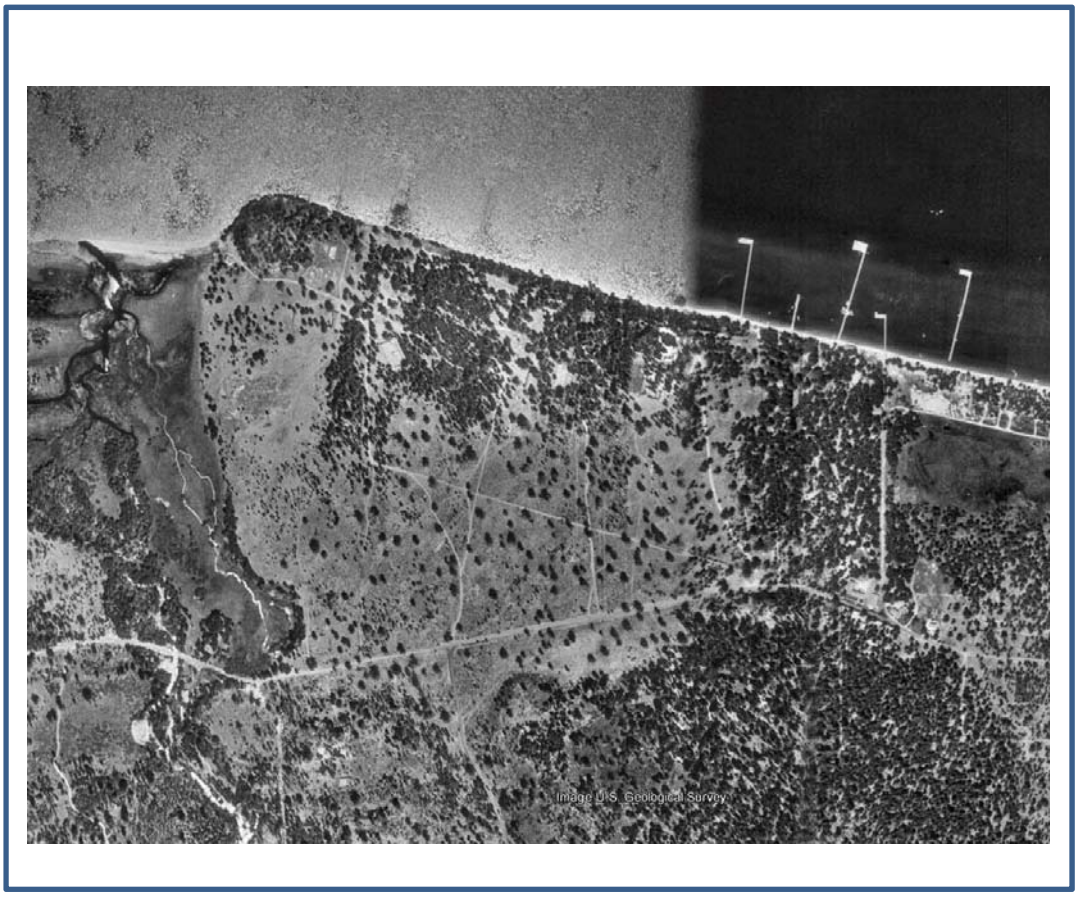
United States Department of Agriculture
Forest Service

Historic Facilities BMP Retrofit

Environmental Assessment

Lake Tahoe Basin Management Unit,
El Dorado County, California.

May 2014



1940's aerial photo of the Tallac Historic Site.

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Contents

Chapter 1 - Introduction

Chapter 2 – Alternatives, including the Proposed Action

Chapter 3 – Affected Environment and Environmental Consequences

Acronyms

Acronym/ Abbreviation	Definition
ABA	Architectural Barriers Act
BA/BE	Biological Assessment/Biological Evaluation
BEIG	Built Environment Image Guide
BMPs	Best Management Rractices
BMPEP	Best Management Practice Evaluation Program
Caltrans	California Department of Transportation
CAR	Critical Aquatic Refuge

Acronym/ Abbreviation	Definition
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CLM	California Land Management
CO	Carbon Monoxide
CWA	Clean Water Act
CWHR	California Wildlife Habitat Relationship System
DBH	Diameter at Breast Height
DOE	Determination of Eligibility
DVT	Daily Vehicle Trips
EA	Environmental Assessment
EIP	Environmental Improvement Program
EIS	Environmental Impact Statement
ERA	Equivalent Roaded Acres
ESA	Endangered Species Act of 1973 as amended
FONSI	Finding of No Significant Impact
Forest Plan	Lake Tahoe Basin Management Unit Land and Resource Management Plan
Forest Service	USDA Forest Service
FSORAG	Forest Service Outdoor Recreation Accessibility Guideline
GFA	Gross Floor Area
GHGs	Greenhouse Gasses
GIS	Geographic Information System
HUC	Hydrologic Unit Code
LEED	Leadership in Energy and Environmental Design
LOP	Limited Operating Period
LRMP	Land and Resource Management Plan
LRWQCB	Lahontan Regional Water Quality Control Board
LTBMU	Lake Tahoe Basin Management Unit
MIS	Management Indicator Species
MIS Report	Management Indicator Species for the Lake Tahoe Basin Management Unit
ND	Neighborhood Development
NEPA	National Environmental Policy Act
NFMA	National Forest Management Act
NFS	National Forest System

Acronym/ Abbreviation	Definition
NHPA	National Historic Preservation Act
NO_x	Nitrous Oxides
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
OHV	Off-Highway Vehicle
PAC	Protected Activity Center
PAOT	Persons At One Time
PM10	Particulate Matter less than 10 microns in diameter
RCA	Riparian Conservation Area
RCOs	Riparian Conservation Objectives
ROS	Recreation Opportunity Spectrum
ROW	Right-of-Way
SEZ	Stream Environment Zone
SHPO	State Historic Preservation Officer
SNF MIS	2007 Sierra Nevada Forests Management Indicator Species
SNFPA	Sierra Nevada Forest Plan Amendment
SO_2	Sulfur Dioxide
South Shore Project	South Shore Fuel Reduction and Healthy Forest Restoration Project
TESP	Threatened, Endangered, Sensitive or Proposed
TES	Threatened and Endangered Species
TMPO	Tahoe Metropolitan Planning Agency
TRPA	Tahoe Regional Planning Agency
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
VMT	Vehicle Miles Traveled
VQO	Visual Quality Objective

1.0 Project Summary

The Lake Tahoe Basin Management Unit (LTBMU) proposes to implement improvements in Best Management Practices (BMPs) at the Tallac Historic Site to bring the site into compliance with water quality protection standards, improve access, and protect resources. This includes implementation of water quality protection BMPs where appropriate to reduce storm water runoff volume, reduce peak flow levels, and reduce the amount of sediment and pollutants reaching Lake Tahoe. Additionally the Proposed Action would provide for universal accessibility consistent with the Forest Service Outdoor Recreation Accessibility Guidelines (FSORAG) and Architectural Barriers Act (ABA).

Project activities includes a reduction in the number of highway intersections, construction of new road and trail segments designed to improve vehicle and non-motorized circulation, day use parking improvements, and slope stabilization. Design features are incorporated into the proposed action to minimize impacts and ensure consistency with the Forest Plan.

The Tallac Historic Site is located on Lake Tahoe's southern shore, about 2 1/2 miles west of the City of South Lake Tahoe on State Route (SR) 89 in El Dorado County, California. The project area is approximately 168 acres in size and extends from the shoreline of Lake Tahoe in the north to SR 89 in the south and from Taylor Creek Marsh in the west to the boundary of Camp Richardson Resort to the east. All lands within the project area are managed by the US Forest Service LTBMU.

The goal of this project is to improve water quality and enhance sustainable recreation opportunities at the Tallac Historic Site. Within the project area, there is a need to:

- Protect soil and water quality from impacts associated with unmanaged parking and visitor use,
- Protect historic values contributing to the site's listing on the National Register of Historic Properties,
- Provide managed parking and vehicle circulation facilities to support summer use levels,
- Provide facilities to support non-motorized circulation and site access.

In addition to the Proposed Action (Alternative 2), the Forest Service also evaluated the following alternatives:

Alternative 1 — No Action. Under this alternative, no improvements would be made and the existing facility and circulation would remain unchanged.

Alternative 3 — This alternative is designed to respond to public concerns regarding day use parking and circulation. The project design features and BMPs that are prescribed for the Proposed Action would apply to this alternative as well.

Alternative 4 — This alternative was developed in response to input during circulation of the EA for public comment and additional information regarding existing historic travel

routes. The project design features and BMPs that are prescribed for the Proposed Action would apply to this alternative as well.

The LTBMU Forest Supervisor will decide:

1. Based on the analysis provided in this EA whether or not to implement the no-action alternative, the proposed action, or an alternative to the proposed action as described in this EA. It should be noted that the final decision may entail some combination of components of the proposed action and alternatives, as deemed most appropriate in consideration of the analyses described in this document.

2. Whether or not a Finding of No Significant Impact (FONSI) can be supported by the environmental analysis contained in this Environmental Assessment (EA).

Chapter 1 - Introduction

1.1 Document Structure

The U.S. Department of Agriculture (USDA) Forest Service has prepared this environmental assessment (EA) in compliance with the National Environmental Policy Act (NEPA) and other relevant federal and state laws and regulations. This EA discloses the direct, indirect, and cumulative environmental effects that would result from the Proposed Action and Alternative Actions as well as the No Action Alternative. The document is organized as follows:

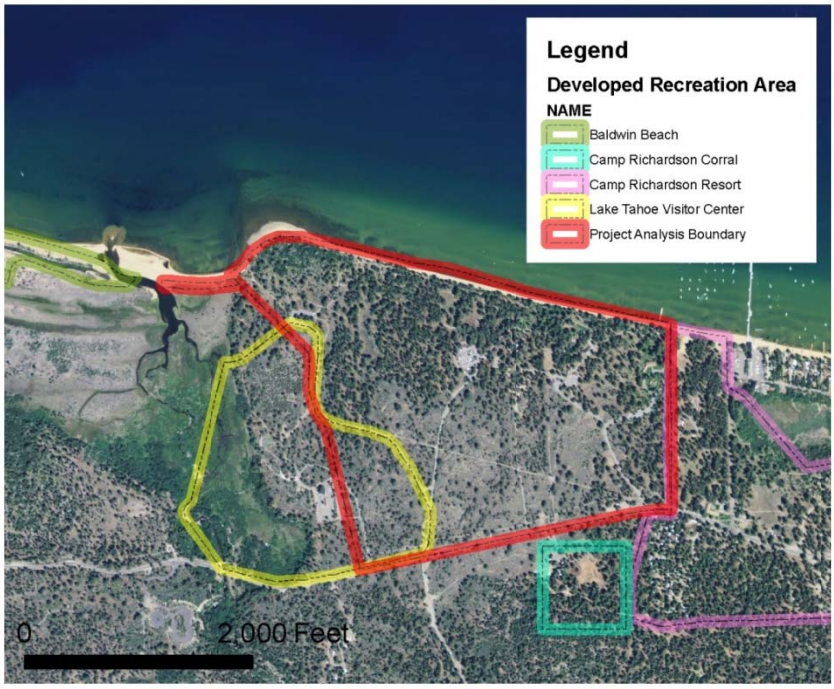
- **Chapter 1, "Introduction,"** includes information on the structure of the EA, background of the project, overview of the existing condition, the desired conditions, the purpose of and need for action, summary of the Proposed Action, applicable management direction, and the decision framework. This chapter also details how the Forest Service informed the public of the proposal through public involvement, describes the issues identified by the public, and summarizes laws, regulations, and policies that are applicable to the project.
- **Chapter 2, "Alternatives, Including the Proposed Action,"** provides descriptions of alternatives considered but dismissed from detailed analysis, the No Action Alternative, the Forest Service's Proposed Action, and one action alternative to the Proposed Action. Detailed site maps of the existing project site and alternatives are included. Chapter 2 also summarizes the effects of the No Action Alternative and the action alternatives.
- **Chapter 3, "Affected Environment and Environmental Consequences,"** presents an overview of the analysis, the existing conditions, and the environmental effects of implementing the alternatives. The effects of the No Action Alternative are described first to provide a baseline for evaluation and comparison of the action alternatives.
- **Chapter 4, "Consultation and Coordination,"** provides a list of preparers and agencies consulted during the development of this document.
- The **appendices** include water quality protection best management practices. Additional documentation may be found in the project record located at the Forest Supervisor's office in South Lake Tahoe, CA.

1.2 Proposed Project Location

The Tallac Historic Site is located on Lake Tahoe's southern shore, about 2 1/2 miles west of the City of South Lake Tahoe on SR 89 within Section 20 of T14N, R17E in El Dorado County, California. The site is within the Fallen Leaf Lake Management Area of the LTBMU Land and Resource Management Plan (LRMP) (**Figure 1-1**). It is important to note this site's vicinity to other developed recreation sites (Camp Richardson Resort, Camp Richardson Corral, the Taylor Creek Visitor Center, etc) within the area along SR 89 referred to as the Pope-Baldwin Recreation Area, also referred to as the "South Shore Corridor". The project area (see Figure 1-2) is approximately 168 acres in size and extends from the shoreline of Lake Tahoe in the north to SR 89 in the south (with the exception of the Baldwin Trailer Park site, which is located south of SR89), and from Taylor Creek Marsh in the west to the boundary of Camp Richardson Resort to the east.

Figure 1-1. Vicinity map

Figure 1-2: Project Area Context



1.3 Background & Overview of the Existing Condition

Entrance to the Baldwin Museum, one of the main attractions at the Tallac Historic Site.

Historic Background

Much of the project area is located within the federally designated Tallac Historic Site District (THSD) and the properties within the district are listed on the National Register of Historic Properties. This district is rich in turn of the century luxury residence and support facilities, including some historic travel routes which contribute to the site's historic integrity. The project area is also the location of the ruins of a turn of the century hotel, casino, cottages, promenade, and associated buildings. Additionally, a large prehistoric lithic scatter and several small prehistoric milling stations are located in the project area.

Existing Condition

For the purposes of this project, the Tallac Historic Site includes the Pope Estate, Baldwin Estate, Valhalla (Heller Estate), and Tallac Point Beach (also known as Kiva Point Beach) (**Figure 1-3**). The three estates (Pope, Baldwin, and Heller) form a federally designated historic district. The site is bordered by Lake Tahoe on the North and State Route 89 (SR 89) on the South. There are two vehicular entrances to the Tallac Historic Site from SR 89, but one entrance (**I**) has a gate that is administered by the Valhalla Estate permittee for

visitors to the Valhalla Estate and special events. The general public therefore accesses the entire site from one entry road (**H**) that splits into two main drives that lead to the Kiva Beach parking area (**B**) and Tallac Public Parking (**D**). There is another entrance on SR 89 (**G**) that leads to the Taylor Creek Visitor Center. The Taylor Creek Visitor Center structure itself is **not** considered part of the site; however the visitor center entrance road **is** considered in this project.

The western-most parking area (known as Kiva Point parking lot, **B**) serves mostly visitors to Tallac Point Beach (**A**), which is located on the northwest corner of the Tallac site. Visitors walk approximately 1/8 mile from the parking lot on a sand path to the beach area. Multiple user-created trails radiate from the parking lot to other areas of the site. Loss of vegetation and erosion on the slopes surrounding the beach area has resulted from the unmanaged beach access. Problems with off-leash dogs and human trampling of sensitive plant species within the marsh (outside of the analysis area) occurs as a result of the beach access that is located within the project boundary.

The eastern split of the main public road leads to the parking lot (**D**) for the Tallac Historic Estates (which includes the Pope, Baldwin, and Heller Estates) and the Kiva Picnic Area (**C**). The Pope and Baldwin estates are operated by the LTBMU in partnership with the Tahoe Heritage Foundation (THF).

The Valhalla Estate is operated under a special use permit, including the Valhalla parking area (**F**) (which is gated, but available for special events and visitors to the Valhalla site), and portions of the administrative parking lot (**E**). General public vehicular traffic is not allowed within the estate areas and visitors must park in the Tallac parking lot (**D**) and walk to the structures within the site. Visitors also park along SR 89 and walk in to the site, causing resource damage along the road and contributing to highway congestion during peak use periods.

The multiple site entrances on the highway (the Valhalla entrance, the Tallac/Kiva entrance, and the Taylor Creek entrance) often cause confusion for visitors. The configuration of the roadways and parking areas do not make efficient use of paved surfaces. The site attracts a high number of visitors during the summer months. The volume of visitors using the site on a typical peak summer weekend usually exceeds the parking capacity resulting in unmanaged parking, soil and vegetation compaction, and heavy traffic congestion along SR 89. The site is open to cross country skiing and snowshoeing in the winter, but none of the buildings are open for regular viewing or use during winter months.

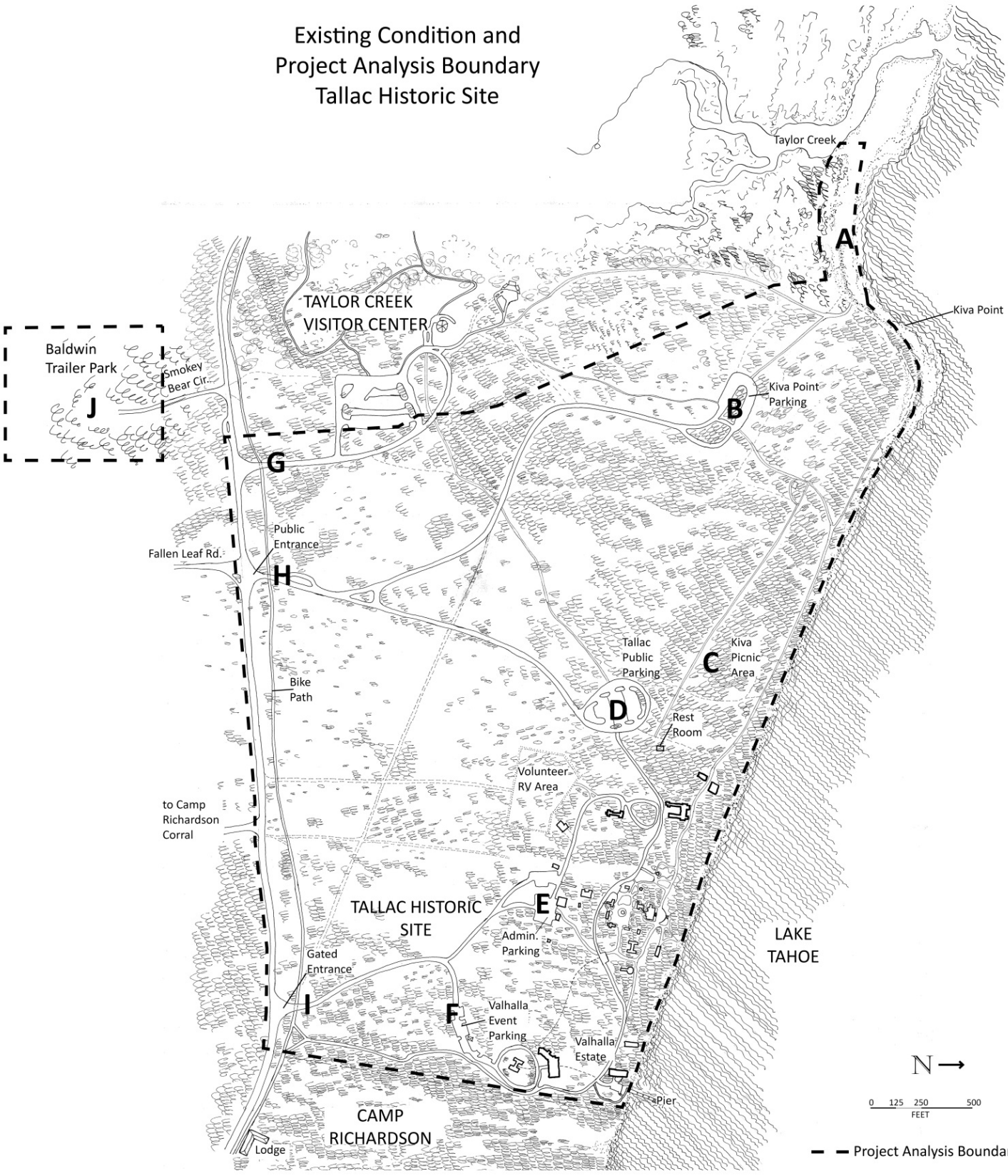


Figure 1-3. Existing condition and project analysis boundary

A few of the main pathways within the site are paved with asphalt, but the majority of the paths are compacted soil. The paths with the most erosion occur on the slope that leads from the estates down to Lake Tahoe and its shorefront. The fence that was constructed to prevent user-created paths down to the beach is in disrepair and no longer serves as a functional barrier.

The disturbed nature of the site has limited the amount of wildlife and sensitive plants that occur on the site, but the Endangered Species Act, Candidate species Tahoe yellowcress, *Rorippa subumbellata,* has been identified on Tallac Point Beach.

Erosion on the slope east of the Baldwin boat house.

Erosion on the slope near the Kiva Picnic Area

Evidence of rilling (stormwater flow that is beginning to transport debris) near the Kiva Picnic Area

Concentrated storm water flow evidence at one set of stairs leading to the beach from the Kiva Picnic Area.

Washoe Tribe of Nevada and California Tending and Gathering Garden near Baldwin Museum

Example of peak use during 4th of July as viewed from Camp Richardson Resort

Tallac Public Parking Lot

Pedestrian path along the beach slope with fencing (left side of photo)

Valhalla Pier

Entrance to the RV Volunteer Lot in the Tallac Historic Site

1.4 Desired Conditions

The desired condition at Tallac Historic Site is to provide a high quality recreation setting and facilities that meet water quality protection best management practices (BMPs) to protect the water quality of Lake Tahoe and to protect the integrity of the historic facilities. The overarching desired condition for recreation at the LTBMU is one that meets the sustainable recreation principles outlined in the Forest Service publication *A Framework for Sustainable Recreation* (USDA 2010).

1.5 Purpose and Need for Action

Existing conditions do not currently align with desired conditions for the site. Within the project area, there is a need to:

- Protect soil and water quality from impacts associated with unmanaged parking and visitor use;

- Protect historic values contributing to the site's listing on the National Register of Historic Properties;

- Provide managed parking and vehicle circulation facilities to support summer use levels;

- Provide facilities to support non-motorized circulation and site access.

The goal of this project is to improve water quality and enhance sustainable recreation opportunities at the Tallac Historic Site. This can be achieved by meeting the following objectives:

- Protect the character and eligibility of the sites which are eligible for, or listed on, the National Register of Historic Places;

- Implement water quality protection BMPs where appropriate to infiltrate stormwater on all paved surfaces, reduce peak flow levels, and reduce the amount of sediment and pollutants reaching Lake Tahoe;

- Offer sufficient site-related managed parking spaces for the Boathouse Theatre, the Valhalla Hall, and general recreation use of the Tallac Historic Site;

- Reduce the traffic congestion on SR 89;

- Reduce the amount of human and dog waste at Kiva Beach;

- Reduce the impact of dog and human disturbance in Taylor Creek Marsh;

- Improve the signage and linkages of the vehicular and pedestrian circulation routes to and within the historic sites and beach area.

1.6 Proposed Action

See Chapter 2 for a complete description of the Proposed Action and Alternatives.

1.7 Decision Framework

The LTBMU Forest Supervisor will decide:

1. Whether or not to implement the project activities as described in the Proposed Action or select an alternative to the Proposed Action. It should be noted that the final decision may entail some combination of components of the proposed action and alternatives, as deemed most appropriate in consideration of the analysis described in this document.
2. Whether or not a Finding of No Significant Impact (FONSI) can be supported by the environmental analysis contained in this Environmental Assessment (EA).

This decision will only affect NFS lands. Coordination and permitting through the California Department of Transportation (CalTrans) will be required to implement changes within the SR 89 right-of-way. Implementation of parking BMPs and other work could begin as early as May 2015. Depending on construction funding, implementation could be completed by 2020.

1.8 Public Involvement

This project was first listed on the LTBMU's Schedule of Proposed Actions (SOPA) in January 2011, providing internet notice to the public and interested stakeholders of general project intent and schedule. The formal NEPA scoping occurred in September 2012, with letters being sent to interested and affected stakeholders describing the Need for Change and Proposed Action. These letters, along with postings on the LTBMU website requested input on the Proposed Action and identification of concerns or information the LTBMU may not be aware of that would affect project development. Additionally, a display that included the proposed action was placed at the Baldwin Museum (inside the Tallac Historic Site) during the scoping period, and comment cards were available for visitors to provide comments on the project. During the project scoping period 28 letters or messages were received.

The proposed action was modified slightly (see Section 2.2) and a new alternative 3 was added in response to public comment. The EA was released for the 30-day legal public

comment period on March 7, 2014 in the Tahoe Daily Tribune. Additionally, the public comment period was highlighted in the following news outlets:

> "Input on Tallac Historic Site changes sought" *Mountain News* March 2014 issue.
> "Forest Service seeks comments on Tallac Historic Site Project" *Tahoechamber.org* March 7, 2014
> "Project designed to improve flow at Tallac Site" *Lake Tahoe News* March 17, 2014
> "Forest Service seeks comments on Tallac Historic site project" *Tahoe Daily Tribune* March 14, 2014

Individual comment letters were sent to all of the individuals on the original scoping list, as well as any individuals who provided comments during scoping. A total of 41 comment letters were received during the public comment period that ended April 7, 2014. The alternatives have been modified slightly since the release of the EA for public comment as allowed in FSH 1909.15, Chapter 10, and Section 14.3. These changes were identified during the comment period and are documented in Chapter 2 of this EA. Alternative 4 was developed in response to comments received during the comment period.

1.9 Issues

The Forest Service separated the issues (points of contention with the Proposed Action identified in the 28 letters or messages received during scoping) into three groups: 1) non-relevant issues, 2) relevant issues considered but eliminated from detailed study, and 3) relevant issues leading to an alternative to the Proposed Action. Project Record Document D3 documents the comments and their categories and includes a list of non-relevant issues and reasons regarding their categorization as non-relevant.

- **Non-relevant issues** (Category 1) do not meet the purpose and need for the project; are outside the scope of the Proposed Action; are already decided by law, regulation, or Forest Plan; are not supported by scientific evidence; are addressed by project design features; or are addressed by additional information or clarification of the Proposed Action. Non-relevant issues also represent opinions and statements that do not present problems or alternatives. None of these comments necessitated development of an alternative to the Proposed Action.
- **Relevant issues considered but eliminated from detailed study** (Category 2) meet the purpose and need for the project but were considered in alternatives already studied and eliminated, or additional project design features were developed that reduced or eliminated the effects. The public comments revealed concerns in the following areas: historic resources, parking and traffic, non-motorized circulation, recreational use conflicts, hydrology, and riparian habitat. These areas of concern did not lead to the development of an alternative considered in detail (see below) because they were addressed in the development of the Proposed Action and project design features.
- **Relevant issues** (Category 3) meet the purpose and need for the project and are relevant in the extent of the geographic distribution, the duration of effects, or the intensity of interest or resource conflict and therefore merit consideration for the development of an alternative to the Proposed Action. The following relevant issues were identified by the Forest Supervisor:

  - Impacts to historic and visual character of site from the loop road,
  - Needs for additional day use parking,
  - Need to limit additional day use parking,
  - Ability to control visitor parking during special events,
  - Need to improve volunteer camping facilities outside of the historic estates
  - Needs for additional non-motorized paths and to emphasize non-motorized transportation over vehicular transportation.

