		0.5		0.2		0.5	
hRT-adj	-0.7		-0.7		-0.6		-0.7	
hHV-adj	1.7		1.7		1.7		1.7	

hadj, computed	0.5	-0.1	0.5	-0.2	-0.2	0.3	-0.7

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	144	191	93	398	167		170	17
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.13	0.17	0.08	0.35	0.15		0.15	0.02
hd, final value	7.09	6.50	6.86	6.15	6.91		7.50	6.45
x, final value	0.28	0.34	0.18	0.68	0.32		0.35	0.03
Move-up time, m	2.3		2.3		2.3		2.3	
Service Time	4.8	4.2	4.6	3.9	4.6		5.2	4.1

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	144	191	93	398	167		170	17
Service Time	4.8	4.2	4.6	3.9	4.6		5.2	4.1
Utilization, x	0.28	0.34	0.18	0.68	0.32		0.35	0.03
Dep. headway, hd	7.09	6.50	6.86	6.15	6.91		7.50	6.45
Capacity	394	441	343	572	417		420	267
Delay	12.58	12.61	11.03	21.68	12.86		14.31	9.35
LOS	B	B	B	C	B		B	A
Approach:								
Delay	12.60		19.66		12.86		13.86	
LOS	B		C		B		B	

Intersection Delay 15.77 Intersection LOS C

TWO-WAY STOP CONTROL SUMMARY

Analyst: Sondra Rosenberg
Agency/Co.: Fehr & Peers Associates
Date Performed: 11/22/2005
Analysis Time Period:
Intersection:
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2005
Project ID: RN05-0206
East/West Street: Donner Pass Road
North/South Street: I 80 WB Ramps
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		365	14	0	332	
Peak-Hour Factor, PHF		0.89	0.89	0.92	0.92	
Hourly Flow Rate, HFR		410	15	0	360	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR	LT		
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	114		108			
Peak Hour Factor, PHF	0.87		0.87			
Hourly Flow Rate, HFR	131		124			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	1		1			
Configuration	L		R			

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT	L		R			
v (vph)		0	131		124			
C(m) (vph)		1126	352		613			
v/c		0.00	0.37		0.20			
95% queue length		0.00	1.75		0.76			
Control Delay		8.2	21.3		12.4			
LOS		A	C		B			
Approach Delay				16.9				
Approach LOS				C				

Phone: Fax:
E-Mail:

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: Sondra Rosenberg
Agency/Co.: Fehr & Peers Associates
Date Performed: 11/22/2005
Analysis Time Period:
Intersection:
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2005
Project ID: RN05-0206
East/West Street: Donner Pass Road
North/South Street: I 80 WB Ramps
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street Movements	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		365	14	0	332	
Peak-Hour Factor, PHF		0.89	0.89	0.92	0.92	
Peak-15 Minute Volume		103	4	0	90	
Hourly Flow Rate, HFR		410	15	0	360	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR	LT		
Upstream Signal?		No			No	

Minor Street Movements	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	114		108			
Peak Hour Factor, PHF	0.87		0.87			
Peak-15 Minute Volume	33		31			
Hourly Flow Rate, HFR	131		124			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
RT Channelized?			No			
Lanes	1		1			
Configuration	L		R			

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	10	10	10	0
Lane Width (ft)	12.0	12.0	12.0	12.0
Walking Speed (ft/sec)	4.0	4.0	4.0	4.0
Percent Blockage	1	1	1	0

C(plat,x)

Worksheet 6-Impedance and Capacity Equations

Step 1: RT from Minor St.	9	12
Conflicting Flows	438	
Potential Capacity	623	
Pedestrian Impedance Factor	0.98	0.99
Movement Capacity	613	
Probability of Queue free St.	0.80	1.00

Step 2: LT from Major St.	4	1
Conflicting Flows	435	
Potential Capacity	1135	
Pedestrian Impedance Factor	0.99	1.00
Movement Capacity	1126	
Probability of Queue free St.	1.00	1.00
Maj L-Shared Prob Q free St.	1.00	

Step 3: TH from Minor St.	8	11
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor	0.99	0.99
Cap. Adj. factor due to Impeding mvmnt	0.99	0.99
Movement Capacity		
Probability of Queue free St.	1.00	1.00

Step 4: LT from Minor St.	7	10
Conflicting Flows	798	
Potential Capacity	358	
Pedestrian Impedance Factor	0.98	0.99
Maj. L, Min T Impedance factor		0.99
Maj. L, Min T Adj. Imp Factor.		0.99
Cap. Adj. factor due to Impeding mvmnt	0.98	0.79
Movement Capacity	352	

Worksheet 7-Computation of the Effect of Two-stage Gap Acceptance

Step 3: TH from Minor St.	8	11
Part 1 - First Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Probability of Queue free St.		
Part 2 - Second Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Part 3 - Single Stage		
Conflicting Flows		

Potential Capacity		
Pedestrian Impedance Factor	0.99	0.99
Cap. Adj. factor due to Impeding mvmnt	0.99	0.99
Movement Capacity		
Result for 2 stage process:		
a		
y		
C t		
Probability of Queue free St.	1.00	1.00

Step 4: LT from Minor St.	7	10
Part 1 - First Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Part 2 - Second Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Part 3 - Single Stage		
Conflicting Flows	798	
Potential Capacity	358	
Pedestrian Impedance Factor	0.98	0.99
Maj. L, Min T Impedance factor		0.99
Maj. L, Min T Adj. Imp Factor.		0.99
Cap. Adj. factor due to Impeding mvmnt	0.98	0.79
Movement Capacity	352	
Results for Two-stage process:		
a		
y		
C t	352	

Worksheet 8-Shared Lane Calculations

Movement	7 L	8 T	9 R	10 L	11 T	12 R
Volume (vph)	131		124			
Movement Capacity (vph)	352		613			
Shared Lane Capacity (vph)						

Worksheet 9-Computation of Effect of Flared Minor Street Approaches

Movement	7 L	8 T	9 R	10 L	11 T	12 R
C sep	352		613			
Volume	131		124			
Delay						
Q sep						
Q sep +1						
round (Qsep +1)						

TWO-WAY STOP CONTROL SUMMARY

Analyst: Sondra Rosenberg
Agency/Co.: Fehr & Peers Associates
Date Performed: 11/22/2005
Analysis Time Period:
Intersection: Donner Pass Rd/Park Entrance
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2005 Plus Project
Project ID: RN05-0206
East/West Street: Donner Pass Road
North/South Street: State Park Entrance
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		274	25	95	254	
Peak-Hour Factor, PHF		0.92	0.92	0.84	0.84	
Hourly Flow Rate, HFR		297	27	113	302	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	24		96			
Peak Hour Factor, PHF	1.00		1.00			
Hourly Flow Rate, HFR	24		96			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No	/		/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		113		120				
C(m) (vph)		1227		551				
v/c		0.09		0.22				
95% queue length		0.30		0.83				
Control Delay		8.2		13.4				
LOS		A		B				
Approach Delay				13.4				
Approach LOS				B				

Phone: Fax:
E-Mail:

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: Sondra Rosenberg
Agency/Co.: Fehr & Peers Associates
Date Performed: 11/22/2005
Analysis Time Period:
Intersection: Donner Pass Rd/Park Entrance
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2005 Plus Project
Project ID: RN05-0206
East/West Street: Donner Pass Road
North/South Street: State Park Entrance
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street Movements	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		274	25	95	254	
Peak-Hour Factor, PHF		0.92	0.92	0.84	0.84	
Peak-15 Minute Volume		74	7	28	76	
Hourly Flow Rate, HFR		297	27	113	302	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street Movements	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	24		96			
Peak Hour Factor, PHF	1.00		1.00			
Peak-15 Minute Volume	6		24			
Hourly Flow Rate, HFR	24		96			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No	/		/
RT Channelized?						
Lanes	0		0			
Configuration		LR				

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	10	10	10	0
Lane Width (ft)	12.0	12.0	12.0	12.0
Walking Speed (ft/sec)	4.0	4.0	4.0	4.0
Percent Blockage	1	1	1	0

C(plat,x)

Worksheet 6-Impedance and Capacity Equations

Step 1: RT from Minor St.	9	12
Conflicting Flows	330	
Potential Capacity	716	
Pedestrian Impedance Factor	0.98	0.99
Movement Capacity	704	
Probability of Queue free St.	0.86	1.00

Step 2: LT from Major St.	4	1
Conflicting Flows	334	
Potential Capacity	1237	
Pedestrian Impedance Factor	0.99	1.00
Movement Capacity	1227	
Probability of Queue free St.	0.91	1.00
Maj L-Shared Prob Q free St.		

Step 3: TH from Minor St.	8	11
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor	0.99	0.99
Cap. Adj. factor due to Impeding mvmnt	0.90	0.90
Movement Capacity		
Probability of Queue free St.	1.00	1.00

Step 4: LT from Minor St.	7	10
Conflicting Flows	858	
Potential Capacity	330	
Pedestrian Impedance Factor	0.98	0.99
Maj. L, Min T Impedance factor		0.90
Maj. L, Min T Adj. Imp Factor.		0.92
Cap. Adj. factor due to Impeding mvmnt	0.89	0.79
Movement Capacity	295	

Worksheet 7-Computation of the Effect of Two-stage Gap Acceptance

Step 3: TH from Minor St.	8	11
Part 1 - First Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Probability of Queue free St.		
Part 2 - Second Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Part 3 - Single Stage		
Conflicting Flows		

Potential Capacity		
Pedestrian Impedance Factor	0.99	0.99
Cap. Adj. factor due to Impeding mvmnt	0.90	0.90
Movement Capacity		
Result for 2 stage process:		
a		
y		
C t		
Probability of Queue free St.	1.00	1.00

Step 4: LT from Minor St.	7	10
Part 1 - First Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Part 2 - Second Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Part 3 - Single Stage		
Conflicting Flows	858	
Potential Capacity	330	
Pedestrian Impedance Factor	0.98	0.99
Maj. L, Min T Impedance factor		0.90
Maj. L, Min T Adj. Imp Factor.		0.92
Cap. Adj. factor due to Impeding mvmnt	0.89	0.79
Movement Capacity	295	
Results for Two-stage process:		
a		
y		
C t	295	

Worksheet 8-Shared Lane Calculations

Movement	7 L	8 T	9 R	10 L	11 T	12 R
Volume (vph)	24		96			
Movement Capacity (vph)	295		704			
Shared Lane Capacity (vph)		551				

Worksheet 9-Computation of Effect of Flared Minor Street Approaches

Movement	7 L	8 T	9 R	10 L	11 T	12 R
C sep	295		704			
Volume	24		96			
Delay						
Q sep						
Q sep +1						
round (Qsep +1)						

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E-Mail:

ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: Sondra Rosenberg
Agency/Co.: Fehr & Peers Associates
Date Performed: 11/22/2005
Analysis Time Period: PM Peak Hour
Intersection: Donner Pass Rd/I80 EB Ramps
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2005 Plus Project
Project ID: RN05_0205
East/West Street: Donner Pass Road
North/South Street: I80 EB Ramps/Coldstream Rd

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	130	153	20	72	225	86	28	61	60	112	48	18

% Thrus Left Lane

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	L	TR	LTR		LT	R
PHF	0.87	0.87	0.77	0.77	0.88		0.94	1.00
Flow Rate	149	197	93	403	168		170	18
% Heavy Veh	0	0	0	0	0		0	0
No. Lanes	2		2		1		2	
Opposing-Lanes	2		2		2		1	
Conflicting-lanes	2		2		2		2	
Geometry group	5		5		4b		5	

Duration, T 1.00 hrs.

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	149	197	93	403	168		170	18
Left-Turn	149	0	93	0	31		119	0
Right-Turn	0	22	0	111	68		0	18
Prop. Left-Turns	1.0	0.0	1.0	0.0	0.2		0.7	0.0
Prop. Right-Turns	0.0	0.1	0.0	0.3	0.4		0.0	1.0
Prop. Heavy Vehicle	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Geometry Group	5		5		4b		5	
Adjustments Exhibit 17-33:								
hLT-adj	0.5		0.5		0.2		0.5	
hRT-adj	-0.7		-0.7		-0.6		-0.7	
hHV-adj	1.7		1.7		1.7		1.7	

hadj, computed	0.5	-0.1	0.5	-0.2	-0.2		0.3	-0.7

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	149	197	93	403	168		170	18
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.13	0.18	0.08	0.36	0.15		0.15	0.02
hd, final value	7.12	6.53	6.90	6.20	6.97		7.56	6.50
x, final value	0.29	0.36	0.18	0.69	0.33		0.36	0.03
Move-up time, m	2.3		2.3		2.3		2.3	
Service Time	4.8	4.2	4.6	3.9	4.7		5.3	4.2

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	149	197	93	403	168		170	18
Service Time	4.8	4.2	4.6	3.9	4.7		5.3	4.2
Utilization, x	0.29	0.36	0.18	0.69	0.33		0.36	0.03
Dep. headway, hd	7.12	6.53	6.90	6.20	6.97		7.56	6.50
Capacity	399	447	343	569	418		420	268
Delay	12.78	12.85	11.09	22.58	13.01		14.44	9.42
LOS	B	B	B	C	B		B	A
Approach:								
Delay	12.82		20.43		13.01		13.96	
LOS	B		C		B		B	

Intersection Delay 16.18 Intersection LOS C

PP Donner Pass Rd_I80 WB Ramps
HCS+: Unsignalized Intersections Release 5.2

TWO-WAY STOP CONTROL SUMMARY

Analyst: Sondra Rosenberg
Agency/Co.: Fehr & Peers Associates
Date Performed: 11/22/2005
Analysis Time Period:
Intersection: Donner Pass Rd/I80 WB Ramps
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2005 Plus Project
Project ID: RN05-0206
East/West Street: Donner Pass Road
North/South Street:
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		369	15	0	334	
Peak-Hour Factor, PHF		0.89	0.89	0.92	0.92	
Hourly Flow Rate, HFR		414	16	0	363	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR		LT	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	116		108			
Peak Hour Factor, PHF	0.87		0.87			
Hourly Flow Rate, HFR	133		124			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	1		1			
Configuration	L		R			

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT	L		R			
v (vph)		0	133		124			
C(m) (vph)		1122	349		610			
v/c		0.00	0.38		0.20			
95% queue length		0.00	1.82		0.76			
Control Delay		8.2	21.6		12.4			
LOS		A	C		B			
Approach Delay				17.2				
Approach LOS				C				

PP Donner Pass Rd_I80 WB Ramps
HCS+: Unsignalized Intersections Release 5.2

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TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: Sondra Rosenberg
Agency/Co.: Fehr & Peers Associates
Date Performed: 11/22/2005
Analysis Time Period:
Intersection: Donner Pass Rd/I80 WB Ramps
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2005 Plus Project
Project ID: RN05-0206
East/West Street: Donner Pass Road
North/South Street:
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street Movements	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		369	15	0	334	
Peak-Hour Factor, PHF		0.89	0.89	0.92	0.92	
Peak-15 Minute Volume		104	4	0	91	
Hourly Flow Rate, HFR		414	16	0	363	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR		LT	
Upstream Signal?		No			No	

Minor Street Movements	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	116		108			
Peak Hour Factor, PHF	0.87		0.87			
Peak-15 Minute Volume	33		31			
Hourly Flow Rate, HFR	133		124			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
RT Channelized?			No			
Lanes	1		1			
Configuration	L		R			

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	10	10	10	0
Lane Width (ft)	12.0	12.0	12.0	12.0
Walking Speed (ft/sec)	4.0	4.0	4.0	4.0
Percent Blockage	1	1	1	0

C(plat,x)

Worksheet 6-Impedance and Capacity Equations

Step 1: RT from Minor St.	9	12
Conflicting Flows	442	
Potential Capacity	620	
Pedestrian Impedance Factor	0.98	0.99
Movement Capacity	610	
Probability of Queue free St.	0.80	1.00

Step 2: LT from Major St.	4	1
Conflicting Flows	440	
Potential Capacity	1131	
Pedestrian Impedance Factor	0.99	1.00
Movement Capacity	1122	
Probability of Queue free St.	1.00	1.00
Maj L-Shared Prob Q free St.	1.00	

Step 3: TH from Minor St.	8	11
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor	0.99	0.99
Cap. Adj. factor due to Impeding mvmnt	0.99	0.99
Movement Capacity		
Probability of Queue free St.	1.00	1.00

Step 4: LT from Minor St.	7	10
Conflicting Flows	805	
Potential Capacity	355	
Pedestrian Impedance Factor	0.98	0.99
Maj. L, Min T Impedance factor		0.99
Maj. L, Min T Adj. Imp Factor.		0.99
Cap. Adj. factor due to Impeding mvmnt	0.98	0.79
Movement Capacity	349	

Worksheet 7-Computation of the Effect of Two-stage Gap Acceptance

Step 3: TH from Minor St.	8	11
Part 1 - First Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Probability of Queue free St.		
Part 2 - Second Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Part 3 - Single Stage		
Conflicting Flows		

Potential Capacity		
Pedestrian Impedance Factor	0.99	0.99
Cap. Adj. factor due to Impeding mvmnt	0.99	0.99
Movement Capacity		
Result for 2 stage process:		
a		
y		
C t		
Probability of Queue free St.	1.00	1.00

Step 4: LT from Minor St.	7	10
Part 1 - First Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Part 2 - Second Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Part 3 - Single Stage		
Conflicting Flows	805	
Potential Capacity	355	
Pedestrian Impedance Factor	0.98	0.99
Maj. L, Min T Impedance factor		0.99
Maj. L, Min T Adj. Imp Factor.		0.99
Cap. Adj. factor due to Impeding mvmnt	0.98	0.79
Movement Capacity	349	
Results for Two-stage process:		
a		
y		
C t	349	

Worksheet 8-Shared Lane Calculations

Movement	7 L	8 T	9 R	10 L	11 T	12 R
Volume (vph)	133		124			
Movement Capacity (vph)	349		610			
Shared Lane Capacity (vph)						

Worksheet 9-Computation of Effect of Flared Minor Street Approaches

Movement	7 L	8 T	9 R	10 L	11 T	12 R
C sep	349		610			
Volume	133		124			
Delay						
Q sep						
Q sep +1						
round (Qsep +1)						

TWO-WAY STOP CONTROL SUMMARY

Analyst:
Agency/Co.: Fehr & Peers Associates
Date Performed: 11/22/2005
Analysis Time Period: PM Peak Hour
Intersection: Donner Pass Rd/Park Entrance
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: RN05-0206
East/West Street: Donner Pass Road
North/South Street: State Park Entrance
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		370	23	89	425	
Peak-Hour Factor, PHF		0.95	0.95	0.95	0.95	
Hourly Flow Rate, HFR		389	24	93	447	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	21		86			
Peak Hour Factor, PHF	0.95		0.95			
Hourly Flow Rate, HFR	22		90			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No	/		/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		93		112				
C(m) (vph)		1137		466				
v/c		0.08		0.24				
95% queue length		0.27		0.94				
Control Delay		8.4		15.2				
LOS		A		C				
Approach Delay				15.2				
Approach LOS				C				

Phone: Fax:
E-Mail:

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst:
Agency/Co.: Fehr & Peers Associates
Date Performed: 11/22/2005
Analysis Time Period: PM Peak Hour
Intersection: Donner Pass Rd/Park Entrance
Jurisdiction:
Units: U. S. Customary
Analysis Year:
Project ID: RN05-0206
East/West Street: Donner Pass Road
North/South Street: State Park Entrance
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street Movements	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		370	23	89	425	
Peak-Hour Factor, PHF		0.95	0.95	0.95	0.95	
Peak-15 Minute Volume		97	6	23	112	
Hourly Flow Rate, HFR		389	24	93	447	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street Movements	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	21		86			
Peak Hour Factor, PHF	0.95		0.95			
Peak-15 Minute Volume	6		23			
Hourly Flow Rate, HFR	22		90			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No	/		/
RT Channelized?						
Lanes	0		0			
Configuration		LR				

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	10	10	10	0
Lane Width (ft)	12.0	12.0	12.0	12.0
Walking Speed (ft/sec)	4.0	4.0	4.0	4.0
Percent Blockage	1	1	1	0

C(plat,x)

Worksheet 6-Impedance and Capacity Equations

Step 1: RT from Minor St.	9	12
Conflicting Flows	421	
Potential Capacity	637	
Pedestrian Impedance Factor	0.98	0.99
Movement Capacity	626	
Probability of Queue free St.	0.86	1.00

Step 2: LT from Major St.	4	1
Conflicting Flows	423	
Potential Capacity	1147	
Pedestrian Impedance Factor	0.99	1.00
Movement Capacity	1137	
Probability of Queue free St.	0.92	1.00
Maj L-Shared Prob Q free St.		

Step 3: TH from Minor St.	8	11
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor	0.99	0.99
Cap. Adj. factor due to Impeding mvmnt	0.91	0.91
Movement Capacity		
Probability of Queue free St.	1.00	1.00

Step 4: LT from Minor St.	7	10
Conflicting Flows	1054	
Potential Capacity	252	
Pedestrian Impedance Factor	0.98	0.99
Maj. L, Min T Impedance factor		0.91
Maj. L, Min T Adj. Imp Factor.		0.93
Cap. Adj. factor due to Impeding mvmnt	0.90	0.79
Movement Capacity	228	

Worksheet 7-Computation of the Effect of Two-stage Gap Acceptance

Step 3: TH from Minor St.	8	11
Part 1 - First Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Probability of Queue free St.		
Part 2 - Second Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Part 3 - Single Stage		
Conflicting Flows		

Potential Capacity		
Pedestrian Impedance Factor	0.99	0.99
Cap. Adj. factor due to Impeding mvmnt	0.91	0.91
Movement Capacity		
Result for 2 stage process:		
a		
y		
C t		
Probability of Queue free St.	1.00	1.00

Step 4: LT from Minor St.	7	10
Part 1 - First Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Part 2 - Second Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Part 3 - Single Stage		
Conflicting Flows	1054	
Potential Capacity	252	
Pedestrian Impedance Factor	0.98	0.99
Maj. L, Min T Impedance factor		0.91
Maj. L, Min T Adj. Imp Factor.		0.93
Cap. Adj. factor due to Impeding mvmnt	0.90	0.79
Movement Capacity	228	
Results for Two-stage process:		
a		
y		
C t	228	

Worksheet 8-Shared Lane Calculations

Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume (vph)	22		90			
Movement Capacity (vph)	228		626			
Shared Lane Capacity (vph)		466				

Worksheet 9-Computation of Effect of Flared Minor Street Approaches

Movement	7	8	9	10	11	12
	L	T	R	L	T	R
C sep	228		626			
Volume	22		90			
Delay						
Q sep						
Q sep +1						
round (Qsep +1)						

2025 NP Donner Pass Rd_I80 EB Ramps

HCS+: Unsignalized Intersections Release 5.2

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E-Mail:

ALL-WAY STOP CONTROL(AWSC) ANALYSIS

Analyst: Sondra Rosenberg
Agency/Co.: Fehr & Peers Associates
Date Performed: 11/22/2005
Analysis Time Period: PM Peak Hour
Intersection: Donner Pass Rd/I80 EB Ramps
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2025 Background
Project ID: RN05_0205
East/West Street: Donner Pass Road
North/South Street: I80 EB Ramps/Coldstream Rd

Worksheet 2 - Volume Adjustments and Site Characteristics

	Eastbound			Westbound			Northbound			Southbound		
	L	T	R	L	T	R	L	T	R	L	T	R
Volume	136	218	102	636	405	87	96	404	423	44	137	13
% Thrus Left Lane												

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	L	TR	L	TR	LTR		LT	R
PHF	0.95	0.95	0.95	0.95	0.95		0.95	
Flow Rate	143	336	669	517	971		190	13
% Heavy Veh	0	0	0	0	0		0	0
No. Lanes	2		2		1		2	
Opposing-Lanes	2		2		2		1	
Conflicting-lanes	2		2		2		2	
Geometry group	5		5		4b		5	

Duration, T 1.00 hrs.

Worksheet 3 - Saturation Headway Adjustment Worksheet

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rates:								
Total in Lane	143	336	669	517	971		190	13
Left-Turn	143	0	669	0	101		46	0
Right-Turn	0	107	0	91	445		0	13
Prop. Left-Turns	1.0	0.0	1.0	0.0	0.1		0.2	0.0
Prop. Right-Turns	0.0	0.3	0.0	0.2	0.5		0.0	1.0
Prop. Heavy Vehicle	0.0	0.0	0.0	0.0	0.0		0.0	0.0
Geometry Group	5		5		4b		5	
Adjustments Exhibit 17-33:								
hLT-adj	0.5		0.5		0.2		0.5	
hRT-adj	-0.7		-0.7		-0.6		-0.7	
hHV-adj	1.7		1.7		1.7		1.7	

hadj, computed	0.5	-0.2	0.5	-0.1	-0.3	0.1	-0.7

Worksheet 4 - Departure Headway and Service Time

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow rate	143	336	669	517	971		190	13
hd, initial value	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20
x, initial	0.13	0.30	0.59	0.46	0.86		0.17	0.01
hd, final value	9.43	8.67	9.15	8.50	8.20		9.76	8.91
x, final value	0.37	0.81	1.70	1.22	2.21		0.52	0.03
Move-up time, m	2.3		2.3		2.3		2.3	
Service Time	7.1	6.4	6.8	6.2	5.9		7.5	6.6

Worksheet 5 - Capacity and Level of Service

	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Flow Rate	143	336	669	517	971		190	13
Service Time	7.1	6.4	6.8	6.2	5.9		7.5	6.6
Utilization, x	0.37	0.81	1.70	1.22	2.21		0.52	0.03
Dep. headway, hd	9.43	8.67	9.15	8.50	8.20		9.76	8.91
Capacity	381	414	669	517	971		364	263
Delay	17.74	44.94	1293	450.85	2205		22.70	11.90
LOS	C	E	F	F	F		C	B
Approach:								
Delay	36.82		925.97		2205		22.01	
LOS	E		F		F		C	

Intersection Delay 1149 Intersection LOS F

TWO-WAY STOP CONTROL SUMMARY

Analyst:
Agency/Co.: Fehr & Peers Associates
Date Performed: 11/22/2005
Analysis Time Period: PM Peak Hour
Intersection: Donner Pass Rd/I80 WB Ramps
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2025 Background
Project ID: RN05-0206
East/West Street: Donner Pass Road
North/South Street: I 80 WB Ramps
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		592	89	0	743	
Peak-Hour Factor, PHF		0.95	0.95	0.95	0.95	
Hourly Flow Rate, HFR		623	93	0	782	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR		LT	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	380		110			
Peak Hour Factor, PHF	0.95		0.95			
Hourly Flow Rate, HFR	400		115			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
Lanes	1		1			
Configuration	L		R			

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		LT	L		R			
v (vph)		0	400		115			
C(m) (vph)		879	139		442			
v/c		0.00	2.88		0.26			
95% queue length		0.00	134.95		1.05			
Control Delay		9.1	3450		16.0			
LOS		A	F		C			
Approach Delay				2683				
Approach LOS				F				

Phone: Fax:
E-Mail:

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst:
Agency/Co.: Fehr & Peers Associates
Date Performed: 11/22/2005
Analysis Time Period: PM Peak Hour
Intersection: Donner Pass Rd/I80 WB Ramps
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2025 Background
Project ID: RN05-0206
East/West Street: Donner Pass Road
North/South Street: I 80 WB Ramps
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street Movements	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		592	89	0	743	
Peak-Hour Factor, PHF		0.95	0.95	0.95	0.95	
Peak-15 Minute Volume		156	23	0	196	
Hourly Flow Rate, HFR		623	93	0	782	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	0	1	
Configuration			TR		LT	
Upstream Signal?		No			No	

Minor Street Movements	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	380		110			
Peak Hour Factor, PHF	0.95		0.95			
Peak-15 Minute Volume	100		29			
Hourly Flow Rate, HFR	400		115			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			/			/
RT Channelized?			No			
Lanes	1		1			
Configuration	L		R			

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	10	10	10	0
Lane Width (ft)	12.0	12.0	12.0	12.0
Walking Speed (ft/sec)	4.0	4.0	4.0	4.0
Percent Blockage	1	1	1	0

C(plat,x)

Worksheet 6-Impedance and Capacity Equations

Step 1: RT from Minor St.	9	12
Conflicting Flows	690	
Potential Capacity	449	
Pedestrian Impedance Factor	0.98	0.99
Movement Capacity	442	
Probability of Queue free St.	0.74	1.00

Step 2: LT from Major St.	4	1
Conflicting Flows	726	
Potential Capacity	886	
Pedestrian Impedance Factor	0.99	1.00
Movement Capacity	879	
Probability of Queue free St.	1.00	1.00
Maj L-Shared Prob Q free St.	1.00	

Step 3: TH from Minor St.	8	11
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor	0.99	0.99
Cap. Adj. factor due to Impeding mvmnt	0.99	0.99
Movement Capacity		
Probability of Queue free St.	1.00	1.00

Step 4: LT from Minor St.	7	10
Conflicting Flows	1472	
Potential Capacity	141	
Pedestrian Impedance Factor	0.98	0.99
Maj. L, Min T Impedance factor		0.99
Maj. L, Min T Adj. Imp Factor.		0.99
Cap. Adj. factor due to Impeding mvmnt	0.98	0.73
Movement Capacity	139	

Worksheet 7-Computation of the Effect of Two-stage Gap Acceptance

Step 3: TH from Minor St.	8	11
Part 1 - First Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Probability of Queue free St.		
Part 2 - Second Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Part 3 - Single Stage		
Conflicting Flows		

Potential Capacity		
Pedestrian Impedance Factor	0.99	0.99
Cap. Adj. factor due to Impeding mvmnt	0.99	0.99
Movement Capacity		
Result for 2 stage process:		
a		
y		
C t		
Probability of Queue free St.	1.00	1.00

Step 4: LT from Minor St.	7	10
Part 1 - First Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Part 2 - Second Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Part 3 - Single Stage		
Conflicting Flows	1472	
Potential Capacity	141	
Pedestrian Impedance Factor	0.98	0.99
Maj. L, Min T Impedance factor		0.99
Maj. L, Min T Adj. Imp Factor.		0.99
Cap. Adj. factor due to Impeding mvmnt	0.98	0.73
Movement Capacity	139	
Results for Two-stage process:		
a		
y		
C t	139	

Worksheet 8-Shared Lane Calculations

Movement	7 L	8 T	9 R	10 L	11 T	12 R
Volume (vph)	400		115			
Movement Capacity (vph)	139		442			
Shared Lane Capacity (vph)						

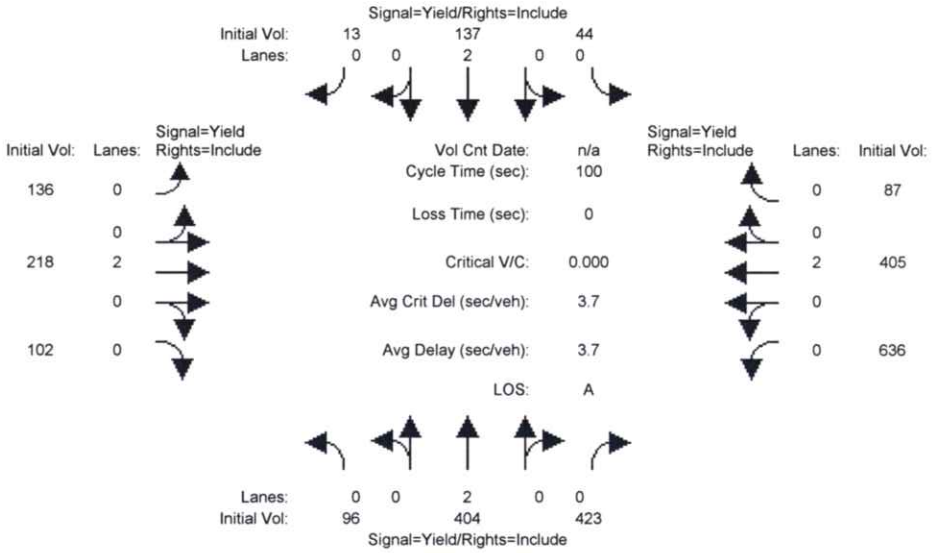
Worksheet 9-Computation of Effect of Flared Minor Street Approaches