- **Issues raised that are not addressed in this document.** There were many issues raised both during scoping and during the 30-day comment period that are outside the scope of the document. The EA describes only actions that require environmental documentation under the National Environmental Policy Act (NEPA). Examples of items not included in this document are management decisions (i.e. how to operate a facility), routine and ongoing maintenance activities, and actions that are covered under another decision document. Since there was considerable public comment regarding a few of these issues, a more complete explanation is included here. *As a clarification, the absence of information regarding these topics in this EA does not mean that the actions cannot occur or that they are not already under consideration, rather they are absent because they are not required to be analyzed under this NEPA document.*

  - **Winter Snow Removal:** Concerns regarding the need to provide plowed winter parking within the project area were identified during scoping. The operational decision to plow a paved parking area for winter access is outside of the scope of this project; the Forest Supervisor decision to select a project alternative would not affect the ability of an agency or organization to plow or not plow a paved parking area and associated access. Facilities proposed in this document are consistent with the local TRPA requirements for snow removal activities (TRPA Code of Ordinances 60.1.4). Response to this issue did not result in development of an alternative action.

  - **Winter Restrooms:** Comments were received regarding the ability of the proposed restroom to be used during winter months. Similarly to snow removal activities, the use of a restroom during winter months is not a decision that requires NEPA environmental documentation. Disclosure of the effects from the building footprint itself does need to be described in the NEPA document, however. The main issue with the use of restrooms during winter operations is freezing of the pipes and maintenance of the facility. Design and programming to address these issues are driven by budgetary limitations and not by environmental effects. Decisions regarding the need for winter use of the building will be made at the time when funding for the restroom facility becomes available. Response to this issue did not result in development of an alternative action.

  - **Gate Operation**: There are many gates on NFS lands. The opening and closing of some gates are dictated by the travel management process (Motor Vehicle Use Map), and others are at the discretion of management or the terms of a special use permit. The Forest Supervisor decision to select a project alternative would not affect the operational decision to open or close a gate, or move a gate to an alternate location within the framework of existing NEPA decisions.

- **Dog Waste Facilities and Enforcement**: The installation of "dog bag" dispensers is considered within the scope of maintenance activities for the facility and is not required to be included as a proposed activity. Enforcement of regulations and laws regarding dogs on NFS lands are also outside of the scope of the document. Response to these issues did not result in development of an alternative action. The LTBMU continues to work with its partners to reduce conflicts arising from dog issues.

1.10 Applicable Laws, Regulations, and Policies

All resource management activities described and proposed in this document would be consistent with applicable federal law and regulations, Forest Service policies, and applicable provisions of state law. The major applicable laws are as follows.

National Forest Management Act

The National Forest Management Act (NFMA) requires the development of long-range land and resource management plans. The LTBMU Forest Plan was approved in 1988 as required by this act. It has been amended several times, including in the Sierra Nevada Forest Plan Amendment (SNFPA) (USDA Forest Service 2004). The Forest Plan provides guidance for all natural resource management activities. The NFMA requires that all projects and activities be consistent with the Forest Plan. The Forest Plan has been reviewed in consideration of this project, and the design of the project is consistent with the Forest Plan. A Forest Plan consistency matrix and review for this project was completed (Project Record Document A1).

Endangered Species Act

In accordance with Section 7(c) of the Endangered Species Act, the U.S. Fish and Wildlife Service (USFWS) list of endangered and threatened species that may be affected by projects in the Lake Tahoe Basin Management Area was reviewed (updated September 18, 2011, verified September 18, 2013).

National Historic Preservation Act

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to take into account the effect of a project on any district, site, building, structure, or object that is included in, or eligible for inclusion in, the National Register of Historic Places. Section 106 of the NHPA (Public Law 89.665, as amended) also requires federal agencies to afford the State Historic Preservation Officer a reasonable opportunity to comment. Finalization of formal consultation with the SHPO will occur prior to the release of the final Decision Notice. No other cultural sites or archaeological sites outside the project boundary would be affected.

Clean Water Act (Public Law 92–500)

All federal agencies must comply with the provisions of the Clean Water Act (CWA), which regulates forest management activities near federal waters and riparian areas. The design

features associated with the Proposed Action ensure that the terms of the CWA are met, primarily prevention of pollution caused by erosion and sedimentation.

Clean Air Act (Public Law 84-159)

The project area lies within the Lake Tahoe Air Basin and the El Dorado Air Quality Management District. The project is not expected to generate additional vehicle trips to the Lake Tahoe Basin. In addition, project design features (Appendix A) provide for the control of fugitive dust associated with the implementation of the project.

California Environmental Quality Act [CEQA] (Public Resources Code, § 21080)

The California Environmental Quality Act (CEQA) applies to discretionary projects to be carried out or approved by public agencies in California. The Lahontan Regional Water Quality Control Board's (LRWQCB's) process to grant a conditional waiver of waste discharge requirements on NFS lands is a discretionary act subject to CEQA. Prior to approving a project, the LRWQCB must certify that: 1) the environmental document has been completed in compliance with CEQA; 2) that the LRWQCB has reviewed and considered the information contained in the environmental document; and 3) that the environmental document reflects the Lahontan Water Board's independent judgment and analysis (Cal. Code Regs., tit. 14, § 15090.)

Environmental Justice (Executive Order 12898)

Executive Order 12898 requires that all federal actions consider potentially disproportionate effects on minority and low-income communities, especially if adverse effects on environmental or human health conditions are identified. Adverse environmental or human health conditions created by any of the alternatives considered would not affect any minority or low-income neighborhood disproportionately.

The activities proposed in alternatives were based solely on the existing and desired condition of the project area and sensitivity of the natural environment adjacent to Lake Tahoe, the recreational needs of Forest users, and access in response to the purpose and need. In no case were the designs based on the demographic makeup, occupancy, property value, income level, or any other criteria reflecting the status of adjacent non-federal land. Reviewing the location, scope, and nature of the proposed alternatives in relationship to non-federal land, there is no evidence to suggest that any minority or low-income neighborhood would be affected disproportionately. Conversely, there is no evidence that any individual, group, or portion of the community would benefit unequally from any of the actions in the proposed alternatives.

Invasive Species, Executive Order 13112 of February 3, 1999

This EA covers botanical resources and invasive plants. An Invasive Plant Risk Assessment has been prepared (Project Record Document G3). The project's design features are designed to minimize risk of new invasive plant introductions.

Migratory Bird Treaty Act of 1918 as amended (16 USC 703-712)

The original 1918 statute implemented the 1916 Convention between the United States and Great Britain (for Canada) for the protection of migratory birds. Later amendments implemented treaties between the United States and Mexico, Japan, and the Soviet Union (now Russia). Specific provisions in the statute include the establishment of a federal prohibition, unless permitted by regulations, to "pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention . . . for the protection of migratory birds . . . or any part, nest, or egg of any such bird." Because forest lands provide a substantial portion of breeding habitat, land management activities within the LTBMU can have an impact on local populations.

A Migratory Bird Report (Project Record Document G5) has been prepared for this project which fulfills the requirements of this act and Executive Order 13186. Trees are being removed for the proposed project. However, the project would not adversely impact any populations or habitat of migratory birds.

Architectural Barriers Act

The Architectural Barriers Act (ABA) requires that facilities designed, built, altered, or leased with funds supplied by the United States federal government be accessible to the public. The ABA provides uniform standards for the design, construction, and alteration of buildings so that persons with disabilities will have ready access to and use of them. These standards will be incorporated into the design of this facility in order to meet the ABA.

Special Area Designations

There are no specially designated areas that would be affected by the project (i.e., Research Natural Areas, Inventoried Roadless Areas, Wilderness Areas, and Wild and Scenic Rivers).

Tahoe Regional Planning Agency

This project will be reviewed by TRPA consistent with the terms of the 1989 MOU between TRPA and the Forest Service. Depending on the extent of implementation phases, project permits may be required.

Local Agency Permitting Requirements and Coordination

Any ground-disturbing project activities that occur between October 15 and May 1 will require a grading exemption from TRPA and LRWQCB. In addition, any required permits will be obtained from TRPA and / or the LRWQCB prior to project implementation. Project documents have been shared and reviewed with both TRPA and the LRWQCB.

Appropriate permits will be obtained with CalTrans prior to implementation affecting the right-of-way along SR 89.

Chapter 2 – Alternatives, including the Proposed Action

The range of alternatives the Forest Service considered for this analysis was bound by the purpose and need underlying the Proposed Action, the project area boundary, as well as by the issues that arose from internal discourse and stakeholder input (Chapter 1 Forest Service Handbook 1909.15 directs the Forest to consider a reasonable range of alternatives). Reasonable alternatives to the proposed action should fulfill the purpose and need and address unresolved conflicts related to the proposed action.

In response to public input on the EA during the comment period, Alternative 4 was developed, and is described below.

2.1 Alternative 1: No Action

Under this alternative, neither the Proposed Action (Alternative 2) nor Alternative 3 would be implemented. Existing conditions and management direction within the project area would remain.

2.2 Alternative 2: Proposed Action

Improvements in Best Management Practices (BMPs) are proposed at the Tallac Historic Site to bring the site into compliance with water quality protection standards, improve access, and protect resources. This includes implementation of water quality protection BMPs where appropriate to reduce storm water runoff volume, reduce peak flow levels, and reduce the amount of sediment and pollutants reaching Lake Tahoe. Additionally the Proposed Action would provide for universal accessibility consistent with the Forest Service Outdoor Recreation Accessibility Guidelines (FSORAG) and Architectural Barriers Act (ABA), as well as improve the efficiency of site circulation.

Changes from the Original Proposed Action presented during public Scoping

The Proposed Action outlined below is on the whole substantially similar to the proposed action sent to the public during the scoping period (beginning September 2012), with two main exceptions. The original proposed action described improving the Volunteer RV campground within the Tallac Historic Site and did not include improvements to the Baldwin Trailer Park. Concerns were raised about the impact of the loop road on the Volunteer RV lot (essentially the concern that the "private" parts of the site would be visible from the new loop road, and vice versa). Subsequently the Baldwin Trailer Park site was added to the project area as an alternative location for the volunteer camping opportunity. Furthermore, the original proposed action proposed only 32 additional parking spaces at the Valhalla parking lot. The parking was increased from 32 to 45 additional spaces in response to comments regarding the need for additional parking increases at the site (above what was proposed). Additionally, an area that provides turn-around options at each loop road intersection with SR 89 has been added to the alternative. An increase in non-motorized trail connections is also included in the alternative based on public input.

Proposed Action/Alternative 2

See **Figure 2-1**. Activities may include:

Installation of storm water management structures to infiltrate storm water (based on infiltrating water from the 1-inch in 1-hour and 2-inch in 24-hour storm events) including:

- infiltration basins/trenches (including drip line trenches for structures)
- planted swales
- below ground infiltration features (open-bottom, non-conveyance structures).

Installation of BMPs along the shore zone (A) including:

- Repair/replacement of fencing along the beach (approximately 2000 linear feet)
- Slope stabilization where needed along the beach using vegetation or structural means (i.e. boulders, terraces, stairs, etc.).

Installation of BMPs at Tallac Point including:

- Installation of interpretive signage at Tallac Point Beach (also known as Kiva Point beach) about dog and human waste issues, as well as about the sensitivity of the marsh habitat and presence of Tahoe yellowcress (a TES species)
- Removal or restoration of select user-created trails (**B1**)
- Installation of a barrier between the Tallac Point beach area and Taylor Creek Marsh. The barrier may be in the form of a split-rail fence, bollards, posts with signs, etc. Approximately 850 feet in length and maximum 60" high. (**B2**)
- Installation of a restroom building (**B3**) that contains six unisex universally accessible toilet rooms in a design similar to the existing restroom facility at the Tallac public parking area.
- Upgrade the existing pathway from the parking area to the beach to meet accessibility standards (surface is to be either a pervious paving system or a compacted decomposed granite surface) (**B4**)
- Addition of 20 parking spaces in the Kiva Point Parking lot and associated circulation routes (**B5**).

Reconfiguration of vehicular circulation patterns (See C) including:

- Reduction in the number of SR 89 entrance road intersections on the site from 3 to 2
- Removal of the existing Tallac/Kiva intersection (**C2**) and consolidation of it with the Taylor Creek intersection (**C4**)
- Relocation of the Valhalla intersection to align with the Camp Richardson Corral entrance road (**C1**)
- Rerouting of the roadways to create a loop connecting all parking areas (**C3**)
- Repair/widening of the roads to prevent off-pavement traffic
- Replacement of entry gates and pathways to meet accessibility standards
- Installation of a turn-around on each end of the loop road, as well as at the entrance to the Valhalla parking lot.

Construction of 120 parking spaces at the Tallac parking area (to include parking for up to 24 extended-length vehicles) in a new parking lot along the new circulation road (D) or incorporated into a re-design of the existing parking area. Related features include:

- Construction of a sidewalk to connect the new parking lot to the existing pedestrian circulation paths.
- Removal of small sections of curbing (curb cuts) in the Tallac parking lot to allow the storm water to flow off the pavement into infiltration basins.

Construction of 45 additional parking spaces at the Valhalla parking area. (E)

Reconfiguration of the volunteer RV campground at the Baldwin Trailer Site (F)including:

- Construct 15 additional campsite spurs (maximum 60' long x 20' wide) and associated circulation routes
- Provide sewer, water, and electrical hookups to each campsite
- Renovate/replace the existing campground support building and needed support facilities
- The existing RV campground area within the Historic Site would remain unimproved with the exception of stormwater BMPs.

Installation/repair of vehicle and pedestrian barriers where appropriate.

Formalize and pave the existing unimproved parking area near the Valhalla entrance on SR 89 to complement the proposed Caltrans improvements (G) including:

- Connecting the parking area to the existing bike path via a paved walkway.

Installation of Class I multi-use trails adjacent (but along a separate alignment) to the new loop road and parking lot access roads.

Reconfiguration/renovation of existing pedestrian pathways to meet accessibility guidelines and existing use levels.

Removal of trees associated with implementation of the project elements described above.

Revegetation of project-related disturbance areas with seeds of native plant species

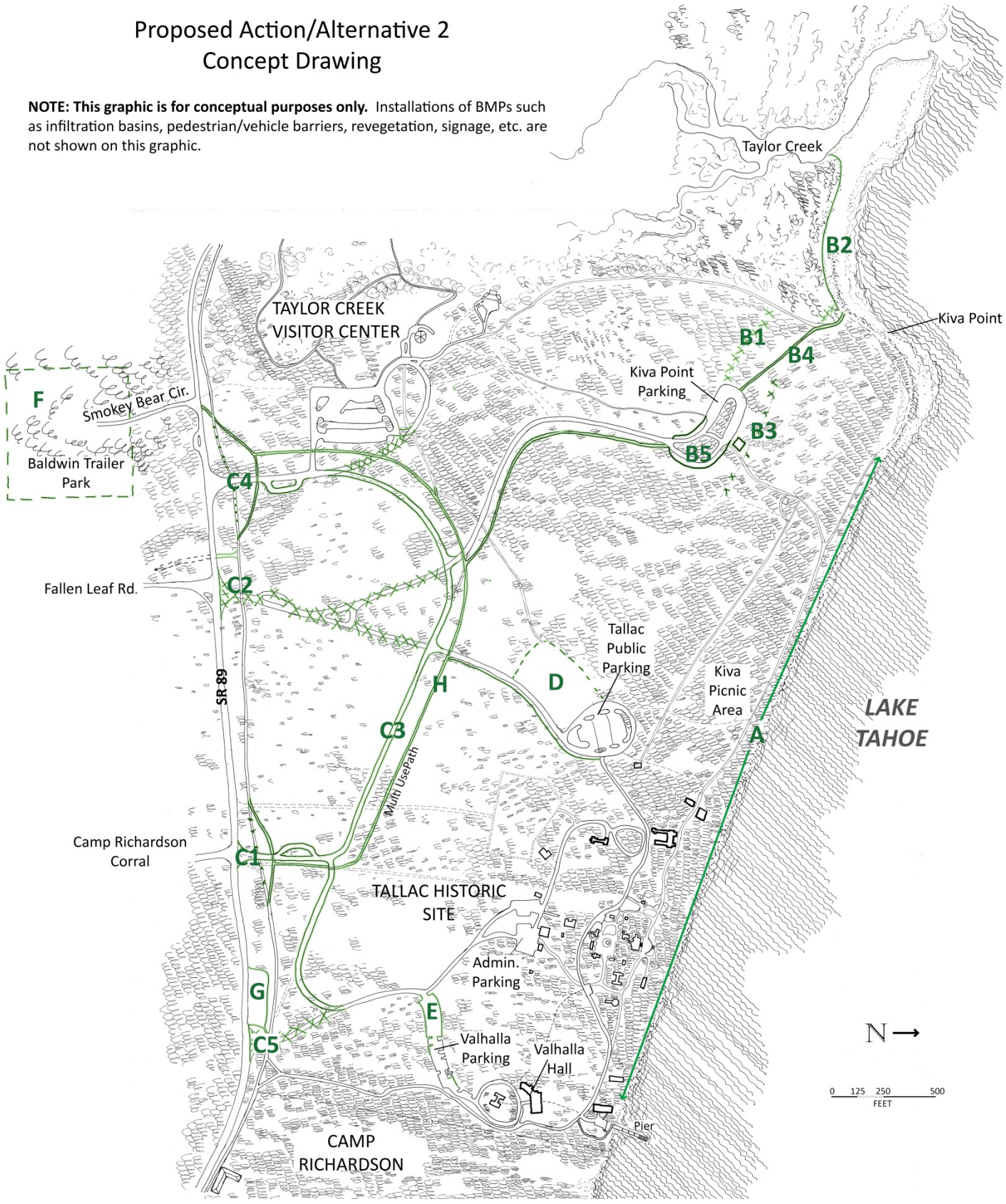


Figure 2-1. Concept Sketch of the Proposed Action/Alternative 2.

2.2.1 Project Design Features:

Activities associated with implementation of this project could have localized, short-term effects. The following design features have been incorporated into the Proposed Action and Alternatives and are intended to minimize or avoid effects on soils, water, vegetation, wildlife, fisheries, heritage resources, recreational resources, and air quality. In addition to the following design features, applicable BMPs are identified in *Water Quality Management for Forest System Lands in California* (USDA Forest Service 2000a). Adherence to these BMPs ensures compliance with the Clean Water Act. These specific BMPs are listed in Appendix A. Detailed specification for these BMPs would be incorporated into the final design plans and SWPPP (Storm Water Pollution Prevention Plan) which would be approved by the LRWQCB prior to issuance of a project permit.

Air Quality

AIR-1 The project would include standard dust control measures as part of its compliance with local air quality protection regulations (El Dorado County Air Quality Management District and TRPA).

AIR-2 Water all exposed stockpiled materials (soils, mulch) during construction to avoid dry material conditions that may be prone to wind erosion during storage. Cover exposed stockpiled materials between periods of active construction to prevent wind and water erosion.

AIR-3 Prohibit vegetative slash and construction burning.

Botany

Special Status Species

BOT-1 ***ERIOGONUM LUTEOLUM VAR. SALTUARIUM (GOLDENCARPET BUCKWHEAT)*** No plants were found during botanical surveys for the proposed project. If any plants are found prior to or during project implementation, resource protection measures will be implemented to ensure their full protection. Measures may include, but are not limited to, flagging, buffering, and avoiding the populations. There will be an amendment to the project file documenting any new Threatened, Endangered, Sensitive, or Proposed (TESP) plant occurrences.

BOT-2 ***RORIPPA SUBUMBELLATA (TAHOE YELLOW CRESS)*** No plants were found during botanical surveys for the proposed project. If any plants are found prior to or during project implementation, resource protection measures will be implemented to ensure their full protection. Measures may include, but are not limited to, flagging, buffering, and avoiding the populations. There will be an amendment to the project file documenting any new TESP plant occurrences.

INVASIVE PLANTS

BOT-3 The project would include standard protection measures in accordance with the USDA Invasive Species Management direction (FSM 2900), the USDA

Forest Service Pacific Southwest Region Noxious Weed Management Strategy (August 4, 2000), and the Lake Tahoe Basin Weed Coordinating Group (LTBWCG) Strategic Plan (*March 13, 2003; amended March 22, 2006*).

BOT-4 Noxious weed surveys for the proposed project were completed, and several noxious weed infestations were identified (as defined in the Sierra Nevada Forest Plan Amendment, part 3.6). The following species require control or treatment within the project area:

Cheatgrass (*Bromus tectorum*): Several areas within the project area are infested with cheatgrass. Due to the large distribution of cheatgrass, an inventory of occurrences cannot be reasonably maintained. Therefore, cheatgrass mitigations are provided on an infestation-by-infestation basis. At least two weeks prior to implementation, the project leader will discuss site-specific cheatgrass mitigation options with the Forest Botanist or their appointed representative. In general, infestations less than 50 square feet in size will be treated; treatment options include, but are not limited to, hand pulling and bagging the plants. Larger cheat grass infestations (> ~50 square feet) will be avoided as much as feasible. When working in cheatgrass-infested areas, vehicles, equipment, and clothing/shoes will be cleaned before moving to non-infested areas.

Bull thistle (*Cirsium vulgare*): Bull thistle is known to occur at ten sites within the project area (CIVU 136C, 137A, 201, 202, 203A, 216, 313B, 362A, 814, and 820). Bull thistle will be treated at least one week prior to project implementation. Treatment options include, but are not limited to, manual removal by a) digging out as much of the root as possible and either bagging the plant or laying it out where the roots will not be in contact with the ground; and b) if in bud or flowering, clipping and bagging all buds and flowers.

Scotch broom (*Cytisus scoparius*): Scotch broom is known to occur at one site within the project area (CYSC 748). This site will be treated at least one week prior to project implementation. Treatment options include, but are not limited to, manual removal by a) digging out as much of the root as possible and either bagging the plant or laying it out where the roots will not be in contact with the ground; and b) if fruiting or seeding, clipping and bagging all fruits.

Perennial pepperweed (*Lepidium latifolium*): Perennial pepperweed is known to occur at one site within the project area (LELA 136A). Perennial pepperweed will be treated at least one week prior to project implementation. Treatment options include but are not limited to chemical treatment, where feasible, and manual treatment. If treatment is not feasible, the infestation will be flagged and all project activities will be prohibited within the control area. At least one month prior to implementation, the project leader will discuss site-specific mitigation options with the Forest Botanist or their appointed representative.

Oxeye daisy (*Leucanthemum vulgare*): Oxeye daisy is known to occur at five sites within the project area (LEVU 136B, 137B, 203B, 362B, and 610). These sites will be treated at least one week prior to project implementation. Treatment options include but are not limited to chemical treatment, where feasible, and manual treatment. If treatment is not feasible, the infestation will be flagged and all project activities will be prohibited within the control area. At least one month prior to implementation, the project leader will discuss site-specific mitigation options with the Forest Botanist or their appointed representative.

Yellow toadflax (*Linaria vulgaris*): Yellow toadflax is known to occur at three sites within the project area (LIVU 281, 365, and 434). These sites will be treated at least one week prior to project implementation. Treatment options include but are not limited to chemical treatment, where feasible, and manual treatment. If treatment is not feasible, the infestation will be flagged and all project activities will be prohibited within the control area. At least one month prior to implementation, the project leader will discuss site-specific mitigation options with the Forest Botanist or their appointed representative.

Heritage Resources

The project would include requirements outlined in Section 106 of the National Historic Preservation Act of 1966 (NHPA) (36 CFR Part 800). In addition:

HR-1 Flag and avoid known Washoe heritage sites.

HR-2 Provide advanced notice to Washoe Tribal site monitors to observe ground disturbing activities, including trenching and tree stump removal at specified locations.

HR-3 If previously unidentified archeological deposits are discovered during project implementation, ground disturbing activities will stop and the LTBMU archaeologist will be notified. Project activities will not proceed until 36 CFR 800 requirements have been fulfilled.

HR-3 Protect historic landscape features including horticultural features during project activities. If implementation of needed BMPs cannot avoid these features, they will be replaced following implementation.

Recreation

REC-1 Prepare a traffic safety and control plan prior to commencing project implementation. The plan will provide for public safety on Forest Service controlled roads and trails open to public travel.

REC-2 Provide advanced notice to the public and area permittees to ensure that they are aware of proposed project activity, including tree removal. Post signs in project areas near public access points to highlight the proposed action and impacts to public access.

REC-3 Maintain recreational facilities in a usable condition to the extent possible as long as human health and safety is not compromised and project implementation is unimpeded.

REC-4 Initiate temporary forest closure only during the project activity period to ensure public safety. Closure should be as limited as possible to reduce restrictions to public access.

REC-5 Include design parameters for the Camp Richardson Corral vehicles (horse-drawn sleigh and wagon) along a permitted route. This may include curb cuts, removal of barriers within the needed vehicle turning radii, or other design features to allow for safe and clear passage of approved vehicles during all seasons.

Soil and Water

The project would include standard protection measures in accordance with the Forest Service publication Water Quality Management for National Forest System Lands in California (USDA Forest Service 2011). In addition:

SOI-1 During and after periods of inclement weather, consult with an LTBMU hydrologist to determine if soil conditions are sufficiently dry and stable to allow construction to continue without the threat of substantial erosion, sedimentation, or offsite sediment transport.

SOI-2 Restore areas disturbed during construction activities after construction has ended (such as staging areas and access road footprints). Restoration could include decompacting soil and/or mulching (BMP 2-2).

SOI-3 Staging of materials and equipment will be limited to existing disturbed areas (where soils are already compacted and vegetation has been cleared). No new disturbance will be created for staging and stockpile areas.

Wildlife

The project would include standard protection measures in accordance with Section 7(c) of the Endangered Species Act. In addition:

WILD-1 Limited operating periods (LOPs) restrict the type, spatial extent, and timing of project activities to minimize disturbance to breeding pairs. If special status species are detected in the project vicinity, LOPs would be implemented as determined by the project biologist. LOPs are based on habitat suitability or the most current wildlife data. (LTBMU LRMP S&G page IV-26, IV-27, Forest Order 19-86-99; SNFPA 2004 S&G 57, 62, 75, 76, 77, 78, 79, 83, 85, 88; TRPA Code chapter 78).

WILD-2 Any sightings of threatened, endangered, candidate, proposed, or sensitive species would be reported to the project biologist. Nests and dens would be protected with flagging, fencing, or LOPs in accordance with management

direction. Species identification, known locations, and protection procedures would be addressed with implementation crews during a pre-construction tailgate meeting.

WILD-3 Snags would be retained for wildlife unless deemed a hazard tree (LTBMU LRMP IV26, SNFPA ROD 51.11, TRPA Code 78.2D).

WILD-4 Existing downed logs greater than 20 inches dbh would be retained. Logs moved during construction would be repositioned. Preference would be given to snags that have to be felled for public safety, then to the largest logs available in a variety of decay stages for wildlife habitat (LTBMU LRMP IV-26, SNFPA ROD 51.10, 51.11, TRPA Code 78.2D).

WILD-5 Bear proof garbage dumpsters would be temporarily installed during implementation, or food related trash would be removed daily to avoid attracting wildlife to the project area.

WILD-6 Removal of larger trees, as required for installation of BMPs, would be minimized. Tree health, vigor, and evidence of disease and insect infestation would be factors for determining tree retention, followed by species preference. Species retention preference would be given to large cedars, then pines, and then firs.

Monitoring

The following is a preliminary list of monitoring items that would be carried forward as a part of the project implementation.

- The Historic Facilities BMP Retrofit project would be included in the pool of projects for random BMP evaluations under the Best Management Practices Evaluation Program (BMPEP) program. Each year the LTBMU completes evaluations for the BMPEP as part of the Pacific Southwest Region's effort to evaluate the implementation and effectiveness of BMPs created for protecting soil and water resources associated with Forest Service management activities.
- Monitoring to ensure that all contract items including temporary BMPs, design features, and permit requirements are being followed, will be provided by the Forest Service Contracting Officer's Representative following protocols established for public works contract administration.