Movement	7 L	8 T	9 R	10 L	11 T	12 R
C sep	139		442			
Volume	400		115			
Delay						
Q sep						
Q sep +1						
round (Qsep +1)						

Donner Memorial State Park
Visitor Center and Museum
Year 2025 Roundabout Analysis

Level Of Service Computation Report
FHWA Roundabout (Future Volume Alternative)
2025 NP

Intersection #2: Donner Pass Rd/I-80 EB/Coldstream



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Volume Module: PM Peak Hour												
Base Vol:	96	404	423	44	137	13	136	218	102	636	405	87
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	96	404	423	44	137	13	136	218	102	636	405	87
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	96	404	423	44	137	13	136	218	102	636	405	87
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	101	425	445	46	144	14	143	229	107	669	426	92
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	101	425	445	46	144	14	143	229	107	669	426	92
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	101	425	445	46	144	14	143	229	107	669	426	92
PCE Module:												
AutoPCE:	101	425	445	46	144	14	143	229	107	669	426	92
TruckPCE:	0	0	0	0	0	0	0	0	0	0	0	0
ComboPCE:	0	0	0	0	0	0	0	0	0	0	0	0
BicyclePCE:	0	0	0	0	0	0	0	0	0	0	0	0
AdjVolume:	101	425	445	46	144	14	143	229	107	669	426	92

Delay Module: >> Time Period: 0.25 hours <<

CircVolume:	419	1197	860	669
MaxVolume:	2122	1562	1805	1942
PedVolume:	0	0	0	0
AdjMaxVol:	2122	1562	1805	1942
ApproachVol:	972	204	480	1187
ApproachDel:	3.1	2.7	2.7	4.7
Queue:	2.5	0.4	1.1	4.5

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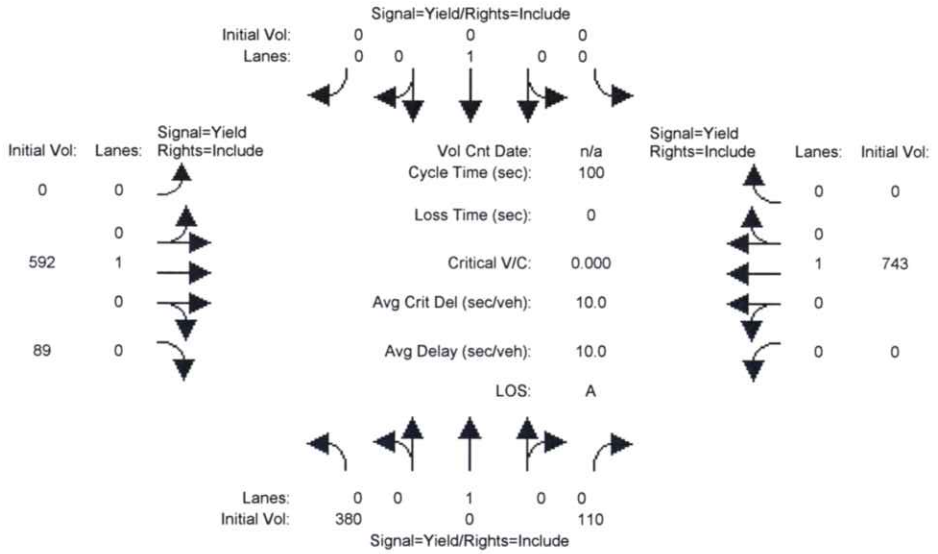
Donner Memorial State Park
Visitor Center and Museum
Year 2025 Roundabout Analysis

Level Of Service Computation Report
FHWA Roundabout (Future Volume Alternative)
2025 NP

Intersection #3: Donner Pass Road/ I-80 WB Ramps



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Volume Module: PM Peak Hour												
Base Vol:	380	0	110	0	0	0	0	592	89	0	743	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	380	0	110	0	0	0	0	592	89	0	743	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	380	0	110	0	0	0	0	592	89	0	743	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	380	0	110	0	0	0	0	592	89	0	743	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	380	0	110	0	0	0	0	592	89	0	743	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	380	0	110	0	0	0	0	592	89	0	743	0
PCE Module:												
AutoPCE:	380	0	110	0	0	0	0	592	89	0	743	0
TruckPCE:	0	0	0	0	0	0	0	0	0	0	0	0
ComboPCE:	0	0	0	0	0	0	0	0	0	0	0	0
BicyclePCE:	0	0	0	0	0	0	0	0	0	0	0	0
AdjVolume:	380	0	110	0	0	0	0	592	89	0	743	0

Delay Module: >> Time Period: 0.25 hours <<

CircVolume:	592	1123	0	380
MaxVolume:	880	xxxxxx	1200	995
PedVolume:	0	0	0	0
AdjMaxVol:	880	xxxxxx	1200	995
ApproachVol:	490	xxxxxx	681	743
ApproachDel:	9.1	xxxxxx	6.9	13.4
Queue:	3.5	xxxx	3.7	7.2

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TWO-WAY STOP CONTROL SUMMARY

Analyst: Sondra Rosenberg
Agency/Co.: Fehr & Peers Associates
Date Performed: 11/22/2005
Analysis Time Period: PM Peak Hour
Intersection: Donner Pass Rd/Park Entrance
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2025 Plus Project
Project ID: RN05-0206
East/West Street: Donner Pass Road
North/South Street: State Park Entrance
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street: Approach	Eastbound			Westbound		
Movement	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		370	25	95	425	
Peak-Hour Factor, PHF		0.95	0.95	0.95	0.95	
Hourly Flow Rate, HFR		389	26	100	447	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street: Approach	Northbound			Southbound		
Movement	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	24		96			
Peak Hour Factor, PHF	0.95		0.95			
Hourly Flow Rate, HFR	25		101			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No	/		/
Lanes	0		0			
Configuration		LR				

Delay, Queue Length, and Level of Service

Approach	EB	WB	Northbound			Southbound		
Movement	1	4	7	8	9	10	11	12
Lane Config		L		LR				
v (vph)		100		126				
C(m) (vph)		1135		459				
v/c		0.09		0.27				
95% queue length		0.29		1.13				
Control Delay		8.5		15.8				
LOS		A		C				
Approach Delay				15.8				
Approach LOS				C				

Phone: Fax:
E-Mail:

TWO-WAY STOP CONTROL(TWSC) ANALYSIS

Analyst: Sondra Rosenberg
Agency/Co.: Fehr & Peers Associates
Date Performed: 11/22/2005
Analysis Time Period: PM Peak Hour
Intersection: Donner Pass Rd/Park Entrance
Jurisdiction:
Units: U. S. Customary
Analysis Year: 2025 Plus Project
Project ID: RN05-0206
East/West Street: Donner Pass Road
North/South Street: State Park Entrance
Intersection Orientation: EW Study period (hrs): 1.00

Vehicle Volumes and Adjustments

Major Street Movements	1	2	3	4	5	6
	L	T	R	L	T	R
Volume		370	25	95	425	
Peak-Hour Factor, PHF		0.95	0.95	0.95	0.95	
Peak-15 Minute Volume		97	7	25	112	
Hourly Flow Rate, HFR		389	26	100	447	
Percent Heavy Vehicles		--	--	0	--	--
Median Type/Storage	Undivided			/		
RT Channelized?						
Lanes		1	0	1	1	
Configuration			TR	L	T	
Upstream Signal?		No			No	

Minor Street Movements	7	8	9	10	11	12
	L	T	R	L	T	R
Volume	24		96			
Peak Hour Factor, PHF	0.95		0.95			
Peak-15 Minute Volume	6		25			
Hourly Flow Rate, HFR	25		101			
Percent Heavy Vehicles	0		0			
Percent Grade (%)		0			0	
Flared Approach: Exists?/Storage			No	/		/
RT Channelized?						
Lanes	0		0			
Configuration		LR				

Pedestrian Volumes and Adjustments

Movements	13	14	15	16
Flow (ped/hr)	10	10	10	0
Lane Width (ft)	12.0	12.0	12.0	12.0
Walking Speed (ft/sec)	4.0	4.0	4.0	4.0
Percent Blockage	1	1	1	0

C(plat,x)

Worksheet 6-Impedance and Capacity Equations

Step 1: RT from Minor St.	9	12
Conflicting Flows	422	
Potential Capacity	636	
Pedestrian Impedance Factor	0.98	0.99
Movement Capacity	625	
Probability of Queue free St.	0.84	1.00

Step 2: LT from Major St.	4	1
Conflicting Flows	425	
Potential Capacity	1145	
Pedestrian Impedance Factor	0.99	1.00
Movement Capacity	1135	
Probability of Queue free St.	0.91	1.00
Maj L-Shared Prob Q free St.		

Step 3: TH from Minor St.	8	11
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor	0.99	0.99
Cap. Adj. factor due to Impeding mvmnt	0.90	0.90
Movement Capacity		
Probability of Queue free St.	1.00	1.00

Step 4: LT from Minor St.	7	10
Conflicting Flows	1069	
Potential Capacity	247	
Pedestrian Impedance Factor	0.98	0.99
Maj. L, Min T Impedance factor		0.90
Maj. L, Min T Adj. Imp Factor.		0.93
Cap. Adj. factor due to Impeding mvmnt	0.90	0.77
Movement Capacity	221	

Worksheet 7-Computation of the Effect of Two-stage Gap Acceptance

Step 3: TH from Minor St.	8	11
Part 1 - First Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Probability of Queue free St.		
Part 2 - Second Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Part 3 - Single Stage		
Conflicting Flows		

Potential Capacity		
Pedestrian Impedance Factor	0.99	0.99
Cap. Adj. factor due to Impeding mvmnt	0.90	0.90
Movement Capacity		
Result for 2 stage process:		
a		
y		
C t		
Probability of Queue free St.	1.00	1.00

Step 4: LT from Minor St.	7	10
Part 1 - First Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Part 2 - Second Stage		
Conflicting Flows		
Potential Capacity		
Pedestrian Impedance Factor		
Cap. Adj. factor due to Impeding mvmnt		
Movement Capacity		
Part 3 - Single Stage		
Conflicting Flows	1069	
Potential Capacity	247	
Pedestrian Impedance Factor	0.98	0.99
Maj. L, Min T Impedance factor		0.90
Maj. L, Min T Adj. Imp Factor.		0.93
Cap. Adj. factor due to Impeding mvmnt	0.90	0.77
Movement Capacity	221	
Results for Two-stage process:		
a		
y		
C t	221	

Worksheet 8-Shared Lane Calculations

Movement	7 L	8 T	9 R	10 L	11 T	12 R
Volume (vph)	25		101			
Movement Capacity (vph)	221		625			
Shared Lane Capacity (vph)		459				

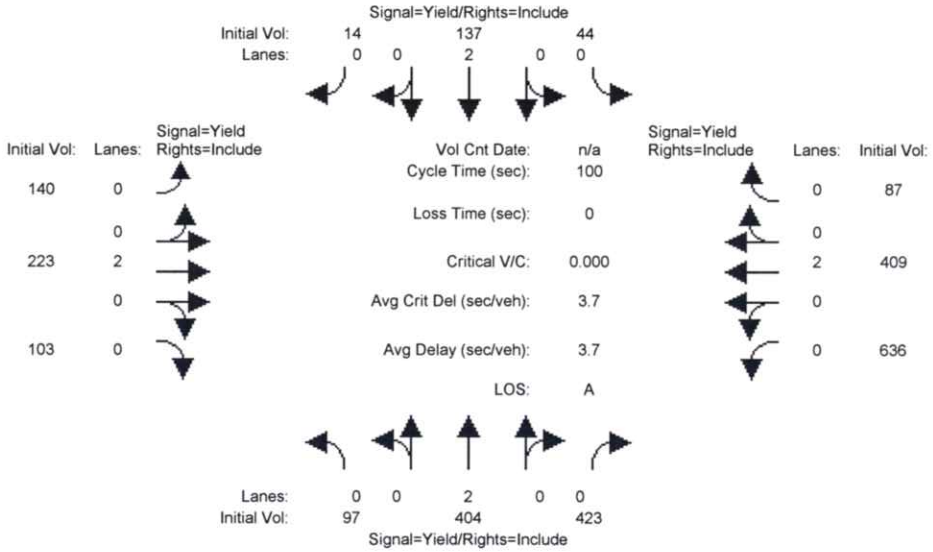
Worksheet 9-Computation of Effect of Flared Minor Street Approaches

Movement	7 L	8 T	9 R	10 L	11 T	12 R
C sep	221		625			
Volume	25		101			
Delay						
Q sep						
Q sep +1						
round (Qsep +1)						

Donner Memorial State Park
Visitor Center and Museum
Year 2025 Roundabout Analysis

Level Of Service Computation Report
FHWA Roundabout (Future Volume Alternative)
2025 PP

Intersection #2: Donner Pass Rd/I-80 EB/Coldstream



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Volume Module: PM Peak Hour												
Base Vol:	97	404	423	44	137	14	140	223	103	636	409	87
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	97	404	423	44	137	14	140	223	103	636	409	87
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	97	404	423	44	137	14	140	223	103	636	409	87
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	102	425	445	46	144	15	147	235	108	669	431	92
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	102	425	445	46	144	15	147	235	108	669	431	92
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	102	425	445	46	144	15	147	235	108	669	431	92
PCE Module:												
AutoPCE:	102	425	445	46	144	15	147	235	108	669	431	92
TruckPCE:	0	0	0	0	0	0	0	0	0	0	0	0
ComboPCE:	0	0	0	0	0	0	0	0	0	0	0	0
BicyclePCE:	0	0	0	0	0	0	0	0	0	0	0	0
AdjVolume:	102	425	445	46	144	15	147	235	108	669	431	92

Delay Module: >> Time Period: 0.25 hours <<

CircVolume:	428	1202	860	675
MaxVolume:	2116	1558	1805	1938
PedVolume:	0	0	0	0
AdjMaxVol:	2116	1558	1805	1938
ApproachVol:	973	205	491	1192
ApproachDel:	3.1	2.7	2.7	4.8
Queue:	2.5	0.5	1.1	4.6

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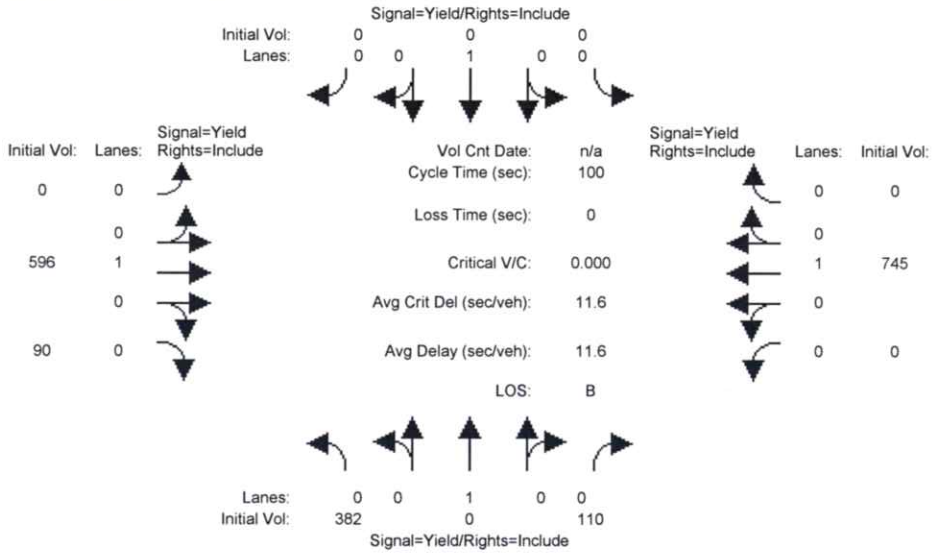
Donner Memorial State Park
Visitor Center and Museum
Year 2025 Roundabout Analysis

Level Of Service Computation Report
FHWA Roundabout (Future Volume Alternative)
2025 PP

Intersection #3: Donner Pass Road/ I-80 WB Ramps



Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	- T	- R	L	- T	- R	L	- T	- R	L	- T	- R
Volume Module: PM Peak Hour												
Base Vol:	382	0	110	0	0	0	0	596	90	0	745	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	382	0	110	0	0	0	0	596	90	0	745	0
Added Vol:	0	0	0	0	0	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	382	0	110	0	0	0	0	596	90	0	745	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	402	0	116	0	0	0	0	627	95	0	784	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	402	0	116	0	0	0	0	627	95	0	784	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	402	0	116	0	0	0	0	627	95	0	784	0
PCE Module:												
AutoPCE:	402	0	116	0	0	0	0	627	95	0	784	0
TruckPCE:	0	0	0	0	0	0	0	0	0	0	0	0
ComboPCE:	0	0	0	0	0	0	0	0	0	0	0	0
BicyclePCE:	0	0	0	0	0	0	0	0	0	0	0	0
AdjVolume:	402	0	116	0	0	0	0	627	95	0	784	0

Delay Module: >> Time Period: 0.25 hours <<

CircVolume:	627	1186	0	402
MaxVolume:	861	xxxxxx	1200	983
PedVolume:	0	0	0	0
AdjMaxVol:	861	xxxxxx	1200	983
ApproachVol:	518	xxxxxx	722	784
ApproachDel:	10.3	xxxxxx	7.4	16.4
Queue:	4.1	xxxx	4.2	8.8

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APPENDIX C:
QUEUE ESTIMATION WORKSHEETS

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Project No RN05-0206 Page No
Subject Donner Memorial State Park

Computed by Sondra Rosenberg Date 12/1/2005
Checked by Date
Approved by Date

Maximum Queue Estimation for: Major Street Left-Turn

Major Street: **Donner Pass Road**
Minor Street: Park Entrance
Conditions: Existing Plus Project

Input Data

Subject Approach	
Traffic Volume (vph) =	95
PHF=	0.84

Major Street	
Conflicting Traffic Volume (vph) =	299
PHF=	0.92
Conflicting Number of Through Lanes	1
Posted Speed Limit (mph)=	35

Is a Traffic Signal Located on Major Street Within 1/4 mi of intersection? (Enter 1 if yes; 0 if no)	0

Output

Estimated Maximum Queue	**2**	vehicles

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Project No RN05-0206 Page No
Subject Donner Memorial State Park

Computed by Sondra Rosenberg Date 12/1/2005
Checked by Date
Approved by Date

Maximum Queue Estimation for: Major Street Left-Turn

Major Street: **Donner Pass Road**
Minor Street: Park Entrance
Conditions: Year 2025 Plus Project

Input Data

Subject Approach	
Traffic Volume (vph) =	95
PHF=	0.84

Major Street	
Conflicting Traffic Volume (vph) =	395
PHF=	0.92
Conflicting Number of Through Lanes	1
Posted Speed Limit (mph)=	35

Is a Traffic Signal Located on Major Street Within 1/4 mi of intersection? (Enter 1 if yes; 0 if no)	0

Output

Estimated Maximum Queue	**2**	vehicles

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Project No RN05-0206 Page No
Subject

Computed by Sondra Rosenberg Date 12/1/2005
Checked by Date
Approved by Date

Maximum Queue Estimation for: Minor Street Left/Through/Right-Turn

Major Street: **Donner Pass Road**
Minor Street: Park Entrance
Conditions: Existing Plus Project

Input Data

Subject Approach	
Total Approach Volume (vph) =	120
PHF=	1
%RT's =	0.8
Is a Traffic Signal Located on Major Street Within 1/4 mi of intersection? (Enter 1 if yes; 0 if no)	0

Major Street	
Conflicting Traffic Volume for Left/Through Movements (vph) =	623
PHF=	0.88
Conflicting Traffic Volume for Right-Turn Movements (vph) =	274
PHF=	1

Output

4.816224
4
0.816224

Estimated Maximum Queue	**5**	vehicles

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Project No RN05-0206 Page No
Subject

Computed by Sondra Rosenberg Date 12/1/2005
Checked by Date
Approved by Date

Maximum Queue Estimation for: Minor Street Left/Through/Right-Turn

Major Street: **Donner Pass Road**
Minor Street: Park Entrance
Conditions: Year 2025 Plus Project

Input Data

Subject Approach	
Total Approach Volume (vph) =	120
PHF=	1
%RT's =	0.8
Is a Traffic Signal Located on Major Street Within 1/4 mi of intersection? (Enter 1 if yes; 0 if no)	0

Major Street	
Conflicting Traffic Volume for Left/Through Movements (vph) =	890
PHF=	0.88
Conflicting Traffic Volume for Right-Turn Movements (vph) =	274
PHF=	1

Output

6.542622
6
0.542622

Estimated Maximum Queue	**7**	vehicles

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Project No RN05-0206 Page No
Subject Donner Memorial State Park

Computed by Sondra Rosenberg Date 12/1/2005
Checked by Date
Approved by Date

Maximum Queue Estimation for: Minor Street Left-Turn

Major Street: **Donner Pass Road**
Minor Street: Park Entrance
Conditions: Existing Plus Project

Input Data

Subject Approach	
Traffic Volume (vph) =	24
PHF=	1

Major Street	
Conflicting Traffic Volume (vph) =	623
PHF=	0.88
Posted Speed Limit (mph)=	35

Is a Traffic Signal Located on Major Street Within 1/4 mi of intersection? (Enter 1 if yes; 0 if no)	0

Output

1.833109
1
0.833109

Estimated Maximum Queue	**2**	vehicles

FEHR & PEERS
TRANSPORTATION CONSULTANTS

Project No RN05-0206 Page No
Subject Donner Memorial State Park

Computed by Sondra Rosenberg Date 12/1/2005
Checked by Date
Approved by Date

Maximum Queue Estimation for: Minor Street Left-Turn

Major Street: **Donner Pass Road**
Minor Street: Park Entrance
Conditions: 2025 Plus Project

Input Data

Subject Approach	
Traffic Volume (vph) =	24
PHF=	1

Major Street	
Conflicting Traffic Volume (vph) =	890
PHF=	0.88
Posted Speed Limit (mph)=	35

Is a Traffic Signal Located on Major Street Within 1/4 mi of intersection? (Enter 1 if yes; 0 if no)	0

Output

1.934144
1
0.934144

Estimated Maximum Queue	**2**	vehicles

DRAFT

STORMWATER POLLUTION PREVENTION CONTROL PLAN

FOR

DONNER MEMORIAL STATE PARK
HIGH SIERRA CROSSINGS MUSEUM

PROJECT NO. CXXXXXXXXX

PREPARED FOR

CALIFORNIA DEPARTMENT OF PARKS & RECREATION
NORTHERN SERVICE CENTER
ONE CAPITOL MALL, SUITE 500
SACRAMENTO, CA 95814

January, 2006

Prepared by:
Kathleen Considine
Engineering Geologist
California Department of Parks and Recreation
Northern Service Center
One Capitol Mall, Suite 500
Sacramento, California 95814

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Attachment C	BMP Consideration Checklist
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Attachment P	Discharge Reporting Log
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Attachment S	Discharge Reporting Log

LIST OF ACRONYMS

APE – Area of Potential Effect

BMP – Best Management Practice

CCR – California Code of Regulations

CFR – Code of Federal Regulations

DPR – Department of Parks and Recreation (California State Parks)

EIR – Environmental Impact Report

MSP – Memorial State Park

NOI – Notice of Intent

NPDES - National Pollutant Discharge Elimination System

NRCS – Natural Resource Conservation Service

RWQCB -- Regional Water Quality Control Board

SAP – Sampling and Analysis Plan

SWRCB – State Water Resources Control Board

SWPPP – Storm Water Pollution Prevention Plan

TSP – Tri-sodium Phosphate (cleaning agent)

USDA – United States Department of Agriculture

WDR – Waste Discharge Requirement

WPCD – Water Pollution Control Drawing

WPCM – Water Pollution Control Manager

SECTION 1: SWPPP CERTIFICATIONS

INITIAL SWPPP CERTIFICATION

Project Name: DONNER MEMORIAL STATE PARK HIGH SIERRA CROSSINGS MUSEUM

DPR Project Number: CXXXXXXXXXX

"I certify under penalty of law that this document and all attachments and amendments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Contractor/Preparer's signature	Date
Contractor/Preparer's Name and Title	Telephone Number

ANNUAL COMPLIANCE CERTIFICATION

By July 1 of each year that construction is in progress on this project, the Contractor shall submit an “Annual Compliance Certification” to the State’s Representative. The Certification shall state that compliance with the terms and conditions set forth in the Permits and the SWPPP continues to be met. The Annual Certification of Compliance Form is included in **Attachment L.** Copies of the Annual Compliance Certifications shall be attached to the SWPPP.

SECTION 2: SWPPP AMENDMENTS

SWPPP Amendment Certification and Approval

This SWPPP shall be amended:

- Whenever there is a change in construction or operations that may affect the discharge of pollutants to surface waters, groundwater(s), or a municipal separate storm sewer system (MS4): or

- If any condition of the Permits is violated or the general objective of reducing or eliminating pollutants in storm water discharges has not been achieved. If the RWQCB determines that a Permit violation has occurred, the SWPPP shall be amended and implemented within 14 calendar days after notification by the RWQCB;

- Annually, prior to the defined rainy season; and

- When deemed necessary by the State's Representative.

The following items will be included in each amendment:

- Who requested the amendment.
- The location of the proposed change.
- The reason for the change.
- The original BMP proposed, if any.
- The new BMP proposed.

The Amendments for this SWPPP, along with the Contractor's Certification and the State Representative's approval shall be attached to the SWPPP and listed in the Amendment Log.

SWPPP AMENDMENT NO.

Project Name: Donner MSP High Sierra Crossings Museum

DPR Contract Number: CXXXXXXXXXXXXXX

"I certify under penalty of law that this document and all attachments and amendments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Contractor's signature	Date
Contractor's Name and Title	Telephone Number

State Representative's Approval:

"I acknowledge receipt and approval of Amendment No. ___ to the SWPPP for the above DPR project".

State Representative's signature	Date
State Representative's Name/Title	Telephone Number

AMENDMENT LOG

Project Name: Donner MSP High Sierra Crossings Museum

DPR Contract Number: _____

Amendment #	Date	Brief Description of Amendment	Amendment Prepared By

SECTION 3: INTRODUCTION AND PROJECT DESCRIPTION

3.1 Introduction and Project Description

The project is located in Donner Memorial State Park, Nevada County, California. The proposed project site is located to the northwest of the existing Visitor Center and parking area, and south of Donner Pass Road (Old Highway 40). The topography in the area of the proposed building site is relatively flat at an elevation of 5,934-5,936 feet above mean sea level and slopes downward to the east toward Donner Creek. The location of the proposed parking area to the south is also relatively flat and contains some large scattered boulders The site for the proposed visitor center is located in assessor parcels XXXXXX [Include Legal Description; Include the Project Identification number issued by the SWRCB for the project.

The existing 1962 Emigrant Trail Museum presently serves as the park visitor center, housing a museum, gift shop, theater; and natural and cultural history exhibits. In addition, the building contains the Park operations office, support offices, and storage areas, cultural resource artifact work and storage areas, and interpretive program staging areas. The existing building was designed to accommodate 60 to 70 people at one time in an open lobby, 30 to 40 people in an open exhibit space, and up to 100 people at one time in an open theater/assembly room, with very limited space allocated for natural history exhibits, a visitor favorite. Annual average visitation to the museum is approximately 80,800 persons, with daily average visitation of over 340 people during the summer, with occasional peaks of 500 per day. School groups averaging 55 people at one time often visit during the school year, with several school groups often visiting at one time.

The existing parking lot is too small for the visitor traffic, and accommodates only 45 automobiles. There is no designated bus parking area, only one designated ADA space, and four spaces for employee/operations parking. The existing parking lot is also used by visitors going to the Pioneer Monument, Murphy Cabin Site and Trail, and the Nature Trail. Parking often overflows onto the park entry road, and causes big backups at the park entry kiosk. In order to address the inadequacies of the existing facility, the Department of Parks and Recreation is proposing to build a new visitor center building, with a new entrance road, and adjoining parking lot.

The information on unique site features, including sensitive species and cultural resources, has been taken from the *Draft Environmental Impact Report, Donner Memorial State Park, High Sierra Crossings Museum*, dated February 2006.

3.2 Unique Site Features

The unique hydrologic site features include Donner Lake approximately 0.4 mile to the west and Donner Creek to the south and east. The project site will be located adjacent to the existing visitor center and the Pioneer Monument. Donner Creek is closest to the southeastern boundary of the project area. The 100-year floodplain of Donner Creek has been determined [consultant's map forthcoming] and the building and parking areas are located outside of this boundary.

3.2.1 Special Status Species

Donner Creek is known habitat for Lahontan Cutthroat trout *(Oncorhynchus clarki henshawi),* a federal threatened species. Other special status species known to be present in or near the project area are: Bald Eagle *(Haliaeetus leucocephalus),* observed making brief flights over the project area in a 2004 survey; Osprey *(Pandion haliaetus)* that nest near Donner Lake; Northern goshawk *(Accipiter gentillis)* observed since the 1950s (though not in previous years); White-headed woodpecker *(Picoides albolarvatus)* common in the Park since 1993 and observed near the project area in 2004; Lodgepole chipmunk *(Tamias speciosus speciosus),* found within ½ mile of the project site in a 1993 survey; Sierra Nevada snowshoe hare *(Lepus americanus tahoensis),* found within ¼ mile of the project site in 1993; and several sensitive bat species, including pallid bat *(Antrozous pallidus),* Townsend's big-eared bat *(Corynorhinus townsendii),* small-footed myotis *(Myotis ciliolabrum),* long-eared myotis *(M. evotis),* western mastiff bat *(Eumops perotis),* fringed myotis *(M. thysanodes),* long-legged myotis *(M. volans),* silver-haired bat *(Lasionycteris noctivagans),* and Yuma myotis *(M. yumanensis).*

Other sensitive species for which suitable habitat exists, but that have not been identified in the project area include: Cooper's hawk *(Accipiter cooperii),* Sharp-shinned hawk *(Accipiter striatus),* California spotted owl *(Strix occidentalis occidentalis),* Yellow warbler *(Dendoica petechia),* Sierra Nevada red fox *(Vulpes vulpes necator),* Mountain sucker *(Catostomus platyrhynchus)* and Mountain yellow-legged frog *(Rana muscosa).*

Suitable habitat occurs adjacent to the project area for three sensitive plant species: Marsh skullcap *(Scutelaria galericulata),* Oregon fireweed *(Epilobium oreganum),* and Tahoe yellow cress *(Rorippa subumbellata).* They have not been identified in the vicinity of the project site.

3.2.2 Cultural Resources

The majority of project work will be implemented within the eastern segment of archaeological site, Ca-Nev-013/H. Ca-Nev-013/H is a large (estimated at 223,725.0 square meter) and complex site that has been surveyed, documented and expanded numerous times since first recorded in the early 1950s. The portion of the proposed project on park land is located within the vicinities of the park entrance road and parking lot, the Emigrant Trail Museum and Donner-Pioneer Monument, the park residential and maintenance yard, and Donner Creek east of the bridge on Donner Park Road. Most of this area has previously been recorded as archaeological loci A, B, C, D and E. Archaeological survey completed for the current undertaking resulted in identifying a total of 33 cultural features, of which nine are existing structures.

The remaining acreage involves a comparatively smaller segment of Donner Pass Road identified as historical site Ca-Nev-012. This resource is also identified as the Emigrant Trail, Lincoln/ Victory Highway, and old U.S. Highway 40.

3.2.3 Significant Construction Activities

Grading and excavation for the parking lot, entrance road, building, utility trenches, bioswales and other stormwater infiltration components could potentially cause a release of sediment to Donner Creek. The total amount of ground disturbance is discussed in Section 3.3 below. This SWPPP will provide Best Management Practices and stormwater designs that will prevent surface water runoff and soil erosion both during construction and for post-construction (long term) erosion control.

3.3 Construction Site Estimates

The following are estimates of the construction site [updates forthcoming]:

Construction site area:	374,400 ft^2 (8.6
Percentage impervious area before construction:	4 %
Runoff coefficient before construction [(1)]:	0.035
Percentage impervious area after construction:	23 %
Runoff coefficient after construction [(1)]	0.25
Anticipated stormwater flow onto the construction site [(2)]	1.1 ft^3/sec

[(1)] Calculations are shown in Attachment D
[(2)] Calculations are shown in Attachment E

3.4 Project Schedule/Water Pollution Control Schedule

This project will require a two-year construction period due to constraints from weather/climate conditions and natural and cultural resources.

A project schedule will be provided (written or graphic format), clearly showing how the rainy season relates to soil-disturbing and re-stabilization activities and the timing of the implementation of BMPs. The schedule shall contain an adequate level of detail to show major activities sequenced with implementation of construction site BMPs, including:

- Project start and finish dates
- Rainy season dates
- Annual certification dates
- Mobilization dates
- Mass clearing and grubbing/roadside clearing dates
- Major grading/excavation dates
- Special dates named in other permits such as California Department of Fish and Game, U.S. Army Corps of Engineers, or other regulatory agency.
- Annual submittal of rainy season implementation schedule
- Dates for implementation of pre-rainy season temporary soil stabilization and temporary sediment control BMPs.
- Rainy season implementation schedule:

- Deployment of temporary soil stabilization BMPs
- Deployment of temporary sediment control BMPs
- Deployment of wind erosion control BMPs
- Deployment of tracking control BMPs
- Deployment of non-storm water BMPs
- Deployment of waste management and materials pollution control BMPs

Non-rainy season implementation schedule:

- Deployment of temporary soil stabilization BMPs
- Deployment of temporary sediment control BMPs
- Deployment of wind erosion control BMPs
- Deployment of tracking control BMPs
- Deployment of non-storm water BMPs
- Deployment of waste management and materials pollution control BMPs

- Paving operations
- Major planned stockpiling operations
- Dates for other significant long-term operations or activities that involve non-storm water discharges
- Final site stabilization activities staged over time for each area of the project.

Insert graphic schedule here

3.5 Contact Information/List of Responsible Parties

The Water Pollution Control Manager (WPCM) assigned to this project is:

WPCM's Name : _____
Company Name: _____XXX Construction
Address: _____
City, State, Zip: _____
Telephone: _____

The WPCM shall be someone other than the Construction Superintendent and shall have primary responsibility and significant authority for the implementation, maintenance, inspection, and amendments to the approved SWPPP. Duties of the WPCM include, but are not limited to:

- Ensuring full compliance with the SWPPP and the Permit
- Implementing all elements of the SWPPP and any other permit conditions, including, but not limited to:
    - Implementation of prompt and effective erosion and sediment control measures;
    - Implementing all non-storm water management, and materials and waste management activities such as: monitoring discharges (dewatering, diversion devices, etc.); general site clean-up; vehicle and equipment cleaning, fueling and maintenance; spill control; ensuring that no materials other than storm water are discharged in quantities which will have an adverse effect on receiving waters or storm drain systems; etc.;
- Pre-storm inspections;
- Post-storm inspections;
- Storm event inspections;
- Preparing annual compliance certification;
- Ensuring elimination of all unauthorized discharges;
- The Contractor's WPCM shall be assigned authority by the Contractor to mobilize crews in order to make immediate repairs to the control measures;
- Coordinate with the State's Representative to assure that all of the necessary

corrections/repairs are made immediately, and that the project complies with the SWPPP, the Permit and approved plans at all times.

If anyone else other than the Contractor's WPCM is responsible for any of these duties, include the name, address, and telephone number(s) of the person(s) and the duty or duties to which they are assigned and for which they are responsible. *[If this is the case, modify the above form to include information for these person(s).]*

SECTION 4: REFERENCES

The following documents are made a part of the SWPPP by reference:

Project plans and specifications No. C XXXXXXXXXXXXX for Donner Memorial State Park High Sierra Crossings Museum, dated xx-xx-2006, prepared by XXXXXXX

State Water Resources Control Board (SWRCB) Order No. 99-08-DWQ, National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000002 ("General Permit"), Waste Discharge Requirements (WDRs) for Discharges of Storm Water Runoff Associated with Construction Activity, August 1999.

State Water Resources Control Board Resolution No. 2001- 046, Modification of Water Quality Order 99-08-DWQ State Water Resources Control Board (SWRCB) National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity (General Permit), adopted by the SWRCB on April 26, 2001.

Modification of Water Quality Order 99-08-DWQ State Water Resources Control Board (SWRCB) National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated With Construction Activity (General Permit) to Include Small Construction Activity (One to Five Acres), adopted by the SWRCB on December 2, 2002.

California Stormwater Quality Association Stormwater Best Management Practice Handbook, Construction, 2003 (website: www.cabmphandbooks.com)

Notice of Intent, dated XX-XX-200_

Other references used, but not included in this SWPPP:

Department of Parks and Recreation, 2006, High Sierra Crossings Museum Environmental Impact Report

NRCS (Natural Resource Conservation Service), 2004, Soil Series Information at website: http://ortho.ftw. n rcs.usda.gov/cgi-bin/osd/osdnamequery.cgi

USDA (US Department of Agriculture), 1974, Soil Survey Tahoe Basin Area, California and Nevada.

SECTION 5: BODY OF THE SWPPP

5.1 Objectives

There are 5 main objectives for the SWPPP, including:

1. Identify all pollutant sources, including sources of sediment, that may affect the quality of storm water discharges associated with construction activity (storm water discharges) from the construction site;

2. Identify non-storm water discharges;

3. Identify the construction, implementation, and maintenance of BMPs, along with the schedule for implementation, to reduce or eliminate pollutants in storm water discharges and authorized non-storm water discharges from the construction site during construction;

4. Develop a maintenance schedule for BMPs installed during construction to reduce or eliminate pollutants following construction (post-construction BMPs); and

5. Identify BMPs necessary to protect all unique site features.

This SWPPP conforms with the required elements of General Permit No. CAS000002 issued by the State of California, State Water Resources Control Board (SWRCB). This SWPPP will be modified and amended to reflect any changes in construction or operations that may affect the discharge of pollutants from the construction site to surface water, groundwater, or the municipal separate storm sewer system (MS4). The SWPPP will also be amended if it is in violation of any condition of the Permit or has not achieved the general objective of reducing pollutants in storm water discharges. The SWPPP will be readily available on-site for the duration of the project.

5.2 Vicinity Map

See Attachment A for the general vicinity map (Figure A-1) showing project location, general topography, nearby water bodies (Donner Lake and Donner Creek), and roadways. The project layout (Figure A-2) map shows the proposed building, entrance road and parking lot layout, with more detailed site topography. The project title sheet is also included as Figure A-3. Figure A-4 [to be added] shows the project site, mapped wetlands in the project vicinity, and the 100-year floodplain boundary. [To be provided: Figures A-3 and A-4 and engineering plans with stormwater discharge points to bioswales and infiltration system].

5.3 Pollutant Source Identification and BMP Selection

5.3.1 Inventory of Materials and Activities that May Pollute Storm Water

The following is a list of construction materials that will be used and construction activities, including equipment servicing/refueling and washing that will be performed on the project site that will have the potential to contribute pollutants, other than sediment, to storm water runoff. Control practices for each activity shall be identified in the Water Pollution Control Drawings (WPCDs).

Construction Materials:

- Asphalt products, including asphalt concrete, hot asphalt, and asphalt emulsion.
- Portland Cement Products, including PCC and non-pigmented curing compound
- Vehicle fluids, including fuels, lubricants, antifreeze, and battery acid (in sealed batteries).
- Portable toilet wastes.
- Treated wood products.
- Paints and solvents
- Plaster
- Drilling fluids generated during geotechnical explorations or for potential pile foundations.

Construction activities that have the potential to contribute sediment to storm water discharges include:

- Pre-construction archaeological testing (test pits).
- Clearing and grubbing, including large tree removal, prior to grading and excavation.
- Grading and excavations for building foundations, entry road, parking lot, utility trenches, bioswales, and other stormwater infiltration components.
- Soil hauling activities.
- Landscaping activities.
- Placement of concrete and asphalt materials.
- Painting building, cleaning and thinning paint with solvents.
- Plastering interior walls.

All Best Management Practices (BMPs) that will be used for this project shall be noted in **Attachment C.** Implementation and location of BMPs shall be shown on the WPCDs in **Attachment B. Attachment O** provides the detailed descriptions of the selected BMPs. Narrative descriptions of BMPs to be used during the project shall be listed by category in each of the following SWPPP sections.

5.3.2. Existing (Pre-Construction) Control Measures

The following are existing (pre-construction) control measures that are in place prior to construction.

- Existing vegetation and large trees will be left undisturbed where possible.
- The grading plans include low energy drainage systems and bioswales to infiltrate storm water, both from the parking area and the building roof.

5.3.3. Nature of Fill Material and Existing Data Describing the Soil

There are no known existing site features that, as a result of past usage, may contribute pollutants to stormwater. The area was occupied by the original visitor center and other buildings, but no known hazardous materials were used or are still present at the site. A pre-construction archaeological investigation will be conducted in the site area to determine if any historical artifacts are present.

The project area is covered with Pleistocene-age glacial moraine and outwash deposits. Glacial moraine deposits, called till, are usually unstratified mixtures of clay, silt, sand, gravel and boulders. Glacial outwash deposits are sand and gravel deposited by streams fed by the melting glacier. A geotechnical investigation conducted in December 2005 (Geocon) included the drilling of six exploratory borings. The soils encountered are described as glacial till consisting of an upper zone of medium dense, dark brown silty sand with gravel, grading to a dense to very dense sandy gravel to gravelly sand below a depth of 3 to 5 feet. Groundwater was encountered in the borings at depth ranging from 10 to 18 feet below ground surface.

According to the USDA classification, the soils at the proposed project site are mapped as the Celio Series, a gravelly loamy coarse sand that develops on glacial outwash deposits. These soils are poorly drained, have slow runoff, rapid permeability (except where silica cementation has reduced permeability), and erosion potential can be moderate to high (NRCS, 2003). The duff layer helps to slow erosion, as well as provide nutrients to encourage growth of plants and trees. Disturbing the duff layer and the soil can increase the chance for erosion. Celio soils are very strongly to strongly acidic, with a pH range of 4.9 to 5.4 (USDA, 1974) and are rated high for corrosion potential to uncoated steel. However, the site specific corrosion testing by Geocon (2005) indicates that the site soils are mildly corrosive to uncoated steel or ductile iron, and would have no deleterious effects on Type II cement foundations.

5.3.4 Soil Stabilization (Erosion Control)

Soil stabilization, also referred to as erosion control, consists of source control measures that are designed to prevent soil particles from detaching and becoming suspended in storm water runoff. Soil stabilization BMPs protect the soil surface by covering and/or binding soil particles. The Contractor will utilize and implement principles to assure effective temporary and final soil stabilization (erosion control) during construction, such as:

- Preserve existing vegetation, especially large trees, where required and when feasible.
- Apply temporary soil stabilization (erosion control) to remaining active and non-active areas. Apply as necessary to maintain effectiveness.
- Construction activities that involve soil disturbance will be scheduled for the dry season, whenever feasible.
- When construction must occur during the rainy season, implement temporary soil stabilization measures at regular intervals throughout the defined rainy season to achieve and maintain stabilization requirements for the disturbed soil area. hen required, temporary soil stabilization measures will be implemented 20 days prior to the defined rainy season.
- Temporary soil stabilization procedures will also be applied during the summer and fall when thunderstorms are possible.
- Stabilize non-active areas within 14 days of the cessation of construction activities.
- Control erosion in concentrated flow paths by applying erosion control blankets, erosion control seeding, and lining swales as required for the project.
- Seeding will be applied either during the defined seeding window and/or to areas deemed substantially complete by State's Representative during the defined rainy season.
- At completion of construction, apply permanent erosion control, including re-vegetation, to all remaining disturbed soil areas.

Sufficient quantities of temporary soil stabilization materials will be maintained on-site to allow implementation as described in this SWPPP for active areas, non-active areas, and areas that require deployment before the onset of rain. Implementation and locations of temporary soil stabilization BMPs shall be shown on the Water Pollution Control Drawings (WPCDs) in **Attachment B.** The BMP Consideration Checklist in **Attachment C** shall indicate the Erosion Control (EC) BMPs that will be implemented to control erosion on the construction site, such as:

- EC-1 Scheduling of project and BMP implementation
- EC-1 Timing of construction activities to avoid rainy season
- EC-2 Preservation of existing vegetation
- EC-3, 4, 6 and 8 Mulching
- EC-7 Geotextiles, Plastic, and Mats
- EC-9 Earth Dike and Drainage Swale

<u>EC-1 Scheduling</u>

During the non-rainy season:

The project schedule will sequence construction activities with installation of both soil stabilization and sediment control measures. The construction schedule will be arranged as much as feasible to leave existing vegetation undisturbed until just prior to grading or excavation.

During the rainy season:
Disturbed soil areas will be stabilized with temporary or permanent soil stabilization (erosion control) before rain events, including summer and fall thunderstorms. Disturbed areas where construction is completed will be stabilized with permanent soil stabilization (erosion control) and vegetation (if within the allowable window for seed establishment). Prior to forecasted storm events, or over weekends or other non-work periods, temporary soil stabilization BMPs will be deployed and inspected.

EC-2 Preservation of Existing Vegetation
During construction, employees and sub-contractors will be informed on the limits of disturbance within the construction site. All employees and sub-contractors will be made aware of the limits of the project. Areas to be preserved will be marked with temporary fencing, especially around trees, using plastic mesh fencing or other appropriate material.

EC- 3, 4, 6 & 8 Mulching
Various types of mulching for erosion control may be used as temporary erosion control measures or as permanent measures after construction is completed, as described in the project plans and specifications. Acceptable types of mulching include hydraulic mulch, hydroseeding, or placement of wood or straw or pine needles (see **Attachment O** for details).

EC-7 Geotextiles, Plastic, and Mats
Temporary erosion control blankets or plastic may be used to control the sediment runoff of any open excavations. When required, the WPCM will consult with the State's Representative for placement of EC-7 materials. Plastic covers (tarpaulins) may be used to cover open excavations on steep slopes or soil stockpiles if rain is predicted or imminent; as shown and detailed in the plans and project specifications.

EC-9 Earth Dike and Drainage Swale
An earthen dike and associated drainage swale may be used to divert runoff from either onsite areas or from offsite sources. They can be used to divert runoff into sediment basins or traps.

5.3.5 Sediment Control
Sediment controls are structural measures that are intended to complement and enhance the selected soil stabilization (erosion control) measures. Sediment controls are designed to intercept and settle out soil particles that have been detached and transported by the force of water. This project will incorporate all necessary and required temporary sediment control measures along with any other additional measures selected by the contractor. The selected temporary sediment control BMPs shall be adequate to prevent a net increase of sediment in storm water discharge relative to pre-construction levels.

Sufficient quantities of temporary sediment control materials will be maintained on-site throughout the duration of the project, to allow implementation of temporary sediment controls in the event of predicted rain, and for rapid response to failures or emergencies as described in this SWPPP. This includes implementation requirements for active and non-active areas before the onset of rain.

Implementation and locations of the temporary sediment control BMPs shall be shown on the Water Pollution Control Drawings. BMPs to be used on the construction site shall be listed in this section and indicated on the BMP Consideration Checklist. Some or all of these BMPs may be used, depending on contractor discretion and site conditions. Details and design specifications are shown in **Attachment O.** The list of potential Sediment Control (SE) BMPs are:

- SE-1 Silt Fence
- SE-2 Sediment Basin
- SE-3 Sediment Trap
- SE-5 Fiber Rolls
- SE-6 Gravel Bag Berm
- SE-8 Sand Bag Barrier
- SE-9 Straw Bale Barrier

<u>SE-1, 5, 6, 8, & 9 _ Silt Fence, Fiber Rolls, Gravel Bag Berm, Sand Bag or Straw Bale Barrier</u>: In accordance with the implementation of secondary sediment controls discussed below, the Contractor may use and combination of the above listed BMPs. The installation of linear barriers will provide sediment control for exposed soil areas. These methods will also be used for site perimeter protection throughout the construction site to treat stormwater flow to offsite areas.

<u>SE-2 and 3 Sediment Basin and Sediment Trap</u>
Sediment basins and sediment traps are temporary basins designed to detain sediment-laden runoff and allow the sediment to settle out before the runoff is discharged. Sediment basins must be designed in accordance with Section A of the Sate of California NPDES General Permit for Stormwater Discharges Associated with Construction Activities (General Permit No. CAS000002) attached to this SWPPP. Sediment traps serve the same purpose, but are usually smaller than a sediment basin and have less stringent design criteria. They can only be used on construction sites where the drainage area is less than 5 acres.

5.3.6 Tracking Control

The tracking of sediments from the construction site onto public and private roads shall be controlled using BMPs that will be implemented during all construction activities for the duration of the project. The measures to be used to prevent sediment tracking shall be listed and described in this section and shown on the Water Pollution Control Drawings. The following Tracking Control (TC) BMPs may be used for this project:

- TC-1 Stabilized Construction Entrance/Exit
- TC-2 Stabilized Construction Roadway (Haul Road)
- TC-3 Entrance/Outlet Tire Wash

TC-1 Stabilized Construction Entrance/Exit
A stabilized construction access is defined by a point of entrance/exit to a construction site that is stabilized to reduce the tracking of mud and dirt onto public roads by construction vehicles. Stabilized construction entrances and exits will be constructed where shown on the WPCDs.

TC-2 Stabilized Construction Roadway (Haul Road)
A stabilized construction roadway is a temporary access road (haul road) designed for the control of dust and erosion created by vehicular tracking. Materials will likely need to be removed prior to final project grading and stabilization/construction.

TC-3 Entrance/Outlet Tire Wash
Usually used in conjunction with TC-1 above, the tire wash area is used to remove sediment from tires and the under carriages of construction equipment and vehicles to prevent transport of sediment onto public roads. The tire wash requires a supply of wash water and a sediment trapping device (i.e. SE-2, SE-3) to contain the used wash water.

5.3.7. Wind Erosion Control
Wind erosion control BMPs shall be implemented during all construction activities for the duration of the project on all disturbed soils on the project site that are subjected to wind erosion. The BMP to be used on the project site for wind erosion control (WE) is listed and described here

- WC-1 Wind Erosion Control

WC-1 Wind Erosion Control
Wind erosion control consists of applying water or other dust palliatives to prevent or alleviate dust nuisance generated by construction activities. Covering (tarping) small stockpiles or areas is another alternative to applying water or other dust palliatives.

5.3.8. Non-Storm Water Control
Non-storm water discharges consist of all discharges from a municipal storm water conveyance that do not originate from precipitation events (i.e., all discharges other than storm water). An inventory of all construction activities and potential non-storm water discharges is provided in Section 5.3.1. The BMP Consideration Checklist in Attachment C and the following list indicates the BMPs that have been selected to control non-storm water pollution on the construction site. Implementation and locations of some Non-Stormwater Control (NS) BMPs are shown on the Water Pollution Control Diagrams in **Attachment B.** Details are

shown in **Attachment O** and narrative description of each BMP follows:

- NS-1 Water Conservation Practices
- NS-2 Dewatering Operations
- NS-3 Paving & Grinding Operations
- NS-7 Potable Water/Irrigation
- NS-8 Vehicle and Equipment Cleaning
- NS-9 Vehicle and Equipment Fueling
- NS-10 Vehicle and Equipment Maintenance
- NS-12 Concrete Curing

NS-1 Water Conservation Practices

Contractors and subcontractors will utilize water conservation practices and activities during construction in order to avoid causing erosion and/or the transport of pollutants offsite.

NS-2 Dewatering Operations

Dewatering may be necessary to remove accumulated water from the construction site, especially within excavations. The water may be the result of precipitation, shallow groundwater intrusion, or water used during the construction process. Various methods are acceptable for containing the water and treating it before release. These options are described in the NS-2 details in **Attachment O.**

NS-3 Paving & Grinding Operations

Contractors and subcontractors will utilize methods to prevent or reduce the discharge of pollutants from paving operations, including grinding or sawcutting of existing pavement.

NS-7 Potable Water/Irrigation

The contractor and subcontractors will utilize practices and procedures to manage the discharge of potential pollutants generated during discharges from irrigation water lines, landscape irrigation, planned and unplanned discharges from potable water sources, and water line flushing. These discharges may occur during installation and testing of landscape irrigation systems and potable water supply hook-up.

NS-8, 9 and 10 Vehicle and Equipment Cleaning, Fueling, and Maintenance

Vehicles and equipment will be used on site during construction, including but not limited to: small and large trucks; backhoe; dump truck; earthmover; bulldozer; grader; compressors; chainsaws; generator; and concrete truck. BMPs NS-8, 9 and 10 will be used to prevent discharges of fuel or other vehicle fluids. Drip pans and absorbent pads will be used for all on-site vehicle fueling and maintenance activities that involve oil, grease, solvents, or vehicle fluids. Most vehicle fueling and maintenance (except for emergency repairs) will occur off State Park property. All vehicle fueling and maintenance will be conducted on level ground at least 50 feet (15 meters) from drainage inlets or water bodies. Except for concrete washout (see WM-8) all vehicle cleaning will be performed offsite.

NS-12 Concrete Curing

Concrete curing during the building foundation construction may include the use of water or chemical methods. Discharges of stormwater and non-stormwater exposed to concrete during curing may have a high pH and contain chemicals, metals, and fines. Implementation of the procedures in this BMP will reduce or eliminate the contamination of water runoff during concrete curing.

5.3.9. Waste Management and Materials Pollution Control on Project Site

Waste management consists of implementing procedural and structural BMPs for collecting, handling, storing, and disposing of wastes, including fuels and other toxic materials, generated by a construction project to prevent the release of waste materials into storm water discharges. Materials pollution control (materials handling) consists of implementing procedural and structural BMPs for handling, storing, and using construction materials to prevent the release of those materials into storm water discharges. The Contractor shall identify, describe, and implement waste management and pollution control BMPs to prevent materials and wastes from being discharged off-site and those BMPs shall be indicated on the BMP Consideration Checklist **(Attachment C).** The following Waste Management (WM) BMPs may be used for this project; details are provided in **Attachment O:**

- WM-1 Material Delivery and Storage
- WM-2 Material Use
- WM-3 Stockpile Management
- WM-4 Spill Prevention and Control
- WM-5 Solid Waste Management
- WM-6 Hazardous Waste Management
- WM-8 Concrete Waste Management
- WM-9 Sanitary/Septic Waste Management

WM-1 Material Delivery and Storage

Material loading, unloading, and storage areas will be located only in designated sites as shown on the Water Pollution Control Diagrams **(Attachment B).** More than one area may be needed throughout the course of the project construction. Practices that will be implemented in these areas are as follows:

- Storage, preparation, and mixing of liquid materials, petroleum products, and substances listed in 40 CFR Parts 110, 117, or 302 shall be accomplished in temporary containment facilities. Each containment facility shall provide a containment volume equal to the captured precipitation from a 24-hour, 25-year storm plus 10 percent of the aggregate volume of all containers, or 100 percent of the largest container, whichever is greater, and shall be impervious to the materials contained therein for a minimum of 72 hours.
- Chemically incompatible materials shall not be stored in the same temporary containment facility.
- Throughout the rainy season, temporary containment facilities shall be

covered during non-working days. Year-round these materials shall be covered prior to rain events. These materials will be removed from the project site during winter shutdown period due to snowfall.

- Temporary containment facilities shall be maintained free of accumulated rainwater and spills.
- Materials shall be stored in their original containers, and the original product labels shall be maintained in place and in a legible condition.
- Bagged and boxed materials shall be stored on pallets and shall not be allowed to accumulate on the ground. During the rainy season, materials shall be covered during non-working days. Year-round these materials shall be covered prior to rain events.
- Material inventory shall be minimized.

WM-2 Material Use

The contractor will implement the following material use practices:

- Material Safety Data Sheets (MSDS) shall be supplied to the State's Representative and any subcontractors.
- Original labels will not be removed. The entire product will be used before disposing of the container.
- Materials will be used only where and when needed to complete the construction activity. Safer alternative materials will be used whenever possible and applicable.
- Materials will be applied to avoid exposure to rainfall and runoff unless sufficient time has been allowed for the materials to dry.

WM-3 Stockpile Management

The locations of onsite soil, and/or solid waste material storage stockpile areas will be shown on the WPCDs. Stockpiles will be located will be protected from sediment and pollution discharges as follows:

- Stockpiles will be located away from areas of concentrated storm water flow, drainage courses, water bodies, and storm drain inlets.
- Stockpiles will be protected from stormwater run-on using perimeter barriers such as berms, dikes, or sand bag barriers.
- Stockpiles require proper wind erosion control. See WE-1 Wind Erosion Control for details of this BMP.
- Non-active stockpiles shall be covered or protected with temporary soil stabilization practices and perimeter sediment controls at all times during the rainy season. During non-rainy season, non-active stockpiles will receive the same protection as required prior to the onset of precipitation.
- Non-active stockpiles of solid waste, such as PCC and AC rubble, and construction materials, such as aggregate base, shall be covered or protected with perimeter sediment control at all times during the rainy season. During non-rainy season, these stockpiles will receive the same protection as required prior to the onset of precipitation.
- Year-round, all active stockpiles shall be covered or protected with

perimeter sediment control prior to the onset of precipitation.

- Year-round, active stockpiles of “cold mix” shall be covered prior to the onset of precipitation.

WM-4 Spill Prevention and Control

The Contractor shall implement spill prevention and control practices as follows:

- Spills will be contained to minimize spreading and all spilled materials will be recovered. The contaminated area will be cleaned and the contaminated material properly disposed of.
- Absorbent materials will be used to clean up spills. Spills will never be washed with water or buried.
- Water overflow or minor water spillage shall be contained and not be allowed to discharge into drainage facilities.
- Material and waste storage areas shall be kept clean, well organized, and stocked with sufficient cleanup supplies as appropriate for the stored materials. Perimeter controls, containment structures, covers, and liners shall be repaired or replaced as needed to maintain proper function.
- Used cleanup materials, contaminated materials, and recovered spill materials shall be properly disposed of in conformance with applicable requirements.
- Spills of oil, petroleum products, and substances listed in 40 CFR Parts 110, 117, and 302, and sanitary and septic wastes shall be contained and cleaned up immediately.
- In the event of a spill, the State’s Representative and Nevada County Environmental Health will be notified, [if required and] as appropriate.

WM-5 Solid Waste Management

The following practices will be implemented to minimize stormwater contact with waste materials and prevent waste discharges:

- Littering by Contractor and Sub-contractor employees shall be prohibited.
- Drainage systems shall be free of solid wastes and remain functional during periods of precipitation.
- Dumpster(s) with appropriate storage capacity shall be provided to contain the solid wastes generated by the project. Full dumpsters shall be removed from the site and the contents properly disposed of at the appropriate waste facility or landfill. Solid waste will be removed and disposed of off-site at least weekly.
- As practicable, solid waste will be loaded directly into trucks for off-site disposal. When on-site storage is necessary, solid wastes will be stored in watertight dumpsters in the general storage area of the Contractor’s yard. Dumpsters are to be located away from drainage systems or water bodies.
- Stormwater run-on shall be prevented from contacting stored solid waste by using berms, dikes, sand bag barriers, or other temporary diversion structures.
- Toxic wastes are not to be disposed of in dumpsters designated for general construction debris.

WM-6 Hazardous Waste Management

The following practices will be implemented to minimize stormwater contact with hazardous waste. Contractors and Sub-contractors will be properly trained on hazardous waste handling, storage, and disposal procedures:

- Hazardous wastes shall be stored, transported, and disposed of as required in Title 22 CCR, Division 4.5 and 40 CFR Parts 172, 173, 178, and 179.
- Waste containers shall be stored in temporary containment facilities that shall conform to the requirements listed in WM-6 Implementation, Material Use section **(see Attachment O).**
- Drums shall not be overfilled and wastes shall not be mixed.
- Adequate hazardous waste storage volume will be available.
- Hazardous waste storage areas shall be located away from storm drains and water bodies and away from moving vehicles and equipment. Hazardous waste storage areas will require secondary containment.
- Hazardous waste containers shall be labeled to indicate the type of waste contained and the date generated. Wastes shall be disposed of within 90 days of generation.
- Toxic liquid wastes (used oils, solvents, paints, etc.) and chemicals (acids, pesticides, additives, etc) shall not be disposed of in dumpsters designed for solid waste construction debris.
- Accumulated rainwater that has mixed with hazardous wastes shall be properly disposed of.

WM-8 Concrete Waste Management

The following practices and procedures shall be implemented to minimize or eliminate the discharge of concrete waste materials into storm drains or nearby water bodies. Contractors and Subcontractors will be properly trained on concrete waste management as outlined in this section and in the WM-8 BMP in **Attachment O.**

- Concrete Slurry: PCC and AC wastes shall not be allowed to enter storm drains or water bodies. Operations that generate concrete slurries will not be conducted during or immediately prior to precipitation events. Slurry residue will be vacuumed and disposed of in temporary pit, as described in this BMP (On-site temporary concrete washout facility). Dried slurry residue will be disposed of in accordance with BMP WM-5.
- If an on-site temporary concrete washout facility is used, it shall be constructed, maintained, and removed when no longer needed according to the specifications of this BMP (see **Attachment O).**

WM-9 Sanitary/Septic Waste Management

This BMP applies to temporary and portable sanitary/septic facilities used on construction sites and associated areas. The Contractor will minimize or

eliminate the discharge of construction sanitary/septic wastes by implementing the following procedures:

- Contractors and Sub-contractors will be educated on the sanitary/septic waste storage and disposal procedures in this BMP.
- No direct connections to the sanitary sewer system will be employed nor will an on-site septic system be installed.
- Temporary sanitary facilities shall be located a minimum of 50 feet (15 meters) away from drainage facilities, water bodies, and away from moving traffic and equipment.
- When high winds are present or anticipated, the sanitary facilities will be secured to prevent overturning.

5.4 Water Pollution Control Drawings (WPCDs)

The Contractor shall prepare the WPCDs in accordance with the DPR Specifications outlined in Specification Section __ Paragraph 2.01 E Subparagraph 4 of the Contract. The WPCDs shall be included in Attachment B of the SWPPP and noted in this section.

5.5 Construction BMP Maintenance, Inspection, and Repair

The purpose of stormwater inspections is to evaluate BMP effectiveness and implement repairs or design changes as soon as feasible. This section of the SWPPP shall include a description of the program that will be used to inspect and maintain all BMPs as identified in the site plan, or other narrative section of the SWPPP, for the duration of the project. Preparation of this program shall be in accordance with the DPR Specifications outlined in Specification Section Paragraph 2.01 E Subparagraph 5 of the Contract. The program for Maintenance, Inspection and Repair of BMPs shall be shown in **Attachment G.**

5.6 Post-Construction Storm Water Management

5.6.1 Post-Construction Control Practices

Post-construction BMPs are permanent measures installed during construction, designed to reduce or eliminate pollutant discharges from the site after construction is completed. In this section of the SWPPP, the Contractor shall provide a description of all BMPs used after all construction activities are completed on the site. Post construction, non-permanent BMPs may consist of:

- EC-2 Preservation of Existing Vegetation
- EC– 3, 4, 6 and 8 Mulching
- EC-7 Geotextiles and Mats
- SE-1 Silt Fence
- SE-5 Fiber Rolls

These BMPs have been discussed above in Sections 5.6.4 Soil Stabilization (Erosion Control) and 5.6.5 Sediment Control, and the detailed descriptions are included in **Attachment O.**

Additional post-construction, permanent runoff and pollution control measures will consist of re-vegetation of disturbed soil and the use of storm vaults and bioswales to contain, treat, and infiltrate stormwater runoff from paved areas. The following BMPs (see **Attachment O** for details) will be used or adapted to fit the non-urban setting at the project site:

- SD-10 Site Design & Landscape Planning
- SD-11 Roof Runoff Controls TC-11 Infiltration Basin
- TC-30 Vegetated Swale
- TC-31 Vegetated Buffer Strip
- TC-32 Bioretention
- TC-11 Infiltration Basin MP-40 Media Filter
- MP-50 Wet Vault
- MP-51 Vortex Separator

5.6.2 Operation/Maintenance after Project Completion

The post-construction temporary and permanent BMPs described above will be monitored and maintained by Department of Parks and Recreation staff.