2.3 Alternative 3

Alternative 3 was developed based on relevant issues identified during project scoping. It contains all project design features described above. Under this Alternative, improvements in Best Management Practices (BMPs) are proposed at the Tallac Historic Site to bring the site into compliance with water quality protection standards, improve access, and protect resources. This includes implementation of water quality protection BMPs where appropriate to reduce storm water runoff volume, reduce peak flow levels, and reduce the amount of sediment and pollutants reaching Lake Tahoe. Additionally the Proposed Action would provide for universal accessibility consistent with the Forest Service Outdoor Recreation Accessibility Guidelines (FSORAG) and Architectural Barriers Act (ABA), as well as improve the efficiency of site circulation.

Issues Identified during Scoping that Alternative 3 responds to

Table 2-1. Relevant significant issues raised during scoping.

Issue	Forest Service Response
Impacts to historic and visual character of site from the loop road and volunteer campground improvements.	The visual and noise impact of the loop road was further analyzed in the Recreation, Heritage, and Circulation sections of Chapter 3. The Baldwin Trailer Park site was added to the analysis area and included in the proposed action as an alternative to the RV volunteer lot for volunteer camping. Upgrades to the RV volunteer campground were included in Alternative 3
Needs for additional day use parking,	100 Special Event parking spaces on the Polo Field site were included in Alternative 3.
Ability to control visitor parking during special events	100 Special Event parking spaces on the Polo Field site were included in Alternative 3.

Alternative 3

For ease of differentiation in the alternatives, only items that are different than Alternative 2 are shown below. All other items contained in Alternative 2 would be included in Alternative 3. See **Figure 2-2**.

Installation of BMPs at Tallac Point including:

- The pathway connecting the parking lot to the beach remains unimproved.

Reconfiguration of vehicular circulation patterns (C) including:

- Reduction in the number of SR 89 entrance road intersections on the site from 3 to 2
- Removal of the existing Taylor Creek Visitor Center intersection (**C2**) and consolidation of it with the Tallac/Kiva intersection at Heritage Way (**C4**)

- Repair/widening of the roads to accommodate a 4 foot wide bike/pedestrian lane along the Tallac Point access road (**C3**)
- Replacement of entry gates and pathways to meet accessibility standards.

Installation of 100 additional parking spaces at the Tallac parking area (to include parking for up to 24 extended-length vehicles) in a new parking lot adjacent to the existing Tallac Parking Lot. (D)

Construct 32 additional parking spaces at the Valhalla parking area. (E)

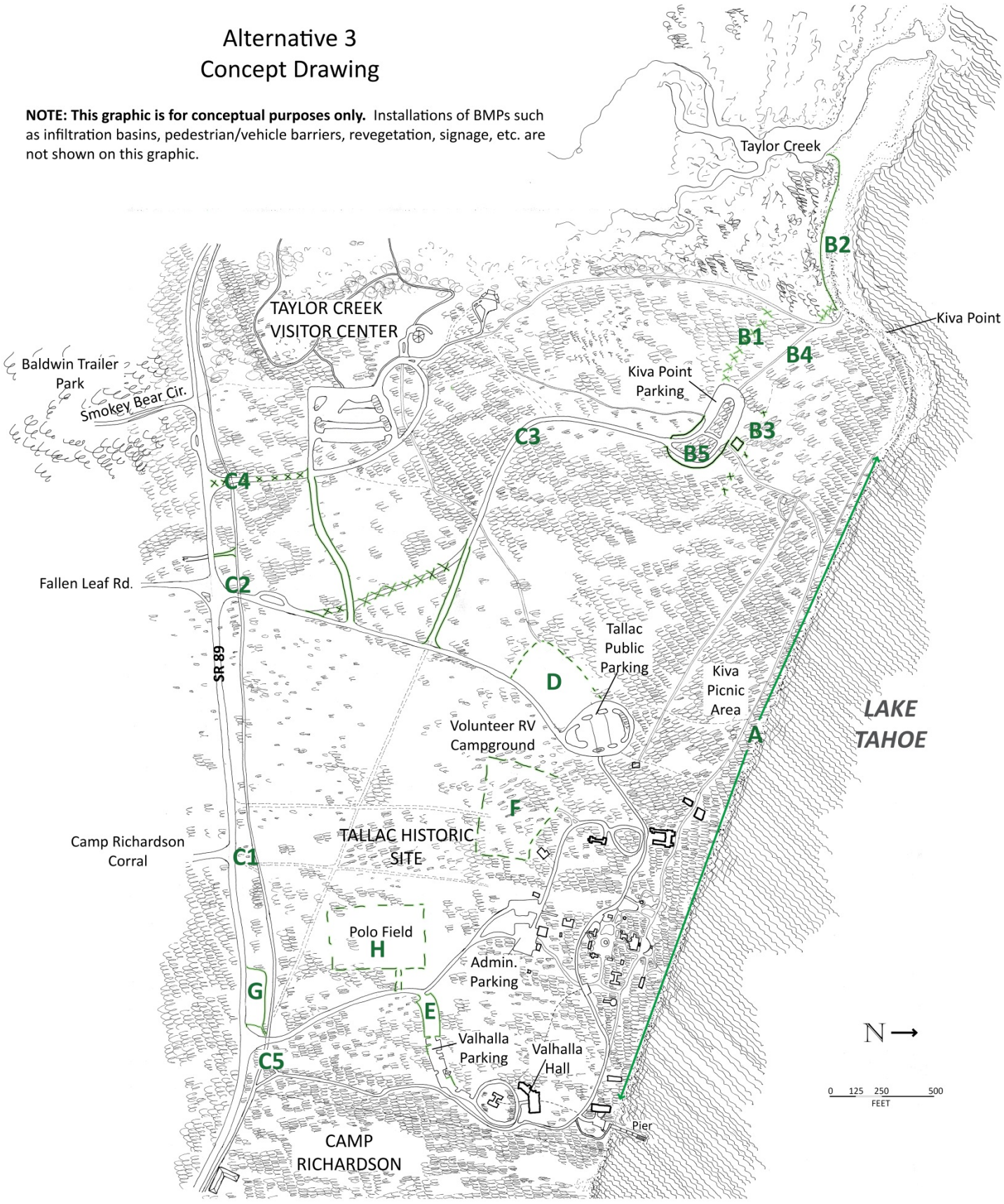
Paving and reconfiguration of the volunteer RV campground (F) including:

- Formalize 15 campsite spurs (paved; maximum 60’ long x 20’ wide) and associated circulation routes
- Provide sewer, water, and electrical hookups to each campsite and needed campground infrastructure.

Provide an event parking area (100 parking spaces) on the site of the historic Polo Field (H), including necessary infrastructure and ingress/egress.

- Surface to be a non-asphalt porous surface (including, but not limited to compacted native surface, compacted decomposed granite, porous pavers, or other non-impervious surface).

Figure 2-2. Concept sketch of Alternative 3.


Alternative 3
Concept Drawing
NOTE: This graphic is for conceptual purposes only. Installations of BMPs such as infiltration basins, pedestrian/vehicle barriers, revegetation, signage, etc. are not shown on this graphic.
Taylor Creek
B2
Kiva Point
TAYLOR CREEK VISITOR CENTER
B1
B4
Baldwin Trailer Park
Smokey Bear Cir.
Kiva Point Parking
B3
C3
B5
C4
Fallen Leaf Rd.
C2
SR 89
Tallac Public Parking
D
Kiva Picnic Area
LAKE TAHOE
A
Volunteer RV Campground
F
TALLAC HISTORIC SITE
Camp Richardson Corral
C1
Polo Field
H
Admin. Parking
G
E
Valhalla Parking
Valhalla Hall
C5
N
0 125 250 500
FEET
Pier
CAMP RICHARDSON

2.4 Alternative 4

Alternative 4 was developed based on input received during circulation of the EA for a 30-day comment period. It contains all project design features described above in Alternative 2.

Issues Identified during the Comment Period to which Alternative 4 responds

Table 2-2. Relevant significant issues raised during the comment period.

Issue	Forest Service Response
Impacts to historic and visual character of site from the loop road.	Additional heritage analysis was completed for all alternatives. No additional significant impacts were identified; however there are values that are not easily measured through this analysis. As such, a new alternative was developed that keeps the same attributes as the loop road proposed in Alternative 2, but moves the road further from the estates and closer to SR 89.
Needs for fewer additional parking spaces	Considerable public comment was received regarding the impact of additional parking spaces. Many commenters suggested no additional parking or removing existing parking, which does not meet the purpose and need for the project. However, in response to comments requesting fewer additional parking spaces, the number of parking spaces at the Tallac Public Parking Lot was reduced to 90.
Impacts to historic character from volunteer camping within the Tallac Historic Site	In response to comments concerning the impact to historic structures from improving the volunteer RV lot within the Tallac Historic Site, the improvements to the volunteer camping experience were left at the Baldwin Trailer Park under this alternative.

Alternative 4

For ease of differentiation in the alternatives, only items that are different than Alternative 2 are shown below. All other items contained in Alternative 2 would be included in Alternative 4. See **Figure 2-3**.

Reconfiguration of vehicular circulation patterns (See C) including:

- Rerouting of the roadways to create a loop connecting all parking areas (**C3**). The loop would be located to the south of the existing historic roadway (the gravel road that runs diagonally through the site from northwest to southeast and is known as Yank Clements road).

Construction of 90 parking spaces at the Tallac parking area (to include parking for up to 24 extended-length vehicles) in a new parking lot along the new circulation road (D) or incorporated into a re-design of the existing parking area.

Installation of Class I multi-use trails adjacent (but along a separate alignment) to the new loop road and parking lot access roads. The trails would utilize portions of historic road footprints.

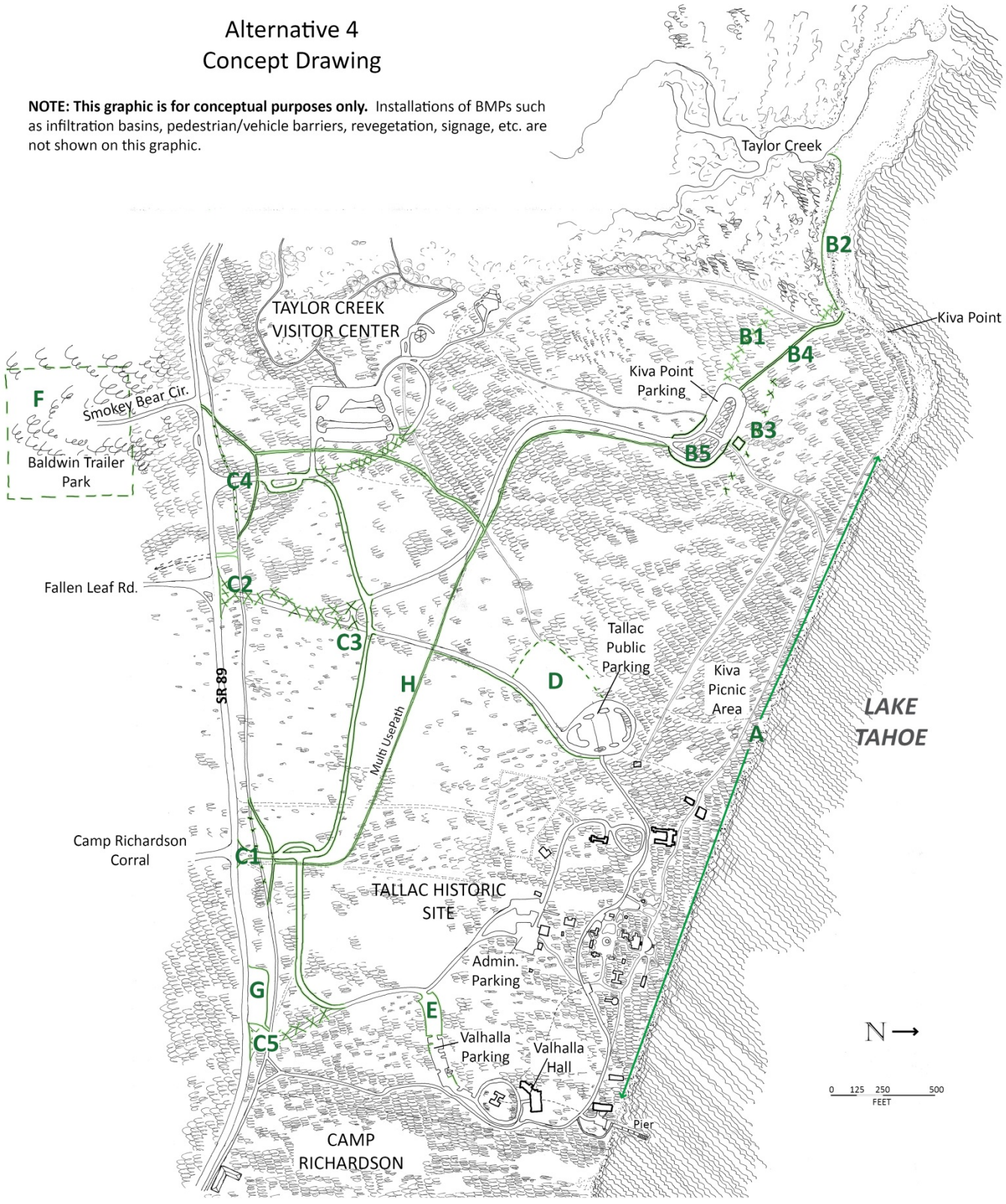


Figure 2-3. Concept sketch of Alternative 4

2.5 Summary of Actions by Alternative

Table 2-3 is a summary of actions by alternative. For ease of differentiation between alternatives, actions that are different in Alternative 2 and Alternative 3 are shown in **bold.**

Table 2-3. Summary of actions by alternative.

	Alternative 1 (No Action)	**Alternative 2 (Proposed Action)**	**Alternative 3**	**Alternative 4**
Stormwater BMPs	No BMPs or stormwater collection	Construct stormwater BMPs to infiltrate water from paved surfaces and areas that show evidence of erosion throughout the project area; Revegetate disturbed areas	Construct stormwater BMPs to infiltrate water from paved surfaces and areas that show evidence of erosion throughout the project area; Revegetate disturbed areas	Construct stormwater BMPs to infiltrate water from paved surfaces and areas that show evidence of erosion throughout the project area; Revegetate disturbed areas
Fencing & slope stabilization along Kiva Beach	Existing dilapidated fencing remains. Slope continues to slough into Lake Tahoe	Fencing replaced. Slope stabilization using vegetation or structural means	Fencing replaced. Slope stabilization using vegetation or structural means	Fencing replaced. Slope stabilization using vegetation or structural means
Tallac Point BMPs	No BMPs.	**Accessible pathway from parking lot to beach;** Install 6-stall restroom; install barrier along Taylor Creek Marsh; decommission user-created trails; install interpretive signage	Install 6-stall restroom; install barrier along Taylor Creek Marsh; decommission user-created trails; install interpretive signage	**Accessible pathway from parking lot to beach;** Install 6-8 stall restroom; install barrier along Taylor Creek Marsh; decommission user-created trails; install interpretive signage
Kiva Point parking lot	Existing lot to remain	Construct additional 20 parking spaces and necessary circulation	Construct additional 20 parking spaces and necessary circulation	Construct additional 20 parking spaces and necessary circulation
Vehicular Circulation	3 separate site entrances on SR 89 remain	Reduce the # of SR 89 intersections from 3 to 2; **Construct loop road; Remove the existing Tallac/Kiva intersection & consolidate with the Taylor Creek intersection; Move the Valhalla**	Reduce the # of SR 89 intersections from 3 to 2; **Remove the existing Taylor Creek Visitor Center intersection and consolidate with the Tallac/Kiva intersection at Heritage Way;** Repair/widen roads	Reduce the # of SR 89 intersections from 3 to 2; **Construct loop road between SR 89 and the historic road alignment; Remove the existing Tallac/Kiva intersection & consolidate with**

	Alternative 1 (No Action)	Alternative 2 (Proposed Action)	Alternative 3	Alternative 4
		intersection to align with the Camp Richardson Corral entrance road; Repair/widen the roads to prevent off-pavement traffic; Replace/install gates; Install barriers where needed to prevent off-pavement traffic	to prevent off-pavement traffic; Replace/install gates; Install barriers where needed to prevent off-pavement traffic	**the Taylor Creek intersection; Move the Valhalla intersection to align with the Camp Richardson Corral entrance road;** Repair/widen the roads to prevent off-pavement traffic; Replace/install gates; Install barriers where needed to prevent off-pavement traffic
Non-vehicular circulation	Limited accessible pathways	Repair/widen existing pathways to meet accessibility and use levels; Move existing pathways where needed to accommodate the new motorized circulation routes; **Construct multi-use pathways adjacent-to, but along a separate alignment from the loop road and access roads.**	Repair/widen existing pathways to meet accessibility and use levels; Move existing pathways where needed to accommodate the new motorized circulation routes; **Widen the Tallac Point access road to include a 4' wide striped non-motorized lane on each side of the road**	Repair/widen existing pathways to meet accessibility and use levels; Move existing pathways where needed to accommodate the new motorized circulation routes; **Construct multi-use pathways adjacent-to, but along a separate alignment from the loop road (utilizing portions of the historic road alignment, and access roads.**
Tallac public parking lot	Existing lot to remain	**Construct 120-car parking lot** (or modify existing lot)	**Construct 100-car parking lot** (or modify existing lot)	**Construct 90-car parking lot** (or modify existing lot)
Valhalla parking lot	Existing lot to remain	**Construct 45 additional parking spaces**	**Construct 32 additional parking spaces**	**Construct 45 additional parking spaces**
Volunteer campground	Existing volunteer camping opportunities remain	**Construct 15 additional campsites at Baldwin Trailer Park;** Upgrade utilities to all campsites; **Renovate/replace**	**Formalize and upgrade Volunteer RV lot (15 campsites total)**; Upgrade utilities to all campsites	**Construct 15 additional campsites at Baldwin Trailer Park;** Upgrade utilities to all campsites; **Renovate/replace campground**

	Alternative 1 (No Action)	Alternative 2 (Proposed Action)	Alternative 3	Alternative 4
		campground support building		**support building**
SR 89 parking area	Existing native surface lot to remain	Pave existing parking area to meet Caltrans improvements	Pave existing parking area to meet Caltrans improvements	Pave existing parking area to meet Caltrans improvements
Polo field	No improvements	No improvements	**Formalize Polo Field area for a 100-space parking lot, including necessary circulation routes**	No improvements

2.6 Summary of Environmental Effects by Alternative

Table 2-4 Summary of environmental effects by alternative.

	Alternative 1 (No Action)	Alternative 2 (Proposed Action)	Alternative 3	Alternative 4
Heritage Resources	No effect	No adverse effect	No adverse effect	No adverse effect
Recreation	Current experience remains unchanged.	Overall recreation experience improved through improved access, parking, and amenities.	Overall recreation experience improved through improved access, parking, and amenities, but to a lesser extent than under Alternative 2.	Overall recreation experience improved through improved access, parking, and amenities.
Botanical Resources	No effect on TES species, proposed, candidate or USFS R5 sensitive species.	May affect but not likely to result in a trend toward listing of TES species, proposed, candidate, or USFS R5 sensitive species.	May affect but not likely to result in a trend toward listing of TES species, proposed, candidate, or USFS R5 sensitive species.	May affect but not likely to result in a trend toward listing of TES species, proposed, candidate, or USFS R5 sensitive species.
Wildlife and Aquatic Resources	No effect on TES species, proposed, candidate or USFS R5 sensitive species.	May affect individuals but not likely to result in a trend toward listing of loss of viable habitat of TES species, proposed, candidate, or USFS R5 sensitive species.	May affect individuals but not likely to result in a trend toward listing of loss of viable habitat of TES species, proposed, candidate, or USFS R5 sensitive species.	May affect individuals but not likely to result in a trend toward listing of loss of viable habitat of TES species, proposed, candidate, or USFS R5 sensitive species.

	Alternative 1 (No Action)	Alternative 2 (Proposed Action)	Alternative 3	Alternative 4
Circulation	Current congestion levels and un-met parking needs remain unchanged.	Congestion and ease of access improved. Parking improvements address needs to the greatest extent.	Congestion and ease of access improved, but to a lesser extent than under Alternative 2. Parking improvements meet demand.	Congestion and ease of access improved. Parking improvements address needs to the greatest extent.

2.7 Alternatives Considered, but not in further detail

Description of Alternatives considered but not in detail.

Table 2-5. Alternatives considered, but not in detail.

Alternative Description	Forest Service Response
Similar to Alternative 3, the Taylor Creek Visitor Center entrance and the Tallac entrance would be consolidated. The consolidated intersection would be located at the existing Taylor Creek Visitor Center intersection (in Alternative 3 this consolidated intersection is located at Fallen Leaf Rd).	This alternative was analyzed during the development of the initial proposed action to help inform the need for a loop road. This alternative was not analyzed in further detail because public comment regarding the perceived safety of the Taylor Creek Visitor Center intersection drove the analysis of a single intersection at the Fallen Leaf Rd. intersection (Alternative 3).
Similar to Alternative 2, one of the intersections on SR 89 would be removed and a loop road would connect the consolidated intersections. Under this alternative, the loop road would connect Fallen Leaf Rd. to the Camp Richardson Corral intersection. The loop road was proposed to be smaller in size and didn't extend as far into the site as the loop road in Alternative 2.	Traffic analysis indicated this alternative would provide significantly longer waiting times (109 seconds at the west intersection and 90 seconds at the east intersection, compared to Alternative 2 wait times of 30 seconds and 92 seconds, respectively) and longer queue lengths (160 feet at the west intersection and 105 feet at the east intersection, compared to Alternative 2 queue lengths of 56 feet and 25 feet, respectively). Additionally, the alignment of the smaller loop road did not utilize existing disturbance.

Alternative Description	**Forest Service Response**
Under this alternative the following configuration was considered: - current ingress and egress roads would remain as they are; - the restroom at Kiva Point parking area would be constructed with a kayak/paddleboard washing station; -parking at Kiva Point would be increased by 70 spaces and parking at the Tallac area would be increased by 70 spaces; - parking at Valhalla would be increased by 45 spaces, and a vehicle turn-around would be constructed north of the highway and bike path near a relocated gate site; - 15 additional RV volunteer sites at Baldwin Trailer Park would be constructed to support volunteer programs and the facilities building would be replaced; - Paving of parking along SR 89 near the current Valhalla gate, along with paved path connections to the bike trail; -Construction of parking on the Polo Field to provide more than 100 parking spaces, and; -paving a bike trail parallel to Heritage Way to the approximate location of the Tallac information kiosk near the Baldwin museum.	The Deciding Official has the ability to select components of alternatives considered in detail, and existing road configuration is considered in Alternative 1, and would not accomplish project objectives of reducing congestion on SR 89. Alternatives 2,3, and 4 consider a restroom at Kiva Point parking area, however provision of a washing station for paddle sports equipment is not an identified need in the area. Increasing parking at Kiva Point and Tallac each by 70 spaces is inconsistent with demand. Future increases if need to meet future demands could be considered in the future. Alternatives 2 and 4 each consider increasing parking at Valhalla by 45 spaces. Constructing 15 volunteer campsites at the Baldwin Trailer park and paving of parking near the current Valhalla gate, along with connections to the bike path are elements of both Alternative 2 and 4, as is the provision of a bike path that connects the Pope-Baldwin bike trail to the area near the Baldwin museum. Constructing parking at the Polo Field location is a component of Alternative 3, however only 100 spaces are considered. Increasing this number would not be precluded from consideration in the future if it was not sufficient to meet current event demands.
Under this alternative the current ingress and egress roads would remain as they are and traffic would be routed on a new road near the administrative parking area to provide connection to the volunteer RV campground and the Tallac parking area. Additionally, a new road would be constructed parallel to SR 89 which connects Heritage Way to the Taylor Creek Visitor Center.	While this alternative does improve connectivity within the site it brings vehicle traffic much closer to the estate area, and does not provide an intuitive circulation pattern for visitors. Public comment throughout the planning process has expressed concern regarding the impacts that roads could have to the historic estates and those visiting them.

Chapter 3 – Affected Environment and Environmental Consequences

This section summarizes the potential impacts of the proposed action and alternatives for each affected resource.

3.0 Introduction

The Council on Environmental Quality (CEQ) regulations direct that agencies succinctly describe the environment that may be affected by the alternatives under consideration (40 CFR 1502.15). This chapter describes the existing physical, biological, social, and economic aspects of the project area that have the potential to be affected by implementing any of the alternatives (i.e., the existing conditions). Each description of the existing conditions is followed by a description of the environmental effects (direct, indirect, and cumulative) that would be expected to result from undertaking the proposed action or other alternatives. Together, these descriptions form the scientific and analytical basis for the comparison of effects table found at the end of Chapter 2, "Alternatives, Including the Proposed Action."

3.0.1 Organization of Chapter 3

Chapter 3 combines information on the existing conditions and environmental effects of the alternatives for the various resources. The information is separated into these resource areas for ease in reading. The discussion of alternatives is organized by resource area, and each resource area is presented as follow:

- *Introduction*. The scope of the analysis briefly describes the geographic area(s) for the individual resource and its indicators potentially affected by implementation of the proposed action or alternative. The scope of the analysis varies according to individual resource area and may also vary for direct, indirect, and cumulative effects.
- *Affected Environment.* The existing conditions section provides a description of the resource environment that is potentially affected based on current resource conditions, uses, and management decisions.
- *Direct, Indirect, and Cumulative Effects.* This section provides an analysis of direct, indirect, and cumulative environmental effects on the resource area by implementing each of the alternatives, according to the indicators and issues identified for that resource.

Direct effects are caused by the actions to implement an alternative, and occur at the same time and place. Indirect effects are caused by the implementation action and are later in time or removed in distance, but are still reasonably foreseeable (i.e., likely to occur within the duration of the project).

Cumulative effects are the result of the incremental direct and indirect effects of any action when added to other past, present, and reasonably foreseeable future actions. Cumulative effects can result from individually minor, but collectively significant actions, taking place over a period of time.

3.0.2 Projects Considered for Cumulative Effects

Past Projects

In order to understand the contribution of past actions to the cumulative effects of the proposed action and alternatives, this analysis relies on current environmental conditions as a proxy for the impacts of past actions. This is because existing conditions reflect the aggregate impact of all prior actions that have affected this campground and resort area and might contribute to cumulative effects.

This cumulative effects analysis does not attempt to quantify the effects of past human actions by adding up all prior actions on an action-by-action basis. There are several reasons for not taking this approach. First, a catalog and analysis of all past actions would be impractical to compile and unduly costly to obtain. Current conditions have been affected by innumerable actions within the resort area in development of the resort to its current state today. Trying to isolate the individual actions that continue to have residual impacts would be nearly impossible. Second, providing the details of past actions on an individual basis would not be useful to predict the cumulative effects of the proposed action or alternatives. In fact, focusing on individual actions would be less accurate than looking at existing conditions, because there is limited information on the environmental impacts of individual past actions, and one cannot reasonably identify each and every action over the last century that has contributed to current conditions. Additionally, focusing on the impacts of past human actions has the risk of ignoring the important residual effects of past natural events, which may contribute to cumulative effects just as much as human actions. By looking at current conditions, we are sure to capture all the residual effects of past human actions and natural events, regardless of which particular action or event contributed those effects. Third, public scoping for this project did not identify any public interest or need for detailed information on individual past actions. Finally, the CEQ issued an interpretive memorandum on June 24, 2005, regarding analysis of past actions, which states, “agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions.”

The cumulative effects analysis in this EA is also consistent with Forest Service NEPA Regulations (36 CFR 220.4(f)) (July 24, 2008), which state, in part:

> “CEQ regulations do not require the consideration of the individual effects of all past actions to determine the present effects of past actions. Once the agency has identified those present effects of past actions that warrant consideration, the agency assesses the extent that the effects of the proposal for agency action or its alternatives will add to, modify, or mitigate those effects. The final analysis documents an agency assessment of the cumulative effects of the actions considered (including past, present, and reasonable foreseeable future actions) on the affected environment. With respect to past actions, during the scoping process and subsequent preparation of the analysis, the agency must determine what information regarding past actions is useful and relevant to the required analysis of cumulative effects. Cataloging past actions and specific information about the direct and indirect effects of their design and implementation could in some contexts be useful to predict the cumulative effects of the proposal. The CEQ regulations, however, do not require agencies to catalogue or exhaustively list and analyze all individual past actions. Simply because information about past actions may be available or obtained with reasonable effort does not mean that it is relevant and necessary to inform decision making. (40 CFR 1508.7)”

Present Projects

Additional information on these projects and those in the planning stage listed below can be found at www.fs.fed.us/r5/ltbmu, under "Land and Resources Management" and search "Projects."