5.7 Training

Training is required for individuals responsible for SWPPP preparation, implementation, and permit compliance including personnel responsible for installation, inspection, maintenance, and repair of BMPs. The Contractor shall document all training and provide a copy of the training log in **Attachment I** of the SWPPP. The Training log shall include the list of all personnel that attended training, type of training taken, and where the training was held. Training shall be in accordance with the DPR Specifications outlined in Specification Section Paragraph 2.01 E Subparagraph 7 of the Contract.

5.8 List of Subcontractors

All Contractors and Sub-contractors will be notified of the requirements for stormwater management and non-stormwater discharge elimination or prevention during the project. A list of all Contractors, Sub-contractors, and individuals responsible for implementation of the SWPPP shall be maintained and included in the SWPPP. This list shall include telephone numbers and addresses and specific areas of responsibility of each firm or individual. If Sub-contractors change during the course of the project, the Contractor will update this list accordingly. Copies of notification letters and a notification log shall be provided in **Attachment J** of the SWPPP.

5.9 Other Plans and Permits

All other necessary plans and permits are listed below and included in **Attachment N:**

- Current version of the State Water Resources Control Board (SWRCB) Order No. 99-08-DWQ, National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000002, Waste Discharge Requirements (WDRs) for Discharges of Storm Water Runoff Associated with Construction Activity, August 1999.

- State Water Resources Control Board Resolution No. 2001- 046, Modification of Water Quality Order 99-08-DWQ State Water Resources Control Board (SWRCB) National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity (General Permit).

- State Water Resources Control Board Resolution No. 2001-155, Modification of Water Quality Order 99-08-DWQ State Water Resources Control Board (SWRCB) National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity (General Permit) to include Small Construction Activity (One to Five Acres)

- State Water Resources Control Board Notice of Intent (NOI), dated XX-XX, 200_

- California Regional Water Quality Control Board, Lahontan Region, Section 401 Water Quality Certification, dated XX-XX, 2005

- Local Agency Permits, including:
  Truckee Donner PUD – Water connection Permit and fees.
  Truckee Sanitary District – Sewage line connection Permit and fees.
  Truckee Donner PUD – Electric and communications tie-ins and fees.
  Southwest Gas – Natural gas connection and fees.
  Truckee Donner Planning Department – Permits for Donner Pass Road turnouts and entrance road construction.

SECTION 6: MONITORING PROGRAM AND REPORTS

6.1 Site Inspections

The Contractor will inspect the site prior to forecasted storms, after rain events that cause runoff from the construction site, at 24-hour intervals during extended rain events, and as directed by the State's Representative. The results of all inspections and assessments will be documented and copies of the completed inspection checklists will be maintained with the SWPPP in **Attachment H.**

The name(s) and contact numbers(s) of the assigned inspection personnel are listed below:

Assigned Inspector: _____

Contact Phone: _____

6.2 Discharge Reporting

If a discharge occurs of if the project receives a written notice or order from any regulatory agency, the Contractor shall immediately notify the State's Representative and will file a written report to the State's Representative within 7 days of the discharge event, notice, or order. The Contractor shall implement corrective measures immediately following the discharge, notice, or order. Discharge reporting shall be in accordance with the DPR Specifications outlined in Specification Section_____ Paragraph 2.01 F Subparagraph 2 of the Contract. A copy of the Discharge, Written Notice or Order shall be attached to the SWPPP. A sample discharge form is provided in **Attachment K.** All discharges shall be documented on a Discharge reporting Log using the example form in **Attachment Q.**

Discharges requiring reporting include:

- Stormwater from the construction site discharged to a water body or storm drain system without treatment by a temporary construction BMP.
- Non-stormwater from the construction site discharged to a water body or storm drain system without treatment by an approved control measure BMP.
- Stormwater from the construction site discharged to a water body or storm drain system where the control measures (BMPs) have been overwhelmed or not properly maintained or installed.
- Stormwater runoff containing hazardous substances from spills discharged

to a water body or storm drain system.

- Where water quality sample results from a 303(d) stream listed for sediment indicate elevated levels of sediment in downstream samples (Donner Creek is not on the 303d list for sediment).
- Where water quality sample results indicate elevated levels of non-visible pollutants.
- Any other discharges reported to the State's Representative.

The report to the State's Representative will contain the following items:

- The time, date, location, nature of operation, and type of unauthorized discharge, including the cause or nature of the notice or order.
- The control measures (BMPs) in place before the discharge event, or prior to receiving the notice or order.
- The date of deployment and the type of control measures (BMPs) deployed after the discharge event, or after receiving the notice or order, including additional measures installed or planned to reduce or prevent re-occurrence.
- An implementation and maintenance schedule for any affected BMPs.
- Photographic documentation, if applicable.

6.3 Record Keeping and Reports

The Contractor shall maintain records for a minimum of three years after completion of construction for site inspections, compliance certifications, discharge reports, and the approved SWPPP document and amendments.

6.4 Sampling & Analysis Plan for Sediment

This project **does not** have the potential to discharge directly to a water body listed as impaired due to Sedimentation/Siltation or Turbidity pursuant to the Clean Water Act, Section 303(d). Therefore, a Sampling and Analysis Plan (SAP) for sediment is not required.

6.5 Sampling & Analysis Plan for Non-Visible Pollutants

The Sampling and Analysis Plan (SAP) for non-visible pollutants describes the sampling and analysis strategy and schedule for monitoring non-visible pollutants in stormwater discharges from the project site and the Contractor's yard/staging areas in accordance with Section B of the General Permit and applicable requirements of the Stormwater Monitoring Protocols in Appendix C of the Stormwater Best Management Practice Handbook for Construction (California Stormwater Quality Association, 2003).

6.5.1 Scope of Monitoring Activities

The following construction materials, wastes, or activities, as identified in Section

5.3.1, are potential sources of non-visible pollutants to stormwater discharges from the project. Storage, use, and operational locations are shown on the WPCDs in Attachment B.

- Asphalt products, including asphalt concrete, hot asphalt, and asphalt emulsion.
- Portland Cement Products, including PCC and non-pigmented curing compound
- Vehicle fluids, including fuels, lubricants, antifreeze, and battery acid (in sealed batteries).
- Portable toilet wastes.
- Treated wood products.
- Paints and solvents
- Plaster
- Drilling fluids generated during geotechnical explorations or for potential pile foundations.

There are no known existing site areas or site features that are potential sources of non-visible pollutants to stormwater discharges.

There are no soil amendments or stabilizers planned for use as part of this project that have the potential to alter the pH or have unacceptable concentrations of non-visible pollutants.

The project has the potential to receive storm water run-on with the potential to contribute non-visible pollutants to storm water discharges from the project. Locations of such run-on to the project site are shown on the WPCDs in **Attachment B.**

- Highway run-on from old Highway 40 (Donner Pass Road) that may contain oils, grease, other vehicle fluids.
- Sampling for non-visible pollutants will be conducted when (1) a breach, leakage, malfunction, or spill is observed; and (2) the leak or spill has not been cleaned up prior to the rain event; and (3) there is the potential for discharge of non-visible pollutants to surface waters or drainage system.

6.5.2 Monitoring Strategy

Sampling Schedule

Samples for the applicable non-visible pollutant(s) and a sufficiently large uncontaminated background sample shall be collected during the first two hours of discharge from rain events that result in a sufficient discharge for sample collection. Samples shall be collected during daylight hours (sunrise to sunset) and shall be collected regardless of the time of year, status of the construction site, or day of the week.

In conformance with the U.S. Environmental Protection Agency definition, a

minimum of 72 hours of dry weather will be used to distinguish between separate rain events.

Collection of discharge samples for non-visible pollutant monitoring will be triggered when any of the following conditions are observed during the required inspections conducted before or during rain events:

- Materials or wastes containing potential non-visible pollutants are not stored under watertight conditions. Watertight conditions are defined as (1) storage in a watertight container, (2) storage under a watertight roof or within a building, or (3) protected by temporary cover and containment that prevents storm water contact and runoff from the storage area.

- Materials or wastes containing potential non-visible pollutants are stored under watertight conditions, but (1) a breach, malfunction, leakage, or spill is observed, (2) the leak or spill is not cleaned up prior to the rain event, and (3) there is the potential for discharge of non-visible pollutants to surface waters or a storm sewer system.

- An operational activity, including but not limited to those in Section 6.5.1, with the potential to contribute non-visible pollutants (1) was occurring during or within 24 hours prior to the rain event, (2) applicable BMPs were observed to be breached, malfunctioning, or improperly implemented, and (3) there is the potential for discharge of non-visible pollutants to surface waters or a storm sewer system.

- Soil amendments that have the potential to change the chemical properties, engineering properties, or erosion resistance of the soil have been applied, and there is the potential for discharge of non-visible pollutants to surface waters or a storm sewer system.

- Stormwater runoff from an area contaminated by historical usage of the site has been observed to combine with stormwater runoff from the site, and there is the potential for discharge of non-visible pollutants to surface waters or a storm sewer system.

<u>Sampling Locations</u>
Sampling locations are based on proximity to planned non-visible pollutant storage, occurrence or use; accessibility for sampling, personnel safety; and other factors in accordance with the applicable requirements in the Permit. Planned sampling locations are listed in Table 6.1 below and shown on the WPCDs in **Attachment B** and include the following:

- ## [number to be determined] sampling locations have been identified for the collection of samples of run-on to the project site with the potential to combine with discharges being sampled for non-visible pollutants. These

samples are intended to identify sources of potential non-visible pollutants that originate off the project site, specifically from Donner Pass Road (Old Highway 4).

- A location has been identified for the collection of an uncontaminated sample of runoff as a background sample for comparison with the samples being analyzed for non-visible pollutants. This location was selected such that the sample will not have come in contact with (1) operational or storage areas associated with the materials, wastes, and activities identified in Section 5.3.1; or (2) disturbed soils areas.

- If an operational activity or storm water inspection conducted 24 hours prior to or during a rain event identifies the presence of a material storage, waste storage, or operations area with spills or the potential for the discharge of non-visible pollutants to surface waters or a storm sewer system that was an unplanned location and has not been identified on the WPCDs, sampling locations will be selected using the same rationale as that used to identify planned locations.

Table 6.1 Table of Sampling Locations

WPCD#	Sample #	Description of Location

6.5.3 Monitoring Preparation

Samples on the project site will be collected by the following Contractor sampling personnel:

Name: _____ Phone Number:_____

Name: _____ Phone Number:_____

Name: _____ Phone Number:_____

Prior to the rainy season, all sampling personnel and alternates will review the SAP. Qualifications of designated Contractor personnel describing environmental sampling training and experience are provided in **Attachment I.**

An adequate stock of monitoring supplies and equipment for monitoring non-visible

pollutants will be available on the project site prior to a sampling event. Monitoring supplies and equipment will be stored in a cool-temperature environment that will not come into contact with rain or direct sunlight. Sampling personnel will be available to collect samples in accordance with the sampling schedule. Supplies maintained at the project site will include, but are not limited to, non-powdered surgical gloves, sample collection equipment, coolers, appropriate number and volume of sample bottles, identification labels, re-sealable storage bags, paper towels, personal rain gear, water ice/blue ice, Sampling Activity Log forms, and Chain of Custody (COC) forms.

The Contractor will obtain and maintain the field-testing instruments, as identified in Section 6.5.6, for analyzing samples in the field by Contractor sampling personnel.

Safety practices for sample collection will be in accordance with the [CONTRACTOR'S NAME] Health and Safety Plan for the High Sierra Crossings Museum Project.

REQUIRED TEXT if consultant or laboratory will collect samples:
Samples on the project site will be collected by the following [specify laboratory or environmental consultant]:

Company Name: _____

Address: _____

Telephone Number: _____

Point of Contact: _____

Qualifications of designated Contractor personnel describing environmental sampling training and experience are provided in **Attachment I.**

The WPCM will contact the XXX Laboratory or environmental consultant 48 hours prior to a predicted rain event and if one of the triggering conditions is identified during an inspection before, during, or after a storm event to ensure that adequate sample collection personnel, supplies and field test equipment for monitoring non-visible pollutants are available and will be mobilized to collect samples on the project site in accordance with the sampling schedule.

XXX Laboratory or environmental consultant will obtain and maintain the field-testing instruments, as identified in Section 6.5.6, for analyzing samples in the field by their sampling personnel.

6.5.4 Analytical Constituents

Identification of Non-Visible Pollutants

Table 6-2 below lists the specific sources and types of potential non-visible pollutants on the project site and the applicable water quality indicator constituent(s) for that pollutant.

Table 6-2
Potential Non-Visible Pollutants and Water Quality Indicator Constituents

Pollutant Source	Pollutant	Water Quality Indicator Constituent
Asphalt products	Hot asphalt, liquid asphalt, asphalt concrete	Visually observed – no testing required
Portland Concrete Products	Portland Cement Non-pigmented cure	pH
Landscaping products	Inorganic fertilizers Lime & Gypsum	Potassium pH
Portable toilets	Toilet wastes	Visually observed – no testing required
Vehicle fluids	Antifreeze, fuels, oils, and lubricants	Visually observed – no testing required
Vehicle batteries	Battery acids	pH, lead, sulfate
Highway pavement runoff	Oils, grease	Visually observed – no testing required
Treated wood products	Unknown at this time	TBD
Paints, stains, and Solvents	Unknown at this time	TBD

6.5.5 Sample Collection and Handling

Sample Collection Procedures

Samples of discharge will be collected at the designated sampling locations shown on the WPCDs for observed breaches, malfunctions, leakages, spills, and operational areas that triggered the sampling event.

Grab samples will be collected and preserved in accordance with the methods identified in the Table - 6.3, “Sample Collection, Preservation and Analysis for Monitoring Non-Visible Pollutants,” provided in Section 6.5.6. Only personnel trained in proper water quality sampling will collect samples.

Samples will be collected by placing a separate lab-provided sample container directly into a stream of water downgradient and within close proximity to the potential non-visible pollutant discharge location. This separate lab-provided sample container will be used to collect water, which will be transferred to sample bottles for laboratory analysis. The upgradient and uncontaminated background samples shall be collected first prior to collecting the downgradient to minimize cross-contamination. The sampling personnel will collect the water upgradient of

where they are standing. Once the separate lab-provided sample container is filled, the water sample will be poured directly into sample bottles provided by the laboratory for the analyte(s) being monitored.

To maintain sample integrity and prevent cross-contamination, sampling collection personnel will:

- Wear a clean pair of surgical gloves prior to the collection and handling of each sample at each location.
- Not contaminate the inside of the sample bottle by not allowing it to come into contact with any material other than the water sample.
- Discard sample bottles or sample lids that have been dropped onto the ground prior to sample collection.
- Not leave the cooler lid open for an extended period of time once samples are placed inside.
- Not sample near a running vehicle where exhaust fumes may impact the sample.
- Not touch the exposed end of a sampling tube, if applicable.
- Avoid allowing rainwater to drip from rain gear or other surfaces into sample bottles.
- Not eat, smoke, or drink during sample collection.
- Not sneeze or cough in the direction of an open sample bottle.
- Minimize the exposure of the samples to direct sunlight, as sunlight may cause biochemical transformation of the sample to take place.
- Decontaminate sampling equipment prior to sample collection using a TSP-soapy water wash, distilled water rinse, and final rinse with distilled water.
- Dispose of decontamination water/soaps appropriately; i.e., not discharge to the storm drain system or receiving water.

Sample Handling Procedures

Immediately following collection, sample bottles for laboratory analytical testing will be capped, labeled, documented on a Chain of Custody form provided by the analytical laboratory, sealed in a resealable storage bag, placed in an ice-chilled cooler, at as near to 4 degrees Celsius as practicable, and delivered within 24 hours to the following California state-certified laboratory:

Laboratory Name: _____

Address: _____

Telephone Number: _____

Point of Contact: _____

Immediately following collection, samples for field analysis will be tested in

accordance with the field instrument manufacturer's instructions and results recorded on the Sampling Activity Log [IF IN SITU SAMPLING PLANNED].

Sample Documentation Procedures

All original data documented on sample bottle identification labels, Chain of Custody forms, Sampling Activity Logs, and Inspection Checklists will be recorded using waterproof ink. These will be considered accountable documents. If an error is made on an accountable document, the individual will make corrections by lining through the error and entering the correct information. The erroneous information will not be obliterated. All corrections will be initialed and dated. Copies of the Sampling Activity Log are provided in **Attachment Q.** The XXXXX Laboratory will provide the Chain of Custody forms.

Sampling and field analysis activities will be documented using the following:

- Sample Bottle Identification Labels: Sampling personnel will attach an identification label to each sample bottle. At a minimum, the following information will be recorded on the label, as appropriate:

  - Project name
  - Project number
  - Unique sample identification number and location [Project Number]-[Six digit sample collection date]-[Location] *(Example:* 0G5304-081801-Inlet472).
  - Quality assurance/quality control (QA/QC) samples shall be identified similarly using a unique sample number or designation *(Example:* 0G5304-081801-DUP1).
  - Collection date/time (No time applied to QA/QC samples)
  - Analysis constituent

- Sampling Activity Logs: A log of sampling events will identify:

  - Sampling date
  - Separate times for collected samples and QA/QC samples recorded to the nearest minute
  - Unique sample identification number and location
  - Analysis constituent
  - Names of sampling personnel
  - Weather conditions (including precipitation amount)
  - Field analysis results
  - Other pertinent data

- Chain of Custody (COC) forms: All samples to be analyzed by a laboratory will be accompanied by a COC form provided by the laboratory. Only the

sample collectors will sign the COC form over to the lab. COC procedures will be strictly adhered to for QA/QC purposes.

- Stormwater Quality Construction Inspection Checklists: When applicable, the Contractor's stormwater inspector will document on the checklist that samples for non-visible pollutants were taken during a rain event.

6.5.6 Sample Analysis

Samples will be analyzed for the applicable constituents using the analytical methods identified in Table 6-3, "Sample Collection, Preservation and Analysis for Monitoring Non-Visible Pollutants" in this section.

Table 6-3 Sample Collection, Preservation and Analysis for Monitoring Non-Visible Pollutants

Constituent	Analytical Method	Minimum Sampling Volume	Sample Bottle	Sample Preservation	Reporting Limit	Maximum Holding Time
pH*	EPA 150.1	1 x 100 ml	Polypropylene	None	Unitless	Immediate
Potassium	EPA 200.8 (metal)	1 liter	PE, Teflon, or borosilicate glass	Filtration within 48 hrs, Store at 4-C , HNO_3 to pH<2	0.5 mg/l	180 days

Notes: pH: a standard measure of acidity or alkalinity as compared with a neutral liquid, such as water
C: degrees Celsius
EPA : The US Environmental Protection Agency
PE: Polyethylene plastic
ml: milliliter
mg/l: milligrams per liter
HNO_3: Nitric acid
* pH will be measured in the field

For samples collected for field analysis, collection, analysis, and equipment calibration will be in accordance with the field instrument manufacturer's specifications.

The following field instrument(s) will be used to analyzed the following constituents:

Field Instrument	Constituent
pH meter	pH

- The instrument(s) will be maintained in accordance with manufacturer's instructions.
- The instrument(s) will be calibrated before each sampling and analysis event.
- Maintenance and calibration records will be maintained with the SWPPP.

6.5.7 Quality Assurance/Quality Control

For an initial verification of laboratory or field analysis, duplicate samples will be collected at a rate of 10 percent or 1 duplicate per sampling event. The duplicate sample will be collected, handled, and analyzed using the same protocols as primary samples. A duplicate sample will be collected at each location immediately after the primary sample has been collected. Duplicates will be collected where contamination is likely, not on the background sample. Duplicate samples will not influence any evaluations or conclusions; however, they will be used as a check on laboratory quality assurance.

6.5.8 Data Management and Reporting

A copy of all water quality analytical results and QA/QC data will be submitted to the State's Representative within 5 days of sampling (for field analyses) and within 30 days (for laboratory analyses).

Lab reports and COCs will be reviewed for consistency between lab methods, sample identifications, dates, and times for both primary samples and QA/QC samples. All data, including COC forms and Sampling Activity Logs, shall be kept with the SWPPP.

6.5.9 Data Evaluation

An evaluation of the water quality sample analytical results, including figures with sample locations, will be submitted to the State's Representative with the water quality analytical results and the QA/QC data. Should the runoff/downgradient sample show an increased level of the tested analyte relative to the background sample, the BMPs, site conditions, and surrounding influences will be assessed to determine the probable cause for the increase.

As determined by the site and data evaluation, appropriate BMPs will be repaired or modified to mitigate discharges of non-visual pollutant concentrations. Any revisions to the BMPs will be recorded as an amendment to the SWPPP.

6.5.10 Change of Conditions

Whenever SWPPP monitoring, pursuant to Section B of the General Permit, indicates a change in site conditions that might affect the appropriateness of sampling locations or introduce additional non-visible pollutants of concern, testing protocols will be revised accordingly. All such revisions will be recorded as an amendment to the SWPPP.

INSERT NEW TOPO MAP HERE

Figure A-1 General Topographic Map and Site Location

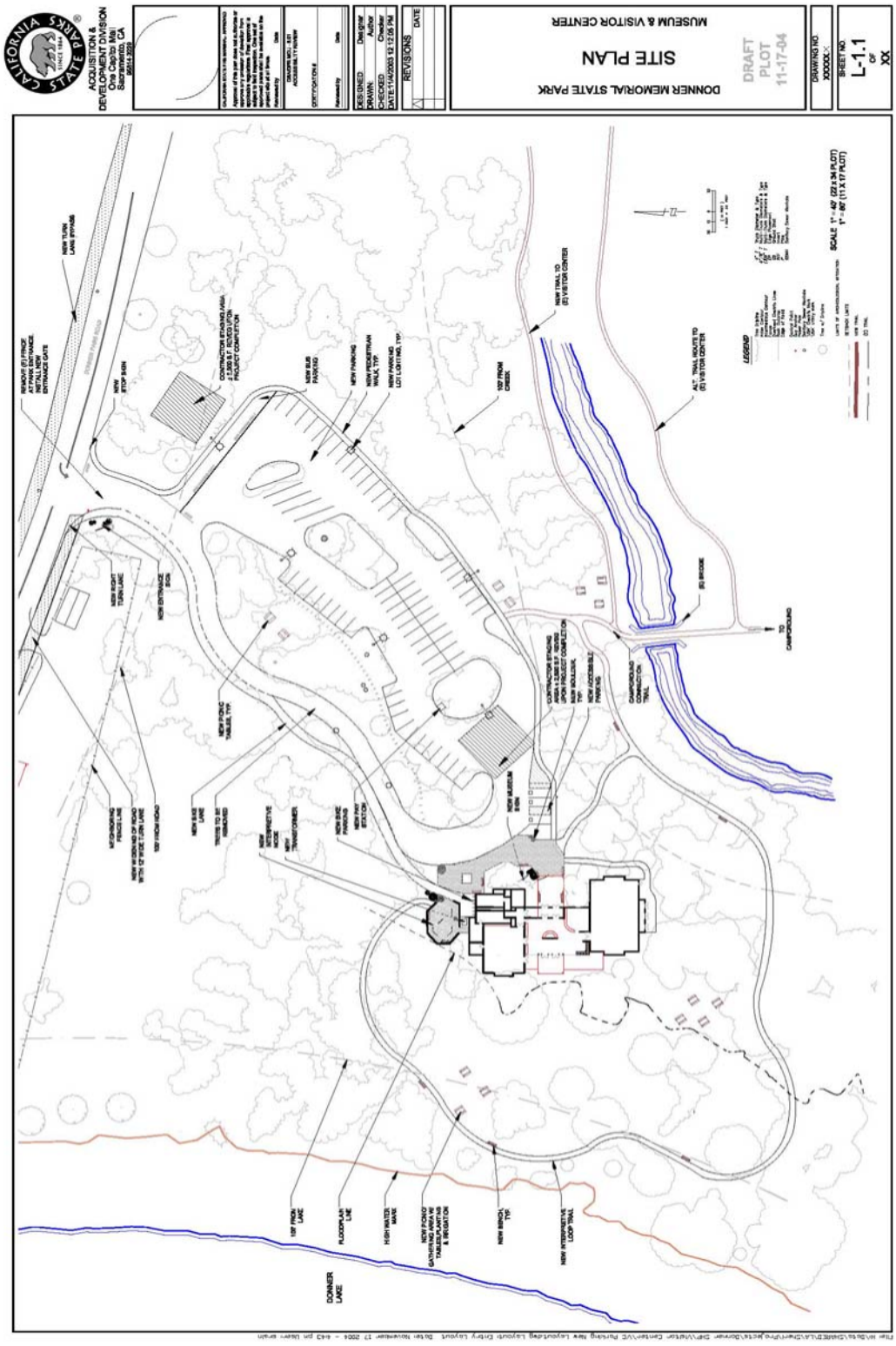

Figure A-2 Project Area Layout NEED REVISED MAP HERE

ATTACHMENT B: WATER POLLUTION CONTROL DRAWINGS

To be provided.

ATTACHMENT C

CONSTRUCTION SITE
BMP CONSIDERATION CHECKLIST

The Contractor shall list all BMPs noted in the SWPPP to be used on the project.

Temporary Soil Stabilization BMPs			
BMP No.	**BMP USED**	**CONTRACT REQUIREMENT (check if yes)**	**TIMING OF IMPLEMENTATION**
EC-1	Scheduling	~	
EC-2	Preservation of Existing Vegetation	~	
EC-3	Hydraulic Mulch		
EC-4	Hydroseeding		
EC-6	Straw Mulch		
EC-7	Geotextiles & Mats		
EC-8	Wood Mulching		
Temporary Sediment Control BMPs			
BMP No.	**BMP USED**	**CONTRACT REQUIREMENT (check if yes)**	**TIMING OF IMPLEMENTATION**
SE-1	Silt Fence		
SE-2	Sediment Basin		
SE-3	Sediment Trap		
SE-5	Fiber Rolls		
SE-6	Gravel Bag Berm		
SE-8	Sandbag Barrier		
SE-9	Straw Bale Barrier		
Wind Erosion Control BMPs			
BMP No.	**BMP USED**	**CONTRACT REQUIREMENT (check if yes)**	**TIMING OF IMPLEMENTATION**
WE-1	Wind Erosion Control	~	

Sediment Tracking Control BMPs			
BMP No.	**BMP USED**	**CONTRACT REQUIREMENT (check if yes)**	**TIMING OF IMPLEMENTATION**
TC-1	Stabilized Construction Entrance/Exit		
TC-2	Stabilized Construction Roadway		
TC-3	Entrance/Outlet Tire Wash		
Non-Storm Water Management BMPs			
BMP No.	**BMP USED**	**CONTRACT REQUIREMENT (check if yes)**	**TIMING OF IMPLEMENTATION**
NS-1	Water Conservation Practices		
NS-2	Dewatering Operations	~	
NS-3	Paving & Grinding Operations	~	
NS-7	Potable Water/Irrigation		
NS-8	Vehicle & Equipment Cleaning	~	
NS-9	Vehicle & Equipment Fueling	~	
NS-10	Vehicle & Equipment Maintenance	~	
NS-12	Concrete Curing	~	
Waste Management and Materials Pollution Control BMPs			
BMP No.	**BMP USED**	**CONTRACT REQUIREMENT (check if yes)**	**TIMING OF IMPLEMENTATION**
WM-1	Material Delivery and Storage	~	
WM-2	Material Use	~	
WM-3	Stockpile Management	~	
WM-4	Spill Prevention and Control	~	
WM-5	Solid Waste Management	~	
WM-6	Hazardous Waste Management	~	
WM-8	Concrete Waste Management	~	
WM-9	Sanitary/Septic Waste Management	~	

ATTACHMENT D

COMPUTATION SHEET FOR DETERMINING RUNOFF COEFFICIENTS

The runoff coefficient (C) is used to estimate the impact on stormwater runoff due to development of a site. The runoff coefficient is the amount of rainfall that becomes runoff. The less runoff that is absorbed into the ground, the higher the runoff coefficient is.

Total Site Area	=	374,400 ft^2

EXISTING SITE CONDITIONS:

Impervious site area	=	15,000 ft^2 (B)
Impervious site area runoff coefficient	=	0.40 C)
Pervious site area	=	359,200 ft^2
Pervious site area runoff coefficient	=	0.02 (E)
Existing site area runoff coefficient	=	**0.035** (F)

(BxC)+(DxE)
(A)

PROPOSED SITE CONDITIONS (AFTER CONSTRUCTION)

Impervious area	=	88,550 ft^2
Impervious site area runoff coefficient	=	0.95 (H)
Pervious site area	=	285,850 ft^2
Pervious site area runoff coefficient	=	0.035 (J)
Proposed site area runoff coefficient	=	**0.25** (K)

(GxH)+(IxJ)
(A)

ATTACHMENT E

COMPUTATIONAL SHEET FOR DETERMINING RUN-ON DISCHARGES

The runoff coefficient (A) represents the percent of water that will run off the ground surface during a storm. Rainfall intensity (B), in millimeters per hour, is the average rainfall intensity for the selected frequency and duration (e.g., 2 year frequency, 1 hour duration storm). Rainfall intensities can be obtained from County Flood Control or U.S. Corps of Engineers manuals for rainfall intensity values. Drainage area (C) in square kilometers includes impervious and pervious areas and surfaces covered by buildings. This method should not be used for drainage areas greater than 1.3 km^2 (320 acres) in size.

SWPPP preparer shall provide calculations for offsite run-on if flow quantities are not available from the project design documents (e.g., hydrology reports, etc.).

EXISTING SITE CONDITIONS

Area runoff coefficient	=	0.20 (A)
Area rainfall intensity	=	18 mm/hr (B)
Drainage area =		0.03 km^2 (C)
Site area run-on discharge	=	0.03 m^3/sec (D)
0.28x(A)x(B)x(C)		(1.1 ft^3/sec or

ATTACHMENT F Notice of Intent

TO BE PROVIDED.

ATTACHMENT G

PROGRAM FOR MAINTENANCE, INSPECTION AND REPAIR OF CONSTRUCTION SITE BMPs

The Contractor shall use the following guidelines for maintenance, inspection, and repair of project BMPs identified in the SWPPP**.**

BMPs	INSPECTION FREQUENCY (all controls)	MAINTENANCE/REPAIR PROGRAM
TEMPORARY SOIL STABILIZATION BMPS		
EC-1 Scheduling	Prior to the start of rainy season	
EC-2 Preservation of Existing Vegetation		
EC-3 Hydraulic Mulch EC-4 Hydroseeding		
EC -6 Straw Mulch		
EC-7 Geotextiles & Mats		
EC-8 Wood Mulching		
TEMPORARY SEDIMENT CONTROL BMPS		
SE-1 Silt Fence		
SE-2 Sediment Bsin		
SE-3 Sediment Trap		
SE-5 Fiber Rolls		
SE-6 Gravel Bag Berm		
SE-8 Sandbag Barrier		
SE-9 Straw Bale Barrier		
WIND EROSION CONTROL BMPS		
WE-1 Wind Erosion Control		
TRACKING CONTROL BMPS		
TC-1 Stabilized Constructiion Entrance/Exit		
TC-2 Stabilized Construction Roadway (Haul Road)		
TC-3 Entrance/Outlet Tire Wash		
NON-STORMWATER MANAGEMENT BMPS		
NS- 1 Water Conservation Practices		
NS-2 Dewatering Operations		
NS-3 Paving and Grinding Operations		

NS-7 Potable Water/Irrigation		
NS-8 Vehicle and Equipment Cleaning		
NS-9 Vehicle and Equipment Fueling		
NS-10 Vehicle and Equipment Maintenance		
NS-12 Concrete Curing		
WASTE MANAGEMENTAND MATERIALS POLLUTION CONTROL BMPS		
WM-1 material Delivery and Storage		
WM-2 Material Use		
WM-3 Stockpile Management		
WM-4 Spill Prevention and Control		
WM-5 Solid Waste Management		
WM-6 Hazardous Waste Management		
WM-8 Concrete Wash Management		
WM-9 Sanitary/Septic Waste Management		

ATTACHMENT H

STORM WATER QUALITY CONSTRUCTION SITE INSPECTION FORM

GENERAL INFORMATION				
Project Name	Donner MSP High Sierra Crossings Museum			
Project No..				
Contractor				
Inspector's Name				
Inspector's Title				
Signature				
Date of				
Inspection Type (Check Applicable)	~ Prior to forecast rain ~ 24-hr intervals during extended rain		~ After a rain event ~ Other	
Season (Check Applicable)	~ Rainy		~ Non-Rainy	
Storm Data	Storm Start Date & Time:		Storm Duration (hrs):	
	Time elapsed since last storm (Circle Applicable Units)	Min. Hr. Days	Approximate Rainfall Amount (inches)	

PROJECT AREA SUMMARY AND DISTURBED SOIL AREA (DSA) SIZE		
Total Project Area	_____	Acres
Field Estimate of Active DSAs	_____	Acres
Field Estimate of Non-Active DSAs	_____	Acres

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action**
Preservation of Existing Vegetation				
Is temporary fencing provided to preserve vegetation in areas where no construction activity is planned?				
Location:				
Location:				
Location:				
Location:				
Erosion Control				
Does the applied temporary erosion control provide 100% coverage for the affected areas?				
Are any non-vegetated areas that may require temporary erosion control?				
Is the area where erosion controls are used required free from visible erosion?				
Location:				
Location:				
Location:				
Location:				
Temporary Linear Sediment Barriers (Silt Fence, Fiber Rolls, Sandbag Barriers, etc.)				
Are temporary linear sediment barriers properly installed, functional and maintained?				
Are temporary linear sediment barriers free of accumulated litter?				
Is the built-up sediment less than 1/3 the height of the barrier?				
Are cross barriers installed where necessary and properly spaced?				
Location:				
Location:				
Location:				
Location:				
Storm Drain Inlet Protection				
Are storm drain inlets internal to the project properly protected?				
Are storm drain inlet protection devices in working order and being properly maintained?				
Location:				
Location:				
Location:				

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action**
Sediment Basins				
Are basins designed in accordance with the requirements of the General Permit?				
Are basins maintained to provide the required retention/detention?				
Are basin controls (inlets, outlets, diversions, weirs, spillways, and racks) in working order?				
Location:				
Location:				
Location:				
Location:				
Stockpiles				
Are all locations of temporary stockpiles, including soil, hazardous waste, and construction materials in approved areas?				
Are stockpiles protected from run-on, run-off from adjacent areas and from winds?				
Are stockpiles located at least 15 m from concentrated flows, downstream drainage courses and storm drain inlets?				
Are required covers and/or perimeter controls in place?				
Location:				
Location:				
Location:				
Concentrated Flows				
Are concentrated flow paths free of visible erosion?				
Location:				
Location:				
Location:				
Tracking Control				
Is the entrance stabilized to prevent tracking				
Is the stabilized entrance inspected daily to ensure that it is working properly?				
Are points of ingress/egress to public/private roads inspected and swept and vacuumed as needed?				
Are all paved areas free of visible sediment tracking or other particulate matter?				
Location:				
Location:				
Location:				

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action**
Wind Erosion Control				
Is dust control implemented?				
Location:				
Location:				
Location:				
Dewatering Operations				
Are all one-time dewatering operations covered by the General Permit inspected before and as they occur and BMPs implemented as necessary during discharge?				
Is ground water dewatering handled in conformance with the dewatering permit issued by the RWQCB?				
Is required treatment provided for dewatering effluent?				
Location:				
Location:				
Location:				
Vehicle & Equipment Fueling, Cleaning, and				
Are vehicle and equipment fueling, cleaning and maintenance areas reasonably clean and free of spills, leaks, or any other deleterious material?				
Are vehicle and equipment fueling, cleaning and maintenance activities performed on an impermeable surface in dedicated areas?				
If no, are drip pans used?				
Are dedicated fueling, cleaning, and maintenance areas located at least 15 m away from downstream drainage facilities and watercourses and protected from run-on and runoff?				
Is wash water contained for infiltration/ evaporation and disposed of appropriately?				
Is on-site cleaning limited to washing with water (no soap, soaps substitutes, solvents, or steam)?				
On each day of use, are vehicles and equipment inspected for leaks and if necessary, repaired?				
Location:				
Location:				
Location:				
Waste Management & Materials Pollution Control				
Are material storage areas and washout areas protected from run-on and runoff, and located at least 15 m from concentrated flows and downstream drainage facilities?				

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action**
Are all material handling and storage areas clean; organized; free of spills, leaks, or any other deleterious material; and stocked with appropriate clean-up supplies?				
Are liquid materials, hazardous materials, and hazardous wastes stored in temporary containment facilities?				
Are bagged and boxed materials stored on pallets?				
Are hazardous materials and wastes stored in appropriate, labeled containers?				
Are proper storage, clean-up, and spill-reporting procedures for hazardous materials and wastes posted in open, conspicuous and accessible locations adjacent to storage areas?				
Are temporary containment facilities free of spills and rainwater?				
Are temporary containment facilities and bagged/boxed materials covered?				
Are temporary concrete washout facilities designated and being used?				
Are temporary concrete washout facilities functional for receiving and containing concrete waste and are concrete residues prevented from entering the drainage system?				
Do temporary concrete washout facilities provide sufficient volume and freeboard for planned concrete operations?				
Are concrete wastes, including residues from cutting and grinding, contained and disposed of off-site or in concrete washout facilities?				
Are spills from mobile equipment fueling and maintenance properly contained and cleaned up?				
Is the site free of litter?				
Are trash receptacles provided in the yard, field trailer areas, and at locations where workers congregate for lunch and break periods?				
Is litter from work areas collected and placed in watertight dumpsters?				
Are waste management receptacles free of leaks?				
Are the contents of waste management receptacles properly protected from contact with storm water or from being dislodged by winds?				
Are waste management receptacles filled at or beyond capacity?				
Location:				
Location:				
Location:				
Temporary Water Body Crossing or Encroachment				
Are temporary water body crossings and encroachments constructed appropriately?				

INSPECTION OF BMPs				
BMP	**Yes**	**No**	**N/A**	**Corrective Action**
Does the project conform to the requirements of the 404 permit and/or 1601agreement?				
Location:				
Location:				
Location:				
Location:				
Illicit Connection/ Discharge				
Is there any evidence of illicit discharges or illegal dumping on the project site?				
If yes, has the Owner/Operator been notified?				
Location:				
Location:				
Location:				
Discharge Points				
Are discharge points and discharge flows free from visible pollutants?				
Are discharge points free of any significant sediment transport?				
Location:				
Location:				
Location:				
SWPPP Update				
Does the SWPPP and Project Schedule adequately reflect the current site conditions and contractor operations?				
Are all BMPs shown on the water pollution control drawings installed in the proper location(s) and according to the details in the SWPPP?				
Location:				
Location:				
Location:				
General				
Are there any other potential concerns at the site?				
Location:				
Location:				
Location:				
Storm Water Monitoring				
Does storm water discharge directly to a water body listed in the General Permit as impaired for sediment/sedimentation or turbidity?				

INSPECTION OF BMPs				
BMP	**Yes**	**N**	**N/A**	**Corrective Action**
If yes, were samples for sediment/sedimentation or turbidity collected pursuant to the sampling and analysis plan in the SWPPP?				
Did the sampling results indicate that the discharges are causing or contributing to further impairment?				
If yes, were the erosion/sediment control BMPs improved or maintained to reduce the discharge of sediment to the water body?				
Were there any BMPs not properly implemented or breaches, malfunctions, leakages or spills observed which could result in the discharge of pollutants to surface waters that would not be visually detectable in storm water?				
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan during rain events?				
If sampling indicated pollution of the storm water, were the leaks, breaches, spills, etc. cleaned up and the contaminated soil properly disposed of?				
Were the BMPs maintained or replaced?				
Were soil amendments (e.g., gypsum, lime) used on the project?				
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?				
If sampling indicated pollution of the storm water by the use of the soil amendments, is there a contingency plan for retention onsite of the polluted storm water?				
Did storm water contact stored materials or waste and run off the construction site? (Materials not in watertight containers, etc.)				
If yes, were samples for non-visually detectable pollutants collected pursuant to the sampling and analysis plan in the SWPPP?				

REVISE TABLE TO REMOVE THOSE BMPS NOT USED FOR THIS PROJECT

ATTACHMENT I

Storm Water Management Training Log

Project name: Donner MSP High Sierra Crossings Museum

Project Number/Location: _____ _____

Storm Water Management Topic: (check as appropriate)

☐ Erosion Control ☐ Sediment Control

☐ Wind Erosion Control ☐ Tracking Control

☐ Non-storm water Management ☐ Waste Management and Materials Pollution Control

☐ Storm Water Sampling

Specific Training Objective:_____

Location: _____ Date: _____

Instructor: _____ Telephone: _____

Course Length (hours): _____

Attendee Roster (attach additional forms if necessary)

Name	Company	Phone

COMMENTS:

ATTACHMENT J Subcontractor Notification and Log

SWPPP Notification

Company Address
City, State, ZIP

Dear Sir/Madam,

Please be advised that the California State Water Resources Control Board has adopted the General Permit (General Permit) for Storm Water Discharges Associated with Construction Activity (CAS000002). The goal of these permits is prevent the discharge of pollutants associated with construction activity from entering the storm drain system, ground and surface waters.

[Owner/Developer/Contractor] has developed a Storm Water Pollution Prevention Plan (SWPPP) in order to implement the requirements of the Permits.

As a subcontractor, you are required to comply with the SWPPP and the Permits for any work that you perform on site. Any person or group who violates any condition of the Permits may be subject to substantial penalties in accordance with state and federal law. You are encouraged to advise each of your employees working on this project of the requirements of the SWPPP and the Permits. A copy of the Permits and the SWPPP are available for your review at the construction office. Please contact me if you have further questions.

Sincerely,

Name
Title

SAMPLE LETTER

ATTACHMENT K

To: _____ Date: _____
STATE'S REPRESENTATIVE

Subject: Notice of Non-Compliance

Project Name: Donner MSP High Sierra Crossings Museum

Project Number/Location: _____

In accordance with the NPDES Statewide Permit for Storm Water Discharges Associated with Construction Activity, the following instance of discharge is noted. This form must be completed and submitted to the State's Representative within 7 days of discharge event.

Date, time, and location of discharge

Nature of the operation that caused the discharge

Initial assessment of any impact cause by the discharge

Existing BMP(s) in place prior to discharge event

Date of deployment and type of BMPs deployed after the discharge.

Steps taken or planned to reduce, eliminate and/or prevent recurrence of the discharge

Implementation and maintenance schedule for any affected BMPs

If further information or a modification to the above schedule is required, notify the contact person below.

Name of Contact Person	*Title*
Company	*Telephone Number*
Signature	*Date*

ATTACHMENT L
ANNUAL CERTIFICATION OF COMPLIANCE FORM

By _____ of each year that the project is in construction, the Contractor shall complete and submit this form to the State's Representative for approval. The State's representative will then submit this form to the RWQCB, together with the annual fee, as required in Section 1.3 of the SWPPP. Annual certification of compliance is based on the site inspections required in the SWPPP. The completed and signed Annual Certifications and Approvals shall be included in Section 1.3 of the SWPPP following the required text of the section. This Annual Certification of Compliance form does not need to be completed at the initial approval, but it shall be submitted during the first year of the initial SWPPP approval.

Project Name: Donner MSP High Sierra Crossings Museum

Project Number: _____

Contractor Company Name: _____

Contractor Address: _____

Construction Start Date: _____ **Completion Date:** _____

Description of Work:

Work Now in Progress:

Work Planned for Next 12 Months:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Owner/Developer/Contractor Signature

Date

State Representative's Approval:

"I acknowledge receipt and approval of this Annual Certification Compliance Form for the SWPPP for the above DPR project".

_____	_____
State Representative's signature	Date
_____	_____
State Representative's Name/Title	Telephone Number

ATTACHMENT M NOTICE OF TERMINATION

ATTACHMENT N Other Plans and Permits

ATTACHMENT O Temporary BMPs Selected for this Project

ATTACHMENT P Permanent BMPs Selected for this Project

ATTACHMENT Q

Discharge Reporting Log

Project Name: _____

Project Number: _____

Date	Material(s) Discharged	Estimated Quantity	Observed By

ATTACHMENT R

Sampling Activity Log

RAIN EVENT GENERAL INFORMATION				
Project Name	Donner MSP High Sierra Crossings Museum			
Project Number				
Contractor				
Sampler's Name				
Signature				
Date of Sampling				
Season (Check Applicable)	~ Rainy		~ Non-Rainy	
Storm Data	Storm Start Date & Time:		Storm Duration (hrs):	
	Time elapsed since last storm (Circle Applicable Units)	Min. Hr. Days	Approximate Rainfall Amount (inches)	

For rainfall information: http://cdec.water.ca.gov/weather.html or http://www.wrh.noaa.gov/wrhq/nwspage.html

SAMPLE LOG		
Sample Identification	**Sample Location**	**Sample Collection Date and Time**

Specific sample locations descriptions may include: 100 ft upstream from discharge at eastern boundary, runoff from northern waste storage area, downgradient of inlet located near the intersection of A Street and B avenue, etc.

FIELD ANALYSIS		
❑Yes	❑ No	
Sample Identification	**Test**	**Result**

ATTACHMENT S Pollutant Testing Guidance Table

ATTACHMENT T

Discharge Reporting Log

Project Name: _____

Project Number: _____

Date	Material(s) Discharged	Estimated Quantity	Observed By

APPENDIX E
LIST OF ACRONYMS

AAQS – Ambient Air Quality Standards
ac – acre
AC – asphalt concrete
ACHP – Advisory Council on Historic Preservation
ADA – Americans with Disabilities Act
ADI – Area of Direct Impact
AGR – Agricultural Supply
APE – Area of Potential Effects
APEFZ – Alquist-Priolo Earthquake Fault Zone
AQ – Air Quality
amsl – above sea level
ASR – Archaeological Survey Report
BACM – Best Available Control Measures
BAT – Best Available Technology
bgs – below ground surface
BMPs – Best Management Practices
BSA – Broader Sacramento Area
Caltrans – California Department of Transportation
C/OS – Conservation and Open Space
CAA – Clean Air Act
CAAQS – California Ambient air Quality standards
CalEPA – California Environmental Protection Agency
CARB/ ARB – California Air Resources Board
CBC – California Building Code
GP – General Plan
CCAA – California Clean Air Act
CCR – California Code of Regulations
CDF – California Department of Forestry and Fire Protection
CESA – California Endangered Species Act
CEQA – California Environmental Quality Act
CFR – Code of Federal Regulations
CGP – Storm Water Discharges Associated with Construction Activity
CGS – California Geological Survey
CHP – California Highway Patrol
cm – centimeter
CNDDB – California Natural Diversity Database
CNEL – Community Noise Equivalent Level
CNG – Compressed Natural Gas
CNPS – California Native Plant Society
CO – carbon monoxide
C/OS – Conservation and Open Space
COLD – Cold Fresh Water Habitat
COMM – Commercial & Sport Fishing
CPRR – Central Pacific Railroad
CRHR – California Register of Historical Resources

CWA – Clean Water Act
dB or dBa – decibel unit
DBH – diameter at breast height
DEIR – Draft Environmental Impact report
DFG – California Department of Fish and Game
DF&DLWR – Dutch Flat and Donner Lake wagon Road
DFPZ – Defensible Fuel Profile Zone
DLRP – California Dept of Conservation, Division of Land Resource Protection
DMSP – Donner Memorial State Park
DOE – Determination of Eligibility
DOI – Department of the Interior
DPR – California Department of Parks and Recreation
DTSC – California Department of Toxic Substances Control
DWR – California Department of Water Resources
EIR – Environmental Impact Report
ERSL – Eastern Regional Sanitary Landfill
ESA – Endangered Species Act
FEMA – Federal Emergency Management Agency
FHWA – Federal Highway Administration
FMMP – Farmland Mapping and Monitoring Program
FOE – Finding of Effects
FRSH – Fresh Water Replenishment
ft^2 — square foot
GLO – General Land Office
GP – General Plan
GWR – Groundwater Recharge
H&SC – California Health & Safety Code
H_2S – hydrogen sulfide
ha – hectare
HSC – High Sierra Crossings
IS – Initial study
ISTEA – Intermodal Surface Transportation Enhancement Act
LRWQCB – Lahontan Regional Water Quality Control Board
LNG – Liquified Natural Gas
LOS – Level of Service
M^3 – cubic meter
MBTA – Migratory Bird Treaty Act
MCAB – Mountain Counties Air Basin
MGR – Migration of Aquatic Organisms
MMRP – Mitigation Monitoring and Reporting Plan/Program
MOA – Memorandum of Agreement
mph – miles per hour
MRF – Material Recovery Facility
MUN – Municipal and Domestic Supply
NAAQS – National Ambient Air Quality Standards
NAGPRA – Native American Graves Protection Act
NAHC – Native American Heritage Commission
NAV – Navigation
NCGP – Nevada County General Plan
NHPA – National Historic Preservation Act

NOx – Nitrogen Oxide
NOC – Notice of Completion
NO_2 – nitrogen dioxide
NOD – Notice of Determination
NOP – Notice of Preparation
NPDES – National Pollutant Discharge Elimination System
NPS – National Park Service
NRCS – Natural Resource Conservation Service
NRHP – National Register of Historic Places
NSAPCD – Northern Sierra Air Pollution Control District
NSAQMD – Northern Sierra Air Quality Management District
NWP – Nationwide permit
O_3 – ozone
OHP – Office of Historic Preservation
OPR – Governor's Office of Planning and Research
OSHA – Occupational Safety and Health Administration
Pb – lead
PCAPCD – Placer County Air Pollution Control District
PCWQCA – Placer County Water Quality Control Agency
PD – Police Department
PF – Public Facilities District
PIES – Town of Truckee Public Improvement and Engineering standards
PM – Particulate Matter
$PM_{2.5}$ – particles with an aerodynamic diameter of 2.5 microns or less
PM_{10} – Particulate Matter with an aerodynamic diameter of 10 microns or less
PMAQMP – Particulate Matter Air Quality Management Plan
POST – Peace Officers Standards and Training
PRC – Public Resources Code
PUB – Public Land Use Classification
PUC – California Public Utilities Commission
RACM – Reasonably Available Control Measures
RARE – Rare, Threatened, or Endangered Species
REC – Recreation zone
REC-1 – Water Contact Recreation
REC-2 – Non-Contact Water Recreation
ROG – reactive organic gases
RV – Recreational Vehicle
RWQCB – Regional Water Quality Control Board
SCH – State Clearinghouse
SCS – Soil Conservation Service
SFBAAB – San Francisco Bay Area Air Basin
SHPO – State Historic Preservation Officer
SJVAB – San Joaquin Valley Air Basin
SO_4 – sulfates
SO_2 – sulfur dioxide
SOx – sulfur oxide gases
SP – State Park
SPRP – Spill Prevention Response Plan
SPWN – Spawning, Reproduction and/or Early Development for Fish
SWG – Southwest Gas

SWPPP – Stormwater Pollution Prevention Plan
SWRCB – State Water Resources Control Board
TART – Tahoe Area Regional Transit
TDC – Truckee Development Code
TDPUD – Truckee-Donner Public Utilities District
TEA – Transportation Enhancement Act
TFPD – Truckee Fire Protection District
THP – Timber Harvest Plan
THPO – Tribal Historic Preservation Officer
TMWA – Truckee Meadow Water Agency
TSD – Truckee Sanitary District
TTD – Tahoe Truckee Disposal
TTSA – Tahoe-Truckee Sanitation Agency
TTUSD – Tahoe Truckee Unified School District
USACE – United States Army Corps of Engineers
U.S.C. – United States Code
USDA – United States Department of Agriculture
USEPA – United States Environmental Protection Agency
USFWS – United States Fish and Wildlife Service
USGS – United State Geologic Survey
UST – Underground Fuel Storage Tank
VC – vinyl chloride
VOC – Volatile Organic Compounds
VRP – visibility-reducing particles
WILD – Wildlife Habitat

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

NOTICE OF PREPARATION

High Sierra Crossings Museum at Donner Memorial State Park Environmental Impact Report

The California Department of Parks and Recreation (DPR) is the Lead Agency for the proposed High Sierra Crossings Museum project at Donner Memorial State Park, as defined by the California Environmental Quality Act (CEQA), and is preparing a Draft Environmental Impact Report (EIR) for the project. As DPR is proposing significant changes to the project proposal which was originally evaluated in an EIR finalized April 12, 2005 (SCH #2004082055), we are preparing a subsequent EIR which includes all relevant information from the prior draft and final reports, and evaluates the potential impacts of siting the new facility near the existing Emigrant Trail Museum.

Please inform us of the views of your agency as to the scope and environmental requirements, germane to your agency's statutory responsibilities in connection with the proposed project. A brief project description and list of anticipated environmental effects are included with this notice.

Your response must be sent to the address below no later than thirty (30) days after this notice is filed with the Governor's Office of Planning and Research/State Clearinghouse (December 1, 2005). Please provide us with the name, phone number, and email address of a contact person for your agency as well.

DEPARTMENT OF PARKS AND RECREATION - CONTACT PERSON

Susan Wilcox, Environmental Coordinator
Northern Service Center
One Capital Mall - Suite 500
Sacramento, California 95814
Telephone: (916) 445-8870 Fax: (916) 445-8883
Email: CEQANSC@parks.ca.gov (include “HSCM NOP” in subject line)

PROJECT DESCRIPTION

The project site is located in Donner Memorial State Park, which is within the city limits of Truckee, in Nevada County, California. It can be reached from the main park entrance on Donner Pass Road (old Highway 40), which parallels Highway 80 East. The proposed site covers approximately five acres, including the existing Emigrant Trail Museum parking lot.

The proposed High Sierra Crossings Museum would have approximately 10,000 square feet of floor space. The structure would be constructed to satisfy current seismic safety codes, access compliance regulations (American with Disabilities Act), life safety and fire standards, and energy conservation regulations and guidelines.

The building would provide room for the following functions:

- Lobby and Reception area
- Exhibit area
- Multi-purpose area
- Gift shop
- Storage area(s)
- Restrooms
- Entrance foyer
- Mechanical room
- Offices
- Possible connection (e.g. plaza, walkway) to Emigrant Trail Museum building

Associated site work would include:

- Entrance walk with connections to existing/proposed walks, trails and parking area(s)
- Outdoor interpretive exhibits, directional signs
- Reconfigure existing and new parking
- Reconfigure road entrance
- Appropriate landscape planting and site enhancements

Utilities, consisting of water, sewer, gas, electric power, and communication lines, would be installed to the facility from existing providers to the park. All the utility lines would be underground. A packaged pump station with duplex grinder pumps would be installed near the Visitor Center building, with connections to the Truckee Sanitary District's main sewage line on Donner Pass Road.

DPR anticipates that major funding for this project would be provided through a Transportation Enhancement Act Grant, in a program administered in California by Caltrans and the Federal Highway Administration.

POSSIBLE EFFECTS AND MITIGATIONS

Construction activities would temporarily impact site aesthetics, air quality, local traffic patterns, and noise levels in the area of the project site. These impacts would be reduced with the use of operational Best Management Practices, including dust and emission controls, seasonal noise restrictions, and mufflers and noise damping equipment, consistent with local, state, and federal standards and regulations. In addition, work would generally be restricted to 8-5, Monday through Friday, except as necessary to address emergencies or unexpected work conditions, such as extreme weather. Avoidance Conditions and Mitigation Measures will be developed to avoid or reduce potentially significant effects on drainage patterns; wetlands; water quality; and soils, and to protect range and habitat of fish or wildlife species and special status plant communities. The results of archaeological testing at the proposed project site will form the basis for developing avoidance and mitigation measures to protect significant cultural resources. An archaeological monitoring plan and provisions for handling unanticipated discoveries during construction will be developed for the project in compliance with CEQA and the National Historic Preservation Act.

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Date: **February 9, 2006**

Subject: **NOTICE OF AVAILABILITY OF A DRAFT ENVIRONMENTAL IMPACT REPORT (EIR) FOR THE PROPOSED HIGH SIERRA CROSSINGS MUSEUM PROJECT**

The California Department of Parks and Recreation (DPR) has directed the preparation of and intends to adopt an Environmental Impact Report (EIR) for the proposed project, in compliance with the California Environmental Quality Act (CEQA) and State CEQA Guidelines. DPR is the lead agency for the proposed project under CEQA.

Project Location: Donner Memorial State Park
Town of Truckee, Nevada County, California

Description of the Proposed Project:
The project site is located in Donner Memorial State Park, which is within the city limits of Truckee, in Nevada County, California. It can be reached from the main park entrance on Donner Pass Road (old Highway 40), which parallels Highway 80 East. The proposed site covers approximately five acres, including the existing Emigrant Trail Museum parking lot.

The proposed High Sierra Crossings Museum would have approximately 10,000 square feet of floor space. The structure would be constructed to satisfy current seismic safety codes, access compliance regulations (American with Disabilities Act), life safety and fire standards, and energy conservation regulations and guidelines.

The building would provide room for the following functions:

- Lobby and Reception area
- Exhibit area
- Multi-purpose area
- Gift shop
- Storage area(s)
- Restrooms
- Entrance foyer
- Mechanical room
- Offices
- Possible connection (e.g. plaza, walkway) to Emigrant Trail Museum building

Associated site work would include:

- Entrance walk with connections to existing/proposed walks, trails and parking area(s)
- Outdoor interpretive exhibits, directional signs
- Reconfigure existing and new parking
- Reconfigure road entrance
- Appropriate landscape planting and site enhancements
- Installation of underground water, sewer, gas, electric power, and communication lines
- to the facility from existing providers to the park.

DPR anticipates that major funding for this project would be provided through a Transportation Enhancement Act Grant, in a program administered in California by Caltrans and the Federal Highway Administration.

Public Review Period:
The EIR is being circulated for public review and comment for a period of 45 days, beginning February 10, 2006. Your views and comments on this project are welcomed. Written comments should be submitted to the following address:

Environmental Coordinator
Northern Service Center
One Capital Mall - Suite 500
Sacramento, California 95814

Telephone: (916) 445-8870
Fax: (916) 445-8883
Email: CEQANSC@parks.ca.gov (include "HSCM DEIR" in subject line)

All comments must be in writing and may be submitted by regular mail or email to the address indicated above, or by fax at (916) 445-8883; Attn: CEQANSC/HSCM. Submissions must be postmarked or received by fax no later than March 27, 2005. The originals of any faxed document must be received by regular mail within ten working days following the deadline for comments, along with proof of successful fax transmission during the designated comment period. Emailed submissions must include the full name and mailing address. Comments received during the public review period will become part of the public record and will be included in the final EIR.

Copies of the EIR may be reviewed at the following locations during normal business hours:

Sierra District Headquarters California Department of Parks & Recreation
7360 West Lake Blvd.
Tahoma, California 96142

Donner Memorial State Park Emigrant Trails Museum
12593 Donner Pass Road
Truckee, California 96161

Nevada County Library - Truckee Branch
10031 Levone Avenue
Truckee, California 96161

Northern Service Center
California Department of Parks & Recreation
One Capital Mall – Suite 410
Sacramento, California 95814

California State Parks Internet Site:
(CEQA Notices/Northern California/Nevada County/Donner Memorial SP)
http://www.parks.ca.gov/default.asp?page_id=981

State of California – The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

NOTICE OF DETERMINATION

TO: State Clearinghouse
Office of Planning and Research
P.O. Box 3044
Sacramento, California 95812-3044

FROM: Department of Parks and Recreation
Acquisition and Development Division
P.O. Box 942896
Sacramento, California 94296-0001

SUBJECT: Filing of a Notice of Determination in compliance with Section 21108 of the Public Resources Code.

STATE CLEARINGHOUSE NUMBER: 2004082055

PROJECT TITLE: High Sierra Crossings Museum

CONTACT: Environmental Coordinator
Northern Service Center
DPR, One Capitol Mall, Suite 500
Sacramento, CA 95814

EMAIL: CEQANSC@parks.ca.gov

PROJECT LOCATION: Donner Memorial State Park, Nevada County

PROJECT DESCRIPTION: Construction of a new museum/visitor center to introduce the public to the natural features and cultural history of Donner Memorial State Park and the surrounding area and replace the existing Emigrant Trail Museum. Associated site work may include a reconfigured main park entrance, expanded parking area and landscape improvements, and additions/improvements to outdoor interpretive exhibits, walks, and signage.

This is to advise that the California Department of Parks and Recreation has approved the above project on April 12, 2005, and has made the following determinations regarding the above described project:

1. ☐ The project will not have a significant effect on the environment.
   ☒ The project will have a significant effect on the environment.
2. ☒ An Environmental Impact Report was prepared and certified for this project pursuant to the provisions of CEQA.
   ☐ A Negative Declaration was prepared for this project, pursuant to the provisions of CEQA.
3. Mitigation measures ☒ were ☐ were not made a condition of the approval of the project. Mitigation measures incorporated into the project reduce the following potentially significant environmental effects to a less-than-significant level:
   - Degrade the quality of the environment: disrupt established drainage patterns; degrade water quality; increase siltation, directional runoff, and erosion;
   - Reduce the number or restrict the range of a the following California Species of Special Concern: Cooper's hawk, northern goshawk, and white-headed woodpecker.
4. A Mitigation reporting or monitoring plan ☒ was ☐ was not adopted for this project.
5. A Statement of Overriding Considerations ☒ was ☐ was not adopted for this project.

   - The proposed project would have the potential to eliminate important examples of major periods of California history or prehistory by disturbing the integrity of significant archaeological features and/or artifacts. Although unlikely, disturbance of buried human remains could result from subsurface work in the project site or its alternatives.

- Should the project activities result in exposure of human remains, their removal would constitute a significant irreversible environmental change.
- Mitigation measures incorporated into the project would reduce the potential effects of the removal of human remains and any associated artifacts to the greatest extent feasible.
- The proposed project area is known to contain archaeological resources that could be historically significant.
- Proposed project activities could result in inadvertent impacts to these resources.
- The significance of the resources cannot be determined at this time.
- It is not know whether any potential impact can be mitigated to a less than significant level. If mitigable, it is not known if the required mitigations would be feasible or enforceable, as defined under CEQA.

6. Findings ☒ were ☐ were not made pursuant to the provisions of CEQA.

This is to certify that copies of the final EIR with comments and responses and record of project approval, may be reviewed at the following locations during normal business hours:

Sierra District Headquarters California Department of Parks & Recreation
7360 West Lake Blvd.
Tahoma, California 96142

Donner Memorial State Park Emigrant Trails Museum
12593 Donner Pass Road
Truckee, California 96161

Nevada County Library - Truckee Branch
10031 Levone Avenue
Truckee, California 96161

Northern Service Center
California Department of Parks & Recreation
One Capital Mall – Suite 410
Sacramento, California 95814

California State Parks Internet Site:
(CEQA Notices/Northern California/Nevada County/Donner Memorial SP)
http://www.parks.ca.gov/default.asp?page_id=981

_____

Stephen R. Lehman Date
Deputy Director
Acquisition and Development Division

Accipiter cooperii

Cooper's hawk

Element Code: ABNKC12040

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5
State: S3

Other Lists
CDFG Status: SC

Habitat Associations
General: (NESTING) WOODLAND, CHIEFLY OF OPEN, INTERRUPTED OR MARGINAL TYPE.
Micro: NEST SITES MAINLY IN RIPARIAN GROWTHS OF DECIDUOUS TREES, AS IN CANYON BOTTOMS ON RIVER FLOOD-PLAINS; ALSO, LIVE OAKS.