There are five projects to be considered:

- Angora Fire Restoration: this project was approved in 2010. The closest treatment stands are 0.8 mile south of the project boundary and involve removal of dead trees and thinning of residual conifer stands from the Angora Fire. These stands do not occur in the same 7th field subwatershed as the proposed project. Fuels treatments have been completed as of Fall 2012.

- Taylor Creek Environmental Education Center replacement, approximately 1 mile west of the proposed project. This project was approved by the LTBMU in 2010 but has not yet been implemented. The project involves replacement of the educational/visitor building at the 4.9-acre project site.

- South Shore Fuel Reduction – This project was approved in 2012. Work involves thinning and associated fuel reduction in conifer stands around South Lake Tahoe. There are several treatment stands adjacent to the project site, and one stand (Stand 35) is within the project site (between the Eagle's Nest and the Recreational Vehicle area on the south side of Highway 89).

- Fallen Leaf Trail ATM. The Fallen Leaf ATM project was approved in 2013 and is intended to design and implement a trail plan to meet current and future non-motorized recreational trail needs in the Fallen Leaf Lake area. New trails may be proposed to connect destinations to access points. Trailheads and trailhead parking would also be identified for upgrade with BMPs, existing unmanaged parking areas may be adopted and formalized, and new parking facilities may be proposed for construction.

- Camp Richardson Resort Campground and Vehicle Circulation BMP Retrofit was approved in 2013. The project will reduce the environmental impacts and improve the recreational opportunities and associated infrastructure in the Camp Richardson campground and the resort area by retrofitting the three existing campground areas with water quality protection BMPs. Facilities would be renovated or replaced to be responsive to current and projected recreational demands and be compliant with legal requirements for accessibility. Additional improvements are proposed to improve vehicular and pedestrian traffic patterns associated with the campground areas, including the installation of a pedestrian-activated signal on SR 89.

Future Projects

There are two projects to be considered:

- The California Department of Transportation is planning to address water quality concerns along the SR 89 right-of-way to the east and west of the project boundary. The improvements will likely result in restricted parking along portions of the highway corridor and improvements of existing intersections to reduce both traffic and pedestrian traffic and reduce vehicle congestion. Previous iterations of the project indicated that parking would be restricted along the entirety of the highway corridor through the project boundary, however the most recent communication with Caltrans indicates parking will not be restricted along the entire length. Some of the existing highway shoulder parking will be removed as a consequence of installing turn lanes and other water quality BMPs, but the remainder of shoulder parking would remain.

- The Taylor – Tallac Restoration Project is considering activities to improve hydrologic connectivity, water quality, and sustainability of recreation in the areas west of Taylor Creek on National Forest System lands including the Baldwin Beach day use recreation site.

3.1 Recreation

This analysis relies on the LTBMU's Forest Plan, the Forest Service Outdoor Recreation Accessibility Guidelines, the Architectural Barriers Act/American Disabilities Act, the Forest Service Built Environment Image Guide, and Forest Service Manual direction (USDA Forest Service 2006:Section 2333–Site and Facility Planning and Design; USDA Forest Service 2003:Chapter 2380–Landscape Management). In addition, it relies on the proposed action and alternative action descriptions.

3.1.1 Affected Environment

The Tallac Historic Site BMP retrofit project is located at the south end of Lake Tahoe within the Pope-Baldwin Recreation Area and has historically been a key recreation component of the Lake Tahoe Basin. It is part of a larger recreation complex that includes Baldwin Beach, Pope Beach, Camp Richardson Resort, Camp Richardson Corral, Fallen Leaf Campground, and the Taylor Creek Visitor Center. California State Scenic SR 89 bisects this project and the Pope-Baldwin Recreation Area. The Pope-Baldwin (Class I) surfaced bicycle trail parallels SR 89 and bisects this project.

For the purposes of this project, the Tallac Historic Site includes the Pope Estate, Baldwin Estate, Valhalla (Heller Estate), and Tallac Point Beach (also known as Kiva Point Beach or Tallac Point) (**Figure 3-1**). There are two vehicular entrances to the Tallac Historic Site from SR 89, but one entrance (I) has a gate that is administered by the Valhalla Estate permittee for visitors to the Valhalla Estate and special events. The general public therefore accesses the Tallac Historic Site from one entry road (H) that splits into two main drives that lead to the Kiva Point parking area (B) and Tallac Public Parking (D). A third entrance on SR 89 (G) leads to the Taylor Creek Visitor Center.

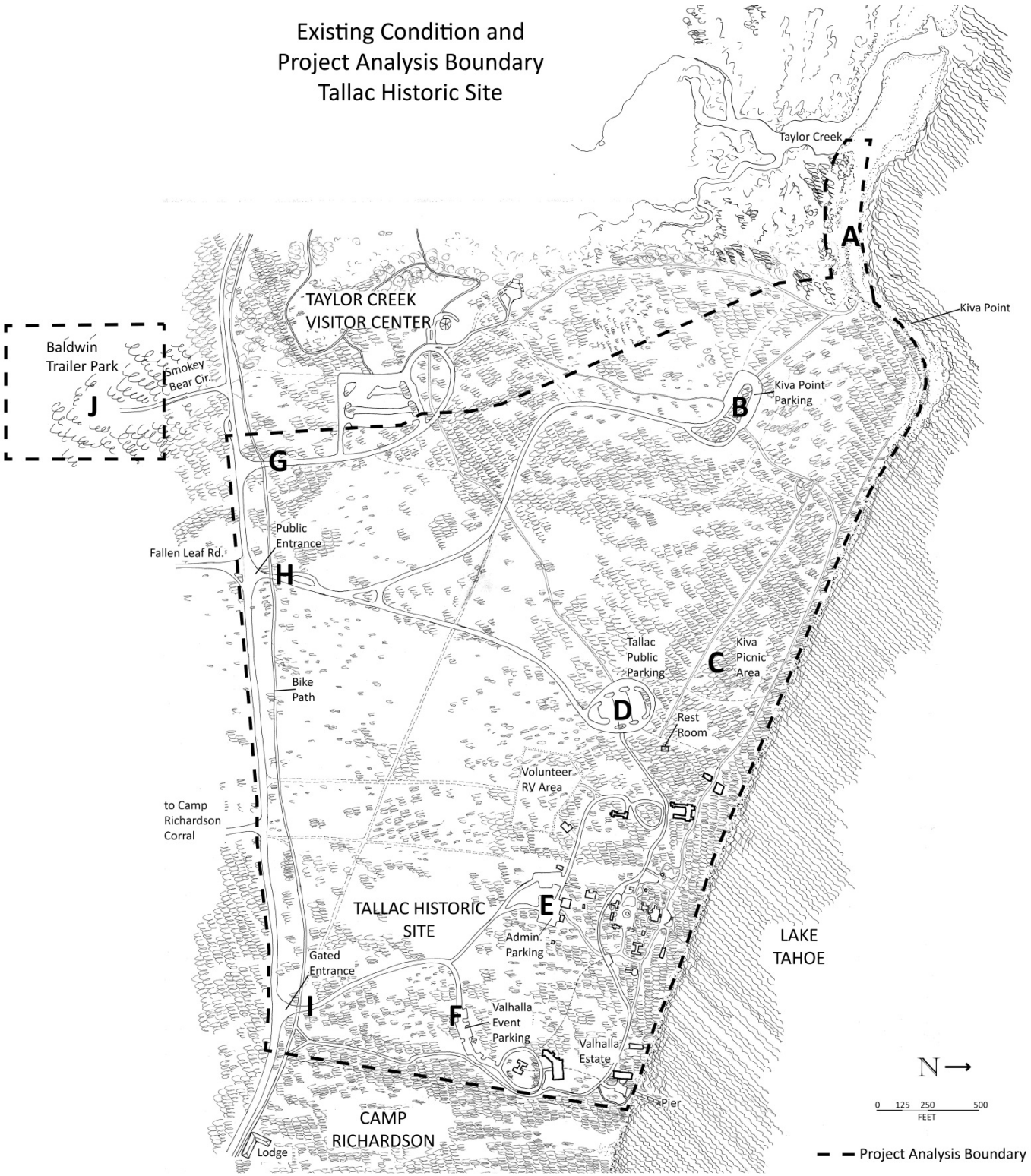
The western-most parking area (known as Kiva Point parking lot, shown as B in **Figure 3-1** serves mostly visitors to Tallac Point Beach (A), which is located on the northwest corner of the Tallac site. Visitors walk approximately 1/8 mile from the parking lot on a sand path to the beach area. Multiple user-created trails radiate from the parking lot to other areas of the site. Loss of vegetation and erosion on the slopes surrounding the beach area has resulted from the unmanaged beach access. Problems with off-leash dogs and human trampling of sensitive plant species within the marsh (outside of the analysis area) occurs as a result of the beach access that is located within the project boundary.

The eastern split of the main public road leads to the parking lot (D) for the Tallac Historic Estates (which includes the Pope, Baldwin, and Heller Estates) and the Kiva Picnic Area (C). The Pope and Baldwin estates are operated by the LTBMU in partnership with the Tahoe Heritage Foundation (THF). THF is a non-profit organization that relies on volunteers to conduct the majority of day-to-day operations at the site. Volunteers work in 5-week shifts and are allowed to camp in one of two volunteer-only campground areas (D and J). A typical operating season generally has four of these five-week shifts, with new volunteers rotating into each shift.

The campground area located within the Tallac Historic Site is known as the Volunteer RV parking lot, which currently has the capacity for 5 RVs. The RV lot surface is native soil with some wood chips. There are no designated circulation paths and as a result the entire area is

disturbed. In the summer months the area becomes very dusty and needs to be sprayed down due to the lack of vegetation or other soil cover. This campground allows volunteers

Figure 3-1. Existing facilities at the Tallac Historic Site.



to camp in immediate vicinity to where they work, but the lack of facilities reduces the popularity of this campground amongst the volunteers.

Volunteers also use the Baldwin Trailer Park site (J) as a campground. The Baldwin Trailer Park has 8 campsites. The paved campsites, newer electrical services, and the presence of an enclosed common area at this site contribute to the general preference of this campground by the volunteers. However, some volunteers find that crossing SR 89 on foot to reach the Tallac Historic Site from the Baldwin Trailer Park to be precarious, leading many to travel the short distance in their vehicles. LTBMU staff communication with the THF volunteers indicates that the volunteer program could be improved and expanded if the volunteer facilities were upgraded and/or expanded.

The Valhalla Estate is operated under a special use permit, including the Valhalla parking area (F) (which is gated, but available for special events), and portions of the administrative parking lot (E). General public vehicular traffic is not allowed within the estate areas and visitors not associated with a special event at Valhalla must park in the Tallac parking lot (D) or the parking area located on SR 89, and walk to the structures within the site. The capacities of the existing parking areas do not meet current use levels during peak use times. As an example, the Valhalla parking lot does not meet the typical demand for the special events held at the Boathouse Theater and Valhalla Hall, which forces many patrons to park in the Tallac parking lot. This reduces the capacity for visitors to the Tallac site that are not involved in the special event. During peak use weekends when the Tallac parking lot is full, visitors will often attempt to find a parking space in the Kiva Point parking lot or the Taylor Creek visitor center parking lot. This requires vehicles to enter and exit SR 89 again, further contributing to congestion along the corridor and general visitor frustration with the lack of connectivity within the site.

Although operated by two different entities, the entirety of the site is open to the public for pedestrian use and pathways connect each of the site elements. Currently it is not immediately apparent to the public that this is possible due to the separated highway entrances and lack of wayfinding guides. The perception of the public is that the estates and visitor center are completely unconnected (both for pedestrians and vehicular traffic) and that a vehicle is needed to access other areas of the site. This results in guests getting back in their vehicle after visiting one site feature, accessing the highway for a short distance, and re-entering the site through a different entrance to visit the rest of the site. The numerous parking and circulation issues adversely affect the soil and water resources, as well (see Section 3.3 Circulation).

The site is open to cross country skiing/snowshoeing in the winter, but none of the buildings are open for regular viewing or use during winter months. Visitors during the winter months must park along SR 89 because the roadways are gated and closed to vehicular traffic.

While visitors travel to the project area from throughout the nation and world, the highest concentration of users come from the metropolitan areas of San Francisco, Sacramento, and Reno. Many local residents also enjoy this area and both groups hold a high interest in the wide range of recreation activities in and adjacent to this project. The National Visitor Use Monitoring Results (NVUM) (USDA Forest Service 2010) estimate over 5.7 million people annually visit NFS Lands within the LTBMU and 13.6 percent of these visitors attend a visitor center or museum within the LTBMU. Use data collected by LTBMU employees and permittees indicate approximately 450,000 - 500,000 people visit the Taylor Creek Visitor

Center, 11,000 people participate directly in special events at the Valhalla Hall, and 180,000 people visit the Tallac Historic Site each year.

NVUM results provide additional data into the recreation use within the Lake Tahoe Basin Management Unit and estimate that 45% (above the national average) of visits are by females, over 10% of visits are by Asians, and over 5% of users are Hispanic. While facilities are in various states of disrepair, the NVUM results reveal that overall user satisfaction within the Lake Tahoe Basin Management Unit is extremely high. While this report cautions its use for individual sites, visitor use at the Tallac Historic Site provides anecdotal insights into the importance it plays as one of the key recreation components within the LTBMU.

Noise associated with the project area is the result of vehicle use on SR 89 and on internal roadways and parking areas. Additionally there is noise associated with special events such as the Great Gatsby Festival and the Wa She Shu It' Deh Native American Arts Festival within the Tallac Historic Site. Due to the distance between site features and the limitations on approved permitted activities, noise impacts from these events are generally localized. Events occurring at Camp Richardson Resort (i.e. Octoberfest, Renaissance Festival, outdoor bands playing at the Beacon Restaurant, etc.) do result in noise filtering into the Valhalla Estate.

This area falls within the LTBMU Forest Plan's Fallen Leaf Management Area, which is the most developed and heavily-used recreation area within the LTBMU. The Forest Plan classifies this area to be managed with a Recreation Opportunity Spectrum (ROS) class of rural where this level of development is permitted. Some specific features at the site provide accessibility for persons with disabilities; however they are not universally accessible. Deficiencies include the lack of accessible travel routes with appropriate grades and appropriate surfaces, water spigots, information stations, and rest rooms. This combined effect results in limited use and enjoyment by this user group and does not meet USFS management objectives.

In considering projects that may contribute to cumulative effects, the cumulative effects analysis was bound in time to 15 years in the future for foreseeable future actions. This approximates the time frame over which conditions due to the Proposed Action could be reasonably estimated. The area considered for the cumulative effects analysis is roughly a 2 mile area bounded by the Spring Creek recreation residence tract on the west and Pope Beach on the East.

3.1.2 Alternative 1 – No Action

Direct and Indirect Effects

There would be no direct effects of this alternative on recreation resources, access, or the quality of the recreation experience within the project area. Current project area noise levels would not change under this alternative. The indirect effect would result in the continuation of the existing facilities and environmental resource conditions within the project area. Some existing recreation facilities are in poor condition and would continue to further deteriorate, and persons with disabilities would continue to experience barriers to access.

Existing circulation and parking patterns would persist including the continuation of unmanaged parking along road and highway shoulder as well as highway congestion related to vehicles traveling from one site to another. Current fencing and access points between Lake Tahoe and the shoreline would remain in place with indirect effects of increased bank erosion anticipated. Kiva Point parking area would remain unchanged without permanent restroom facilities. It is anticipated that problems related to unmanaged human waste in this area would persist. Current non-motorized circulation would remain including the shared use of vehicle routes within the site which negatively affects congestion, visitor experience, and potential safety considerations. Volunteer camping would continue to occur in both the Volunteer Campground and the Baldwin Trailer Park. Camping in the Volunteer Campground would persist in a facility without BMPs to protect water quality. The division of the volunteer community and lack of facility improvements has the potential to negatively affect the success of the volunteer program.

Cumulative Effects

Under this alternative, there would be no cumulative effects. The indirect effects of this alternative, when combined with past, present, and foreseeable actions would not result in cumulative effects.

3.1.3 Alternative 2 – Proposed Action

Direct and Indirect Effects

Effects from circulation and parking-related actions

Implementing this alternative would have the direct effect of enhancing the quality of recreation opportunities within the project area. The most noticeable would be improvements to access and parking at the site. Impacts to water quality and air quality from these improvements are analyzed under Section 3.3 Circulation. The new interior loop road would allow for visitors to enter the site once and visit each feature within the site without having to re-enter SR 89. This will reduce visitor confusion associated with the multiple entrances under the existing condition. The entirety of the site can be accessed from either of the newly consolidated entrances. This will eliminate the majority of the trips that result from drivers entering the incorrect entrance and turning around to access the correct one. Additionally, when one parking lot fills during peak use times, visitors can enter the other parking lots without accessing SR 89 again.

In addition to reducing confusion and increasing the ease of access to the site for visitors, the presence of the new loop road and wayfinding signage will help to unify the site as one seamless recreation area. Visitors will be able to clearly identify how to access the other areas of the site both by walking and by driving (if desired). New and upgraded multi-use pathways are designed to facilitate easy access to the estates and the visitor center both from within the site and from SR 89.

The majority of the loop road is planned along the alignment of historic roads. Utilizing these existing linear features reduces the number of trees that need to be removed and the amount of new visual disturbance on the landscape. The new roadway will bring some of

the vehicular traffic that was previously occurring on SR 89 into the site. Concerns over increased noise impacts and increased urbanization of the site were raised during scoping. It is not anticipated that noise from the loop road will be heard from the estates because the distance between the two will still be substantial (approximately 0.25 miles of open forest area at the shortest distance). See Section 3.3.3 for additional analysis of noise impacts. Similarly, it is not anticipated that the loop road will be readily visible from the estates or impact visitor experience in the estates. The alternative would be consistent with the Forest Plan Visual Quality Objective of Partial Retention. Views into the estates along the proposed road alignment are almost entirely obscured by tree and vegetation cover. As such, the roadway would be difficult to perceive from the estates. Vehicles parked in the on-call fire crew parking area located to the south of the volunteer RV lot may be visible from the loop road. The areas around the estates that are currently closed to public vehicular traffic will continue to remain pedestrian-only. Vehicular travel along the loop road alignment meets the historic precedent of a roadway in that location.

Installation of expanded parking at the Kiva Point parking area and the Tallac public parking area will reduce the existing necessity for visitors to park on SR 89 and walk into the site on the roadways (mixing with vehicular traffic in the process) when the existing parking lots have filled. Capacity at the site is not expected to increase. Alternative 2 provides an increase in managed, BMP-compliant parking to accommodate uses that currently occur in an unmanaged fashion along the highway shoulder. No new programs or facilities are proposed that would attract an increased demand for the site.

The loop road also allows improved management of the parking areas during busy weekends such as the 4th of July, because administrators can more effectively control access to the loop road once all the parking lots have been filled. The Valhalla parking lot will continue to be managed by the permittee for events. The construction of an additional 45 parking spaces will meet the demand created by the Boathouse Theater and special events at Valhalla Hall, reducing the need for patrons of these events to park on SR 89 or in the Tallac public parking area.

Portions of the site under construction would be closed to the public during the duration of construction activities. To the extent possible, construction activities would be phased to allow for access to at least one day use parking area at a time and the estate areas would remain open for pedestrian access. Noise and visual impacts during construction would be temporary in time and location.

Effects from water quality BMPs

Project BMPs such as infiltration basins, planted swales, and below-ground infiltration features are expected to increase the quality of the recreation experience by reducing the incidence of flooded parking areas and walkways, as well as reducing erosion and other resource damage that contributes to a decline in the visual aesthetics of the area. Infiltration basins are designed to fit into the landscape and are located in areas that will not present a hazard to pedestrians. BMPs such as the repair of fencing along the beach and slope stabilization will also have a positive effect on the aesthetics of the area by reducing erosion. Fencing design and materials would be in keeping with the historic and alpine setting. These types of BMPs also help to inform the public of the appropriate places to access the beach without causing resource damage. BMPs within the estates area will be designed to avoid impacts to the historic gardens and other horticultural features which patrons view as a recreation activity. If these features cannot be avoided, they would be

replaced in kind; therefore impacts to this recreational activity will be minor and insignificant in nature.

Effects from Tallac Point improvements

The addition of a restroom building at the Kiva Point parking area will greatly improve the recreation experience at Tallac Point. The proposed restroom will reduce the incidence of human waste on the landscape, provide a benefit for water quality, improve public safety, as well as reduce the need for LTBMU employees and THF volunteers to come into contact with waste during clean-up efforts. The restroom building would accommodate up to eight stalls and include a foot wash station and an accessible route to the parking lot. The building will meet all Forest Service Built Environment Image Guidelines and will not be visible from Lake Tahoe. The proximity of the restroom to existing sewer utilities allows for the installation of flush toilets (as opposed to a vault toilet system), reducing any concern with odor control or groundwater contamination. The design of the building would be similar to the restroom near the Tallac public parking lot.

Other improvements to the Kiva Point parking area include an accessible pathway from the parking area to the beach. The hardened surface would increase the ease of access for persons with disabilities, as well as for families with small children and/or beach accessories. The presence of an improved pathway will also reduce the incidence of user-created trails. Installation of improved interpretive and regulatory signage at the parking lot and along the beach will help to inform visitors about the sensitive nature of Taylor Creek Marsh, Tahoe yellowcress protection issues, as well as appropriate behavior for people and dogs in that area. Restoration of user-created trails will help to improve the aesthetics of the area and reduce confusion about which pathways are acceptable for use.

The barrier separating Tallac Point beach and Taylor Creek Marsh would be designed to be visually compatible with the landscape (i.e. appropriate natural-looking materials) and may include a low fencing structure (under 60" high) or a series of barriers such as bollards. Any fencing structure would be visually porous and not create a solid visual or solid physical barrier. The barrier will not be a dominant visual feature on the landscape and will meet all TRPA threshold criteria for visual changes within the shore zone. The intention of the barrier is to create a clear definition of where the beach ends and the marsh begins and will serve both as a partial physical barrier and as a psychological cue to guests indicating the appropriate areas to recreate on. Interpretive signage along the barrier will also help to inform guests about the sensitivity of Taylor Creek Marsh and the damage that dogs and people can cause to the ecosystem. The proposed barrier would be above the high water mark.

Effects from pedestrian paths and multi-use trails improvements

Upgrading pedestrian paths and multi-use trails for accessibility will improve access for persons with disabilities and families with small children. The creation of separate multi-use pathways adjacent to the main access roads will improve both the access from SR 89 for pedestrians/bikers and the overall feeling of safety for guests who currently must walk/ride with vehicular traffic. Improved wayfinding signage will reduce confusion and help visitors to make informed decisions about how/where they travel within the site.

Paving the parking area along SR 89 (near the existing Valhalla entrance) and creating an accessible pathway will provide an accessible route into the site during times when the

gates are closed, including months that are outside of the normal operating season. The accessible route will also eliminate the need for non-motorized users to exit the paved surface to get around a closed gate, which occurs in the existing condition.

Effects from actions at the Baldwin Trailer Park

Under this alternative the majority of volunteer camping would move to the Baldwin Trailer Park. The existing volunteer RV lot within the Tallac Historic Site would remain available for overflow camping (such as when the volunteers are switching out shifts and there is an overlap of volunteers leaving and new volunteers arriving), but the overall footprint of the lot would be reduced through the installation of BMPs and limited revegetation. Improvements to the Baldwin Trailer Park are anticipated to increase the popularity of the THF volunteer program. The campsites, utilities, access routes, and campground support building would be upgraded to meet accessibility guidelines and current design standards. The apprehension some volunteers have regarding crossing SR 89 to reach the Tallac Historic Site is likely to remain, however the improved multi-use trails within the site and at the SR 89 intersection would improve the overall ease of getting from the campground to the estates.

Cumulative Effects

As discussed in section 3.0, there are three current projects and three reasonably foreseeable projects. Of these projects, the following projects have the potential to contribute to cumulative impacts due to their proximity to this project area. The Taylor Creek Environmental Center (Taylor Creek Visitor Center) replacement project would occur on the site of the existing visitor center. Should these two projects be implemented simultaneously, a temporary reduction in the number of day use parking spaces could be expected until phases of either project area are completed. The Camp Richardson Resort Campground BMP project is not expected to contribute cumulative effects to temporary short term parking reductions, but it could contribute to congestion related to construction activity if construction were to occur at the same time. No cumulative effects would result from implementation of the Fallen Leaf ATM project, which considers additional day use parking facilities. The Caltrans highway improvement project is anticipated to be completed before implementation of this project, however, should they occur at the same time there would be temporary displacement of day use parking spaces and additional traffic control measures may be necessary and contribute to short term congestion impacts.

There would be a short term cumulative effect as a result of machinery and chain saw noise from the South Shore Fuels Reduction project added to the tree removal noise associated with this project. These effects would be localized however, and temporary in nature.

3.1.4 Alternative 3

Direct and Indirect Effects

Effects from circulation and parking-related actions

Implementing this alternative would have the direct effect of enhancing the quality of recreation opportunities within the project area. The most noticeable would be improvements to the access and parking at the site. Impacts to water quality from these

improvements are analyzed under Section 3.3 Circulation. The reconfiguration of the Taylor Creek Visitor Center highway entrance and the Tallac public parking entrance into a single road will help to reduce the number of intersections on SR 89. This new entrance road would provide access to the Tallac public parking lot, Kiva Point parking lot, and the visitor center parking lot. This consolidated entrance would allow visitors to enter this portion of the site once and visit each feature without having to re-enter SR 89. This will reduce visitor confusion associated with the multiple entrances under the existing condition. This will eliminate some of the trips that result from drivers entering the incorrect entrance and turning around to access the correct one. Additionally, when the Tallac public parking lot fills during peak use times, visitors can enter the visitor center parking lot without accessing SR 89 again.

In addition to reducing visitor confusion and increasing the ease of access to the site for visitors, the new consolidated entrance and wayfinding signage will help visitors identify how to access the other areas of the site both by walking and by driving (if desired). New and upgraded multi-use pathways are designed to facilitate easy access to the estates and the visitor center both from within the site and from SR 89.

Installation of expanded parking at the Kiva Point parking area and the Tallac public parking area will reduce the existing necessity for visitors to park on SR 89 and walk into the site on the roadways (mixing with vehicular traffic in the process) when the existing parking lots have filled. Capacity at the site is not expected to increase. Alternative 3 provides an increase in managed, BMP-compliant parking to accommodate uses that currently occur in an unmanaged fashion along the highway shoulder. No new programs or facilities are proposed that would attract an increased demand for the site.

The Valhalla parking lot will continue to be managed by the permittee for events. The construction of an additional 32 parking spaces will more closely meet the demand created by the Boathouse Theater and special events at Valhalla Hall, reducing the need for patrons of these events to park on SR 89 or in the Tallac public parking area.

The addition of the 100 parking spaces at the Polo Field would be for special event use only. Currently visitors to the special events must park in the limited Valhalla parking lot spaces, the administrative parking lot, along SR 89, and in the Tallac public parking lot. The newly created Polo Field lot would accommodate the overflow parking that currently occurs in the Tallac public parking lot and along SR 89. This reduces the incidence of special event users filling the Tallac public parking lot and displacing general Tallac Historic Site visitors. The special event parking area also reduces the resource damage and general disarray that occurs along SR 89 as visitors attempt to park along the shoulder of SR 89. Directing these users to the Polo Field parking area will reduce the congestion along SR 89 and the overall safety of the corridor.

Construction impacts are the same as described for Alternative 2 (Section 3.1.3).

Effects from water quality BMPs

Effects from the installation of water quality BMPs are the same as the effects described for Alternative 2 (Section 3.1.3).

Effects from Tallac Point improvements

Direct and Indirect Effects are similar to those described for Alternative 2 (Section 3.1.3), with the exception of the accessible pathway proposed under that alternative which would not be upgraded.

Effects from pedestrian paths and multi-use trails improvements

Upgrading pedestrian paths and multi-use trails for accessibility will improve access for persons with disabilities and families with small children. The creation of a striped multi-use pedestrian/bike lane along the main access road would improve both the access from SR 89 for pedestrians/bikers and the overall feeling of safety for guests who currently must walk/ride with vehicular traffic. Improved wayfinding signage will reduce confusion and help visitors to make informed decisions about how/where they travel within the site.

Effects from the formalization and paving of the parking lot located on SR 89 just outside of the existing Valhalla entrance are the same as described for Alternative 2 (Section 3.1.3).

Effects from actions at the Volunteer RV Lot

Under this alternative the majority of the volunteer camping would occur at the Volunteer RV lot within the Tallac Historic Site. The campground would be formalized for a total of 15 paved campsites that meet accessibility and Forest Service design standards, including utilities. Improvements to the Volunteer RV lot are anticipated to indirectly increase the popularity of the THF volunteer program.

Cumulative Effects

Cumulative effects are the same as described for Alternative 2 (Section 3.1.3).

3.1.5 Alternative 4

Direct and Indirect Effects

Effects from circulation and parking-related actions

Effects from the installation of circulation and parking-related actions are the same as the effects described for Alternative 2 (Section 3.1.3) with the following exceptions:

- Parking increases at the Tallac Public Parking lot would be limited to 90 spaces. The increase is still expected to improve the supply of parking to better meet the demand during peak times.
- The loop road would be located further from the historic estates, further reducing any noise or visual impacts from the loop road over Alternative 2.

Construction impacts are the same as described for Alternative 2 (Section 3.1.3).

Effects from water quality BMPs

Effects from the installation of water quality BMPs are the same as the effects described for Alternative 2 (Section 3.1.3).

Effects from Tallac Point improvements

Direct and Indirect Effects are the same as those described for Alternative 2 (Section 3.1.3).

Effects from pedestrian paths and multi-use trails improvements

Effects from the installation of pedestrian paths and multi-use trails are the same as the effects described for Alternative 2 (Section 3.1.3).

Effects from actions at the Volunteer RV Lot

Effects from the installation of pedestrian paths and multi-use trails are the same as the effects described for Alternative 2 (Section 3.1.3).

Cumulative Effects

Cumulative effects are the same as described for Alternative 2 (Section 3.1.3).

3.1.5 Analytical Conclusions

The overall recreation opportunity and experience is improved to the greatest extent under Alternative 4. The loop road in Alternative 2 and 4 creates a unified site where each amenity is accessible from one main roadway. Congestion is reduced the most under Alternative 2 and 4 (see Section 3.3 Circulation), and ease of access to all areas of the site is improved more than in Alternative 3. Under Alternative 3 the division between Valhalla and the rest of the site would continue to persist. This division is a result of management and permit boundaries, not an actual physical barrier on the landscape. This is confusing to the visitors because the site is viewed as one historic property with multiple estates, not separate sites. The site cohesion allowed by Alternative 4 provides the visitors with site circulation and infrastructure that more closely meets their expectation and understanding of the site. It also allows for the greatest flexibility for site management in the future. Alternative 4 reduces the impacts to noise, visual, and heritage impacts from the loop road compared to Alternative 2, as well.

Alternative 3 more closely meets the parking demand at the site due to the use of the Polo Field for special event parking.

All action alternatives provide for improvements to accessibility and pedestrian access. The multi-use pathways in Alternative 2 and 4 provide the greatest improvement to the feeling of safety for pedestrians/bikers since the pathways are offset from the main roadway. The connectivity of the multi-use pathways under Alternative 2 and 4 are also the greatest. The accessible pathway from the Kiva Point parking lot to the beach provides greater access for persons with disabilities and overall ease of travel under Alternative 2 and 4.

Input from volunteer workers at the historic site indicates that the preference of the volunteers for one camping area over the other is mixed. Some volunteers would prefer to be closer to the historic estates, and others prefer to be located across SR 89 at the Baldwin Trailer Park. The privacy of the Baldwin Trailer Park is greater than at the Volunteer RV Lot, the vegetation cover is higher quality, and the public does not travel through the site on a

regular basis. Utilizing the Baldwin Trailer Park for volunteer camping also reduces the amount of administrative uses occurring within the developed recreation site, which is generally preferred from a management perspective. Volunteer campground improvements to Baldwin Trailer Park under Alternative 2 and 4 also better utilize existing infrastructure.

3.2 Heritage Resources

3.2.1 Introduction and Affected Environment

As a federal action, the undertaking of the proposed project must comply with NEPA and Section 106 (Codified as 36 CFR Part 800) of the National Historic Preservation Act (NHPA), and must consider effects on historic areas and properties. Section 106 of the NHPA prescribes specific criteria for determining whether a project would adversely affect a historic property, as defined in 36 CFR 800.5. An impact is considered significant when prehistoric or historic archaeological sites, structures, or objects listed in or eligible for listing in the National Register of Historic Places (NRHP) are subjected to the following effects:

- Physical destruction of or damage to all or part of the property.
- Alteration of a property.
- Removal of the property from its historic location.
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance.
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features.
- Neglect of a property that causes its deterioration.
- Transfer, lease, or sale of the property.

The LTBMU met with the California State Historic Preservation Officer (SHPO) on site, along with the Forest Service Regional Office heritage program manager, to review the project area and discuss potential effects related to project alternatives. Additional research and evaluation of site features, including historic transportation routes within the site, provides information regarding site features that contribute to the site's eligibility for listing on the National Register of Historic Properties, and the site's period of historic significance, 1894 -1930, and is available in the project record.

The LTBMU will formally consult with the SHPO regarding project analysis to ensure consistency with Section 106 of the NHPA. A final decision on the project will not occur until consultation with the SHPO is complete and there is concurrence on the determination of the project's effect on heritage resources.

The project Area of Potential Effect has been previously surveyed. As mentioned in the Project Description, much of the project area is located within the National Register-listed Tallac Historic Site District. This district is rich in turn of the century luxury residence and support facilities, including some historic travel routes which contribute to the site's historic integrity. The project area is also the location of the ruins of a turn of the century hotel, casino, cottages, promenade, and associated buildings. Additionally, a large prehistoric lithic scatter and several small prehistoric milling stations are located in the project area. Under all alternatives, the prehistoric and historic archaeological resources would be flagged and avoided by ground disturbing activities and would not be affected. Due to the extensive

nature of historic properties, all ground disturbing activities will be monitored by archaeologists to ensure that unknown buried resources are not disturbed.

Alternative 1 is the No-Action alternative. Under this scenario existing conditions and management would remain in place. As such, this alternative would have no direct, indirect, or cumulative effect on heritage resources.

3.2.2 Alternative 2

Installation of stormwater management structures

- Infiltration basins/trenches

These structures are visually unobtrusive and consistent with existing transportation facilities within the Tallac Historic Site (THS). They are associated with existing or proposed paved surfaces and will avoid known archaeological deposits. Outside of the THS they will avoid known archaeological deposits. Their installation will have "no effect" to historic resources under either of the action alternatives. Project design features protect garden areas within the THS.

- Planted Swales

Within the THS, these structures are visually unobtrusive and consistent with existing transportation infrastructure within the THS. They are associated with existing or proposed paved surfaces and will avoid known archaeological deposits. Outside of the THS they will avoid known archaeological deposits. Their installation will have "no effect" to historic resources under either of the action alternatives.

Installation of BMPs along the shorezone

- Repair/replacement of fencing

This maintenance of existing infrastructure will have "no effect" to historic resources.

- Slope stabilization

Within the THS district, these measures will be on the periphery and will not be visually intrusive to the site. They will provide protection and stabilization from erosion to the slope along the shoreline and will therefore provide protection to the THS. Their installation will be beneficial to the THS. Both within the THS and outside of the THS, ground disturbing activities will avoid any known archaeological resources. The installation of these measures will result in "no adverse effect" to historic resources under either of the action alternatives.

BMPs at Tallac Point.

All activities are outside of the THS boundary. All ground disturbing activities will avoid known archaeological resources. The implementation of these measures will have "no effect" to historic resources under either of the action alternatives.

Reconfiguration of vehicular circulation patterns

- Reduction in number of SR 89 entrance road intersections

These intersections are not contributing features to the site's eligibility for listing on the National Register of Historic Properties (NRHP) and their removal will have "no adverse effect" under any of the action alternatives.

- Removal of the existing Taylor Creek Visitor Center intersection

This intersection is outside the THS and is not a contributing feature to the site's eligibility for listing on the NRHP. Its removal will have "no effect" on historic properties under either of the action alternatives.

-Move Valhalla intersection to align with Camp Richardson Corral entrance road

This intersection is outside of the THS, away from the structures and features that contribute to the NHPA status. As described above, this intersection is not a contributing feature to the site's eligibility for listing on the NRHP. Relocating the intersection will improve the vehicle circulation, safety, and visitor experience without effecting the setting, feel, or association of the property, and result in "no adverse effect".

-Reroute roadways to create a loop road

This reroute is in the southern portion of the THS and would pave a segment of the old road to the Tallac House. This historic travel route is determined to be a contributing feature to the site's eligibility for listing on the NRHP. This action will not visually affect the critical views of the estates from State Route 89 and is determined to result in "no adverse effect" to the NRHP status.

-Repair/widen roads to prevent off pavement traffic

With the exception of the Tallac House and Boathouse roads as well as the Promenade and Promenade Loop Road, the roads within the THS are not contributors to the NRHP eligibility. Repair and widening of some of these contributing features would result in "no adverse effect", while repair and widening of non-contributing road features would result in "no effect" to the.

-Replacement of entry gates and pathways to meet accessibility standards

The gates and identified pathways are not contributing features to the site's eligibility for listing on the NRHP and will be replaced with materials sympathetic to the historic setting and feel of the site. There will be "no effect" from their replacement.

-Construct bike paths and pedestrian paths to accommodate new vehicular circulation

Bike paths and pedestrian paths will be constructed away from the contributing structures and features and will improve the visitor experience. This will have "no adverse effect" to the site's eligibility for listing on the NRHP.

-Provide a turn-around on each end of the loop road, as well as at the entrance to the Valhalla parking lot

These improvements are not directly adjacent to the contributing structures and features and will enhance the visitor experience. Their installation will have "no adverse effect" to the site.

Addition of 120 parking spaces at the Tallac Parking Area

All of these improvements will avoid any archaeological resources. There will be "no adverse effect" from this action.

Addition of 45 parking spaces at the Valhalla parking area

These parking spaces are located in an area already devoted to parking and will not detract from the setting and feel of the THS. There will be "no adverse effect" from the construction and use of these improvements.

Reconfiguration of the volunteer RV campground at the Baldwin Trailer Site

These improvements are outside of the THS and will avoid any archaeological properties. The existing RV campground within the THS will be left as is. This improvement will have "no effect" to the site's eligibility for listing on the NRHP.

Installation/repair of vehicle and pedestrian barriers

This is typical site maintenance and will have "no effect" to historic properties.

Formalize and pave the existing unimproved parking area near the Valhalla entrance

This improvement would be located outside the THS and will have "no effect" to the site's eligibility for listing on the NRHP.

Reconfiguration/renovation of pedestrian pathways

These identified pathways are not contributing features to the site's eligibility for listing on the NRHP and will improve visitor experience. Their reconfiguration/renovation will result in "no adverse effect".

Removal of trees associated with project implementation

The areas where tree removal would be necessary include the proposed parking lot changes and the proposed circulation roadway changes. This activity will result in "no adverse effect" to historic resources.

Revegetation of project-related disturbance areas with seeds of native plant species

Revegetation will be with native species and will have "no effect" on historic resources.

3.2.3 Alternative 3

Only actions that differ from Alternative 2 are described below. All other impacts to Heritage Resources would be the same as Alternative 2.

Paving and reconfiguration of the volunteer RV campground

This project upgrades the existing volunteer campground within the THS. The area of the campground cannot be viewed from the main area of contributing structures. The project will help maintain the volunteer program which provides maintenance and interpretation at the THS. This project will have "no adverse effect" to the THS.

Addition of 100 parking spaces at the Tallac Parking Area

All of these improvements will avoid any archaeological resources. There will be "no adverse effect" from this action.

Addition of 32 parking spaces at the Valhalla parking area

These parking spaces are located in an area already devoted to parking and will not detract from the setting and feel of the THS. There will be "no adverse effect" from the construction and use of these improvements.

Provide an event parking area on the site of the historic Polo Field

The Polo Field was cleared sometime between 1940 and the 1960s and does not date to the period of significance for the THS. The Polo Field is determined not eligible for listing under the NRHP and does contribute to the site's eligibility for listing on the NRHP. It is located in the southern portion of the site and will not be viewed from the area of the contributing structures. Converting the polo field to a parking area will have "no adverse effect" to the THS.

3.2.4 Alternative 4

Only actions that differ from Alternative 2 are described below. All other impacts to Heritage Resources would be the same as Alternative 2.

-Reroute roadways to create a loop road

This reroute is in the southern portion of the THS and would pave an area south of the old road to the Tallac House and north of State Route 89. This action will not visually affect the critical views of the estates from State Route 89 as is determined to result in "no adverse effect" to the NRHP status.

-Construct bike paths and pedestrian paths to accommodate new vehicular circulation

Bike paths and pedestrian paths will be largely be constructed away from the contributing structures and features and will improve the visitor experience. The exception to this is the bike path proposed north of the loop road. This path would pave a segment of the old road to the Tallac House. This historic travel route is determined to be a contributing feature to the site's eligibility for listing on the NRHP. This action will not visually affect the critical views of the estates from State Route 89 and is determined to result in "no adverse effect" to the NRHP.

Addition of 90 parking spaces at the Tallac Parking Area

All of these improvements will avoid any archaeological resources. There will be "no adverse effect" from this action.

3.2.5 Analytical Conclusions

The table below summarizes the effects to Heritage Resources by alternative.

Table 3-1. Summary of impacts to Heritage Resources by Action Alternative.

Project Element	Proposed Action	Alternative 3	Alternative 4
Installation of stormwater management structures	No Effect	No Effect	No Effect
Infiltration Basins/Trenches	No Effect	No Effect	No Effect
Planted Swales	No Effect	No Effect	No Effect
Installation of BMPs along shorezone	No Adverse Effect	No Adverse Effect	No Adverse Effect
Repair/Replacement of Fencing	No Effect	No Effect	No Effect
Slope Stabilization	No Adverse Effect	No Adverse Effect	No Adverse Effect
BMPs at Tallac Point	No Effect	No Effect	No Effect

Project Element	Proposed Action	Alternative 3	Alternative 4
Reconfiguration of vehicular circulation patterns	No Adverse Effect	No Adverse Effect	No Adverse Effect
Reduction in number of SR 89 entrance road intersections	No Adverse Effect	No Adverse Effect	No Adverse Effect
Removal of the existing Taylor Creek Visitor Center section	No Effect	No Effect	No Effect
Repair/widening of roads to accommodate a 4 foot wide bike/pedestrian lane along the Tallac Point access road	No Adverse Effect	No Adverse Effect	No Adverse Effect
Move Valhalla intersection to align with Camp Richardson Corral entrance road	No Adverse Effect	No Adverse Effect	No Adverse Effect
Reroute roadways to create a loop	No Adverse Effect	No Adverse Effect	No Adverse Effect
Repair/widen roads to prevent off pavement traffic	No Adverse Effect	No Adverse Effect	No Adverse Effect
Replacement of entry gates and pathways to meet accessibility standards	No Effect	No Effect	No Effect
Construct bike paths and pedestrian paths to accommodate new vehicular circulation	No Adverse Effect	No Adverse Effect	No Adverse Effect
Provide a turn-around on each end of the loop road, as well as at the entrance to the Valhalla parking lot	No Adverse Effect	No Adverse Effect	No Adverse Effect
Addition of parking spaces at the Tallac Parking Area	No Adverse Effect	No Adverse Effect	No Adverse Effect
Addition of parking spaces at the Valhalla parking area	No Adverse Effect	No Adverse Effect	No Adverse Effect
Reconfiguration of the volunteer RV campground at the Baldwin Trailer Site	No Effect	No Effect	No Effect
Paving and reconfiguration of the volunteer RV campground	Not Applicable	No Adverse Effect	Not Applicable
Installation/repair of vehicle and pedestrian barriers	No Effect	No Effect	No Effect
Formalize and pave the existing unimproved parking area near the Valhalla entrance	No Effect	No Effect	No Effect
Reconfiguration/renovation of pedestrian pathways	No Adverse Effect	No Adverse Effect	No Adverse Effect
Removal of trees associated with implementation of the new Tallac parking lot, volunteer RV campground, and new entry road.	No Adverse Effect	No Adverse Effect	No Adverse Effect

Project Element	Proposed Action	Alternative 3	Alternative 4
Revegetation of project-related disturbance areas with seeds of native plant species	No Effect	No Effect	No Effect
Provide an event parking area on the site of the historic Polo Field	Not Applicable	No Adverse Effect	Not Applicable

Many of the individual elements of the action alternatives will have "no effect" to historic properties. Several elements will affect the THS in a positive manner, resolving resource and public conflicts within the THS. Other project elements would affect the historic property but would result in "no adverse effect" to the NRHP status. Overall, implementation of the action alternatives will result in "**No Adverse Effect**" to historic resources.

A final decision on the project will not occur until consultation with the SHPO is complete and there is concurrence on the determination of the project's effect on heritage resources.

3.3 Circulation

3.3.1 Introduction and Affected Environment

This analysis relies heavily on the USFS Tallac Historic Site and Taylor Creek Visitor Center Driveway Consolidation traffic study prepared by LSC Transportation Consultants, Inc. for the LTBMU in April 2013 and updated in May 2014 (Project Document G7). This study describes and evaluates the roadway characteristics, existing intersections, traffic volumes, driver sight distances, level of service, and traffic queuing at the multiple intersections within the project area. The cumulative effects analysis was bound in time to 15 years in the future for foreseeable future actions. This approximates the time frame over which conditions due to the Proposed Action could be reasonably estimated. The area considered for the cumulative effects analysis is within approximately two miles of the project area. For all traffic impacts the data presented represents the worst conditions (i.e. the level present during peak use times). This analysis also discusses the noise impacts from various roadway configurations and impacts to stormwater runoff.

The project site is served by the following existing roadways:

- **SR 89 (State Route 89/Emerald Bay Road)** is a two-lane roadway connecting Lake Tahoe's West Shore, Tahoe City, Truckee, and the Interstate 80 corridor to the north of the site with South Lake Tahoe and US Highway 50 to the south. Near the project site, SR 89 is called Emerald Bay Road, runs in an east–west direction, contains one travel lane in each direction, and has a posted speed limit of 35 miles per hour.

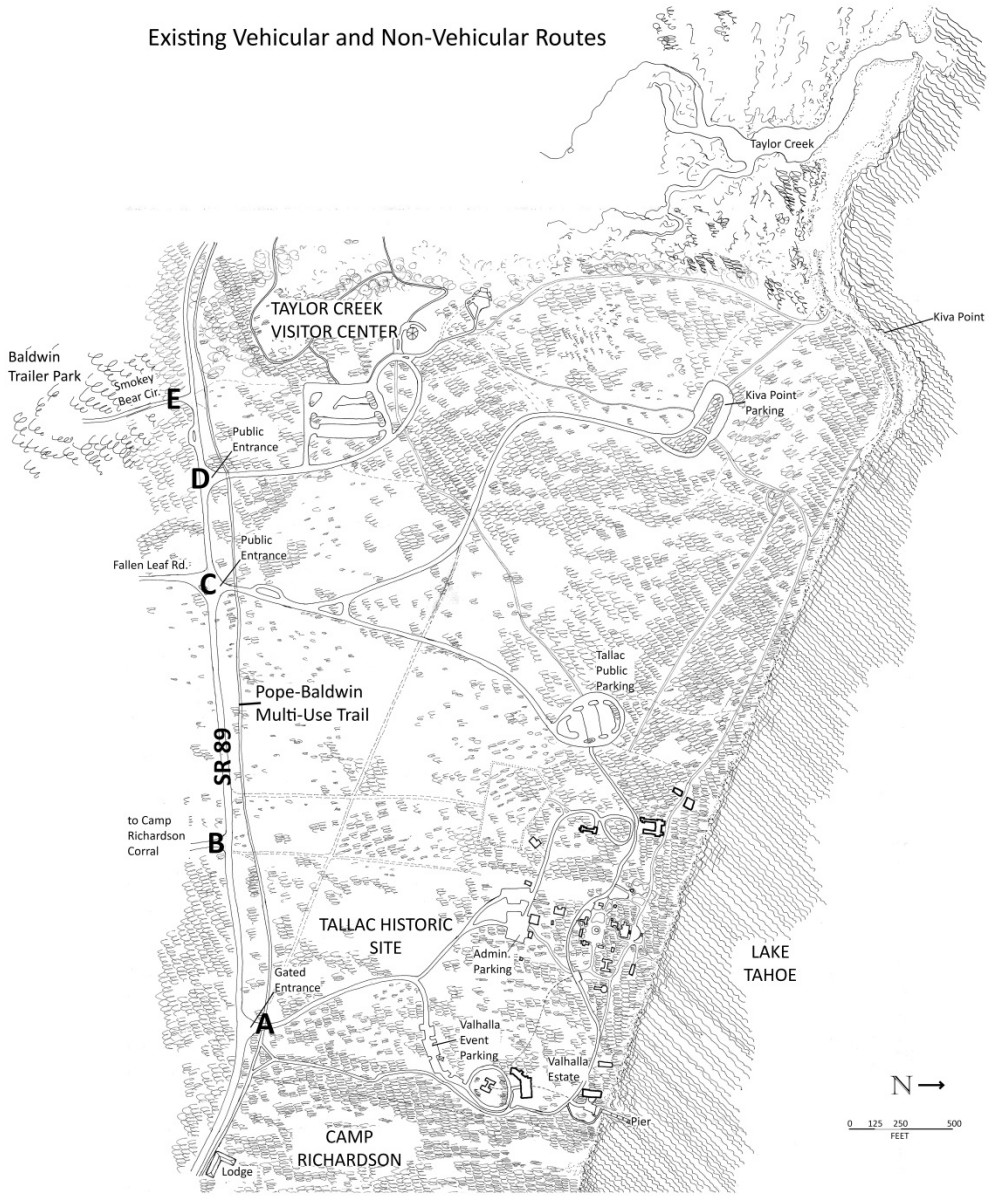
The project site is served by the following existing intersections (listed from East to West):

- The **SR 89/Valhalla Road** is a stop-controlled minor approach that provides access to the Valhalla Estate (and serves as the main entrance for special events at Valhalla Hall and the Boathouse Theater). Located adjacent to this intersection to the west is the native surface SR 89 parking area that is partially within the Caltrans right-of-way (ROW). (Shown as **A** in **Figure 3-2**)
- The **SR 89/Camp Richardson Corral Access** intersection is a minor approach intersection that provides access to the Camp Richardson Corral on the south side of SR 89 (**B**).
- The **SR 89/Heritage Way/Fallen Leaf Road** intersection serves Heritage Way to the north (which leads to the Tallac Historic Site and the Tallac Point beach site), and Fallen Leaf Road to the south (which leads to Fallen Leaf Lake, Fallen Leaf Campground, and also serves as backcountry access). One crosswalk for pedestrians and bicyclists is provided on Heritage Way where the Baldwin multi-use trail crosses the access road. The trail is controlled by stop signs on each side of the crossing, directing trail users to stop and wait for vehicles; however users often continue through the crossing without stopping. The location of the crossing so close to the highway intersection results in drivers having to react quickly to trail users while they are still under deceleration from exiting the highway. The concentrated public

use at this intersection, especially during the peak use recreation season, presents a safety risk for vehicles, pedestrians, and bicyclists (**C**).

- The **SR 89/Taylor Creek Visitor Center** intersection is a stop-controlled minor approach that serves the Taylor Creek Visitor Center to the north (**D**).
- The **SR 89/Smokey Bear Circle** intersection is a stop-controlled minor approach that serves the Baldwin Trailer Park to the south (**E**). This intersection was not included in the traffic study because no reconfiguration is currently considered at this intersection.

Figure 3-2. Existing Vehicular and Non-Vehicular Routes.



Level of Service

Traffic congestion on SR 89 through Camp Richardson Resort and the Tallac Historic Site corridor is a regular occurrence during the peak use season, especially during holiday weekends. Traffic congestion is measured by a system called Level of Service (LOS), which is a measure of traffic conditions, ranging from LOS A (free flow conditions) to LOS F (stop-and-go with long delays).

The LOS at the intersections within the project area is shown in **Table 3-2** below. LOS represents the wait time of vehicles exiting the indicated intersection onto SR 89. As indicated, the worst movement on the SR 89/Visitor Center Road intersection currently operates at an acceptable LOS D. The worst movement on the SR 89/Heritage Way/Fallen Leaf Rd. intersection operates at LOS F. The existing intersection of SR89 and Valhalla Road currently operates at a LOS C. For all intersections, the worst movement (with the longest delays) is the southbound lane (turning left from the site across traffic towards South Lake Tahoe).

Traffic Queue Lengths

The traffic queue lengths were reviewed, in order to determine the potential for vehicular queues to interfere with operations on nearby roadways or bicycle/pedestrian facilities. The calculated 95th-percentile traffic queue lengths on the site driveway approach at each study intersection are shown in the far right column of **Table 3-2**. Traffic queue lengths measure the length of the line created by vehicles waiting to exit the site. Queue lengths are useful in determining whether the typical line of cars will obstruct an intersection. At the three intersections studied, the closest interior intersection that could be blocked is the crossing of the existing paved multi-use path (Pope-Baldwin bike trail). The trail crosses the Taylor Creek Visitor Center Road at a point about 95 feet north of SR 89. As the existing traffic queue length at this location is only about 41 feet, it can be accommodated without interfering with the multi-use path crossing. Similarly, the distance from SR 89 on Heritage Way to the multi-use path crossing is about 90 feet. As the 95th-percentile queue length at this location does not exceed 90 feet, no queuing issues are identified currently. The distance from the Valhalla Road to the multi-use path crossing is about 65 feet. As the 95th-percentile queue length at this location does not exceed this distance, no queuing issues are identified. This means that the typical line of cars waiting to exit those intersections does not cross or interfere with the bike path currently.

While vehicles exiting the site do not typically result in conflicts with the bike path, pedestrian/biker/vehicular conflicts frequently arise from traffic entering the site. When vehicles exit the highway onto Heritage Way, Valhalla Road, etc., the drivers must react to users crossing the road on the bike path (that frequently ignore the stop signs on each side of the crossings) while still under deceleration from the highway. While there is not a specific metric to measure this type of conflict, it does exist at all three intersections currently.

Sight Distance

Driver sight distance is an important consideration in roadway safety. There are two types of driver sight distances to consider when assessing the location of a driveway; corner sight distance and stopping sight distance. Corner sight distance requirements are meant to ensure that adequate time is provided for the waiting vehicle at an unsignalized intersection to either cross all lanes through traffic, cross the near lanes and turn left, or turn right

without requiring through traffic to radically alter their speed. The corner sight distance requirements set forth in the Caltrans Highway Design Manual are meant to provide 7.5 seconds for the driver on the crossroad to complete the necessary maneuver, while the approaching vehicle travels at the assumed design speed of the main highway. Stopping sight distance requirements are meant to ensure that a driver on the approaching uncontrolled roadway has adequate time to perceive and react to the presence of an obstruction in the roadway and come to a stop in a safe manner.