Occurrence No. 42 **Map Index:** 13736 **EO Index:** 27343

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Increasing
Main Source: BEEDY, E. 1984 (OBS)

Dates Last Seen
Element: 1982-XX-XX
Site: 1982-XX-XX
Record Last Updated: 1995-12-12

Quad Summary: NORDEN (3912033/555D)
County Summary: PLACER

Lat/Long: 39.25434º / -120.33493º
UTM: Zone-10 N4348387 E729961
Radius: 1/5 mile
Elevation: 6,400 ft

Mapping PrecisionNON-SPECIFIC
Symbol Type:POINT

Township: 16N
Range: 15E
Section: 08 **Qtr:** NW
Meridian: M

Location: 500 M SOUTH OF CEDAR CREEK, UPSTREAM FROM THE CEDARS.
Location Detail: ONE PAIR NESTED IN A DENSE GROVE OF WHITE FIR (ATYPICAL HABITAT) FOR AT LEAST TWO YEARS (1980-82).
Threat: SOME RECEATIONAL AND RESEARCH USE.
Owner/Manager: PVT-NORTH FORK ASSOC

Accipiter gentilis

northern goshawk

Element Code: ABNKC12060

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5
State: S3

Other Lists
CDFG Status: SC

Habitat Associations
General: (NESTING) WITHIN AND IN VICINITY OF CONIFEROUS FOREST. USES OLD NESTS, AND MAINTAINS ALTERNATE SITES.
Micro: USUALLY NESTS ON NORTH SLOPES, NEAR WATER. RED FIR, LODGEPOLE PINE, JEFFREY PINE, AND ASPENS ARE TYPICAL NEST TREES.

Occurrence No. 281 **Map Index:** 13679 **EO Index:** 26514

Dates Last Seen
Element: 1984-XX-XX
Site: 1984-XX-XX
Record Last Updated: 2000-02-14

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Increasing
Main Source: BEEDY, E. 1984 (OBS)

Quad Summary: NORDEN (3912033/555D)
County Summary: PLACER

Lat/Long: 39.26490º / -120.35993º
UTM: Zone-10 N4349496 E727769
Radius: 1/5 mile
Elevation: 5,960 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 16N
Range: 14E
Section: 12 **Qtr:** SW
Meridian: M

Location: 250 M EAST OF THE SODA SPRINGS-BAKER RANCH RD, NEAR HUNTS CREEK, 1 MI NW OF THE CEDARS.

Ecological: HABITAT IS DENSE MIXED CONIFER FOREST WITH TALL CANOPY AND OPEN AIRSPACE BENEATH. AN OPEN MEADOW FOR FORAGING IS LOCATED APPROXIMATELY 100 M FROM NEST SITE.

General: TWO ADULTS WERE OBSERVED AND NEST WAS FOUND. LAND USE: RESEARCH AND RECREATION.

Owner/Manager: PVT-NORTH FORK ASSOC

Occurrence No. 307 **Map Index:** 33581 **EO Index:** 29718

Dates Last Seen
Element: 1997-XX-XX
Site: 1999-08-03
Record Last Updated: 2000-02-16

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: RICHTER, D. 1996 (OBS)

Quad Summary: TRUCKEE (3912032/554C), NORDEN (3912033/555D)
County Summary: PLACER

Lat/Long: 39.29323º / -120.24587º
UTM: Zone-10 N4352934 E737515
Area: 657.6 ac
Elevation: 7,000 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 17N
Range: 16E
Section: 30 **Qtr:** XX
Meridian: M

Location: 2 MILES SOUTH OF DONNER MEMORIAL STATE PARK, SOUTH OF DONNER LAKE

Location Detail: NEST IS LOCATED AGAINST THE BOLE IN A RED FIR SNAG (74-FT TALL, 19-INCH DBH).

Ecological: NEST TREE IS A RED FIR WITHIN A FIR STAND (RFR 4D) WITH NUMEROUS SNAGS; NO UNDERSTORY, LIGHT REGENERATION OCCURRING. NEST IS SHELTERED BY 2 WHITE FIRS (10- AND 16-INCH DBH), WITH BRANCHES COVERING NEST IN NORTH HEMISPHERE.

Threat: THREATENED BY LOGGING.

General: TERRITORY #26 (95-PLA-1). 1 FLEDGLING OBSERVED ON 1 AUG 1995. NEST WAS INACTIVE IN JUNE 1996, BUT TERRITORY WAS PROBABLY ACTIVE (GOSHAWKS OBSERVED). WHITEWASH INDICATED NEST WAS ACTIVE IN 1997. NEST INACTIVE, 1998-99.

Owner/Manager: PVT

Occurrence No. 308 **Map Index:** 33582 **EO Index:** 26317

Dates Last Seen
Element: 1996-08-16
Site: 1999-08-13
Record Last Updated: 2000-02-16

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: RICHTER, D. 1996 (OBS)

Quad Summary: TRUCKEE (3912032/554C)
County Summary: PLACER

Lat/Long: 39.26429º / -120.18946º
UTM: Zone-10 N4349871 E742481
Area: 662.9 ac
Elevation: 6,450 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 16N
Range: 16E
Section: 03 **Qtr:** XX
Meridian: M

Location: SAWTOOTH RIDGE, 4 MILES SW OF TRUCKEE-TAHOE AIRPORT.

Location Detail: NEST IS LOCATED ON A MISTLETOE BROOM IN A RED FIR (122-FT TALL, 28-INCH DBH). NEST TREE IS AT THE EDGE OF A CLEARED AREA, IMMEDIATELY ADJACENT TO A SKID TRAIL.

Ecological: NEST TREE IS A RED FIR, DEVOID OF BRANCHES ON THE SW SIDE UNTIL ABOVE NEST WITHIN RED FIR FOREST (WHR TYPE = RFR 4D). 64% CANOPY WITHIN 0.1 ACRE OF NEST TREE. 28% SLOPE; NE SLOPE ASPECT. 10% OF GROUND COVERED WITH BRUSH AND CLASS 1 FIRS.

Threat: THREATENED BY LOGGING.

General: TERRITORY #27 (95-PLA-2). 1 FLEDGLING CALLED IN ON 9 AUG 1995; NEST MEASUREMENTS TAKEN. 1 ADULT OBSERVED DEFENDING ON 13 JUNE 1996; 1 FLEDGLING CALLED IN ON 16 AUG 1996. REMNANT NEST STILL PRESENT/INACTIVE, 1997-99.

Accipiter gentilis

northern goshawk

Element Code: ABNKC12060

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5
State: S3

Other Lists
CDFG Status: SC

Habitat Associations
General: (NESTING) WITHIN AND IN VICINITY OF CONIFEROUS FOREST. USES OLD NESTS, AND MAINTAINS ALTERNATE SITES.
Micro: USUALLY NESTS ON NORTH SLOPES, NEAR WATER. RED FIR, LODGEPOLE PINE, JEFFREY PINE, AND ASPENS ARE TYPICAL NEST TREES.

Owner/Manager: PVT

Occurrence No. 309 **Map Index:** 33583 **EO Index:** 17233

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: RICHTER, D. 1996 (OBS)

Dates Last Seen
Element: 1996-07-10
Site: 1999-08-12
Record Last Updated: 2000-02-14

Quad Summary: NORDEN (3912033/555D)
County Summary: PLACER

Lat/Long: 39.27847º / -120.28236º
UTM: Zone-10 N4351200 E734417
Area: 636.5 ac
Elevation: 6,500 ft

Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON

Township: 17N
Range: 15E
Section: 35 **Qtr:** XX
Meridian: M

Location: COLDSTREAM VALLEY, 1 MILE SW OF SPRR HORSESHOE BEND, 2.5 MILES SOUTH OF DONNER LAKE.

Location Detail: TWO NEST SITES FOUND WITHIN THIS TERRITORY: ONE NEST (94-PLA-04) IS LOCATED ON A MISTLETOE BROOM IN A RED FIR (122-FT TALL, 33-INCH DBH); THE OTHER NEST (93-PLA-03) IS FOUND AGAINST THE BOLE OF A RED FIR (UNKNOWN HEIGHT/DBH).

Ecological: NEST TREE IS RED FIR (BOTH NEST SITES). ONE SITE (93-PLA-03) IS SURROUNDED BY LODGEPOLE STAND; THE OTHER (94-PLA-04) IS WITHIN RED FIR STAND (WHR TYPE = RFR 4D) THAT EXHIBITS OLD GROWTH FEATURES, WITH WIDE STEM SPACING & MISTLETOE BROOMS.

Threat: THREATENED BY LOGGING.

General: TERRITORY #9 (93-PLA-3, 94-PLA-4). ADULT BROODING ON 6/28/93; 2 DEAD EGGS FOUND IN NEST. 2 NESTLINGS OBSERVED BRANCHING AT SECOND NEST SITE (94-PLA-04) ON 8/2/94; BOTH FLEDGED. NESTING ATTEMPTS FAILED, 1995-96. INACTIVE IN 1997 & 1999.

Owner/Manager: PVT

Aplodontia rufa californica

Sierra Nevada mountain beaver

Element Code: AMAFA01013

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5T3T4
State: S3?

Other Lists
CDFG Status: SC

Habitat Associations
General: DENSE GROWTH OF SMALL DECIDUOUS TREES & SHRUBS, WET SOIL, & ABUNDANCE OF FORBS IN THE SIERRA NEVADA & EAST SLOPE.
Micro: NEEDS DENSE UNDERSTORY FOR FOOD & COVER. BURROWS INTO SOFT SOIL. NEEDS ABUNDANT SUPPLY OF WATER.

Occurrence No. 9 **Map Index:** 30596 **EO Index:** 8123

Dates Last Seen
Element: 1988-06-16
Site: 1988-06-16
Record Last Updated: 1994-12-14

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BEIER, P. 1988 (PERS)

Quad Summary: TRUCKEE (3912032/554C)
County Summary: PLACER

Lat/Long: 39.27775º / -120.21036º
UTM: Zone-10 N4351309 E740631
Area: 225.0 ac
Elevation: 6,500 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 17N
Range: 16E
Section: 32 **Qtr:** XX
Meridian: M

Location: CABIN CREEK.
Location Detail: PORTION OF CABIN CREEK FROM WESTERN EDGE OF SECTION 32 TO THE TRUCKEE RIVER.
Ecological: HABITAT IS A RIPARIAN ZONE DOMINATED BY ALNUS AND/OR SALIX SPP.
General: TWO POPULATIONS DETECTED IN 1985; 3 MALES AND 2 FEMALES TRAPPED 6/15-6/16/88.
Owner/Manager: USFS-TAHOE NF

Occurrence No. 10 **Map Index:** 30595 **EO Index:** 24296

Dates Last Seen
Element: 1988-06-14
Site: 1988-06-14
Record Last Updated: 1994-12-14

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BEIER, P. 1988 (PERS)

Quad Summary: TRUCKEE (3912032/554C)
County Summary: PLACER

Lat/Long: 39.28554º / -120.22315º
UTM: Zone-10 N4352140 E739501
Area: 209.8 ac
Elevation: 6,400 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 17N
Range: 16E
Section: 29 **Qtr:** S
Meridian: M

Location: UNNAMED CREEK NORTH OF CABIN CREEK.
Location Detail: PORTION OF UNNAMED CREEK BEGINNING IN SOUTHERN PART OF SECTION 29 AND CONTINUING TO THE TRUCKEE RIVER.
Ecological: HABITAT IS A RIPARIAN ZONE WITH ALNUS AND/OR SALIX SPP.
General: TWO POPULATIONS DETECTED IN 1985; 2 MALES AND 3 FEMALES TRAPPED 6/12-6/14/88.
Owner/Manager: USFS-TAHOE NF

Occurrence No. 11 **Map Index:** 30597 **EO Index:** 8122

Dates Last Seen
Element: 1985-XX-XX
Site: 1985-XX-XX
Record Last Updated: 1994-12-14

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BEIER, P. 1987 (PERS)

Quad Summary: TRUCKEE (3912032/554C)
County Summary: PLACER

Lat/Long: 39.27097º / -120.21660º
UTM: Zone-10 N4350540 E740116
Area: 144.2 ac
Elevation: 6,400 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 17N
Range: 16E
Section: 05 **Qtr:** XX
Meridian: M

Location: BRUSH CREEK.
Location Detail: BRUSH CREEK, FROM NORTHWEST 1/4 OF SECTION 5 TO THE TRUCKEE RIVER.
General: TWO POPULATIONS DETECTED IN 1985.
Owner/Manager: USFS-TAHOE NF

Aplodontia rufa californica

Sierra Nevada mountain beaver

Element Code: AMAFA01013

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5T3T4
State: S3?

Other Lists
CDFG Status: SC

Habitat Associations
General: DENSE GROWTH OF SMALL DECIDUOUS TREES & SHRUBS, WET SOIL, & ABUNDANCE OF FORBS IN THE SIERRA NEVADA & EAST SLOPE.
Micro: NEEDS DENSE UNDERSTORY FOR FOOD & COVER. BURROWS INTO SOFT SOIL. NEEDS ABUNDANT SUPPLY OF WATER.

Occurrence No. 12 **Map Index:** 30586 **EO Index:** 24298

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BEIER, P. 1987 (PERS)

Dates Last Seen
Element: 1985-XX-XX
Site: 1985-XX-XX
Record Last Updated: 1994-12-14

Quad Summary: NORDEN (3912033/555D)
County Summary: PLACER

Lat/Long: 39.29134º / -120.29552º
UTM: Zone-10 N4352595 E733239
Area: 161.5 ac
Elevation: 7,000 ft

Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON

Township: 17N
Range: 15E
Section: 27 **Qtr:** XX
Meridian: M

Location: EMIGRANT CANYON CREEK.
Location Detail: PORTION OF CREEK WITHIN SECTION 27.
General: ONE POPULATION DETECTED IN 1985.
Owner/Manager: USFS-TAHOE NF

Occurrence No. 13 **Map Index:** 30587 **EO Index:** 24297

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BEIER, P. 1987 (PERS)

Dates Last Seen
Element: 1985-XX-XX
Site: 1985-XX-XX
Record Last Updated: 1994-12-14

Quad Summary: NORDEN (3912033/555D)
County Summary: PLACER

Lat/Long: 39.28599º / -120.27838º
UTM: Zone-10 N4352046 E734735
Area: 326.4 ac
Elevation: 6,800 ft

Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON

Township: 17N
Range: 15E
Section: 34 **Qtr:** XX
Meridian: M

Location: COLD CREEK.
Location Detail: PORTION OF CREEK FROM SOUTHEAST 1/4 OF SECTION 28 TO THE SOUTHEAST 1/4 OF SECTION 26.
General: THREE POPULATIONS DETECTED IN 1985.
Owner/Manager: USFS-TAHOE NF

Bruchia bolanderi

Bolander's bruchia

Element Code: NBMUS13010

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G2G3	**CNPS List:** 2
State: None	**State:** S2.2	**R-E-D Code:** 2-2-2

Habitat Associations

General: LOWER MONTANE CONIFEROUS FOREST, MEADOWS AND SEEPS, UPPER MONTANE CONIFEROUS FOREST.

Micro: MOSS WHICH GROWS ON DAMP SOIL. THIS SPECIES HAS AN EPHEMERAL NATURE AND TAKES ADVANTAGE OF DISTURBED SITES. 1700-2800M.

Occurrence No. 3 **Map Index:** 45382 **EO Index:** 45382

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: NORRIS #86857 UNK HERB (HERB)

Dates Last Seen
Element: XXXX-XX-XX
Site: XXXX-XX-XX

Record Last Updated: 2001-05-17

Quad Summary: NORDEN (3912033/555D)
County Summary: NEVADA

Lat/Long: 39.34631º / -120.35381º
UTM: Zone-10 N4358548 E728032
Area: 214.1 ac
Elevation: 7,360 ft

Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON

Township: 17N
Range: 14E
Section: 12 **Qtr:** XX
Meridian: M

Location: CASTLE VALLEY, TAHOE NF.

Owner/Manager: USFS-TAHOE NF

Cryptochia excella

Kings Canyon cryptochian caddisfly

Element Code: IITRI11010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G1G2
State: S2

Other Lists
CDFG Status:

Habitat Associations
General: NARROWLY DISTRIBUTED IN COLD SPRINGS IN THE SIERRA NEVADA
Micro: RESTRICTED TO SPRING STREAM AND SOURCE

Occurrence No. 2 **Map Index:** 60330 **EO Index:** 60366

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ERMAN, N. 1990 (LIT)

Dates Last Seen
Element: 1982-XX-XX
Site: 1982-XX-XX
Record Last Updated: 2005-03-17

Quad Summary: NORDEN (3912033/555D)
County Summary: PLACER

Lat/Long: 39.26405º / -120.36488º
UTM: Zone-10 N4349389 E727344
Area: 389.4 ac
Elevation: 6,000 ft

Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON

Township: 16N
Range: 14E
Section: 11 **Qtr:** XX
Meridian: M

Location: ONION CREEK BASIN.
Location Detail: TAKEN FROM ONION SPRING 3. EXACT LOCATION OF SPRING NOT GIVEN IN PAPER; MAPPED ACCORDING TO FIG 1.
Threat: SHEEP GRAZING.
General: NOTED AS BEING RARE (4 OR LESS COLLECTED) AT THIS SITE.
Owner/Manager: UNKNOWN

Cypseloides niger

black swift

Element Code: ABNUA01010

Status
Federal: None
State: None

NDDB Element Ranks
Global: G4
State: S2

Other Lists
CDFG Status: SC

Habitat Associations
General: (NESTING) COASTAL BELT OF SANTA CRUZ & MONTEREY CO; CENTRAL & SOUTHERN SIERRA NEVADA; SAN BERNARDINO & SAN JACINTO MTNS.
Micro: BREEDS IN SMALL COLONIES ON CLIFFS BEHIND OR ADJ TO WATERFALLS IN DEEP CANYONS AND SEA-BLUFFS ABOVE SURF; FORAGES WIDELY

Occurrence No. 23 **Map Index:** 13671 **EO Index:** 25424

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: GOULD, G. 1986 (PERS)

Dates Last Seen
Element: 1956-06-27
Site: 1956-06-27
Record Last Updated: 1989-08-10

Quad Summary: NORDEN (3912033/555D), SODA SPRINGS (3912034/555C)
County Summary: NEVADA, PLACER

Lat/Long: 39.31629º / -120.36715º
UTM: Zone-10 N4355182 E726980
Radius: 1 mile
Elevation: 6,770 ft

Mapping PrecisionNON-SPECIFIC
Symbol Type:POINT

Township: 17N
Range: 14E
Section: 26 **Qtr:** XX
Meridian: M

Location: LAKE VAN NORDEN.

Ecological: RARE, LOCAL SUMMER RESIDENT OF MOUNTAIN FOOTHILL CANYONS WHICH ARRIVES IN MID-MAY FOR NESTING. NESTS ON CLIFFS BEHIND OR ADJACENT TO WATERFALLS. LAYS A SINGLE EGG PER SEASON.

General: ONE OBSERVED DURING NESTING SEASON; TAKEN FROM AMERICAN BIRDS 10(5):407.

Owner/Manager: USFS-TAHOE NF

Dendroica petechia brewsteri

yellow warbler

Element Code: ABPBX03018

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5T3?
State: S2

Other Lists
CDFG Status: SC

Habitat Associations
General: (NESTING) RIPARIAN PLANT ASSOCIATIONS. PREFERS WILLOWS, COTTONWOODS, ASPENS, SYCAMORES, & ALDERS FOR NESTING & FORAGING.
Micro: ALSO NESTS IN MONTANE SHRUBBERY IN OPEN CONIFER FORESTS.

Occurrence No. 61 **Map Index:** 13662 **EO Index:** 24906

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BEEDY, E. 1984 (OBS)

Dates Last Seen
Element: 1984-XX-XX
Site: 1984-XX-XX
Record Last Updated: 1995-12-12

Quad Summary: NORDEN (3912033/555D)
County Summary: PLACER

Lat/Long: 39.26684º / -120.36937º
UTM: Zone-10 N4349688 E726948
Radius: 1/5 mile
Elevation: 5,920 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 16N
Range: 14E
Section: 11 **Qtr:** NW
Meridian: M

Location: NEAR 3.5 MI SWITCH BACKS OF THE SODA SPRINGS-BAKER RANCH ROAD, ABOUT 3 MILES NORTWEST OF THE CEDARS.
Location Detail: 5-10 INDIVIDUALS BETWEEN 1973-1984. PROBABLE NESTING, CONTINUED PRESENCE OF SINGING MALES.
Ecological: HABITAT IS STEEP, ROCKY, HILLSIDE WITH MONTANE CHAPARRAL AND SCATTERED CONIFERS.
Owner/Manager: PVT-NORTH FORK ASSOC

Occurrence No. 67 **Map Index:** 13949 **EO Index:** 24901

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: CANTRELL, S. 1988 (OBS)

Dates Last Seen
Element: 1988-08-04
Site: 1988-08-04
Record Last Updated: 1989-08-10

Quad Summary: TRUCKEE (3912032/554C)
County Summary: NEVADA

Lat/Long: 39.32434º / -120.23742º
UTM: Zone-10 N4356410 E738139
Radius: 1/5 mile
Elevation: 5,900 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 17N
Range: 16E
Section: 18 **Qtr:** NE
Meridian: M

Location: IMMEDIATELY EAST OF DONNER LAKE, DONNER MEMORIAL STATE PARK.
Location Detail: BIRD OBSERVED FORAGING IN AREA.
Ecological: HABITAT IS VEGETATION MOSAIC OF QUAKING ASPEN STAND, MIXED CONIFER FOREST & SMALL AREA OF MONTANE CHAPARRAL SAGEBRUSH SCRUB. ALSO CLOSE PROXIMITY TO STREAM. MANY OTHER SPECIES OBSERVED.
Threat: FOOT TRAFFIC IN AREA.
Owner/Manager: DPR-DONNER MEMORIAL SP

Desmona bethula

amphibious caddisfly

Element Code: IITRI77010

Status
Federal: None
State: None

NDDB Element Ranks
Global: GNR
State: S1S3

Other Lists
CDFG Status:

Habitat Associations
General: MOSTLY SMALL FIRST ORDER STREAMS IN OPEN, WET MEADOWS. ALSO FOUND IN BEAVER PONDS & SECOND ORDER STREAMS.
Micro: FINAL INSTAR LARVAE LEAVE THE WATER AT NIGHT TO FEED ON RIPARIAN VEGETATION & RETURN TO WATER AT SUNRISE.

Occurrence No. 4 **Map Index:** 60330 **EO Index:** 60650

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: ERMAN, N. & D. 1990 (LIT)

Dates Last Seen
Element: 1982-XX-XX
Site: 1982-XX-XX
Record Last Updated: 2005-03-17

Quad Summary: NORDEN (3912033/555D)
County Summary: PLACER

Lat/Long: 39.26405º / -120.36488º
UTM: Zone-10 N4349389 E727344
Area: 389.4 ac
Elevation: 6,000 ft

Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON

Township: 16N
Range: 14E
Section: 11 **Qtr:** XX
Meridian: M

Location: ONION CREEK BASIN.
Location Detail: TAKEN FROM ONION SPRING 1. EXACT LOCATION OF SPRING NOT GIVEN IN PAPER; MAPPED ACCORDING TO FIG 1.
General: SPECIES WAS "RARE" AT THIS SITE.
Owner/Manager: UNKNOWN

Empidonax traillii

willow flycatcher

Element Code: ABPAE33040

Status
Federal: None
State: Endangered

NDDB Element Ranks
Global: G5
State: S1S2

Other Lists
CDFG Status:

Habitat Associations
General: (NESTING) INHABITS EXTENSIVE THICKETS OF LOW, DENSE WILLOWS ON EDGE OF WET MEADOWS, PONDS, OR BACKWATERS; 2000-8000 ELEV
Micro: REQUIRE DENSE WILLOW THICKETS FOR NESTING/ROOSTING. LOW, EXPOSED BRANCHES ARE USED FOR SINGING POSTS/HUNTING PERCHES.

Occurrence No. 26 **Map Index:** 42494 **EO Index:** 58271

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: DICKEY, D. 1915 (OBS)

Dates Last Seen
Element: 1915-07-03
Site: 1915-07-03
Record Last Updated: 2004-11-29

Quad Summary: TRUCKEE (3912032/554C)
County Summary: NEVADA, PLACER

Lat/Long: 39.33030º / -120.17954º
UTM: Zone-10 N4357225 E743108
Radius: 1 mile
Elevation: 6,500 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 17N
Range: 16E
Section: 11 **Qtr:** XX
Meridian: M

Location: TRUCKEE.
General: UCLA #24,575. 1 MALE DETECTED ON 3 JUL 1915.
Owner/Manager: UNKNOWN

Occurrence No. 111 **Map Index:** 45305 **EO Index:** 45305

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: WILLIAMS, B. 1996 (OBS)

Dates Last Seen
Element: 2004-07-03
Site: 2004-07-03
Record Last Updated: 2004-12-21

Quad Summary: TRUCKEE (3912032/554C)
County Summary: PLACER

Lat/Long: 39.29622º / -120.13791º
UTM: Zone-10 N4353555 E746817
Area: 16.4 ac
Elevation: 5,840 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 17N
Range: 17E
Section: 30 **Qtr:** NW
Meridian: M

Location: MARTIS CREEK, APPROX 0.5 MILE UPSTREAM FROM THE HIGHWAY 267, MARTIS CREEK LAKE NATIONAL RECREATION AREA
Location Detail: 1999: DETECTED NEAR TRANSMISSION LINE CROSSING.
Ecological: HABITAT CONSISTS OF WILLOW SCRUB RIPARIAN. SHALLOW GRADIENT STREAM BORDERED IN MOST CASE BY A BAND OF WILLOWS APPROX 15-20 FEET WIDE. BANKS OF STREAM STEEP IN SOME PLACE WITH EVIDENCE OF EROSION. YELLOW WARBLER NEST ALSO FOUND.
Threat: DOG USE IS VERY COMMON HERE, SEVERAL TO MANY PER DAY COME THROUGH THE MAIN HABITAT. EROSION/DESTABILIZATION OF WILLOWS.
General: 1 SINGING ADULT OBSERVED ON 28 JUL 1996. 2 ADULTS OBSERVED BY ANOTHER OBSERVER ON 26 JUN 1999. 2 BREEDING ADULTS DETECTED 3 JUL 2004.
Owner/Manager: DOD-COE

Occurrence No. 122 **Map Index:** 58869 **EO Index:** 58905

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: VALENTINE, B. 1991 (OBS)

Dates Last Seen
Element: 1991-06-11
Site: 1991-06-11
Record Last Updated: 2004-12-21

Quad Summary: NORDEN (3912033/555D)
County Summary: PLACER

Lat/Long: 39.31049º / -120.35172º
UTM: Zone-10 N4354577 E728329
Radius: 2/5 mile
Elevation: 6,800 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 17N
Range: 14E
Section: 25 **Qtr:** XX
Meridian: M

Location: MEADOW UPSTREAM OF LAKE VAN NORDEN.
Ecological: HABITAT CONSISTS OF WILLOWS ALONG MARGIN OF A LARGE OPEN MEADOW. BETTER APPEARING HABITAT LOCATED AT SOUTH EDGE OF MEADOW WHERE STREAM FLOWS THROUGH WILLOWS.
Threat: GRAZING, RECREATION, MODIFICATION OF WATER RESOURCE FACILITY.
General: 1 PAIR OF ADULTS OBSERVED ON 11 JUN 1991. NESTING NOT CONFIRMED, BUT BEHAVIOR INDICATED NESTING.
Owner/Manager: UNKNOWN

Epilobium oreganum

Oregon fireweed

Element Code: PDONA060P0

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G2	**CNPS List:** 1B
State: None	**State:** S2.2	**R-E-D Code:** 2-2-2

Habitat Associations

General: BOGS AND FENS, MEADOWS, LOWER MONTANE CONIFEROUS FOREST, UPPER MONTANE CONIFEROUS FOREST.

Micro: IN AND NEAR SPRINGS AND BOGS; AT LEAST SOMETIMES ON SERPENTINE. 500-2610M.

Occurrence No. 40 **Map Index:** 50290 **EO Index:** 50290

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: TRUE, G. 1973 (PERS)

Dates Last Seen
Element: XXXX-XX-XX
Site: XXXX-XX-XX
Record Last Updated: 2003-02-24

Quad Summary: NORDEN (3912033/555D)
County Summary: NEVADA, PLACER

Lat/Long: 39.31751º / -120.26613º
UTM: Zone-10 N4355576 E735686
Area: 104.5 ac
Elevation: 6,000 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 17N
Range: 15E
Section: 13
Meridian: M
Qtr: XX

Location: DONNER LAKE, SOUTH SHORE.

Location Detail: EXACT LOCATION UNKNOWN, MAPPED AS BEST GUESS ALONG SOUTH SHORE OF DONNER LAKE AT 6000' ELEVATION.

General: ONLY SOURCE OF INFORMATION IS LOCATION MENTIONED BY TRUE. NEEDS FIELDWORK FOR CONFIRMATION OF SITE AND MORE PRECISE LOCALITY DATA.

Owner/Manager: UNKNOWN

Occurrence No. 43 **Map Index:** 50293 **EO Index:** 50293

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: TRUE, G. 1973 (PERS)

Dates Last Seen
Element: XXXX-XX-XX
Site: XXXX-XX-XX
Record Last Updated: 2003-02-24

Quad Summary: NORDEN (3912033/555D)
County Summary: NEVADA

Lat/Long: 39.33638º / -120.34737º
UTM: Zone-10 N4357462 E728620
Area: 66.7 ac
Elevation: 7,200 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POLYGON
Township: 17N
Range: 14E
Section: 13
Meridian: M
Qtr: XX

Location: UHLEN VALLEY, ON UPPER CASTLE CREEK, NEAR I-80.

Location Detail: EXACT LOCATION UNKNOWN. MAPPED BY CNDDB AT 7200' ELEVATION ON UPPER CASTLE CREEK NEAR INTERSTATE 80 WITHIN UHLEN VALLEY.

General: ONLY SOURCE OF INFORMATION IS LOCATION MENTIONED BY TRUE. NEEDS FIELDWORK FOR CONFIRMATION OF SITE.

Owner/Manager: UNKNOWN

Erigeron miser

starved daisy

Element Code: PDAST3M2K0

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G2	**CNPS List:** 1B
State: None	**State:** S2.3	**R-E-D Code:** 2-1-3

Habitat Associations

General: UPPER MONTANE CONIFEROUS FOREST.

Micro: ROCKY, GRANITIC OUTCROPS. 1755-2260M.

Occurrence No. 4 **Map Index:** 26440 **EO Index:** 3532

Dates Last Seen
Element: 1881-08-02
Site: 1881-08-02
Record Last Updated: 1995-04-19

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JONES #2606 CAS, UC (HERB)

Quad Summary: NORDEN (3912033/555D), SODA SPRINGS (3912034/555C)
County Summary: NEVADA, PLACER

Lat/Long: 39.32452º / -120.37977º
UTM: Zone-10 N4356064 E725866
Radius: 3/5 mile
Elevation: 7,000 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 17N
Range: 14E
Section: 23 **Qtr:** W
Meridian: M

Location: SODA SPRINGS.

General: ONLY SOURCE OF INFORMATION IS 1881 COLLECTION BY JONES (#2606, CAS #154627 UC #373219). ORIGINAL LABEL ERIGERON ANNOTATED TO E. MISER BY NESOM IN 1992.

Owner/Manager: UNKNOWN

Occurrence No. 8 **Map Index:** 13701 **EO Index:** 3185

Dates Last Seen
Element: 1877-09-XX
Site: 1877-09-XX
Record Last Updated: 1995-03-16

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: NESOM, G. 1992 (LIT)

Quad Summary: NORDEN (3912033/555D)
County Summary: NEVADA

Lat/Long: 39.36541º / -120.34923º
UTM: Zone-10 N4360679 E728365
Radius: 1/5 mile
Elevation: 9,000 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 17N
Range: 14E
Section: 01 **Qtr:** SE
Meridian: M

Location: SUMMIT OF CASTLE PEAK (FORMERLY MT. STANFORD).

General: ORIGINAL DESCRIPTION OF LOCATION OF LOCATION IS SUMMIT OF MT. STANFORD. APPARENTLY THE PEAK WAS RENAMED CASTLE PEAK IN THE LATE 1800'S OR EARLY 1900'S.

Owner/Manager: UNKNOWN

Occurrence No. 9 **Map Index:** 31193 **EO Index:** 3184

Dates Last Seen
Element: 1994-07-22
Site: 1994-07-22
Record Last Updated: 1995-03-16

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BAILEY, D. 1994 (OBS)

Quad Summary: NORDEN (3912033/555D)
County Summary: NEVADA

Lat/Long: 39.34633º / -120.33917º
UTM: Zone-10 N4358587 E729294
Area: 5.2 ac
Elevation: 7,300 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 17N
Range: 15E
Section: 05 **Qtr:** SW
Meridian: M

Location: 0.8 AIR MILE WSW OF SUMMIT LAKE.

Location Detail: ALONG CASTLE PASS TRAIL APPROXIMATELY 1/8 MILE FROM ITS JUNCTION WITH PACIFIC CREST TRAIL WHERE A ROCK OUTCROP CROSSES THE TRAIL. PLANTS ARE 200 YDS UP THE OUTCROP AND SCATTERED THROUGHOUT THE AREA.

Ecological: ASSOCIATED WITH PENSTEMON NEWBERRYII AND QUERCUS VACCINIFOLIA.

Threat: POSSIBLE THREATS FROM ROCK CLIMBERS, HIKERS AND TRAIL CONSTRUCTION.

General: 20+ PLANTS OBSERVED IN 1994.

Owner/Manager: PVT

Erigeron miser

starved daisy

Element Code: PDAST3M2K0

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G2	**CNPS List:** 1B
State: None	**State:** S2.3	**R-E-D Code:** 2-1-3

Habitat Associations

General: UPPER MONTANE CONIFEROUS FOREST.

Micro: ROCKY, GRANITIC OUTCROPS. 1755-2260M.

Occurrence No. 10 **Map Index:** 31196 **EO Index:** 3183

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HOWELL #18487 CAS #312154 (HERB)

Dates Last Seen
Element: 1943-07-17
Site: 1943-07-17
Record Last Updated: 1995-05-16

Quad Summary: NORDEN (3912033/555D)
County Summary: NEVADA, PLACER

Lat/Long: 39.32885º / -120.34907º
UTM: Zone-10 N4356622 E728498
Radius: 1 mile
Elevation: 7,000 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 17N
Range: 14E
Section: 24 **Qtr:** NE
Meridian: M

Location: BOREAL RIDGE, WEST SIDE OF DONNER PASS, NEAR NORDEN.

General: ONLY SOURCE OF INFORMATION IS 1943 COLLECTION BY HOWELL (#18487 CAS #312154). ANNOTATED BY CRONQUIST IN 1943, STROTHER IN 1979 AND NESOM IN 1992.

Owner/Manager: UNKNOWN

Occurrence No. 11 **Map Index:** 31194 **EO Index:** 3182

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: JORGENSEN #523 DS #313357 (HERB)

Dates Last Seen
Element: 1944-07-23
Site: 1944-07-23
Record Last Updated: 1995-05-16

Quad Summary: NORDEN (3912033/555D)
County Summary: NEVADA

Lat/Long: 39.33234º / -120.32458º
UTM: Zone-10 N4357071 E730598
Radius: 1/5 mile
Elevation: 7,200 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 17N
Range: 15E
Section: 09 **Qtr:** SW
Meridian: M

Location: NEAR FLORA LAKE, NEAR NORDEN.

Ecological: PLANTS FOUND ON BARE GRANITE ROCK.

General: ONLY SOURCE OF INFORMATION IS 1944 COLLECTION BY JORGENSEN (#523 CS #313357). ANNOTATED BY STROTHER IN 1979 AND NESOM IN 1992.

Owner/Manager: UNKNOWN

Occurrence No. 12 **Map Index:** 31195 **EO Index:** 3181

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BAILEY, D. 1994 (OBS)

Dates Last Seen
Element: 1994-07-22
Site: 1994-07-22
Record Last Updated: 2000-03-02

Quad Summary: NORDEN (3912033/555D)
County Summary: NEVADA, PLACER

Lat/Long: 39.31771º / -120.32469º
UTM: Zone-10 N4355447 E730636
Area: 13.5 ac
Elevation: 7,100 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 17N
Range: 15E
Section: 16 **Qtr:** SW
Meridian: M

Location: IN THE VICINITY OF DONNER PASS, ABOUT 0.9 MILE NORTHWEST OF DONNER PEAK, TAHOE NATIONAL FOREST.

Location Detail: 3 COLONIES:NW COLONY BETWEEN OLD HWY 40 AND PACIFIC CREST TRAIL FOR ABOUT 200 YDS; NE COLONY AT THE KNOLL DUE SOUTH OF SUMMIT BRIDGE ON OLD HWY 40; SW COLONY ON LAKE MARY ROAD IN CRACKS IN GRANITIC ROCK.

Ecological: ASSOCIATED WITH PENSTEMON NEWBERRYI, ARCTOSTAPHYLOS NEVADENSIS, QUERCUS VACCINIFOLIA, SPIRAEA, SEDUM, JUNIPERUS OCCIDENTALIS, HOLODISCUS DISCOLOR, PINUS SSP, ABIES,ET AL. PLANTS ON GRANITIC ROCK OUTCROPS IN FULL AND PARTIAL SUN.

Threat: POSSIBLE THREATS FROM ROCK CLIMBERS, HIKERS. TRAIL CONSTRUCTION, AND RAILROAD RIGHT-OF-WAY.

General: 100+ PLANTS SEEN AT EACH NORTHERN COLONY IN 1994. 125 PLANTS AT SW COLONY IN 1995. COLLECTIONS FROM THIS VICINITY: HELLER IN 1903 (#7012 DS, UC) & 1927(#14449 UC #398628), THOMAS IN 1956(#6222 DS #595257) & TRUE IN 1968 (#4549 CAS #851498).

Owner/Manager: USFS-TAHOE NF

Erigeron miser

starved daisy

Element Code: PDAST3M2K0

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G2	**CNPS List:** 1B
State: None	**State:** S2.3	**R-E-D Code:** 2-1-3

Habitat Associations

General: UPPER MONTANE CONIFEROUS FOREST.

Micro: ROCKY, GRANITIC OUTCROPS. 1755-2260M.

Occurrence No. 14 **Map Index:** 60937 **EO Index:** 60973

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: TRUE, G. 1973 (PERS)

Dates Last Seen
Element: 1973-XX-XX
Site: 1973-XX-XX

Record Last Updated: 2005-04-12

Quad Summary: NORDEN (3912033/555D)
County Summary: NEVADA

Lat/Long: 39.32542º / -120.31213º
UTM: Zone-10 N4356335 E731693
Area: 48.0 ac
Elevation: 6,400 ft

Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON

Township: 17N
Range: 15E
Section: 16 **Qtr:** E
Meridian: M

Location: OLD DONNER PASS HIGHWAY AT 6400 FT ELEV, WEST OF DONNER LAKE.

Location Detail: MAPPED ALONG THE HIGHWAY IN THE E1/2 SEC 16 ABOUT 1 MILE E OF DONNER PASS.

General: NOTE IN 1973 REPORT BY TRUE IS THE ONLY SOURCE FOR THIS SITE. NEEDS FIELDWORK.

Owner/Manager: USFS-TAHOE NF

Eriogonum umbellatum var. torreyanum

Donner Pass buckwheat — **Element Code:** PDPGN086U9

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G5T2	**CNPS List:** 1B
State: None	**State:** S2.2	**R-E-D Code:** 3-2-3

Habitat Associations

General: UPPER MONTANE CONIFEROUS FOREST, CHAPARRAL, MEADOWS.

Micro: STEEP SLOPES AND RIDGETOPS; ROCKY, VOLCANIC SOILS; USUALLY IN BARE OR SPARSELY VEGETATED AREAS. 1840-2620M.

Occurrence No. 2 **Map Index:** 13752 **EO Index:** 3525

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: KAN, T. 1993 (LIT)

Dates Last Seen
Element: 1992-08-XX
Site: 1992-08-XX
Record Last Updated: 1995-04-24

Quad Summary: NORDEN (3912033/555D)
County Summary: NEVADA

Lat/Long: 39.32002º / -120.33458º
UTM: Zone-10 N4355678 E729776
Area: 11.0 ac
Elevation: 7,040 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 17N
Range: 15E
Section: 17 **Qtr:** SE
Meridian: M

Location: ABOUT 0.5 MILE WNW OF DONNER PASS.

Location Detail: MAPPED UNDER SKI LIFT AT DONNER SKI RANCH AT 7400-7600'. USFS POPULATION #17-3. KAN POPULATION #7.

Ecological: ASSOCIATED WITH ERIOGONUM UMBELLATUM NEVADENSE, MONARDELLA ODORTISSIMA, PHLOX DIFFUSA, WYETHIA MOLLIS, COLLOMIA TINCTORIA, PURSHIA TRIDENTATA, SITANION HYSTRIX, PTERYXIA TEREBINTHINA, CHAENACTIS DOUGLASII, CREPSIS OCCIDENTALIS, ET AL.

Threat: SKI RESORT ACTIVITIES MAY THREATEN THIS SITE ALTHOUGH ANNUAL CLEARANCE OF TALL WOODY VEGETATION MAY EXTEND HABITAT.

General: THIS SITE IS THE TYPE LOCALITY. 600 PLANTS OBSERVED IN 1992.

Owner/Manager: PVT, USFS-TAHOE NF

Occurrence No. 3 **Map Index:** 13771 **EO Index:** 20973

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SHAPIRO, A. 1978 (OBS)

Dates Last Seen
Element: 1978-08-XX
Site: 1978-08-XX
Record Last Updated: 1995-01-26

Quad Summary: NORDEN (3912033/555D)
County Summary: NEVADA

Lat/Long: 39.31989º / -120.31937º
UTM: Zone-10 N4355703 E731088
Radius: 1/5 mile
Elevation: 6,920 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 17N
Range: 15E
Section: 16 **Qtr:** S
Meridian: M

Location: ALONG US HIGHWAY 40 JUST EAST OF DONNER SUMMIT BRIDGE.

Location Detail: USFS POPULATION #17-8.

General: NONE.

Owner/Manager: USFS-TAHOE NF, PVT

Occurrence No. 5 **Map Index:** 30995 **EO Index:** 3998

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SONNE, C. SN UC #191310 (HERB)

Dates Last Seen
Element: 1881-08-XX
Site: 1881-08-XX
Record Last Updated: 1995-03-14

Quad Summary: GRANITE CHIEF (3912023/539A), NORDEN (3912033/555D)
County Summary: PLACER

Lat/Long: 39.24479º / -120.28510º
UTM: Zone-10 N4347455 E734293
Radius: 1 mile
Elevation: 8,600 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 16N
Range: 15E
Section: 11 **Qtr:** XX
Meridian: M

Location: NEAR TINKER KNOB.

General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1881 COLLECTION BY SONNE. AREA SUPPORTS POTENTIALLY SUITABLE HABITAT ACCORDING TO 1993 REPORT BY KAN.

Owner/Manager: UNKNOWN

Eriogonum umbellatum var. torreyanum

Donner Pass buckwheat

Element Code: PDPGN086U9

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G5T2	**CNPS List:** 1B
State: None	**State:** S2.2	**R-E-D Code:** 3-2-3

Habitat Associations

General: UPPER MONTANE CONIFEROUS FOREST, CHAPARRAL, MEADOWS.

Micro: STEEP SLOPES AND RIDGETOPS; ROCKY, VOLCANIC SOILS; USUALLY IN BARE OR SPARSELY VEGETATED AREAS. 1840-2620M.

Occurrence No. 7 **Map Index:** 13755 **EO Index:** 21200

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: KAN, T. 1991 (OBS)

Dates Last Seen
Element: 1992-08-XX
Site: 1992-08-XX
Record Last Updated: 1995-01-26

Quad Summary: NORDEN (3912033/555D)
County Summary: NEVADA

Lat/Long: 39.35834º / -120.32932º
UTM: Zone-10 N4359945 E730104
Radius: 80 meters
Elevation: 8,000 ft
Mapping Precision SPECIFIC
Symbol Type: POINT
Township: 17N
Range: 15E
Section: 05 **Qtr:** NE
Meridian: M

Location: EAST END OF CASTLE PEAK RIDGE ABOUT 0.5 MILE NORTH OF SUMMIT LAKE, NEAR WARREN LAKE TRAIL.

Location Detail: IN THE MIDDLE OF THE STEEPEST PART OF A GLACIAL CIRQUE JUST ABOVE THE TRAIL. USFS POPULATION #17-1. KAN POPULATION #5.

Ecological: DRY ROCKY SLOPE OF CIRQUE. ASSOCIATED WITH ARTEMISIA ARBUSCULA, WYETHIA MOLLIS, PHLOX DIFFUSA, ALLIUM PLATYCAULE, MONARDELLA ODORATISSIMA, CHRYSOTHAMNUS NAUSEOSUS, ERIOGONUM UMBELLATUM NEVADENSE, COLLOMIA TINCTORIA, SITANION HYSTRIX ET AL.

Threat: NEARBY TRAIL, SMALL/INSUFFICIENT POPULATION SIZE, AND ORV USE ARE THREATS. POTENTIAL LOSS DUE TO LANDSLIDE.

General: Z24 INDIVIDUALS SEEN IN 1973, 4 CLUMPS IN 1975, 5 CLUMPS IN 1991-1992. THIS POPULATION IS SMALL AND WEAK COMPARED TO THE SILVER PEAK SITE ACCORDING TO KAN (1991).

Owner/Manager: PVT IN USFS-TAHOE NF

Occurrence No. 8 **Map Index:** 13754 **EO Index:** 21194

Occ Rank: None
Origin: Natural/Native occurrence
Presence: Possibly Extirpated
Trend: Unknown
Main Source: ALLEN, P. 1975 (PERS)

Dates Last Seen
Element: XXXX-XX-XX
Site: 1992-XX-XX
Record Last Updated: 1995-01-25

Quad Summary: NORDEN (3912033/555D)
County Summary: NEVADA

Lat/Long: 39.36739º / -120.32895º
UTM: Zone-10 N4360951 E730106
Radius: 2/5 mile
Elevation: 8,600 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 18N
Range: 15E
Section: 32 **Qtr:** NE
Meridian: M

Location: ABOVE FROG LAKE CLIFF, NORTH OF DONNER PASS.

Location Detail: USFS POPULATION #17-2.

General: UNKNOWN WHEN SPECIES SEEN. SITE APPARENTLY SEARCHED IN 1992, BUT NO PLANTS FOUND. PLANTS MAY BE EXTIRPATED AT THIS SITE ACCORDING TO T. KAN (1993).

Owner/Manager: UNKNOWN

Eriogonum umbellatum var. torreyanum

Donner Pass buckwheat

Element Code: PDPGN086U9

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G5T2	**CNPS List:** 1B
State: None	**State:** S2.2	**R-E-D Code:** 3-2-3

Habitat Associations

General: UPPER MONTANE CONIFEROUS FOREST, CHAPARRAL, MEADOWS.

Micro: STEEP SLOPES AND RIDGETOPS; ROCKY, VOLCANIC SOILS; USUALLY IN BARE OR SPARSELY VEGETATED AREAS. 1840-2620M.

Occurrence No. 12 **Map Index:** 30496 **EO Index:** 3996

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: KAN, T. 1993 (LIT)

Dates Last Seen
Element: 1992-08-XX
Site: 1992-08-XX
Record Last Updated: 1995-03-14

Quad Summary: NORDEN (3912033/555D)
County Summary: NEVADA

Lat/Long: 39.35798º / -120.34662º
UTM: Zone-10 N4359861 E728614
Area: 13.9 ac
Elevation: 8,100 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 17N
Range: 14E
Section: 12 **Qtr:** NE
Meridian: M

Location: 0.5 MILE SOUTH OF CASTLE PEAK ABOVE CASTLE VALLEY.

Location Detail: TWO COLONIES MAPPED IN THE NE CORNER OF SECTION 12. KAN POPULATION #6.

Ecological: PATCHY VEGETATION WITH OPEN AREA OF SCATTERED HERBS, GRASSES, AND SHRUBS. ASSOCIATED WITH ERIOGONUM UMBELLATUM NEVADENSE, MONARDELLA ODORATISSIMA, ARTEMISIA ABUSCULA, PHLOX DIFFUSA, WYETHIA MOLLIS, PURSHIA TRIDENTATA, SITANIAN HYSTRIX.

Threat: SMALL/INSUFFICIENT POPULATION SIZE.

General: 35 PLANTS OBSERVED IN 1992.

Owner/Manager: USFS-TAHOE NF

Occurrence No. 13 **Map Index:** 30497 **EO Index:** 3995

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: KAN, T. 1993 (LIT)

Dates Last Seen
Element: 1992-XX-XX
Site: 1992-XX-XX
Record Last Updated: 1995-01-26

Quad Summary: NORDEN (3912033/555D)
County Summary: PLACER

Lat/Long: 39.29357º / -120.34421º
UTM: Zone-10 N4352718 E729032
Area: 4.8 ac
Elevation: 7,700 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 17N
Range: 14E
Section: 36 **Qtr:** SE
Meridian: M

Location: 0.2 MILE WSW OF MT. DISNEY (PEAK) NEAR SUGAR BOWL SKI AREA.

Location Detail: MAPPED ALONG SOUTH SIDE OF MT. DISNEY BEHIND THE END OF THE SKI LIFTS. KAN POPULATION #9.

Ecological: PATCHY VEGETATION WITH OPEN AREAS OF SCATTERED HERBS, GRASSES, AND SHRUBS. ASSOCIATED WITH ERIOGONUM UMBELLATUM NEVADENSE, MONARDELLA ODORATISSIMA, PHLOX DIFFUSA, WYETHIA MOLLIS, ARTEMISIA ARBUSCULA, PURSHIA TRIDENTATA, SITANION, ET AL.

Threat: SMALL/INSUFFICIENT POPULATION SIZE.

General: 4 PLANTS OBSERVED IN 1992.

Owner/Manager: USFS-TAHOE NF

Eriogonum umbellatum var. torreyanum

Donner Pass buckwheat — **Element Code:** PDPGN086U9

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G5T2	**CNPS List:** 1B
State: None	**State:** S2.2	**R-E-D Code:** 3-2-3

Habitat Associations

General: UPPER MONTANE CONIFEROUS FOREST, CHAPARRAL, MEADOWS.

Micro: STEEP SLOPES AND RIDGETOPS; ROCKY, VOLCANIC SOILS; USUALLY IN BARE OR SPARSELY VEGETATED AREAS. 1840-2620M.

Occurrence No. 14 **Map Index:** 30498 **EO Index:** 3994

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: KAN, T. 1993 (LIT)

Dates Last Seen
Element: 1992-XX-XX
Site: 1992-XX-XX
Record Last Updated: 1995-01-26

Quad Summary: NORDEN (3912033/555D)
County Summary: PLACER

Lat/Long: 39.29316º / -120.33700º
UTM: Zone-10 N4352691 E729656
Area: 4.2 ac
Elevation: 7,700 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 17N
Range: 15E
Section: 29 **Qtr:** XX
Meridian: M

Location: SADDLE BETWEEN MT. DISNEY AND MT. LINCOLN, ABOUT 0.2 MILE ESE OF MT. DISNEY (PEAK).

Location Detail: ALONG SADDLE AND NORTH-FACING SLOPE EAST OF MT. DISNEY. MAPPED JUST WEST OF THE CENTER OF SECTION 29. KAN POPULATION #8.

Ecological: PATCHY VEGETATION WITH OPEN AREAS OF SCATTERED HERBS, GRASSES, AND SHRUBS. ASSOCIATED WITH ERIOGONUM UMBELLATUM NEVADENSE, MONARDELLA ODORATISSIMA, ARTEMISIA ARBUSCULA, SITANION HYSTRIX, PURSHIA TRIDENTATA, CHAENACTIS DOUGLASII, ET AL.

General: 150 PLANTS OBSERVED IN 1992.

Owner/Manager: USFS-TAHOE NF

Occurrence No. 20 **Map Index:** 42494 **EO Index:** 43379

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SONNE SN JEPS #56321 (HERB)

Dates Last Seen
Element: 1885-09-27
Site: 1885-09-27
Record Last Updated: 2000-08-08

Quad Summary: TRUCKEE (3912032/554C)
County Summary: NEVADA, PLACER

Lat/Long: 39.33030º / -120.17954º
UTM: Zone-10 N4357225 E743108
Radius: 1 mile
Elevation: 6,500 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 17N
Range: 16E
Section: 11 **Qtr:** XX
Meridian: M

Location: TRUCKEE.

Location Detail: EXACT LOCATION NOT KNOWN; MAPPED TO INCLUDE GENERAL VICINITY OF TRUCKEE.

General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1885 COLLECTION BY SONNE; NEEDS FIELDWORK.

Owner/Manager: UNKNOWN

Great Basin Cutthroat Trout/Paiute Sculpin Stream

Element Code: CARC2320CA

Status
Federal: None
State: None

NDDB Element Ranks
Global: G?
State: S?

Other Lists

Habitat Associations
General:
Micro:

Occurrence No. 2 **Map Index:** 26126 **EO Index:** 20356

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MOYLE, P. 1991 (LIT)

Dates Last Seen
Element: 1989-12-28
Site: 1989-12-28
Record Last Updated: 1994-08-24

Quad Summary: NORDEN (3912033/555D), HOBART MILLS (3912042/554B), INDEPENDENCE LAKE (3912043/555A)
County Summary: NEVADA

Lat/Long: 39.38774º / -120.22257º
UTM: Zone-10 N4363486 E739202
Area: 751.8 ac
Elevation: 6,200 ft

Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON

Township: 18N
Range: 16E
Section: 29 **Qtr:** XX
Meridian: M

Location: UPPER PROSSER CREEK.

Location Detail: FROM ABOUT 0.5 MILES UPSTREAM OF HWY 89 TO HEADWATERS, INCLUDING BOTH NORTH & SOUTH FORK PROSSER CREEKS.

Ecological: PAIUTE SCULPIN ONLY NATIVE FISH SPP. BROOK TROUT IN HEADWATER AREA, BROWN & RAINBOW TROUT IN LOWER REACHES (ALL INTRODUCED). LAHONTAN CUTTHROAT TROUT EXTIRPATED SINCE EARLY 1900'S.

Threat: LOGGING & GRAZING IMPACTS. FISHING PRESSURE ON ALL TROUT SPP. INTRODUCED TROUT DISPLACING NATIVE CUTTHROAT TROUT.

Owner/Manager: USFS-TAHOE NF

Gulo gulo

California wolverine

Element Code: AMAJF03010

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G4	**CDFG Status:**
State: Threatened	**State:** S2	

Habitat Associations

General: FOUND IN THE NORTH COAST MOUNTAINS AND THE SIERRA NEVADA. FOUND IN A WIDE VARIETY OF HIGH ELEVATION HABITATS.

Micro: NEEDS WATER SOURCE. USES CAVES, LOGS, BURROWS FOR COVER & DEN AREA. HUNTS IN MORE OPEN AREAS. CAN TRAVEL LONG DISTANCES

Occurrence No. 191 **Map Index:** 34778 **EO Index:** 28923

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: TAYLOR, J. 1991 (OBS)

Dates Last Seen
Element: 1991-06-24
Site: 1991-06-24

Record Last Updated: 1996-05-21

Quad Summary: NORDEN (3912033/555D), INDEPENDENCE LAKE (3912043/555A)
County Summary: NEVADA

Lat/Long: 39.37736º / -120.26393º
UTM: Zone-10 N4362225 E735675
Radius: 1/5 mile
Elevation: 6,520 ft

Mapping PrecisionNON-SPECIFIC
Symbol Type:POINT

Township: 18N
Range: 15E
Section: 25 **Qtr:** SW
Meridian: M

Location: EUER VALLEY; VICINITY OF SOUTH FORK PROSSER CREEK AND CRABTREE CANYON CREEK; SOUTHEAST OF INDEPENDENCE LAKE.

Ecological: MEADOW/CONIFER INTERGRADE. LODGEPOLE PINE, FIR (RED OR WHITE?), ROCK OUTCROPS.

Threat: POSSIBLE THREAT: GRAZING, TIMBER.

General: 1 OBSERVED, GOOD VISUAL.

Owner/Manager: PVT-CIRCLE E RANCH

Ivesia sericoleuca

Plumas ivesia

Element Code: PDROS0X0K0

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G2	**CNPS List:** 1B
State: None	**State:** S2.2	**R-E-D Code:** 1-2-3

Habitat Associations

General: GREAT BASIN SCRUB, LOWER MONTANE CONIFEROUS FOREST, MEADOWS, VERNAL POOLS.

Micro: VERNALLY MESIC AREAS; USUALLY VOLCANIC SUBSTRATES. 1450-2000M.

Occurrence No. 9 **Map Index:** 14161 **EO Index:** 13913

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HOPKINS, N. 1986 (OBS)

Dates Last Seen
Element: 1986-07-21
Site: 1986-07-21
Record Last Updated: 2000-05-02

Quad Summary: TRUCKEE (3912032/554C)
County Summary: NEVADA, PLACER

Lat/Long: 39.31688º / -120.14813º
UTM: Zone-10 N4355820 E745863
Area: 12.4 ac
Elevation: 5,880 ft
Mapping PrecisionSPECIFIC
Symbol Type:POLYGON
Township: 17N
Range: 16E
Section: 13 **Qtr:** SE
Meridian: M

Location: ABOUT 2.5 MILES SOUTHEAST OF TRUCKEE ON HWY 267, SOUTH OF AIRPORT, WEST END OF MARTIS VALLEY.

Location Detail: ON NORTH SIDE OF ROAD BY TRUCKEE AIRPORT ROAD. MAPPED WITHIN THE SW 1/4 OF THE SE 1/4 OF SECTION 13.

Ecological: ASSOCIATED WITH ARTEMISIA ARBUSCULA AND GRASSES. SOME PLANTS IN MUD FLATS WITH EVIDENCE OF SHEET EROSION.

Threat: GOLF COURSE, AIRPORT, URBANIZATION SURROUND OCCURRENCE.

General: ABOUT 1000 PLANTS. FRAGMENTED PART OF FORMER LARGE OCCURRENCE. B- OCCURRENCE RANK. TWO OLD COLLECTIONS BY SONNE (1886 AND 1888, BOTH #35302 JEPS) FROM MARTIS CREEK VALLEY ATTRIBUTED TO THIS SITE. OCCURRENCE #33 FORMERLY PART OF THIS SITE.

Owner/Manager: PVT

Occurrence No. 19 **Map Index:** 14178 **EO Index:** 19459

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SHEVOCK, J. 1986 (OBS)

Dates Last Seen
Element: 1986-07-20
Site: 1986-07-20
Record Last Updated: 1989-08-11

Quad Summary: TRUCKEE (3912032/554C)
County Summary: NEVADA

Lat/Long: 39.35601º / -120.14076º
UTM: Zone-10 N4360184 E746361
Radius: 1/5 mile
Elevation: 5,850 ft
Mapping PrecisionNON-SPECIFIC
Symbol Type:POINT
Township: 17N
Range: 17E
Section: 06 **Qtr:** NW
Meridian: M

Location: EAST OF TRUCKEE, ALONG PROSSER VILLAGE ROAD, SOUTH-SIDE OF INTERSTATE 80. (AT END OF PAVED RD).

Location Detail: NEW AGRICULTURAL INSPECTION FACILITY CAN BE SEEN DIAGONALLY ACROSS HIGHWAY 80 FROM SITE.

Ecological: SAGEBRUSH FLAT WITH SCATTERED JEFFREY PINES. AREA HAS STANDING WATER DURING SPRING. ASSOCIATED WITH SQUIRRELTAIL GRASS, MADIA SP, NAVARRETIA SP, LUPINUS, AND HORKELIA FUSCA PARVIFLORA.

Threat: AREA APPEARS TO BE READY FOR DEVELOPMENT.

Owner/Manager: PVT IN USFS-TAHOE NF

Ivesia sericoleuca

Plumas ivesia

Element Code: PDROS0X0K0

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G2	**CNPS List:** 1B
State: None	**State:** S2.2	**R-E-D Code:** 1-2-3

Habitat Associations

General: GREAT BASIN SCRUB, LOWER MONTANE CONIFEROUS FOREST, MEADOWS, VERNAL POOLS.

Micro: VERNALLY MESIC AREAS; USUALLY VOLCANIC SUBSTRATES. 1450-2000M.

Occurrence No. 32 **Map Index:** 42849 **EO Index:** 42849

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: BROWN, C. 1990 (OBS)

Dates Last Seen
Element: 1990-06-23
Site: 1990-06-23
Record Last Updated: 2000-05-02

Quad Summary: TRUCKEE (3912032/554C)
County Summary: NEVADA

Lat/Long: 39.33576º / -120.16165º
UTM: Zone-10 N4357879 E744631
Area: 2.7 ac
Elevation: 5,870 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 17N
Range: 16E
Section: 11 **Qtr:** NE
Meridian: M

Location: UPPER STOCKREST SPRINGS MEADOW, BTWN 1-80 & GLENSHIRE DR., ABOUT 0.7 MI ESE OF TRUCKEE RANGER STATION, EAST OF TRUCKEE.

Location Detail: AT FIBREBOARD UNDERCROSSING, JUST SOUTH OF POWERLINES AND JUST WEST OF OLYMPIC HEIGHTS DEVELOPMENT. MAPPED WITHIN THE SE 1/4 OF THE NE 1/4 OF SECTION 11.

Ecological: FOUND IN A LARGE VERNAL POOL. IVESIA SERICOLEUCA IS THE DOMINANT PLANT; ASSOCIATES INCLUDE NAVARRETIA MINIMA, DOWNINGIA CUSPIDATA, PLAGIOBOTHRYS COGNATUS, PSILOCARPHUS SPP., AND JUNCUS SPP. SOME PLANTS GROWING IN ADJACENT SAGEBRUSH SCRUB.

Threat: CALTRANS IS WORKING WITH USFS TO PROTECT SITE FROM CONSTRUCTION OF ALIGNMENT FOR TRUCKEE BYPASS; EVIDENCE OF ORV USE.

General: 8000 PLANTS OBSERVED IN 1990. IDENTIFICATION WAS VERIFIED BY BARBARA ETTER. AS OF 1990, THIS IS THE MOST "SIGNIFICANT" POPULATION ON FOREST SERVICE LAND WITH REGARD TO SIZE AND VIGOR.

Owner/Manager: USFS-TAHOE NF

Occurrence No. 33 **Map Index:** 42850 **EO Index:** 42850

Occ Rank: Fair
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: HOPKINS, N. 1986 (OBS)

Dates Last Seen
Element: 1986-07-21
Site: 1986-07-21
Record Last Updated: 2000-05-02

Quad Summary: TRUCKEE (3912032/554C)
County Summary: PLACER

Lat/Long: 39.30996º / -120.14040º
UTM: Zone-10 N4355073 E746553
Area: 20.6 ac
Elevation: 5,880 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 17N
Range: 17E
Section: 19 **Qtr:** NW
Meridian: M

Location: SOUTH SIDE OF HIGHWAY 267, SOUTH OF EAST END OF AIRPORT, ABOUT 3 ROAD MILES EAST OF TRUCKEE, WEST END OF MARTIS VALLEY.