Based upon a speed limit of 35 miles per hour along SR 89 within the project area, the required stopping sight distance is 250 feet. As more than 300 feet of stopping sight distance is provided for drivers along SR 89, the stopping sight distance is considered to be adequate. The corner sight distance requirement is 385 feet. As more than 400 feet of corner sight distance is provided at the existing intersections, no driver sight distance deficiencies are identified. The corner sight distance is measured from a 15-foot setback from the edge of the nearest travel lane, in accordance with Caltrans requirements. There is "dip" (vertical curvature) along SR 89 between the Visitor Center driveway and Heritage Way. Nevertheless, adequate driver sight distance is provided.

Table 3-2 Traffic Study Summary of Existing Conditions

Existing Intersection	Control Type	Existing LOS	Delay (sec/vehicle)	Queue Length (ft)*
SR 89/Visitor Center Rd	Stop-controlled	D	29.9	41
SR 89/Heritage Way/Fallen Leaf Rd	Stop-controlled	F	73.3	85
SR 89/Valhalla Rd	Stop-controlled	C	24.0	25

* Queue length is based on the 95th-percentile queue length on the Southbound approach.

Regulations on Noise Levels

Questions were raised in scoping as to the impacts of proposed roadway changes within the Tallac Historic Site. Noise impacts from highway projects are regulated by the Federal Highway Administration (FHWA), State (Caltrans), and local authorities. Code of Federal Regulations 23 CFR 772 provides regulations for evaluating noise and determining necessary noise abatement for federal and federal-aid highway projects. Under 23 CFR 772.7, projects are categorized as Type I or Type II projects. FHWA defines a Type I project as a proposed federal or federal-aid highway project for the construction of a highway on a new location, or the physical alteration of an existing highway which significantly changes either the horizontal or vertical alignment, or increases the number of through-traffic lanes. A Type II project is a noise barrier retrofit project that involves no changes to highway capacity or alignment. The proposed changes to the Tallac Historic Site circulation patterns do not meet the criteria for either a Type I or Type II project and therefore noise abatement is not required; however these guidelines provide meaningful analysis of sound behavior

and the data can be extrapolated to help inform noise impacts from the proposed changes to the site.

Noise Characteristics

Noise is defined as loud, unexpected, or annoying sound. Human response to noise is subjective and can vary greatly from person to person. Human perception of sound is measured by the A-weighted decibel scale (dBA). A 10-dBA increase in noise levels is considered by most people as the doubling of sound level. The smallest change in noise level that human ear can perceive is about 3-dBA. Normal conversation ranges between 44 and 65 dBA. Noise levels above 110 dBA become intolerable and then painful. Below are some common sounds and relative loudness for reference.

Table 3-3 Sound Levels and Relative Loudness of Typical Noise Sources

Noise Source	Sound Level (dBA)	Subjective Impression	Relative Loudness
Jet takeoff from aircraft carrier	140	Threshold of pain	64 times as loud
Heavy truck or motorcycle (25 ft)	90	Moderately-to-Very Loud	2 times as loud
Garbage disposal, food blender (2 ft)	80	Moderately Loud	Reference Loudness
Vacuum cleaner (10 ft), Passenger car at 65 mph (25 ft)	70		½ as loud
Light auto traffic (100 ft)	50	Quiet	1/8 as loud
Quiet Library, soft whisper (15 ft)	30	Very Quiet	1/64 as loud
Acoustic Test Chamber	10	Just Audible	

Several factors determine how sound levels dissipate as distance increases from the source. Line noise sources, such as constant flowing traffic, decreases at a rate of approximately 3 dBA each time the distance from the source doubles. Although the vegetation cover at the Tallac Historic Site is not significant enough to contribute to a large decrease in noise, the absorptive ground cover on the site does contribute to some additional sound attenuation (reduction in noise). On sites with an absorptive ground surface between the source and the receiver (such as soft dirt, grass, or scattered bushes and trees), an excess ground-attenuation value of 1.5 decibels per doubling of distance is normally assumed. Therefore an overall drop-off rate of 4.5 decibels per doubling of distance is anticipated.

Caltrans defines a substantial increase in noise as a predicted 12 dB, or greater, noise increase over the existing worst-hour noise level. Severe traffic noise impact is defined as a predicted increase of noise from a project of 30 dB or an absolute predicted level of 75 dB or greater (Caltrans 2009).

Existing Noise Levels

Existing noise levels from SR 89 are estimated to be 64-dBA at a location 50 feet from the highway centerline (Caltrans 2007). Below are the estimated sound levels within the Tallac Historic Site from SR 89. This estimate does not take into account any additional attenuation due to topography, structures, or dense vegetation.

Table 3-4. Calculated existing noise levels from SR 89 as heard from the Tallac Historic Site.

Location	Twin Cabins (Valhalla)	Baldwin Museum
Approx. distance from SR 89	1100 ft	1800 ft
Estimated dBA (4.5-dBA reduction per doubling of distance)	44-dBA	41-dBA
Subjective/Effective Loudness *	Quiet (1/4 as loud)	Quiet (1/4 as loud)
Possible other sound sources and distance	Camp Richardson Resort cabins (250ft+), The Beacon restaurant (725 ft), administrative parking lot (850 ft), Valhalla parking lot (225–500ft)	Tallac public parking area (500 ft), Volunteer RV lot (500ft)

*Effective Loudness is compared to the base level of 64-dBA, which is the estimated existing noise level on SR 89 at a distance of 50 feet from the roadway centerline.

Stormwater Collection

With the exception of some existing drip line trenches, there are no stormwater BMPs installed at the Tallac Historic Site. The existing roadways drain via sheet flow to adjacent native surface ground. This is adequate in some areas on the site and inadequate in others where rainwater pools on impervious roadways or near structures. The Baldwin museum is an example where stormwater pools in the entryway on the impervious patio area. This will eventually result in an undermining of the physical structure of the building. Elsewhere on the site, such as along the length of Kiva beach, stormwater concentrates down pathways and roadways and eventually runs down the slope onto the beach and into Lake Tahoe. Erosion and compaction from off-roadway parking during peak use and user-created trails contributes to fine sediments entering stormwater flows into Lake Tahoe. See Section 1.3 for an additional description of existing stormwater control issues.

Air Quality

The most detrimental air pollutants in the area are greenhouse gasses (GHGs) such as nitrous oxides (NO_x), carbon monoxide (CO), and sulfur dioxide (SO_2). The most common source of GHGs is from vehicle emissions. Particulate matter less than 10 microns in diameter (PM10) is also studied to determine effects on air quality. Particulate matter is expelled into the atmosphere through exhaust and dust.

The context for evaluating air quality is at a larger scale than the project boundary. The project manages existing demand and use in the project area. No new travel to the Lake Tahoe Basin or to the area surrounding the project is expected under any alternative. No new activities or facilities that would attract additional users are proposed. Emissions from vehicle use in the project area are not expected to significantly increase under any alternative and air quality would not be negatively impacted (Project Record Document G-8).

3.3.2 Alternative 1 – No Action

Direct and Indirect Effects

This alternative would have no direct effects on existing circulation, as no action would be taken to address the continued health and safety risks at the existing intersections, especially during peak use recreation periods. Stormwater would continue to collect sediments and enter Lake Tahoe.

Indirect effects would occur as a result of continuation of current conditions. Visitor confusion related to separate site intersections and signage would continue to contribute to highway congestion associated with vehicles traveling from one area of the site to another. Unmanaged parking along highway and other road shoulders would continue, which would contribute to overall circulation congestion and resource impacts related to erosion and production of fine sediments which have the potential to negatively affect water quality in Lake Tahoe. Noise levels are not anticipated to change from current conditions. All of the impacts related to circulation issues identified in Section 1.3 *Existing Condition* would remain.

Cumulative Effects

There would be no cumulative effects under this alternative because there would be no direct or indirect effects.

3.3.3 Alternative 2 – Proposed Action

Direct and Indirect Effects

The proposed changes to roadway configuration would result in an improved vehicular and pedestrian circulation system. Under this alternative the 3 intersections on SR 89 would be reduced to 2. A newly constructed intersection would be located across from the Camp Richardson Corral intersection. A loop road would connect the Taylor Creek Visitor Center intersection and the new intersection, with access roads to the Taylor Creek Visitor Center, Tallac Historic Site, Tallac Point beach, and Valhalla spurring off this main loop. Accompanying non-vehicular multi-use Class I trails would run adjacent to the loop road and access roads. An additional 120 parking spaces would be provided at the Tallac public parking lot, 20 additional spaces at the Kiva Point parking lot, and 45 additional spaces at the Valhalla parking lot.

Circulation Impacts

Currently the Valhalla intersection, the Heritage Way intersection, and the Taylor Creek Visitor Center intersection have worst-scenario waiting times and LOS level of (respectively) 24 seconds, LOS C; 73.3 seconds, LOS F; and 29.9 seconds LOS D. Under Alternative 2 the new Corral intersection and Visitor Center intersection would have waiting times and LOS level of (respectively) 92.8 seconds, LOS F; and 30.3 seconds, LOS D. **Table 3-5** summarizes the proposed roadway traffic analysis.

Table 3-5. Alternative 2 traffic analysis summary.

		Estimated Worst		
Intersection	**Control Type**	**LOS**	**Delay (sec/vehicle)**	**Queue Length (ft)***
SR 89/New Visitor Center Rd	Stop-controlled	D	30.3	56
SR 89/Fallen Leaf Rd	Stop-controlled	C	16.5	25
SR 89/Corral Rd/New Valhalla Rd.	Stop-controlled	F	92.8	110

Alternative 2 results in an increase of LOS level from LOS F to LOS C at Fallen Leaf Rd. The Visitor Center intersection would remain at an LOS D. While the LOS at the Corral intersection is not substantially increased over the existing (Heritage Way) intersection of LOS F, the roadway configuration would improve the overall congestion in the area, especially along SR 89, which responds to the purpose and need of the project. Without substantial changes to SR 89 itself, an improvement in wait times within the site could not be obtained without adding traffic and increasing congestion on SR 89. A possible LOS increase of one letter grade could be obtained with the addition of a Two Way Left Turn Lane (TWLTL) along SR 89. Options for including this in the proposed Caltrans BMP project are under discussion.

The proposed roadway changes would result in the 95th percentile queue lengths to extend beyond the Baldwin multi-use pathway, however the location of the trail crossing is proposed to move further from SR 89 to a location past the anticipated queuing length. Moving the trail crossing further from SR 89 will also decrease the vehicular/pedestrian/biker conflicts that currently occur as vehicles exit SR 89 and cross the trail while still under deceleration. Drivers will have more time to prepare for the crossing under this alternative at both the new Valhalla Rd. intersection and the Taylor Creek Visitor Center intersection. The new intersections would meet all corner sight distance and stopping sight distance requirements under current highway speed limits.

Alternative 2 is considered to provide the greatest benefit to vehicular and non-vehicular circulation. The configuration allows for improved left turn movement from Fallen Leaf

Road onto SR 89, reducing delays from 22 seconds to 16 seconds. It also allows for the greatest flexibility in routing to minimize delays. For instance, a sign at the intersection of the new loop road/Taylor Creek Visitor Center parking lot driveway directing exiting visitors to turn right (rather than left) on the loop road could reduce delays at the SR 89/Valhalla/Corral intersection. This flexibility is particularly useful as different land uses along the loop road have different peak hours of traffic activity. Alternative 2 allows for free movement between the USFS sites without the need to enter (and impact) SR 89. The number of crossings of the Baldwin multi-use trail is reduced by one, further reducing the possibility of conflicts on this busy trail.

Parking capacity within the site will increase under this alternative to more closely meet the existing demand at the site. No new activities or programs are proposed for the site that would increase the actual demand for site visitation. It is anticipated that existing highway shoulder parking will be substituted by additional available parking within the site. This will reduce congestion along SR 89 and improve public safety in the corridor.

Noise Impacts

The new loop road is not expected to significantly increase the noise impacts at the Tallac Historic Site. The new loop road would be located (on average) less than halfway between SR 89 and the Estates. For simplification of analysis, the new loop road is assumed to have the same average noise level (64-dBA at a distance of 50 feet from roadway centerline) as SR 89, however it is expected that the actual average noise levels would be much reduced from this because the number of large trucks would be fewer on the loop road than SR 89. Additionally, the recommended speed limit on the loop road would be 15 mph (compared to 35 mph on SR 89), which would result in an additional 3-4 dBA reduction over SR 89 noise levels. Therefore all estimates of noise increases are an over-estimate and most likely all sound increases would be less than indicated.

Table 3-6. Anticipated noise levels heard within the historic estates from the proposed loop road.

Location	**Twin Cabins (Valhalla)**	**Baldwin Museum**
Approx. distance from new loop road	1300 ft*	1200 ft
Estimated dBA (4.5-dBA reduction per doubling of distance)	43-dBA	44-dBA
Subjective Loudness *	Quiet	Quiet

* The distance from the Twin Cabins to the new loop road is actually greater than the distance from the Twin Cabins to SR 89.

The noise level at Baldwin Museum from the new loop road is expected to be approximately 44-dBA, compared to 41-dBA from SR 89. The combined effect of these noise levels, however, is not 85-dBA. Decibels are logarithmic units and are not added arithmetically. **Table 3-7** provides general procedures for decibel addition. This table shows that the sound pressure level from two equal sources is 3 dB greater than the sound pressure level of just one source. So, two trucks producing 90 dB

each combine to produce 93 dB, not 180 dB. In other words, a doubling of the noise source produces only a 3 dB increase in the noise level. Studies have shown that this increase is barely perceptible by the human ear (FHWA 2010).

Table 3-7. Rules for combining sound levels by decibel addition.

When two decibel values differ by	Add the following amount to the higher value
0 or 1 dBA	3 dBA
2 or 3 dBA	2 dBA
4 to 9 dBA	1 dBA
10 dBA or more	0 dBA

The expected total noise impact in the Estates from the loop road and SR 89 combined is estimated to be 46-dBA at the most, which is considered to fall in the quiet range for most people and not a significant increase over existing noise levels.

Trip Generation

The project is not expected to increase overall trip generation within the Lake Tahoe Basin. Visitors to the site are generally individuals that are already in the area. The distribution of where the trips are generated (i.e. along SR 89 or from within the site) does change slightly under Alternative 2. The proposed parking increases under Alternative 2 are not expected to increase trip generation on typical summer days, as all of the existing lots are not typically full. However, on a peak day (such as Memorial Day weekend, 4th of July weekend, Renaissance Festival, etc.), this alternative could generate an excess of 200 one-way daily trips at the site access points. Note that most of these trips would not be "new" trips to the Lake Tahoe Basin, but rather trips made by persons staying in the Basin or driving to/from points outside the Basin regardless of the proposed project. This analysis is based on the most recent set of plans for the proposed Caltrans project on SR 89 in which the majority of the existing highway shoulder parking would remain. Negotiations of project level details are still being discussed with Caltrans and may result in further reductions in shoulder parking.

Stormwater Impacts

Stormwater infiltration, control, and filtration is expected to improve under this alternative through the use of infiltration basins, below-ground infiltration structures, and vegetated swales throughout the project area. Stormwater from all new paved surfaces will be captured and infiltrated for the 1-inch in 1-hour and 2-inch in 24-hour storm events. Erosion along Kiva beach and within the Estates will be reduced. The level of erosion present along the slope to the beach can be reduced significantly through the use of infiltration features. The amount of sediment reduction cannot be quantified due to the non-point source nature of the water, however the areas currently exhibiting water rilling and concentrated flow have been identified and the scale of these areas is within the scope of erosion issues that have been significantly reduced through the use of infiltration features on other Forest Service recreation sites throughout the basin. Undermining of historic structures by ponding water will be reduced. Erosion from user-created trails will be reduced. The level of fine sediment reaching Lake Tahoe will be reduced. The design features related to construction BMPs are anticipated to prevent any short-term impacts to

water quality. All project activities along the slope will be above the high water mark. BMPs are consistent with TRPA requirements for snow removal operations.

Cumulative Effects

The existing and foreseeable projects were reviewed to determine if there was a potential for cumulative effects as a result of these projects. The Fallen Leaf ATM project and Camp Richardson Resort Campground BMP Retrofit project may have a potential to affect traffic congestion in the short term if implementation is concurrent. These projects are anticipated to contribute to a cumulative reduction of traffic congestion. The Angora Fire Restoration project will have a short-term effect on congestion, as truck traffic will increase along SR 89 when trees are removed from the Angora Fire area that is in close proximity to the project area. This impact would be minimized by scheduling the removal of these trees with a low-use period at the site. Cumulative effects associated with the South Shore fuels project would be similar to those with the Angora Fire Restoration project.

The Caltrans BMP project would contribute to overall improved traffic flow and congestion. The installation of a pedestrian activated crossing traffic light in the Camp Richardson Resort "village" will contribute to improved traffic flow and safety. There may be short term cumulative effects during implementation of these projects as their anticipated schedules are similar. Traffic delays in nearby areas of the SR 89 corridor could result from the combination of these projects; however these delays would be short term in duration.

3.3.4 Alternative 3

Direct and Indirect Effects

The proposed changes to roadway configuration would result in a simplified vehicular and pedestrian circulation system. Under Alternative 3, the 3 intersections on SR 89 would be reduced to 2 and would be located at the existing Valhalla Road intersection and the Heritage Way/Fallen Leaf Rd. intersection. The Taylor Creek Visitor Center access would be consolidated with the Heritage Way access via a new driveway road. This new consolidated access road would include a striped non-motorized multi-use path on either side of the road. An additional 100 parking spaces would be provided at the Tallac public parking lot, 20 additional spaces at the Kiva Point parking lot, and 32 additional spaces at the Valhalla parking lot. Additionally, 100 spaces would be created for special event use at the Polo Field location.

Circulation Impacts

Currently the Valhalla intersection, the Heritage Way intersection, and the Taylor Creek Visitor Center intersection have worst-scenario waiting times and LOS level of (respectively) 24 seconds, LOS C; 73.3 seconds, LOS F; and 29.9 seconds LOS D. Under Alternative 3 the Valhalla intersection would remain the same and the Heritage Way intersection would have a waiting time of 352.6 seconds and LOS level F. **Table 3-8** summarizes the proposed roadway traffic analysis.

Table 3-8. Alternative 3 traffic analysis summary.

		Estimated Worst		
Intersection	**Control Type**	**LOS**	**Delay (sec/vehicle)**	**Queue Length (ft)***
SR 89/Heritage Way/Fallen Leaf Rd	Stop-controlled	F	352.6	373
SR 89/Valhalla Rd.	Stop-controlled	C	24.0	25

Alternative 3 results in an increase in worst-scenario waiting time at the Heritage Way/Fallen Leaf Rd intersection of 279 seconds and increase in queue length of 288 feet . The Valhalla intersection would remain at LOS C. The significant increase in waiting time at the Heritage Way/Fallen Leaf Rd. intersection is due to the conflicts that arise from the traffic entering/exiting Fallen Leaf Rd. In general, "T" intersections (like the proposed Taylor Creek Visitor Center intersection in Alternative 2) reduce the number of conflicting turning movements at any one intersection. Unlike in Alternative 2, a possible LOS increase of one letter grade could not be obtained with the addition of a Two Way Left Turn Lane (TWLTL) along SR 89. The new intersections would meet all corner sight distance and stopping sight distance requirements under current highway speed limits.

The number of crossings of the Baldwin multi-use trail is reduced by one; however it is unclear if this would reduce conflicts. The existing trail crossing on the access road is located beyond the 95th percentile queue length, but the new crossing in Alternative 3 would be within the queue length anticipated at this intersection. A significant re-route of the Baldwin multi-use trail would be required to move the crossing to a location past the anticipated queue length on Heritage Way, which is not proposed in this alternative.

Alternative 3 would still provide benefits to congestion along SR 89 through improved signage and wayfinding, as well as a reduction in the number of intersections on SR 89. Alternative 3 allows for free movement between the Taylor Creek Visitor Center, Tallac Point beach, and the Tallac public parking area.

Parking capacity within the site will increase under this alternative to more closely meet the existing demand at the site. No new activities or programs are proposed for the site that would increase the actual demand for site visitation.

Noise Impacts

The new circulation configuration proposed in Alternative 3 more closely mirrors the existing circulation system and it is not anticipated that noise impacts would significantly change from existing levels.

Trip Generation

Trip generation impacts would be the same as described for Alternative 2 (Section 3.3.3).

Stormwater Impacts

Stormwater impacts would be the same as described for Alternative 2 (Section 3.3.3).

Cumulative Effects

The cumulative effects for the Action Alternative would be similar to those for Alternative 2 (Section 3.3.3).

3.3.5 Alternative 4

Direct and Indirect Effects

The direct and indirect effects of Alternative 4 are the same as Alternative 2 (3.3.3) with the following exceptions:

- Only 90 additional parking spaces would be added to the Tallac Public Parking Lot (parking additions in other areas is the same as Alternative 2)
- The trips generated under alternative 4 would be 196; all other impacts to trip generation are the same as Alternative 2.
- Although the proposed pedestrian pathways are on a slightly different alignment than Alternative 2, the overall result is the same improvement in non-motorized connectivity and improved safety within the site.
- Any estimated noise or visual impacts from the loop road on the historic estates in Alternative 2 would be reduced in Alternative 4.

Cumulative Effects

The cumulative effects of Alternative 4 are the same as Alternative 2 (Section 3.3.3).

3.3.6 Analytical Conclusions

All of the action alternatives would have a positive effect on SR 89 congestion levels and parking patterns, as well as improved safety for pedestrians, drivers, and bicyclists. SR 89 would be less congested under both alternatives. When comparing Alternative 2 and 4 with Alternative 3, benefits to vehicular and non-vehicular circulation are significantly greater with Alternative 2 and 4 because of the following:

- The average delays on the left-turn movement from Fallen Leaf Road onto SR 89 would improve (LOS D to LOS C)
- The loop road in both Alt 2 and 4 allows flexibility in routing to minimize delays. For instance, a sign at the intersection of the new loop road/Taylor Creek Visitor Parking Lot driveway directing exiting visitors to turn right (rather than left) to access SR 89 could reduce delays at the SR 89/Valhalla/Corral intersection. This flexibility is particularly useful as different land uses along the loop road have different peak hours of traffic activity.

- Movement would be allowed between different areas of the site without the need to enter (and impact) SR 89.
- All individual land uses in the area are provided with direct access onto the loop road.
- Increase in flexibility for management of the site (i.e. gate opening and closing), as well as snow removal options and alternative transportation options that may be developed in the future.

Congestion levels on SR 89 are also anticipated to decrease the most under Alternatives 2 and 4 because the loop road requires the least number of trips back onto SR 89 to see the whole site, as well as due to fewer conflicts at the Heritage Way/Fallen Leaf Road intersection. Alternative 3 presents a larger increase in vehicle waiting time and queue lengths at the Heritage Way/Fallen Leaf Road intersection over Alternative 2 and 4. The possible non-significant increase of waiting times for vehicles exiting the site under Alternative 2 and 4 is much outweighed by the other benefits provided. Alternative 3 provides fewer benefits at a higher cost to LOS. Parking increases under Alternative 3 more closely meet the existing parking demand at the site. Noise and visual impacts from all alternatives are considered negligible. An increase in stormwater infiltration and decrease in fine sediments reaching Lake Tahoe is expected under all alternatives.

3.4 Botanical Resources

3.4.1 Introduction and Analysis Methodology

This section analyzes the activities proposed under the Historic Facilities BMP Retrofit Project to determine whether they have the potential to affect any Federally Endangered, Threatened, Proposed or Candidate plant species, or Forest Service Region 5 Sensitive plant species (referred to collectively as TESP) as well as other botanical resources, such as TRPA Sensitive Plants, LTBMU Watch List Botanical Species and uncommon plant communities.

The project area is in one of the most heavily developed and visited recreation areas in the Lake Tahoe Basin. Destinations for recreation use include Kiva Beach, the Pope Baldwin Bike Path, and the Tallac Historic Site, as well as access to the Taylor Creek Visitor Center. The area has been utilized for recreation (both private and public) since the late 1800s.

The area analyzed in this section is referred to as the 'botany analysis area'; it encompasses approximately 928 acres and consists of all proposed activities for all action alternatives, access roads to the project area, and a buffer of 500 meters around the project area. The 500 meter buffer was selected to capture all potential TES plants that (a) occur within the project area, (b) are near enough to potentially be affected directly or indirectly by project activities, or (c) have source populations (i.e. potential for seed dispersal) located within close proximity to the proposed activities.

Federally Threatened, Endangered, Proposed & Candidate Plant Species; Forest Service Region 5 Sensitive Plant Species (TESP)

Species considered under the Endangered Species Act

There are no federally threatened, endangered, or proposed plant species known to occur or with known suitable habitat within LTBMU-managed lands. There are two candidate species known to occur on the LTBMU—Tahoe yellow cress *(Rorippa subumbellata)* and whitebark pine *(Pinus albicaulis)*. Tahoe yellow cress is endemic to the shoreline of Lake Tahoe; there are historical occurrences and suitable habitat within the project area. Whitebark pine occurs in subalpine and timberline habitats; there is no suitable habitat within the botany analysis area.

R5 Regional Forester's Sensitive Species List

The Regional Forester identifies species for which population viability is a concern because of (1) downward population trends and/or (2) diminished habitat capacity that would reduce species distribution (FSM 2672.11, USDA 2005). The R5 Sensitive list was last revised in 2013 (USDA 2013). All Forest Service Region 5 Sensitive plant and fungi species that are known or have suitable habitat on LTBMU were considered. Analysis and

determination of effects to Forest Service Sensitive species are detailed in the project's Biological Evaluation.

Species considered

Those species present or with suitable habitat within the botany analysis area are anticipated to have the highest potential to be impacted by the proposed project activities. Conversely, species outside of the analysis area or lacking suitable habitat within the project area are not anticipated to be impacted by the proposed project either directly, indirectly, or cumulatively; as such, these species were considered, but dismissed from further effects analysis. Table lists all Federally Threatened, Endangered, Candidate, and Forest Service Region 5 Sensitive plant and fungi species that are known or have suitable habitat on the LTBMU. The species analyzed in detail in this document—those that occur or have suitable habitat within the botany analysis area —are indicated in the table. All TRPA Sensitive plant species are also Forest Service Sensitive species; as such, no separate analysis is conducted for TRPA Sensitive species.

Table 3-9. Threatened, endangered and sensitive plants and fungi (TESP) known to occur or with suitable habitat on the LTBMU

Scientific Names	Common Name	Legal Status	Suitable habitat characteristics	Known in project	Suitable habitat in project	Rationale for why habitat is unsuitable
Arabis rigidissima var. *demota*	Galena Creek rock cress	R5S	Open, rocky areas along forest edges of conifer and/or aspen stands; usually found on north aspects;7,500 ft. & above.			Elevation is too low; not a north aspect.
Boechera tiehmii	Tiehm's rock cress	R5S	Open rocky soils in the Mt. Rose Wilderness; 10,000 ft. & above.			Elevation is too low.
Boechera tularensis	Tulare rockcress	R5S	Shaded, mostly east-facing subalpine rocky areas, including rocky slopes, rock-lined streams and seeps, rocky outcrops, saddles, and canyons; 6,000-11,000 ft.			Not subalpine forest; not an east aspect.
Botrychium spp			*Botrychium* species are found in similar habitat; wet or moist soils such as marshes, meadows, and along the edges of lakes and streams; generally occur with mosses, sedges, rushes, and other riparian vegetation; 2,000-10,000 ft.			No wet or moist habitats.
Botrychium ascendens	upswept moonwort	R5S	See *Botrychium* spp			See above.
Botrychium crenulatum	scalloped moonwort	R5S				See above.
Botrychium lineare	slender moonwort	R5S				See above.
Botrychium lunaria	common moonwort	R5S				See above.
Botrychium minganense	Mingan moonwort	R5S				See above.
Botrychium montanum	western goblin	R5S				See above.