Location Detail: ON SOUTH SIDE OF HIGHWAY BY DIRT ROAD LEADING SOUTH TO JOERGER RANCH. NORTHWEST OF ENTRANCE TO MARTIS WILDLIFE PRESERVE.

Ecological: GROWING WITH ARTEMISIA ARBUSCULA, GRASSES, LUPINUS SPP., AND ANNUALS. NOT FOUND WITH LARGER SHRUBS SUCH AS PURSHIA TRIDENTATA.

Threat: URBAN GROWTH ALONG HWY 267, TRUCKEE AIRPORT.

General: ABOUT 500 PLANTS OBSERVED IN 1990.

Owner/Manager: PVT

Ivesia sericoleuca

Plumas ivesia

Element Code: PDROS0X0K0

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G2	**CNPS List:** 1B
State: None	**State:** S2.2	**R-E-D Code:** 1-2-3

Habitat Associations

General: GREAT BASIN SCRUB, LOWER MONTANE CONIFEROUS FOREST, MEADOWS, VERNAL POOLS.

Micro: VERNALLY MESIC AREAS; USUALLY VOLCANIC SUBSTRATES. 1450-2000M.

Occurrence No. 43 **Map Index:** 42870 **EO Index:** 42870

Occ Rank: Good
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: CORRELL, M. 1993 (OBS)

Dates Last Seen
Element: 1993-08-24
Site: 1993-08-24
Record Last Updated: 2000-05-03

Quad Summary: TRUCKEE (3912032/554C), HOBART MILLS (3912042/554B)
County Summary: NEVADA

Lat/Long: 39.37527º / -120.17684º
UTM: Zone-10 N4362224 E743185
Area: 16.5 ac
Elevation: 5,800 ft
Mapping Precision SPECIFIC
Symbol Type: POLYGON
Township: 18N
Range: 16E
Section: 26 **Qtr:** SW
Meridian: M

Location: HIGHWAY 89 ABOUT 1.6 MILES SOUTH OF HOBART MILLS, JUST EAST OF DONNER CAMP PICNIC AREA, S OF PROSSER CREEK RESERVOIR.

Location Detail: BETWEEN TRAIL AND SOUTHWEST ARM OF PROSSER CREEK RESERVOIR. MAPPED WITHIN THE SW 1/4 OF THE SW 1/4 OF SECTION 26.

Ecological: IN THE LESS DENSE GRASSY AREAS OF A SAGE FLAT. CLOSELY ASSOCIATED WTIH PINUS CONTORTA.

Threat: HIKING, MOUNTAIN BIKING, ORV USE, AND GRAZING.

General: MORE THAN 1000 PLANTS OBSERVED IN 1993. IT WOULD BE DIFFICULT TO PREVENT PUBLIC ACCESS AT THIS SITE.

Owner/Manager: USFS-TAHOE NF

Occurrence No. 71 **Map Index:** 42972 **EO Index:** 42972

Occ Rank: Excellent
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: STERN, K. 1989 (OBS)

Dates Last Seen
Element: 1989-06-14
Site: 1989-06-14
Record Last Updated: 2000-05-17

Quad Summary: MARTIS PEAK (3912031/554D), TRUCKEE (3912032/554C)
County Summary: NEVADA

Lat/Long: 39.34840º / -120.12792º
UTM: Zone-10 N4359375 E747494
Radius: 1/5 mile
Elevation: 5,830 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 17N
Range: 17E
Section: 06 **Qtr:** SE
Meridian: M

Location: ABOUT 0.7 MILE NNE OF POLARIS, 0.7 MILE NORTH OF GLENSHIRE DRIVE ON OLD TRUCKEE AIRPORT ROAD, 3 MILES ENE OF TRUCKEE.

Location Detail: MAPPED AT THE CENTER OF THE SE 1/4 OF SECTION 6.

Ecological: OPEN SAGEBRUSH.

Threat: NOT PRESENTLY DEVELOPED, BUT LAND IS FOR SALE.

General: ABOUT 5000 PLANTS OBSERVED IN 1989. A SETBACK ZONE AROUND THE POPULATION IS NEEDED, AND DRAINAGE ACROSS SITE SHOULD NOT BE IMPEDED.

Owner/Manager: PVT

Occurrence No. 75 **Map Index:** 42494 **EO Index:** 59750

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: TRUE, G. 1973 (PERS)

Dates Last Seen
Element: XXXX-XX-XX
Site: XXXX-XX-XX
Record Last Updated: 2005-01-27

Quad Summary: TRUCKEE (3912032/554C)
County Summary: NEVADA, PLACER

Lat/Long: 39.33030º / -120.17954º
UTM: Zone-10 N4357225 E743108
Radius: 1 mile
Elevation: 6,500 ft
Mapping Precision NON-SPECIFIC
Symbol Type: POINT
Township: 17N
Range: 16E
Section: 11 **Qtr:** XX
Meridian: M

Location: TRUCKEE AND ENVIRONS.

Location Detail: EXACT LOCATION UNKNOWN; MAPPED IN GENERAL VICINITY OF TRUCKEE BY CNDDB.

General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1973 CHECKLIST OF PLANTS OF NEVADA COUNTY BY TRUE; NEEDS FIELDWORK.

Owner/Manager: UNKNOWN

Lepus americanus tahoensis

Sierra Nevada snowshoe hare

Element Code: AMAEB03012

Status
Federal: None
State: None

NDDB Element Ranks
Global: G5T3T4Q
State: S2?

Other Lists
CDFG Status: SC

Habitat Associations
General: BOREAL RIPARIAN AREAS IN THE SIERRA NEVADA.
Micro: THICKETS OF DECIDUOUS TREES IN RIPARIAN AREAS AND THICKETS OF YOUNG CONIFERS.

Occurrence No. 4 **Map Index:** 42494 **EO Index:** 58766

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: MANIS 2004 (MUS)

Dates Last Seen
Element: 1915-03-13
Site: 1915-03-13

Record Last Updated: 2004-12-17

Quad Summary: TRUCKEE (3912032/554C)
County Summary: NEVADA, PLACER

Lat/Long: 39.33030º / -120.17954º
UTM: Zone-10 N4357225 E743108
Radius: 1 mile
Elevation: 6,500 ft

Mapping PrecisionNON-SPECIFIC
Symbol Type:POINT

Township: 17N
Range: 16E
Section: 11 **Qtr:** XX
Meridian: M

Location: TRUCKEE.

General: 1 MALE SPECIMEN COLLECTED 13 MAR 1915 BY E. FREEMAN & F. HOLDEN AT "TRUCKEE." DEPOSITED AT MVZ #21433.

Owner/Manager: UNKNOWN

Lewisia longipetala

long-petaled lewisia

Element Code: PDPOR040K0

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G2	**CNPS List:** 1B
State: None	**State:** S2.2	**R-E-D Code:** 3-1-3

Habitat Associations

General: ALPINE BOULDER AND ROCK FIELD, SUBALPINE CONIFEROUS FOREST.

Micro: MESIC ROCKY SITES; IN CRACKS OF GRANITE OR GRAVELLY VOLCANIC SOILS. 2480-2925M.

Occurrence No. 2 **Map Index:** 13701 **EO Index:** 3186

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: FRENCH, N. #530 UC (HERB)

Dates Last Seen
Element: 1934-07-19
Site: 1992-XX-XX

Record Last Updated: 1995-05-16

Quad Summary: NORDEN (3912033/555D)
County Summary: NEVADA

Lat/Long: 39.36541º / -120.34923º
UTM: Zone-10 N4360679 E728365
Radius: 1/5 mile
Elevation: 9,000 ft

Mapping PrecisionNON-SPECIFIC
Symbol Type:POINT

Township: 17N
Range: 14E
Section: 01 **Qtr:** SE
Meridian: M

Location: CASTLE PEAK, APPROX 3.5 AIR MI NNW OF DONNER PASS.

General: ACCORDING TO ANNE HALFORD, POTENTIAL HABITAT STILL EXISTS, BUT PLANTS NOT FOUND FOR YEARS.

Owner/Manager: USFS-ELDORADO NF

Oncorhynchus clarkii henshawi

Lahontan cutthroat trout

Element Code: AFCHA02081

Status	NDDB Element Ranks	Other Lists
Federal: Threatened	**Global:** G4T3	**CDFG Status:**
State: None	**State:** S2	

Habitat Associations

General: HISTORICALLY IN ALL ACCESSIBLE COLD WATERS OF THE LAHONTON BASIN IN A WIDE VARIETY OF WATER TEMPS & CONDITIONS.

Micro: CANNOT TOLERATE PRESENCE OF OTHER SALMONIDS. REQUIRES GRAVEL RIFFLES IN STREAMS FOR SPAWNING.

Occurrence No. 13 **Map Index:** 14128 **EO Index:** 14871

Occ Rank: None
Origin: Introduced Back into Native Hab./Range
Presence: Extirpated
Trend: Decreasing
Main Source: GERSTUNG, E. 1983 (PERS)

Dates Last Seen
Element: 1983-XX-XX
Site: 1993-XX-XX

Record Last Updated: 1996-01-11

Quad Summary: MARTIS PEAK (3912031/554D), TRUCKEE (3912032/554C)
County Summary: PLACER

Lat/Long: 39.28543º / -120.15341º
UTM: Zone-10 N4352315 E745517
Area: 293.3 ac
Elevation: 6,000 ft

Mapping PrecisionSPECIFIC
Symbol Type:POLYGON

Township: 17N
Range: 16E
Section: 36 **Qtr:** NW
Meridian: M

Location: MARTIS CREEK (TRIBUTARY TO TRUCKEE RIVER), NEAR TRUCKEE, PLACER COUNTY.

Ecological: REINTRODUCED POPULATION; PRESENCE CONFIRMED BY J. DEINSTADT IN 1983; POP BECOMING INTROGRESSED W/RAINBOW TROUT; BROOK & BROWN TROUT, GREEN SUNFISH, & NATIVE SPP ALSO PRESENT. BY 1993 POPULATION HAD BEEN EXTIRPATED.

Threat: POTENTIAL DEVELOPMENT OF AREA; LIVESTOCK & HUMAN ACTIVITIES IMPACTING SITE.

General: RESERVOIR AND DAM DOWNSTREAM. AREA TREATED IN 1977.

Owner/Manager: USFS-TAHOE NF, PVT

Rorippa subumbellata

Tahoe yellow cress

Element Code: PDBRA270M0

Status	NDDB Element Ranks	Other Lists
Federal: Candidate	**Global:** G1	**CNPS List:** 1B
State: Endangered	**State:** S1.1	**R-E-D Code:** 3-3-2

Habitat Associations

General: LOWER MONTANE CONIFEROUS FOREST, MEADOWS AND SEEPS.

Micro: SANDY BEACHES, ON LAKESIDE MARGINS AND IN RIPARIAN COMMUNITIES; ON DECOMPOSED GRANITE SAND. 1885-1900(2395)M.

Occurrence No. 22 **Map Index:** 42494 **EO Index:** 42494

Occ Rank: None
Origin: Natural/Native occurrence
Presence: Possibly Extirpated
Trend: Unknown
Main Source: BAAD, M. 1979 (PERS)

Dates Last Seen
Element: 18XX-XX-XX
Site: 1981-XX-XX

Record Last Updated: 2000-03-02

Quad Summary: TRUCKEE (3912032/554C)
County Summary: NEVADA, PLACER

Lat/Long: 39.33030º / -120.17954º
UTM: Zone-10 N4357225 E743108
Radius: 1 mile
Elevation: 6,500 ft

Mapping PrecisionNON-SPECIFIC
Symbol Type:POINT

Township: 17N
Range: 16E
Section: 11 **Qtr:** XX
Meridian: M

Location: TRUCKEE.

Location Detail: EXACT LOCATION NOT KNOWN; MAPPED TO INCLUDE GENERAL VICINITY OF TRUCKEE.

General: MAIN SOURCE OF INFORMATION FOR THIS SITE IS 1800'S COLLECTION CITED BY M. BAAD IN 1979 STATUS REPORT FOR RORIPPA SUBUMBELLATA. AREA SEARCHED IN 1981 BY J. FERREIRA BUT NO PLANTS OBSERVED.

Owner/Manager: UNKNOWN

Scutellaria galericulata

marsh skullcap

Element Code: PDLAM1U0J0

Status	NDDB Element Ranks	Other Lists
Federal: None	**Global:** G5	**CNPS List:** 2
State: None	**State:** S2.2?	**R-E-D Code:** 2-2-1

Habitat Associations

General: MARSHES AND SWAMPS, LOWER MONTANE CONIFEROUS FOREST, MEADOWS AND SEEPS.

Micro: SWAMPS AND WET PLACES. 0-2100M.

Occurrence No. 20 **Map Index:** 42494 **EO Index:** 50866

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: SONNE, C. SN JEPS #78196 (HERB)

Dates Last Seen
Element: 1885-07-XX
Site: 1885-07-XX

Record Last Updated: 2003-04-04

Quad Summary: TRUCKEE (3912032/554C)
County Summary: NEVADA, PLACER

Lat/Long: 39.33030º / -120.17954º
UTM: Zone-10 N4357225 E743108
Radius: 1 mile
Elevation: 6,500 ft

Mapping Precision NON-SPECIFIC
Symbol Type: POINT

Township: 17N
Range: 16E
Section: 11 **Qtr:** XX
Meridian: M

Location: TRUCKEE.
Location Detail: EXACT LOCATION UNKNOWN, MAPPED IN GENERAL VICINITY OF TRUCKEE.
General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1885 COLLECTION BY SONNE. NEEDS FIELDWORK.
Owner/Manager: UNKNOWN

Vulpes vulpes necator

Sierra Nevada red fox

Element Code: AMAJA03012

Status

Federal: None
State: Threatened

NDDB Element Ranks

Global: G5T3
State: S1

Other Lists

CDFG Status:

Habitat Associations

General: FOUND FROM THE CASCADES DOWN TO THE SIERRA NEVADA. FOUND IN A VARIETY OF HABITATS FROM WET MEADOWS TO FORESTED AREAS.

Micro: USE DENSE VEGETATION & ROCKY AREAS FOR COVER & DEN SITES. PREFER FORESTS INTERSPERSED W/ MEADOWS OR ALPINE FELL-FIELDS.

Occurrence No. 70 **Map Index:** 44259 **EO Index:** 44259

Occ Rank: Unknown
Origin: Natural/Native occurrence
Presence: Presumed Extant
Trend: Unknown
Main Source: EATON, J. 1994 (OBS)

Dates Last Seen

Element: 1994-XX-XX
Site: 1994-XX-XX

Record Last Updated: 2000-11-13

Quad Summary: TRUCKEE (3912032/554C)
County Summary: NEVADA

Lat/Long: 39.35210º / -120.17280º
UTM: Zone-10 N4359663 E743613
Area: 185.2 ac
Elevation: 5,920 ft

Mapping PrecisionNON-SPECIFIC
Symbol Type:POLYGON

Township: 17N
Range: 16E
Section: 02 **Qtr:** SW
Meridian: M

Location: HIGHWAY 89 BETWEEN JUST NORTH OF ALDER CREEK AND PROSSER DAM ROADS, 0.8 MILE NORTH OF I-80 AND HIGHWAY 89 JUNCTION.

Location Detail: FOX SEEN ON 3 OCCASSIONS CROSSING HIGHWAY 89.

Threat: ROAD

General: OBSERVED CROSSING HIGHWAY 89 JUST NORTH OF THE WETLANDS/ OPEN SPACE AREA; 3 SIGHTINGS WERE BETWEEN 6:30 AND 7:30 AM, SOMETIME IN 1994.

Owner/Manager: UNKNOWN

Appendix H
Geological Glossary

Alluvium
Sand, gravel, silt, and clay deposited by rivers and streams in valley bottoms.

Andesite
A fine-grained, medium to dark colored extrusive igneous rock with more silica (SiO_2) than basalt. Commonly has visible crystals (phenocrysts) of plagioclase feldspar. Generally occurs as flows and dikes and is the most common rock in volcanic arcs. See igneous rock chart at end of glossary.

Ash
Volcanic ash is fine pyroclastic material, less than 2 millimeters in diameter. The term usually refers to unconsolidated material, but is sometimes also used for its consolidated counterpart – tuff.

Basalt
A fine-grained, dark extrusive igneous rock with low silica content (40% to 50%), rich in iron, magnesium, and calcium. Basalt generally occurs in flows and also as dikes. It is the most abundant volcanic rock in the Earth's crust and makes up most of the ocean floor. See igneous rock chart at end of glossary.

Batholith
A body of intrusive igneous rock at least 40 square miles in area, such as the Sierra Nevada batholith.

Borrow
Earth materials, such as sand and gravel.

Borrow pit
A pit or excavation area used for gathering earth materials.

Boulder
Any loose rock (sediment) larger than 256 millimeters (10 inches) in diameter.

Breccia
A rock made up of angular fragments of other rocks, held together by mineral cement or a fine-grained matrix. Volcanic breccia is made of volcanic rock fragments, generally blown or eroded from a volcano.

Caldera
A large basin-shaped volcanic depression, more or less circular, with a diameter many times greater than the included vent(s), irrespective of steepness of the walls or form of the floor.

Cenozoic

The most recent geologic era that contains the Tertiary and Quaternary periods, spanning the time from 66.4 million years ago to the present (see geologic time scale at end of glossary).

Clay

A particle of sediment less than 1/256 of a millimeter in diameter. Also, a family of platy silicate minerals that commonly from as a product of weathering.

Cobble

Loose rock or mineral particles that range in size from 64 to 256 millimeters in diameter.

Cretaceous

The earliest period of the Mesozoic era, after the Jurassic period and before the Tertiary period of the Cenozoic era. The Cretaceous covers the time period of 135 to 65 million years before present.

Dacite

A fine-grained extrusive igneous rock with the same general composition as andesite, but having more quartz and less calcic plagioclase. The extrusive equivalent of granodiorite. (See igneous rock chart at end of glossary.)

Diorite

An intrusive igneous rock made up of plagioclase feldspar and amphibole or pyroxene. Similar to gabbro, but with less dark (mafic) minerals and more silica. (See igneous rock chart at end of glossary.)

Extrusive

Igneous rocks that cool and solidify rapidly at or very near the Earth's surface. Also called volcanic rocks.

Feldspar

A group of silicate minerals containing varying amounts of potassium, sodium, and calcium along with aluminum, silicon, and oxygen. Potassium (alkali) feldspars contain considerable potassium. Plagioclase feldspars contain considerable sodium and calcium.

G or g

The force of gravity (an acceleration of 9.78 meters/second^2). When there is an earthquake, the forces caused by the shaking can be measured as a percentage of the force of gravity, or percent g.

Gabbro

A dark, coarse-grained intrusive igneous rock made up of calcium-rich plagioclase, with amphibole and/or pyroxene. Chemically equivalent to basalt. (See igneous rock chart at end of glossary.)

Geomorphology

The study of the classification, description, nature, origin, and development of landforms and their relationships to the underlying geologic structures, and the history of geologic changes as recorded by these surface features.

Granite

A light-colored, coarse-grained igneous rock consisting of alkali feldspar (orthoclase) and quartz, with lesser amounts of sodic plagioclase feldspar, micas, and hornblende. (See igneous rock chart at end of glossary.)

Granitic

Of, pertaining to, or composed of granite or granite-like rock.

Granodiorite

A group of coarse-grained intrusive igneous rocks intermediate in composition between quartz diorite and quartz monzonite, containing quartz, oligoclase or andesine (plagioclase), and potassium feldspar, with lesser amounts of biotite or hornblende. (See igneous rock chart at end of glossary.)

Gravel

All sedimentary particles (rock or mineral) larger than 2 millimeters and smaller than 64 millimeters in diameter.

Holocene

An epoch of the Quaternary Period, from the end of the Pleistocene, approximately 8,000 years ago to the present time. (See geologic time scale at end of glossary)

Igneous

A rock or mineral that solidified from molten or partly molten material, i.e. from a magma. Extrusive igneous, or volcanic rocks, are erupted onto the earth's surface and are usually fine-grained with some larger crystals. Intrusive igneous, or plutonic rocks, cool and solidify at depth and are usually coarse-grained.

Jurassic

The second period of the Mesozoic Era (after the Triassic and before the Cretaceous) thought to have covered the span of time from 190 to 135 million years before present.

Lahar

A landslide or mudflow of pyroclastic material on the flank of a volcano; also, the deposit produced.

Latite

An extrusive igneous rock similar to andesite, but with almost equal amounts of potassium feldspar and plagioclase feldspar. See igneous rock chart at end of glossary.

Lava

Fluid (molten) rock that issues from a volcano or fissure; also, the same material solidified by cooling, such as a lava flow.

Magma

Naturally occurring molten rock material, generated within the earth and capable of intrusion and extrusion, from which igneous rocks have been derived through cooling and solidification.

Mesozoic

One of the eras of geologic time, following the Paleozoic and succeeded by the Cenozoic Era. The Mesozoic comprises the Triassic, Jurassic, and Cretaceous periods, from 245 to 66.4 million years ago. (See geologic time scale at end of glossary)

Metamorphic Rock

Any rock derived from pre-existing rocks by chemical, mineralogical, chemical and/or structural changes, essentially in the solid state, resulting from changes in pressure, temperature, chemical environment, and shearing stress, generally at depth in the earth's crust.

Moraine

A mound or ridge of unstratified glacial till deposited by direct action of glacial ice. There are different types of moraines depending on their location with respect to the glacier. Lateral moraines form on the sides of the glacier. When two glaciers merge, their lateral moraines join to become a medial moraine. An end moraine extends around the terminus of the glacier and connects to the laterals. Recessional moraines are end moraines that are progressively younger upvalley. The terminal moraine marks the glaciers most advanced (downvalley) position. A ground moraine is an irregular blanket of till deposited under the ice.

Mountain Glacier

A glacier that forms in, and is confined to, mountains. *Syn : Alpine Glacier*

Outwash

Glacial outwash is a deposit of sand, silt, gravel, and clay formed below a glacier by meltwater streams and rivers.

Paleozoic

One of the eras of geologic time, following the Precambrian and succeeding the Mesozoic. The Paleozoic comprises the Cambrian, Ordovician, Silurian, Devonian, Carboniferous, and Permian periods, from 570 to 245 million years ago. (See geologic time scale at end of glossary.)

Pangea

The name Alfred Wegener proposed for the most recent supercontinent comprising all of the landmasses or earth, which existed approximately 300 million years ago.

Phenocryst

A larger crystal within a finer-grained matrix of an igneous rock.

Plagioclase

A member of the feldspar mineral family. Plagioclase feldspars are silicates that contain considerable sodium and calcium.

Pleistocene

An epoch of the Quaternary Period, after the Pliocene of the Tertiary and before the Holocene. It began 1.6 million years ago and lasted until about 8,000 years ago (Holocene). Syn: *ice age; glacial epoch*

Pliocene

The latest epoch of the Tertiary period, beginning about 5.3 million years ago and ending 1.6 million years ago. (See geologic time scale at end of glossary.)

Pluton

A body of intrusive (plutonic) igneous rock.

Pumice

A light-colored cellular glassy igneous volcanic rock commonly having the composition of rhyolite.

Pyroclastic

Pertaining to clastic (fragmental) rock material formed by volcanic explosion or aerial expulsion from a volcanic vent.

Quartz Diorite

A group of plutonic rocks having the composition of diorite, but with an appreciable amount of quartz (5-20 % light-colored constituents). Quartz diorite grades into granodiorite as the alkali feldspar content increases. Same as tonalite or trondhjemite.

Quaternary

The most recent period of the Cenozoic era, encompassing the time interval of 1.6 million years ago through today. (See geologic time scale at end of glossary.)

Rhyolite

A group of extrusive igneous (volcanic) rocks, commonly exhibiting flow texture. The rock has a fine-grained glassy (cryptocrystalline) groundmass with larger visible crystals of quartz and alkali feldspars. The chemical composition is comparable to granite. (See igneous rock chart at end of glossary.)

Roof Pendant

A downward projection of country rock into an igneous intrusion. The country rock is the older sediments that were intruded by the magma and metamorphosed.

Sand

Loose particles of rock or mineral that range from 0.0625-2.0 millimeters in diameter.

Sedimentary rock

A layered rock formed by the accumulation and cementation of mineral grains transported by wind, water, or ice to the site of deposition or chemically precipitated at the depositional site.

Silt

Loose particles of rock or mineral that range from 0.002-0.0625 millimeters in diameter.

Subduction Zone

An elongate region along which a crustal block descends relative to another crustal block, such as the descent of the Pacific plate beneath the Andean plate along the Andean trench.

Tephra

A collective term for all clastic materials ejected from a volcano and transported through the air. It includes volcanic dust, ash, cinders, lapilli, scoria, pumice, bombs, and blocks. Syn: *volcanic ejecta*.

Terrane

A rock formation or assemblage of rock formations that share a common geologic history. Terranes are usually separated by faults.

Tertiary

The older of the two geologic periods comprising the Cenozoic era, from 66.4 to 1.6 million years ago. (See geologic time scale at end of glossary.)

Till

Unsorted, unstratified mixtures of sand, silt, clay, gravel, cobbles, and boulders deposited by a glacier without reworking by meltwater. Glacial moraines are composed of till.

Triassic

The first period of the Mesozoic Era, thought to have covered the span of time between 225 and 190 million years ago.

Tuff

Volcanic rock made up of rock and mineral fragments in a volcanic ash matrix. Tuffs are commonly composed of shattered volcanic glass – chilled magma blown into the air and then deposited. If the volcanic particles fall to the ground at a very high temperature, they may fuse together to become welded tuff.

Volcanic rock

An igneous rock that cools and solidifies at or very near the Earth's surface.

Volcanic arc

An arcuate chain of volcanoes formed above a subduction zone. The arc forms where the descending plate becomes hot enough to release water and gases into the overlying mantle and cause it to melt.

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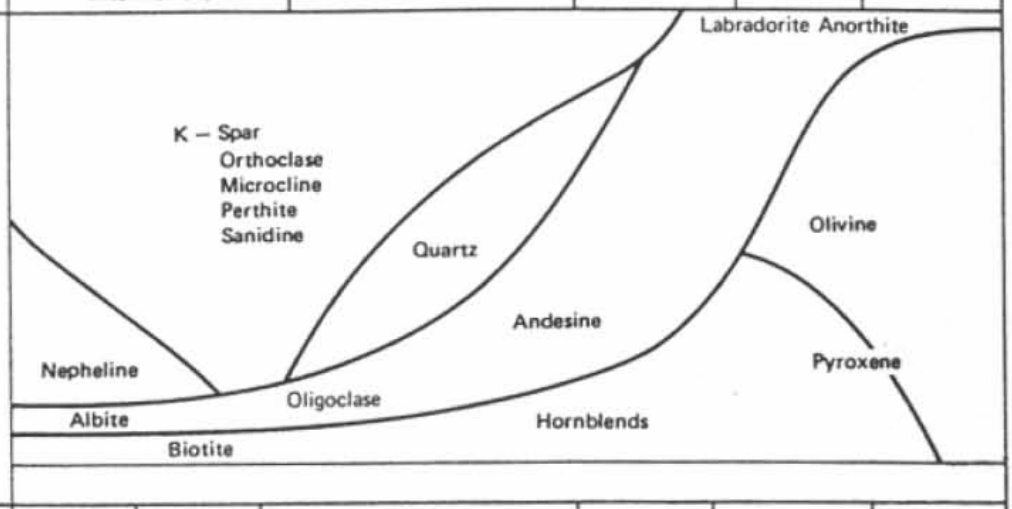
Figure I(a)
Igneous Rock Classification

Color	Leucocratic		Mesocratic	Melanocratic	Hypermelanic
Mineralogic	Felsic		Intermediate	Mafic	Ultra Mafic
Chemical	Intermediate	Acid	Intermediate	Basic	Ultra Basic



TEXTURE							
Coarse Grained		Nepheline Syenite	Syenite	GRANITE Granite | Granodiorite Qtz. Granite | Monzonite | Grano–diorite	Diorite	Gabbro	Peridotite
FINE GRAINED	Few Pheno–crysts	Phonolite	Trachyte	RHYOLITE Rhyolite | Dacite Qtz. Rhyolite | Latite | Dacite	Andesite	Basalt	NONE
FINE GRAINED	Prom–inent Pheno–crysts	Phonolite Porphyry	Trachyte Porphyry	RHYOLITE PORPHYRY Rhyolite Porphyry | Qtz. Latite Porphyry | Dacite Porphyry	Andesite Porphyry	Tachylyte and Sideromelane	
FINE GRAINED	Frag–mental	Phonolite Tuff	Trachyte Tuff	Rhyolite Tuff	Andesite Tuff	Rare or Unknown	
GLASSY	Mas–sive	OBSIDIAN					
GLASSY	with Pheno–crysts	VITROPHYRE					
GLASSY	Per–litic cracks	PERLITE					
GLASSY	Vesi–cular	PUMICE				Scoria	

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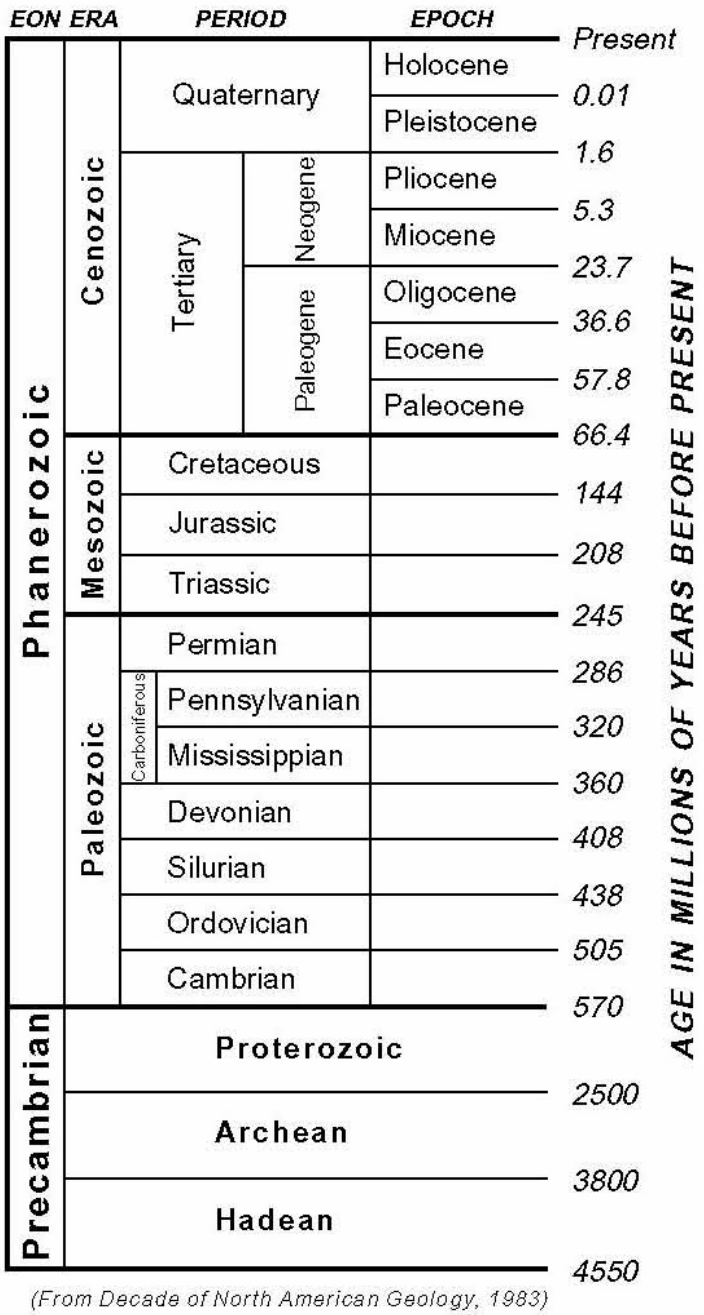
Figure I(b)
Geologic Time Scale



(From Decade of North American Geology, 1983)