Scientific Names	Common Name	Legal Status	Suitable habitat characteristics	Known in project	Suitable habitat in project	Rationale for why habitat is unsuitable
Bruchia bolanderi	Bolander's candle moss	R5S	Mainly in montane meadows and stream banks, but also on bare, slightly eroding soil where competition is minimal.			No meadows or stream banks.
Dendrocollybia racemosa[1]	branched collybia	R5S	On old decayed or blackened mushrooms or occasionally in coniferous duff, usually within old growth stands.			No old growth stands.
Draba asterophora var. *asterophora*	Tahoe draba	R5S; TRPA	Rock crevices and open granite talus slopes on north-east slopes; 8,000-10,200 ft.			No rock crevices or talus slopes.
Draba asterophora var. *macrocarpa*	Cup Lake draba	R5S; TRPA	Steep, gravelly or rocky slopes; 8,400-9,300 ft.			No steep rocky slopes.
Draba cruciata	Mineral King draba	R5S	Subalpine gravelly or rocky slopes, ridges, crevices, cliff ledges, sink holes, boulder and small drainage edges; 7,800-13,000 ft			No subalpine habitats.
Erigeron miser	starved daisy	R5S	Granitic rock outcrops; 6,000 ft & above			No granitic rock outcrops.
Eriogonum luteolum var. *saltuarium*	goldencarpet buckwheat	R5S	Sandy granitic flats and slopes, sagebrush communities, montane conifer woodlands; 5,600-7,400 ft		X	
Eriogonum umbellatum var. *torreyanum*	Donner Pass buckwheat	R5S	Dry gravelly or stony sites; often on harsh exposures (e.g. ridge tops, steep slopes)			No harsh exposures.
Helodium blandowii	Blandow's bog-moss	R5S	Bogs, fens, wet meadows, and along streams under willows.			No wet habitats.
Hulsea brevifolia	short-leaved hulsea	R5S	Red fir forest, but also in mixed conifer forests; found on gravelly soils; 4,900-8,900 ft.			Soil not gravelly.
Ivesia sericoleuca	Plumas ivesia	R5S	Vernally wet portions of meadows and alkali flats, vernal pools within sagebrush scrub or lower montane coniferous forest; often on volcanic soils; 4,300-7,200 ft.			No wet habitats.
Lewisia kelloggii ssp. *hutchisonii*	Kellogg's lewisia	R5S	Ridge tops or flat open spaces with widely spaced trees and sandy granitic to erosive volcanic soil; 5,000-7,000 ft.			No ridge tops or flat open spaces.
Lewisia kelloggii ssp. *kelloggii*	Kellogg's lewisia	R5S	See *Lewisia kelloggii* ssp. *hutchisonii*			No ridge tops or flat open spaces.
Lewisia longipetala	long-petaled lewisia	R5S; TRPA	North-facing slopes and ridge tops where snow banks persist throughout the summer; often found near snow bank margins in wet soils; 8,000-12,500 ft			No north-facing slopes or ridges.
Meesia uliginosa	broad-nerved hump-moss	R5S	Bogs and fens, but also very wet meadows.			No wet habitats.
Orthotrichum praemorsum	orthotrichum moss	R5S	Shaded, moist habitats of east side of Sierra Nevada rock outcrops; up to 8,200 ft			No rock outcrops.

Scientific Names	Common Name	Legal Status	Suitable habitat characteristics	Known in project	Suitable habitat in project	Rationale for why habitat is unsuitable
Peltigera gowardii	Goward's water fan	R5S	Cold unpolluted streams in mixed conifer forests.			No cold unpolluted streams.
Pinus albicaulis	whitebark pine	C; R5S	Subalpine and at timberline on rocky, well-drained granitic or volcanic soils.			Not at subalpine or timberline.
Rorippa subumbellata	Tahoe yellow cress	C; R5S; TRPA	Endemic to the shore zone of Lake Tahoe, typically in back beach areas between 6,223 and 6,230 ft.	X	X	

There are no federally threatened, endangered, or proposed plant species known to occur or with known suitable habitat within LTBMU. This list includes all R5 Sensitive plant and fungi species with known occurrences or known suitable habitat on LTBMU.
Legal status: C—Candidate for federal listing under the Endangered Species Act; R5S—Regional Forester's Sensitive Species List, Region 5; TRPA—Tahoe Regional Planning Commission Sensitive Species (TRPA Code of Ordinances 2012)
[1] For branched collybia, surveys are only effective when fruiting bodies are visible. This species typically fruits in late fall -early winter. The extent to which aboveground fruiting bodies are correlated with the abundance of underground structures is unknown. When a survey does not find the fruiting body, the species could still be present at the site. Because of this detection difficulty, it is important to manage habitat in a state that is suitable for fungi.

Basic information describing the life history, ecology, pollination biology, and specific habitat requirements is lacking for most of the rare species that occur within the botany analysis area. The scientific literature and internal government documents (i.e. species-specific conservation assessments) were utilized for the analysis whenever available; however more frequently the analysis of effects was based on observations by qualified individuals, field experience, unpublished monitoring results, and studies of comparable species.

For all TESP species, the indicator measures used in the effects analysis are the number of occurrences and the amount of suitable habitat impacted by proposed activities.

Species analyzed in detail

Goldencarpet buckwheat (*Eriogonum luteolum var. saltuarium)*: This annual herb is known from a total of three occurrences in the central Sierra Nevada. Two occurrences are in Tuolumne County on the Stanislaus National Forest and one is in Alpine County on private land southeast of Luther Pass (CNDDB 2013). A total of a few hundred individual plants have been observed in the field at the two locations above (FNA 2013). Of the two locations in Tuolumne County, one was surveyed in 2008 and had low numbers, and neither occurrence had any plants in 2009. There are no known occurrences of goldencarpet buckwheat on LTBMU lands, or in the Lake Tahoe basin.

Tahoe yellow cress (*Rorippa subumbellata)*: This perennial forb is endemic to the shores of Lake Tahoe in California and Nevada. There are 62 delineated Tahoe yellow cress (TYC) sites on private, city, county, State Park and LTBMU managed lands; however not all of these sites are occupied by TYC in a given year (USFWS 2012). A comprehensive monitoring program for TYC was initiated in 2001 (Pavlik et al. 2002); during the 2012 interagency annual survey, 32 of the 59 sites surveyed were occupied and a total of 12,674 plants were observed (USFWS 2012).

Tahoe yellow cress occurs in moist backshore beach depressions between elevations of 6,223 and 6,230 feet (USFWS 2012). It occurs on sandy or silty soils comprised of decomposed granite (USFWS 2012). TYC occurrences fluctuate with lake water levels,

which are related to dam regulation and climate (Pavlik 2002). During high water years the number of occupied sites typically decreases, whereas in low water years the number increases (USFWS 2012).

The species is threatened by human activities in the shore zone, especially when the lake level is high. Recreation and development and maintenance of marinas, piers, boat ramps, and other recreational facilities within the shore zone impact this species and its habitat. When the lake level is high, beach users are heavily concentrated in areas occupied by the species, which results in trampling of individuals as well as habitat disturbance.

There are five TYC sites wholly or partially within the botany analysis area; four occur on LTBMU land (Baldwin Beach, Taylor Creek, Taylor Creek Enclosure, and Kiva Beach/Valhalla) and one occurs on private land (Jameson Beach). During the 2012 survey, there were a total of 925 plants present at the Baldwin Beach, Taylor Creek, and Taylor Creek Enclosure sites; 921 plants occurred within the botany analysis area but zero plants occurred within the project area where ground-disturbing activities are proposed.

3.4.2 Alternative 1 – No Action

Direct Effects

No direct effects are anticipated because no project-related activities would be implemented.

Indirect Effects

If no project-related activities are implemented, the potential for negative indirect effects to TESP habitat through habitat loss or degradation (described in detail under Alternative 2) would be eliminated. Conversely, the potential indirect benefits to TESP through improved signage and altered user access would not be realized (described in detail under Alternative 2).

3.4.3 Alternative 2 and 4

Direct Effects

Direct effects occur when plants are physically impacted. Examples of proposed activities that have the potential to directly affect rare plants include crushing by vehicles or equipment; road and trail construction; and permanent facility construction. These actions can result in death, altered growth, or reduced seed set through physically breaking, crushing, or uprooting plants.

There will be no direct effects to goldencarpet buckwheat because there are no known occurrences within the project area. If any plants or new occurrences are encountered prior

to or during construction, they will be flagged and avoided and would not be directly affected.

In Alternative 2 and 4, the following activities have the potential to affect TYC and its habitat:

- Installation of a barrier between the Tallac Point beach area and Taylor Creek Marsh (~850 linear feet; e.g. split-rail fence, bollards, posts with signs, etc.)
- Repair/replacement of existing fencing along the beach from Tallac Point to the Valhalla Pier (~2000 linear feet)
- Slope stabilization along the beach from Tallac Point to the Valhalla Pier (where needed for ~2000 linear feet; e.g. boulders, terraces, stairs, etc.)

However, there will be no direct effects to Tahoe yellow cress because none of the known TYC sites that intersect proposed activities are currently occupied. None of the currently occupied TYC sites that occur within the botany analysis area are likely to be directly affected because they occur more than 75 meters away from proposed ground-disturbing activities and across Taylor Creek. Furthermore, if TYC plants are encountered prior to or during construction, they will be flagged and avoided and would not be directly affected.

Indirect Effects

Indirect effects are separated from an action in either time or space. These effects, which can be beneficial or detrimental to TESP, may include changes in vegetation composition, successional patterns, fire regimes, or the distribution and abundance of invasive plants.

Proposed activities may result in TESP habitat loss. BMP construction, facilities construction, road and trail realignment and paving can remove areas from being considered as potential habitat for TESP species for a timeframe that is long to permanent. Most of the new pavement and facility construction will be located in previously disturbed sites, which are not likely to be high quality habitat for most TESP species. Some loss of suitable habitat may occur, but the quantity is not likely to be substantial.

Proposed activities may result in TESP habitat degradation. Alteration of soil and hydrology characteristics associated with construction activities are expected to be minimal because new construction will follow all design standards and utilize BMPs to prevent problems with drainage or soil erosion over the short- and long-term. Nonetheless, if these measures alter flow pathways and water availability away from suitable TESP habitat—particularly perennially wet habitat, they could have a negative long-term effect. However, no species utilizing this type of habitat were documented in project surveys.

TESP habitat may also be altered by new human use patterns following the reconfiguration of the road and trail system. Recreation use is likely to increase in areas where new roads, trails, and parking areas are constructed. The increased number of users may result in new unanticipated user-created trails. Use of such trails could result in trampling of native vegetation and soil compaction which may alter suitable TESP habitat so that it is no longer suitable. On the other hand, decommissioned roads and trails may provide some additional suitable habitat for TESP species—especially early seral species—in the short to long term, as vegetation in these areas recovers to a natural condition.

Both construction and recreation use have the potential to increase the introduction and spread of invasive plants (detailed below in "Invasive Plants"). Many invasive plant species, including cheatgrass, bull thistle, and oxeye daisy, compete with TESP species and can reduce their abundance and diversity. Invasive plants can also indirectly affect TESP species by degrading their habitat through the alteration of fire or nutrient regimes or competition with native plants species associated with TESP habitat (Bossard et al. 2000).

There are project activities that may indirectly affect TYC specifically. Recreation use at the Tallac Point beach area may increase slightly in the short to long-term if 20 additional parking spaces are installed at the parking area. This would continue or potentially increase impacts to TYC suitable habitat and continue to prevent establishment of new TYC plants. The additional parking spots are proposed under both Alternatives 2, 3, and 4.

There also may be short to long-term beneficial effects to TYC from the proposed installation of interpretive signs. Visitors would be more educated on TYC identification and less likely to trample any plants that may establish on the beach. Installing a protective barrier to the Taylor Creek marsh also may prevent recreation users from entering TYC habitat and trampling plants near the mouth of Taylor Creek.

Cumulative Effects

Past, present, and future activities have and will continue to alter TESP populations and their habitats to various degrees. The approach taken in this analysis is that, if direct and indirect adverse effects on rare plant species resulting from the project are minimal or would not occur, then they would not contribute substantially to cumulative effects on the species; if the greatest impact on a TESP species is both local and immediate, then this is the scale at which the effect is easiest to detect (MacDonald 2000). Recent past and ongoing LTBMU projects occurring within the botany analysis area are designed to improve habitat for native species and incorporate protections for TESP from direct and indirect effects. The additive effects of these resource protection and enhancement measures are expected to have a neutral effect on TESP and their habitat.

The effects of past activities on TESP in the botany analysis area are largely unknown. Targeted TESP surveys did not begin on LTBMU until the second half of the 20th century. In many cases, even when project-level surveys were conducted, there is very little documentation that describes whether past projects avoided or protected rare plants during project implementation. In addition to these unknowns, changes have been made to the LTBMU TESP list over the years, meaning some species may not have been surveyed or analyzed for in the past. In particular, TYC was likely negatively impacted by past management activities—especially heavy recreational use of its shoreline habitat—through non-lethal harm and lethal destruction of individuals or entire occurrences and habitat degradation. The scale of past effects to TESP is difficult to quantify due to a lack of pre-disturbance data. In order to incorporate the contribution of past activities into the cumulative effects of the proposed project, this analysis uses the current abundance and distribution of TESP (described above) as a proxy for the impacts of past actions.

There will be no cumulative effects from the proposed action because the direct and indirect effects are expected to be negligible. While TYC has previously been documented near the project area, there are currently no known occurrences of TYC present within the project area. The indirect effects to TYC habitat are expected to be negligible. And, there is only

suitable habitat for goldencarpet buckwheat (no occurrences), which is not expected to be negatively impacted.

Present and future projects developed under current management direction that may affect TESP in the botany analysis area include the following:

Taylor Creek Environmental Education Center Replacement: This project was approved by the LTBMU in 2010 but has not yet been implemented. The project involves replacement of the educational/visitor building at the 4.9-acre project site, and is located directly adjacent to the west boundary of the proposed project area and within the botany analysis area.

South Shore Fuel Reduction – Implementation of this project began in 2012 and is anticipated to continue for 5-8 years. This project involves forest thinning and fuel reduction in conifer stands around South Lake Tahoe, CA. There are no treatment units in the project area, however there are eleven treatment units covering a total of approximately 153 acres within the botany analysis area.

Fallen Leaf Lake Access and Travel Management (ATM): The Fallen Leaf ATM was approved in 2013 and is intended to design and implement a sustainable, non-motorized trail plan in the Fallen Leaf area. New trails are planned to connect destinations to access points. Trailheads and trailhead parking are identified for upgrade with water quality Best Management Practices (BMPs), existing unmanaged parking areas will be adopted and formalized, and new parking facilities will be constructed. The Fallen Leaf ATM project boundary includes the entire botany analysis area.

Camp Richardson Resort Campground and Vehicle Circulation BMP Retrofit: This project was approved in 2013 and includes installation of water quality BMPs, control of vehicle circulation by re-defining and paving travel routes and camping spurs, removal of inadequate restroom buildings and construction of new toilet/shower buildings. New underground water, sewer, and electricity utility systems will be installed. The Camp Richardson project area is directly adjacent to the southeast boundary of the proposed project area and covers 65 acres within the botany analysis area.

CalTrans SR 89 Improvements: The California Department of Transportation (CalTrans) plans to improve parking and traffic congestion along the SR 89 right-of-way to the east and west of the Camp Richardson project. The improvements will include more restricted parking along the highway corridor and improvements of existing intersections to reduce both vehicle and pedestrian traffic, and reduce vehicle congestion. These activities will occur along the southern boundary of the proposed project area.

The environmental effects of the Camp Richardson Resort BMP Retrofit and the Fallen Leaf Lake ATM projects have been analyzed and disclosed separate from the proposed project. For each project, resource protection measures have been incorporated to minimize negative effects on TESP plant species. In addition, the California Department of Transportation has proposed to reduce roadside parking and improve intersections to reduce traffic congestion. All three of these projects are expected to have positive indirect effects on native plants and TESP species by minimizing erosion, improving water quality, and generally improving sustainability of recreation management in a very heavily-utilized area. The amount of habitat available for TESP species would also be increased by activities proposed under the Fallen Leaf Lake ATM project, by reducing the number of unauthorized trails and decommissioning redundant trail segments. Improvements to the Taylor

Creek Environmental Education and Visitors Center will occur within the current footprint of the existing building site; resource protection measures have been incorporated to minimize negative effects on TESP species and their habitat.

As long as existing management guidelines (e.g. field surveys, protection of known occurrences, and invasive plant mitigations) remain in place, the effects of future projects on TESP species and their suitable habitat are likely be minimal or similar to those described in this analysis. Therefore the contribution to cumulative effects of these present and future projects are likely to be minimal.

3.4.4 Alternative 3

As described in Chapter 2, there are differences between Alternative 2/4 and 3. The central differences between proposed activities under Alternatives 2/4 and 3 include the road and pathway to Kiva Point parking area; the reconfiguration of vehicular circulation patterns; additional parking spaces at Tallac, Valhalla, and the Polo Field; and upgrades to the Volunteer RV Campground. In terms of potential effects to TESP plant species, the most pertinent difference is in the size of the disturbance footprint, as this affects the amount of potential TESP habitat as well as the risk of invasive plant introduction and spread; Alternative 3 has a disturbance footprint of 29 acres compared to 33 acres under Alternative 2/4 due to the level of changes to the road and trail system. However, because there are no known TES plant occurrences within the footprint of these proposed activities, the direct, indirect and cumulative effects to TESP are expected to be the same in Alternative 3 as those discussed above in Alternative 2/4.

3.4.5 Other Botanical Resources

LTBMU Watch List Botanical Species

The Lake Tahoe Basin Management Unit (LTBMU) maintains a watch list of plant species that are of conservation concern, but have not been designated as Sensitive by the Regional Forester; this list is included in the project's "Other Botanical Resource Assessment". According to the Regional Forester, Watch List plant species should be considered during project planning with corresponding documentation maintained in the planning file (USDA 2006). The project area was surveyed for watch list species (USDA 2013). No Watch List species are documented in the project area. No negative impacts are anticipated from implementation of any of the project alernatives.

Uncommon Plant Communities

The LTBMU Land and Resource Management Plan and the Sierra Nevada Forest Plan Amendment (SNFPA) directs the Forest Service to address uncommon plant communities (e.g. fens, marshes, pin-cushsion alpine plants) during project analyses. The project area was surveyed for uncommon plant communities and the project does occurs adjacent to the Taylor Creek Marsh. However, the only project activity that are may affect the marsh is the construction of a protective barrier fence between Tallac Point beach and the Taylor Creek

Marsh; this proposed activity is the same in all alternatives. The fence is expected to have a beneficial effect on the marsh by discouraging people and their pets from entering the marsh and disturbing wildlife or habitat. No other uncommon plant communities occur in the project area.

3.4.6 Analytical Conclusions

Alternative 1 will not affect any Threatened, Endangered, Proposed or Candidate or Region 5 Sensitive species. This determination is based on the lack of occurrences known or expected to occur within the project area and the negligible effects expected to suitable habitat within the project area.

Alternatives 2, 3, and 4 may affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability for goldencarpet buckwheat (*Eriogonum luteolum var. saltuarium*). This determination is based on the following: a) there are no known occurrences within the project area; b) if any plants are detected prior to or during project implementation, they will be flagged and avoided for their protection and are not likely to be affected; and c) effects to suitable habitat are expected to be negligible.

All alternatives may affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability for Tahoe yellow cress (*Rorippa subumbellata).* This determination is based on the following: a) there are no plants present within the project area; b) if any plants are detected prior to or during project implementation, they will be flagged and avoided for their protection and are not likely to be affected; and c) the amount of TYC suitable habitat within the project area is a small proportion of total suitable habitat and no change in the amount or intensity of recreation use in TYC suitable habitat is likely to occur.

All alternatives will not affect any Threatened, Endangered, or Proposed, species or any other Candidate or Region 5 Sensitive species (other than those discussed above). This determination is based on the lack of occurrences known or expected to occur within the project area and the absence of suitable habitat within the project area.

Environmental effects to botanical resources from all project alternatives are considered less than significant.

3.4.7 Invasive Plants Risk Assessment

Invasive plants pose a significant threat to ecological function due to their ability to displace native species, alter nutrient and fire cycles, decrease the availability of forage for wildlife, and degrade soil structure (Bossard, Randall, and Hoshovsky 2000). Infestations can also reduce the recreational or aesthetic value of native habitats. Forest management activities can contribute to the introduction and spread of invasive plants by creating suitable environmental conditions for establishment and by acting as vectors for spread.

Potential effects from invasive plants in presented in the context of the risk of introduction and spread associated with proposed activities, rather than effects to specific resources; these resource-specific effects are addressed in other resource sections, as appropriate. On LTBMU, an established invasive plant risk assessment process has been used to evaluate

projects involving ground-disturbance activities since 2004—when the Sierra Nevada Forest Plan Amendment required national forests in the Sierra to conduct such assessments(USDA Forest Service 2004b). On LTBMU, invasive plant risk is assessed by examining both non-project-dependent factors (inventory, known infestations, vectors not-dependent on proposed action; habitat vulnerability) and project-dependent factors (vectors expected to result from proposed action; and habitat alteration expected to result from proposed action). The list of invasive plants of management concern on LTBMU as well as a detailed assessment of invasive plant risks associated with the project can be found in the project's invasive plant risk assessment.

Non-project dependent factors

The risks presented from non-project dependent factors are the same across all alternatives.

Overall, the project area and botany analysis area have a moderate density of invasive plant infestations. The entire project area was surveyed for invasive plants and infestations were mapped; as such, the invasive plant inventory is considered adequate and the risk of uninventoried infestations is low. There are 20 known invasive plant infestations in the project area, but only four had plants present at the most recent survey visit. There are an additional 14 known invasive plant infestations in the botany analysis area beyond the project area boundary, six of which had plants present at the most recent survey visit.

Invasive plant introduction occurs when plant propagules are moved from one infestation (the "seed source") to a new and often uninvaded habitat. In general, any activity that moves soil or plant parts from one location to another has the potential to act as a vector and facilitate weed introduction and spread. In the project area, the following non project-dependent activities may act as vectors: road and trail use; ongoing land management activities; and non-motorized recreational activities such as walking, hiking, and biking. Roads and trails can act as vectors for invasive plant establishment and spread when users transport invasive plant seed from infested areas—often many miles away—on their clothing, shoes, tires, etc. (Trombulak & Frissell 2000). Because the project area is in one of the most heavily developed and visited recreation areas in the Lake Tahoe Basin, there is a high risk of invasive plant introduction from non-project dependent vectors. The risk of invasive plant spread is moderate from non project-dependent vectors due to the presence of ten infestations (with plants present at the most recent survey) in the project area and botany analysis area.

The overall habitat vulnerability within the project areas is considered high. The majority of the project area is heavily developed and utilized for recreation by pedestrians and bicyclists. The project area includes multiple historic buildings with associated gardens and footpaths that are utilized as an "outdoor museum," as well as Kiva Beach, the Kiva Picnic Area, the Valhalla "Great Hall"- which is used for special events- and several administrative facilities. Numerous parking lots and travel routes- including SR 89, paved roads, and paved and dirt pedestrian/bike paths- occur in or adjacent to the project area.

Project-dependent factors

Under the Alternative 1 (No Action Alternative), project components would not be implemented, however on-going site and program management direction would remain.

Alternatives 2, 3, and 4

During project implementation, the primary vectors with the potential to introduce or spread invasive plants will include vehicles, equipment, machinery, and personnel travelling into, out of, and through the project area. These risks are temporary and will cease following project completion. These risks are considered moderate to high due to the level of intensity of the proposed construction and are approximately the same for all action alternatives.

In all action alternatives, there are proposed activities that would result in temporary ground disturbance during construction or permanent alteration of the landscape. Heavy equipment will be utilized to construct new facilities, roads, and parking lots. While ground disturbance associated with construction will temporarily create conditions that are conducive to invasive plant invasion (e.g. bare disturbed soils adjacent to travel/access routes), much of the ground-disturbing work will occur within areas that are already highly disturbed— along and adjacent to existing road and trail corridors and parking lots/trailheads; as such, project activities are not expected to substantially increase disturbance beyond the existing condition. Due to some small differences in the two alternatives—primarily in the reconfiguration of roads—the temporary disturbance footprint for Alternative 2/4 is 33 acres, while the disturbance footprint for Alternative 3 is 29 acres. As such, Alternative 2/4 presents a slightly greater risk of invasive plant infestation and spread.

The risks associated with travel and ground-disturbance will be reduced by the implementation of project design features to reduce invasive plant introduction and spread as described in Chapter 2. Project development may also lead to a slight decrease in the risk of introduction and spread of invasive plants in the short to long-term. The reduction of vehicle traffic expected as a result of project implementation would be fewer vehicles to act as vectors that can transport weed seed from infested areas. Trail upgrades and improved signage in conjunction with decommission of unauthorized user trails would decrease the area that is vulnerable to invasive plant invasion via weed seed attached to clothing, shoes, tires, equipment, etc. The changes described above are permanent and are expected to result in a small but long-term decrease in the risk of invasive plant introduction and spread.

Analytical Conclusions

Table 3-10. Invasive plant species risks are summarized below:

	Factor	Risk	Assessment summary
NON-PROJECT DEPENDENT FACTORS	Inventory	N/A	Adequate
	Known invasive plants	Moderate	There are 34 active infestations total in the project and botany analysis areas. Four sites in the project area and six sites in the botany analysis area had plants present at the most recent survey in 2012 or 2013.
	Habitat vulnerability	High	High level of historic and recent disturbance. Plant cover includes habitats dominated by native species (coniferous forest and open shrublands) as well as disturbed and developed areas dominated by non-native vegetation.
	Non-project dependent vectors	High	High level of recreation use. Uses include road and trail use; ongoing land management activities; and non-motorized recreational activities such as walking, hiking, and biking.
PROJECT-	Habitat alteration	High	Moderate to high ground disturbance due to

DEPENDENT FACTORS	expected as a result of project		construction activities. Heavy equipment will be utilized to construct new facilities, roads, and parking lots. Small difference in the acres of ground disturbance for Alternatives 2, 3, & 4.
	Increased vectors as a result of project implementation	Moderate-High	During construction, increased vectors due to use of vehicles, machinery, equipment, and personnel. Following project completion, slightly decreased vectors due to improvements in traffic and pedestrian circulation.
	Management measures	Greatly reduced risk	Standard management measures as well as infestation treatment and control areas implemented in both alternatives.
ANTICIPATED WEED RESPONSE		**Moderate-High**	High risk of new introduction; moderate risk of spread under Alternatives 2, 3, & 4

Overall, there is a moderate to high risk of introduction due to road and facilities construction as well as ongoing recreation use and vehicular traffic (even with application of project design features). There is a negligible difference between Alternatives 2, 3, & 4 in their effect on risk of introduction or spread of invasive plants.

The invasive plant design features are sufficient to reduce the risk of weed introduction and spread, specifically features such as vehicle and equipment washing and monitoring, and use of weed-free construction materials.

3.5 Wildlife Resources

3.5.1 Introduction and Affected Environment

This section analyzes and discloses the potential effects of the proposed project on special status species – those that are federally listed endangered, threatened, proposed, and candidate species and their habitats, and on Forest Service sensitive species. These species are identified in Table 3-11. Botanical species are analyzed and discussed in another section of this EA. The Biological Evaluation/Biological Assessment, migratory bird report, Management Indicator Species report, and TRPA special interest species reports are included in the project record.

The project area is the footprint where project activities would occur. The analysis area is defined by a 0.5 mile radius around the project area, and all downstream areas for aquatic wildlife. Habitat manipulation is restricted (SNFPA ROD 2004) within 0.5 mile of bald eagle nests (USDA Forest Service, 1988) and northern goshawk nests (TRPA Code, Ch. 78), unless surveys confirm these species are not nesting.

USFWS Threatened and Endangered Species

Federally listed species are managed under the authority of the Endangered Species Act and the National Forest Management Act (Public Law 94-588). The Endangered Species Act (ESA) requires federal agencies to ensure that all actions are not likely to jeopardize the continued existence of any federally listed species. Federally threatened, endangered, proposed, and candidate species for the LTBMU are listed by the U.S. Department of Interior, Fish and Wildlife Service as of November 18, 2013 and include:

Endangered:	None currently listed
Threatened:	Lahontan cutthroat trout *(Oncorhynchus clarkii henshawi)*
	Delta smelt *(Hypomesis transpacificus)*
	Central Valley steelhead *(Oncorhynchus mskiss)*
Proposed:	North American wolverine *(Gulo gulo luscus)*, Proposed Threatened
	Yosemite toad *(Bufo canoris)*, Proposed Threatened
	Sierra Nevada yellow-legged frog *(Rana sierra)*, Proposed Endangered
Candidate:	Pacific fisher *(Martes pennanti)*

Critical Habitat for the Sierra Nevada (mountain) yellow-legged frog is proposed in the Desolation and Granite Chief Wilderness, which is outside the influence of this project. The proposed project would not affect either the species or proposed Critical Habitat. Therefore, no further analysis of proposed Sierra Nevada (mountain) yellow-legged frog Critical Habitat will be presented in this document and has a determination of "No Effect" for the proposed project

Although potential habitat exists in the Lake Tahoe basin and in the proposed project area for Yosemite toad and Northern Leopard frog, it is considered out of the historic range of these species, and to date, no detections have been recorded. These species are not expected to exist within or near to the project area. Therefore, no further analysis of this species or its potential

habitat will be presented in this document and have a determination of "No Effect" for the proposed project.

The Central Valley steelhead and the Delta smelt are anadromous fish species, and do not occur on the Lake Tahoe Basin because there are no rivers which flow into the ocean from the Lake Tahoe basin nor will they be affected by the proposed project activities. Therefore, these two species are considered to have a determination of "No Effect" and are not considered further in this document.

Forest Service Pacific Southwest Region 5 Sensitive Species (non-botanical)

The USDA sensitive species are listed by the Pacific Southwest Region, which was most recently amended on June 30, 2013. There is suitable habitat in the analysis area for special status species, including bald eagle, northern goshawk, California spotted owl, willow flycatcher, Townsend's big-eared bat, pallid bat, fringed myotis, Pacific marten, Lahontan lake tui chub, Lahontan cutthroat trout, Great Basin rams-horn, and western bumble bee. Several species were excluded from further analysis following the review. The great gray owl, North American wolverine, Pacific fisher, were excluded because the project area is outside the current range of these species. These species are not currently known to occur in LTBMU-managed lands and would not be affected by project activities.

Table 3-11. Special status species distribution, habitat, and occurrence

Wildlife *(genus and species)*	Legal status[1]	Distribution	Suitable habitat	Known to occur[2]	Occurrence Description
Birds					
Bald eagle *(Haliaeetus leucocephalus)*	D, S, SI, MB	Occurs throughout California. Nests in dense forest with supercanopy trees within one mile of large lakes with abundant fish prey.	yes	yes	Suitable habitat in the analysis area. Bald eagle winter habitat. 4 bald eagles detected during 2012 midwinter surveys. 24 detections last 10 years. 119 historic bald eagle detections. Bald eagle nest 2.4 miles from the analysis area fledged 2 eaglets in 2013.
Northern goshawk *(Accipiter gentiles)*	S, SI	Occurs in the north Coast Ranges, Sierra Nevada, Klamath, Cascade, Warner, San Jacinto, and San Bernardino Mountains. Found in older-age coniferous, mixed conifer, and deciduous forest habitats at mid to high elevations during breeding season.	yes	yes	Suitable habitat in the analysis area. No detections, no active nests during 2011 and 2012 surveys. No PACs, 5 historic detections, and no historic nests in the analysis area.
California spotted owl *(Strix occidentalis occidentalis)*	S, MIS, MB	Occurs from the southern Cascades, through the Sierra Nevada, and into the mountains of southern California. Usually found in old, dense, and layered mixed conifer forest. Also found in riparian/hardwood, ponderosa pine/hardwood, red fir, and east side pine forest.	yes	no	Suitable habitat in the analysis area. No detections, no active nests during 2011 and 2012 surveys. No PACs, no historic detections, and no historic nests in the analysis area.
Willow flycatcher *(Empidonax traillii)*	S, MB	Occurs in the Sierra Nevada in wet meadow and montane riparian habitats larger than 15 acres. Nest	yes	yes	Suitable habitat in the analysis area. 4 detections, 1 active nest, and 4 fledged during 2010 surveys. 17

Wildlife *(genus and species)*	Legal status[1]	Distribution	Suitable habitat	Known to occur[2]	Occurrence Description
		in dense willow thickets, with standing or running water on June 1.			historic detections, 5 historic nests, and 9 fledged in the analysis area.
Mammals					
Townsend's big-eared bat *(Corynorhinus townsendii)*	S	Occurs throughout California in desert scrub and pine forest. Strongly associated with caves, mines, tunnels, or rocky outcrops near wetlands or forest edges with moths. Occasionally found in old abandoned buildings, tree hollows, and under thick loose bark.	yes	no	Potential suitable roosting habitat in the analysis area. No known detections, with nearest roost 9 miles from the analysis area.
Pallid bat *(Antrozous pallidus)*	S	Occurs in western North America, in California from low arid to high conifer communities. Greatest abundance in xeric conditions.	yes	no	Suitable roosting habitat in the analysis area. No known detections, with nearest roost 7 miles from the analysis area.
Fringed myotis *(Myosti thysanodes)*	S	Occurs in western North America, in California statewide except the Central Valley, Colorado and Mojave Deserts.	yes	yes	Suitable roosting habitat in the analysis area. Detected at the Taylor Creek Visitor Center, Boathouse Theater, Taylor and Tallac Marsh.
Pacific marten *(Martes caurina)*	S, MIS	Occurs in the North Coast, Sierra Nevada, Klamath, and Cascades. Found in dense late successional coniferous forest with snags, down logs, debris piles, and abundant squirrel prey. Usually found in mature red/white fir mix, lodgepole pine, and Sierran mixed conifer. Also found in montane hardwood-conifer, aspen, and red fir.	yes	yes	Suitable habitat in the analysis area. 2 historic detections and no dens in the analysis area.
Amphibians					
Sierra Nevada yellow-legged frog *(Rana sierra muscosa)*	PE, S	Found in the Sierras between 4,500 and 12,000 feet elevation in streams, lakes, and ponds in montane riparian, lodgepole pine, subalpine conifer, and wet meadow habitats. Usually utilize open, gently sloping areas along aquatic habitats within a short distance of pools with refugia such as rocks, undercut banks, woody debris, and vegetation.	yes	no	Suitable physical habitat in the analysis area. No populations occur because of non-native trout, non-native amphibians, and urban development.
Fish					
Lahontan lake tui chub *(Gila bicolor pectinifer)*	S	Found in large deep lakes, including Lake Tahoe, Pyramid Lake, and Walker Lake. Spawns in shallow water with aquatic vegetation.	yes	yes	Suitable habitat in the analysis area. Detected in Taylor Creek lagoon. May spawn in Lake Tahoe near shore. No disturbance would occur in Taylor Creek or Lake Tahoe. BMP upgrades would improve water quality and aquatic habitat.
Lahontan cutthroat trout *(Oncorhynchus clarkii henshawi)*	T, SI	Found in lakes and streams, including Lake Tahoe, Fallen Leaf Lake, Pyramid Lake, Walker Lake, Independence Lake, Summit Lake, and associated tributaries.	yes	yes	Suitable habitat in the analysis area. Detected in Taylor Creek lagoon. Not established because of competition with non-native trout. No disturbance would occur in the Taylor Creek or Lake Tahoe. BMP upgrades would improve water quality and aquatic habitat.
Invertebrates					
Great Basin rams-horn *(Helisoma newberryi*	S	Found in Shasta County, Lassen County, and the northern Great	yes	no	Suitable habitat in the analysis area. Detected in Lake Tahoe off of Camp

Wildlife *(genus and species)*	Legal status[1]	Distribution	Suitable habitat	Known to occur[2]	Occurrence Description
newberryi)		Basin. Known populations in the lower Truckee River. Found in cold and highly oxygenated water, large spring complexes, large lakes, and slow rivers with soft sediments and a muddy substrate.			Richardson. May be present in Taylor Creek lagoon, but no surveys have been conducted. No disturbance would occur in the creek or lake. BMP upgrades would improve water quality and aquatic habitat.
Western bumble bee *(Bombus occidentalis)*	S	Occurs in California and adjacent states. Severe declines in the Cascades and Sierra Nevada. Found in meadows with flowers and abandoned rodent burrows.	yes	no	Suitable habitat in the analysis area. No known detections, with nearest historic detection 0.3 miles from the analysis area.

[1]Legal status:

E = Endangered species listed by the USFWS under the Endangered Species Act.

T = Threatened species listed by the USFWS under the Endangered Species Act. The Delta smelt *(Hypomesis transpacificus)* and Central Valley steelhead *(Oncorhynchus mskiss)* are threatened species for the LTBMU. The project would not affect these species, because the LTBMU is outside their current and historical range.

P = Proposed species for federal listing by the USFWS under the Endangered Species Act. The North American wolverine *(Gulo gulo luscus)* and Yosemite toad *(Bufo canoris)* are proposed threatened. The project would not affect these species, because the LTBMU is outside their current and historical range. The Sierra Nevada yellow-legged frog *(Rana sierra)* is proposed endangered, with proposed Critical Habitat in the Desolation and Granite Chief Wilderness.

C = Candidate species for federal listing by the USFWS under the Endangered Species Act. The Pacific fisher *(Martes pennanti)* would not be affected by the project, because the LTBMU is outside its current and historical range. No federally listed wildlife species would require technical assistance from the USFWS.

D = Delisted species by the USFWS under the Endangered Species Act. Bald eagle was delisted on June 28 2007, and will be monitored for 5 years.

S = Sensitive species listed by Region 5, US Forest Service. The sensitive species list was revised on June 30, 2013.

MIS = Management indicator species listed by Region 5, US Forest Service. Sierra Nevada MIS amendment on December 14, 2007

SI = Special interest species listed by the TRPA. Regional plan of Lake Tahoe Basin, code of ordinances, 1987

MB = Migratory bird.

[2] Known to occur within 0.5 mile of the project area to account for potential direct and indirect effects.

3.5.2 Environmental Consequences

Effects are actions that may render occupied habitat unsuitable for use by a species, or affect the species productivity, survival, or cause mortality. Effects of the project alternatives consist of direct, indirect, and cumulative effects. Direct effects are caused by the action, and occur at the same place and time. Direct effects for the analysis are limited to the project footprint. Indirect effects are caused by the action, and occur later in time or removed in distance. Indirect effects include the analysis area, which has a 0.5 mile radius around the project footprint, and any downstream effects.

Cumulative effects result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of the entity responsible for the actions. Cumulative effects consider actions such as wildfire, fuel reductions in the wildland/urban interface, road and trail building, maintenance, or decommissioning, erosion control, riparian habitat restoration, recreation management, special use management, and urban development.

Cumulative effects are considered 10 years into the future, and within 0.5 miles or downstream of the project area. Cumulative effects analysis relies on current environmental conditions as a proxy for the impacts of past actions. This is because existing conditions reflect the aggregate impact of all prior human actions and natural events that have affected the environment and might contribute to cumulative effects. Current and reasonably foreseeable future actions in the analysis area include the following projects: South Shore Fuel Reduction and Healthy Forest Restoration

Project, Camp Richardson Resort Campground and Vehicle Circulation BMP Retrofit, Fallen Leaf Lake Trail Access and Travel Management, Caltrans Highway improvements, Restoration of Fire Adapted Meadows, and Camp Richardson resort cabin rehabilitation.

The proposed action and alternative action are fully described in Chapter 2 of this Environmental Assessment (EA). Wildlife habitat design features are incorporated into the project design to minimize adverse effects to all species.

Effects to Sierra Nevada Yellow-legged Frog

Alternative 1 (No Action)
Direct and Indirect Effects: None expected because there would be no change in current conditions.

Cumulative Effects: None expected because there would be no direct or indirect effects.

Alternative 2 and 4
Direct and Indirect Effects: No populations occur because of unsuitable biological conditions. The nearest population occurs 9.2 miles southeast of the project area, which is well outside the influence of this project. The project will have no direct or indirect effects on this species.

Cumulative Effects: None expected because there will be no direct or indirect effects.

Alternative 3
Direct and Indirect Effects: Effects to this species would be similar to Alternative 2. This alternative may be slightly more beneficial to aquatic habitat, because the Tallac RV campground would be paved to reduce sedimentation.

Cumulative Effects: None expected because there will be no direct or indirect effects.

Effects to Lahontan lake tui chub, Lahontan cutthroat trout, and Great Basin rams-horn

Alternative 1 (No Action)
Direct and Indirect Effects: None expected because there would be no change in current conditions.

Cumulative Effects: None expected because there will be no direct or indirect effects.

Alternative 2 and 4
Direct and Indirect Effects: The project would have no direct or indirect effects on these species, because there are no proposed activities in aquatic habitat, because of the limited scope and intensity of the proposed action, because design features and the implementation of BMPs during construction will prevent sedimentation; and because there will not be any measurable changes in flow, water temperature, or water quality to Taylor Creek and Lake Tahoe. The project would slightly improve the aquatic habitat in the area, because upgrades to BMPs would decrease

sedimentation into the Lake Tahoe, a barrier between Kiva beach and Taylor Creek marsh would decrease user created impacts, and a restroom would decrease current water quality impacts.

Cumulative Effects: This alternative when combined with past, present, and reasonably foreseeable future actions is not expected to have a cumulative effect on these species; because there will be no direct or indirect effects on these species, and because of the limited scope and intensity of the proposed action.

Alternative 3
Direct and Indirect Effects: Effects to this species would be similar to Alternative 2. This alternative may be slightly more beneficial for aquatic species because the Tallac RV campground would be paved to reduce sedimentation.

Cumulative Effects: Cumulative effects to this species would be similar to Alternative 2.

Effects to Bald Eagle

Alternative 1 (No Action)
Direct and Indirect Effects: None expected because there would be no change in current conditions.
Cumulative Effects: None expected.

Alternative 2 and 4
Direct and Indirect Effects: Project activities could disturb nesting and foraging however, there are no known nests in the project area. Disturbance from project activities would not be greater than existing road traffic, and recreational activity. No direct or indirect effects to nesting are expected, because there would be no work within 0.5 miles of known nests during the breeding season. Individuals could experience temporary auditory and visual disturbance if they perch in or fly over the project area during construction. The loss of some trees and snags would be a direct effect to moderately suitable nesting, foraging, and perching habitat but this impact would not substantially alter the remaining habitat in the project area.

Cumulative Effects: This alternative when combined with past, present, and reasonably foreseeable future actions is not expected to have a cumulative effect to this species because effects to survival are unlikely and no effects to reproduction are expected to occur.

Alternative 3
Direct and Indirect Effects: Effects to these species would be similar to Alternative 2.

Cumulative Effects: Cumulative effects to this species would be similar to Alternative 2.

Effects to Northern Goshawk

Alternative 1 (No Action)

Direct and Indirect Effects: None expected because there would be no change in current conditions.
Cumulative Effects: None expected.

Alternative 2 and 4
Direct and Indirect Effects: Project activities could disturb nesting and foraging however, there are no known nests in the project area. Disturbance from project activities would not be greater than existing road traffic, and recreational activity. No direct or indirect effects to nesting are expected because there would be no work within 0.5 miles of known nests during the breeding season. Individuals could experience temporary auditory and visual disturbance if they perch in or fly over the project area during construction. The removal of some trees could remove potential nest trees from the project area. Heavy public use of the project area likely has and will continue to preclude nesting in some areas.

There is no high quality northern goshawk habitat in the project area. This species may be affected by the initial reduction of understory herbaceous and shrub cover, but habitat and the prey base would recover beyond existing conditions along roads and trails as native plants are reestablished after a few growing seasons.

Cumulative Effects: This alternative when combined with past, present, and reasonably foreseeable future actions is not expected to have a cumulative effect to this species because effects to survival are unlikely and no effects to reproduction are expected to occur.

Alternative 3
Direct and Indirect Effects: Effects to this species would be similar to Alternative 2. Parking in the polo field would have a less positive effect on this species compared to Alternative 2, because some of the parking lot would be located in moderately suitable habitat. This difference is relatively small, and is not expected to cause additional disturbance beyond those described in Alternative 2.

Cumulative Effects: Cumulative effects to this species would be similar to Alternative 2.

Effects to California Spotted Owl

Alternative 1 (No Action)
Direct and Indirect Effects: None expected because there would be no change in current conditions.
Cumulative Effects: None expected.

Alternative 2 and 4
Direct and Indirect Effects: Project activities could disturb nesting and foraging however, there are no known nests in the project area. Disturbance from project activities would not be greater than existing road traffic, and recreational activity. No direct or indirect effects to nesting are expected because there would be no work within 0.25 miles of known nests during the breeding season. Individuals could experience temporary auditory and visual disturbance, if they perch in or fly over the project area during construction. The removal of some trees would remove

potential nest trees from the project area. Heavy public use of the project area likely has and will continue to preclude this species from nesting in some areas.

There is no high quality California spotted owl habitat in the project area. This species may be affected by the initial reduction of understory herbaceous and shrub cover, but habitat and the prey base would recover beyond existing conditions along roads and trails as native plants are reestablished after a few growing seasons.

Cumulative Effects: This alternative when combined with past, present, and reasonably foreseeable future actions is not expected to have a cumulative effect to this species because effects to survival are unlikely and no effects to reproduction are expected to occur.

Alternative 3
Direct and Indirect Effects: Effects to this species would be similar to Alternative 2. Parking in the polo field would have a less positive effect on this species compared to Alternative 2, because the some of the parking lot would be located in moderately suitable habitat. This difference is relatively small, and is not expected to cause additional disturbance beyond those described in Alternative 2.

Cumulative Effects: Cumulative effects to this species would be similar to Alternative 2.

Effects to Willow Flycatcher

Alternative 1 (No Action)
Direct and Indirect Effects: None expected because there would be no change in current conditions.
Cumulative Effects: None expected.

Alternative 2 and 4
Direct and Indirect Effects: Project activities could disturb nesting and foraging however, there are no known nests in the project area. Disturbance from project activities would not be greater than existing road traffic, and recreational activity. No direct or indirect effects to nesting are expected, because there would be no work within 150 feet of known nests during the breeding season. Individuals could experience temporary auditory and visual disturbance if they perch in or fly over the project area during construction.

There is willow flycatcher emphasis habitat between Kiva beach and the parking lot, and occupied habitat in Taylor Creek marsh. Some willows may be removed as the trail to Kiva beach is upgraded to a class 1 bike trail. Class 1 bike trail would be constructed in willow flycatcher emphasis habitat for 0.02 mile, but would be offset by trail decommissioning and restoration for 0.03 mile. Willow removal is expected to be minor because this site is already disturbed. Understory shrub cover would be reduced as brush is cleared during new trail construction, but would recover beyond existing conditions as redundant trails in riparian habitat are decommissioned and rehabilitated. The barrier between Kiva beach and Taylor Creek meadow would be constructed in willow flycatcher emphasis habitat for 0.05 mile. This species may be affected by the initial reduction of understory herbaceous and shrub cover, but habitat and the insect prey base would recover beyond existing conditions within a few growing seasons.

This alternative is expected to improve habitat suitability in the long term, because redundant trails in riparian habitat would be decommissioned and restored.

Cumulative Effects: This alternative when combined with past, present, and reasonably foreseeable future actions is not expected to have a cumulative effect to this species because effects to survival are unlikely and no effects to reproduction are expected to occur. Current and future projects in the analysis area are also expected to improve habitat for this species.

Alternative 3
Direct and Indirect Effects: Effects to this species would be similar to Alternative 2. There would be fewer disturbances to willow flycatcher emphasis habitat under this alternative because there would be no upgrade to the existing trail between Kiva beach and the parking lot.

Cumulative Effects: Cumulative effects to this species would be similar to Alternative 2.

Effects to Townsend's Big-eared Bat, Pallid Bat, and Fringed Myotis

Alternative 1 (No Action)
Direct and Indirect Effects: None expected because there would be no change in current conditions.
Cumulative Effects: None expected.

Alternative 2 and 4
Direct and Indirect Effects: All known cave or analogues in the project area were surveyed in 2010, but the Townsend's big-eared bat and Pallid bat were not detected. The Fringed myotis was detected at the Taylor Creek visitor center, Boathouse Theater, Taylor marsh, and Tallac marsh. The potential to affect these species or their habitat is very limited because Alternative 2/4 would not alter potential roost sites at the Taylor Creek visitor center, Boathouse Theater, Taylor marsh, or Tallac marsh. Roosting individuals may be flushed during trail construction but mortality or effects to reproduction are not expected. These species may be affected by the initial reduction of understory herbaceous and shrub cover, but habitat would recover beyond existing conditions within a few growing seasons. Because off- highway parking would be blocked, roads and trails would be decommissioned and restored, and disturbed areas would be revegetated with native plants to improve the insect prey base.

Cumulative Effects: This alternative when combined with past, present, and reasonably foreseeable future actions is not expected to have a cumulative effect to these species because effects to survival are unlikely and no effects to reproduction are expected to occur.

Alternative 3
Direct and Indirect Effects: Effects to these species would be similar to Alternative 2. Reduced road and trail improvement, and more parking spaces would reduce suitable upland habitat for these special status species. This difference is relatively small, and is not expected to cause notable additional disturbance beyond those described in Alternative 2.

Cumulative Effects: Cumulative effects to this species would be similar to Alternative 2.

Effects to Pacific Marten

Alternative 1 (No Action)
Direct and Indirect Effects: None expected because there would be no change in current conditions.
Cumulative Effects: None expected.

Alternative 2 and 4
Direct and Indirect Effects: Project activities could disturb denning and foraging however, there are no known dens in the project area. Disturbance from project activities would not be greater than existing road traffic, and recreational activity. No direct or indirect effects to nesting are expected because there would be no work within 0.25 miles of known dens during the breeding season. Individuals could experience temporary auditory and visual disturbance if they occupy the project area during construction. The removal of some trees would remove future down woody debris for dens in the project area. Heavy public use of the project area likely has and will continue to preclude this species from denning in some areas.

Habitat fragmentation, disturbance, and a reduction of stand insularity would result as new trails are constructed in suitable habitat. Fragmentation within suitable habitat would be relatively small compared to the total habitat available in project area. Connectivity and linkages to preferred habitats would continue to persist. There would be no new barriers to this species movement or distribution.

Cumulative Effects: This alternative when combined with past, present, and reasonably foreseeable future actions is not expected to have a cumulative effect on this species because effects to survival are unlikely and no effects to reproduction are expected to occur.

Alternative 3

Direct and Indirect Effects: Effects to these species would be similar to Alternative 2. Reduced road and trail improvement, and more parking spaces would reduce suitable upland habitat for this special status species. This difference is relatively small, and is not expected to cause notable additional disturbance beyond those described in the proposed action.

Cumulative Effects: Cumulative effects to this species would be similar to Alternative 2.

Effects to Western bumble bee

Alternative 1 (No Action)
Direct and Indirect Effects: None expected because there would be no change in current conditions.
Cumulative Effects: None expected.

Alternative 2 and 4

Direct and Indirect Effects: Road, trail, and parking lot construction would remove some suitable habitat, consisting of meadows with wildflowers, abandoned rodent burrows, logs, and grass clumps. Some willows and wildflowers would be removed as 20 parking spaces are added to the Kiva beach parking lot, and as the restroom is installed. Willow and wildflower removal is expected to be minor, because this site is already disturbed. These species may be affected by the initial reduction of understory herbaceous and shrub cover, but habitat would recover beyond existing conditions within a few growing seasons. Because off highway parking would be blocked, roads and trails would be decommissioned and restored, and disturbed areas would be revegetated with native plants which would improve wildflower nectar and pollen. Disturbance from project activity would be no greater than existing disturbance from road traffic, and recreational activity.

Cumulative Effects: This alternative when combined with past, present, and reasonably foreseeable future actions is not expected to have a cumulative effect on this species because effects to survival are unlikely and no effects to reproduction are expected to occur.

Alternative 3

Direct and Indirect Effects: Effects to this species would be similar to Alternative 2. Reduced road and trail improvement, and more parking spaces would reduce suitable upland habitat for this special status species. Parking in the polo field would have a less positive effect on this species compared to Alternative 2, because some of the parking lot would be located in moderately suitable habitat. This difference is relatively small, and is not expected to cause notable additional disturbance beyond those described in Alternative 2. There would be fewer disturbances to willow habitat because there would be no upgrade to the existing trail between Kiva beach and the parking lot.

Cumulative Effects: Cumulative effects to this species would be similar to Alternative 2.

3.5.3 Determinations

Alternative 1 **will not affect** any of the special status wildlife species, because current conditions in the project area would continue.

Alternatives 2, 3, and 4 **will not affect** the great gray owl, Pacific fisher, North American wolverine, Yosemite toad, Delta smelt, and Central Valley steelhead; because the proposed action is outside the current range of these species. These species are not currently known to occur in the LTBMU. Alternatives 2, 3, and 4 **will not affect** the Sierra Nevada yellow-legged frog, because they do not occur in the project area, and effects to habitat would be avoided by design features and BMPs. Alternatives 2, 3, and 4 **will not affect** the Lahontan lake tui chub, Lahontan cutthroat trout, and Great Basin rams-horn; because effects to habitat would be avoided by design features and BMPs.

Alternatives 2, 3, and 4 **may affect individuals, but is not likely to result in a trend toward Federal listing or loss of viability** for the bald eagle, northern goshawk, California

spotted owl, willow flycatcher, Townsend's big-eared bat, pallid bat, fringed myotis, Pacific marten, and western bumble bee.

Rationale:

- Individual special status species may experience visual and auditory disturbance during project implementation. These special status species may be disturbed during construction, but their habitat would be improved in the long term. Design features would minimize adverse impacts to special status species; because active nests, dens, and designated wintering habitat would be protected by LOPs (limited operating periods).
- Overall disturbance would be slight and short term. Heavy public use of the project area likely has and will continue to preclude these species from nesting in some areas. The effect is expected to be negligible, because design features would minimize these impacts.
- Understory herbaceous and shrub cover would be reduced initially. Understory herbs and shrubs would recover beyond existing conditions as off highway parking is blocked, redundant roads, trails, and compacted soils are decommissioned and rehabilitated, and disturbed areas are revegetated with native plants.
- Nesting, perching, and foraging habitat would be improved. The growth of native vegetation would improve hiding cover and the prey base after a few growing seasons.
- Canopy cover would be slightly reduced. Larger trees would be retained in parking lots and infiltration basins when possible.
- Disturbance would decrease in Taylor Creek marsh. The barrier would discourage people from trampling riparian vegetation and stream banks. The porous design of the barrier would not serve to impede movement of wildlife.
- Interpretive signs at Kiva beach would educate visitors about dog and human waste, sensitive marsh habitat and the endangered plant Tahoe yellow-cress.
- Riparian habitat and SEZ function would be improved along the Lake Tahoe shoreline by BMPs and fence repair and would not block passage of wildlife.
- Aquatic habitat would be improved as BMPs reduce erosion and sedimentation. Airborne dust, vehicle emissions, and atmospheric deposition into Lake Tahoe would be reduced. Fecal contamination would be reduced by a new rest room at the Kiva beach parking lot.

Table 3-12. Effect determinations summary for project level analysis

Wildlife *(genus and species)*	Legal status[1]	Alternative 1 = No action	Alternative 2 and 4	Alternative 3
Birds				
Bald eagle *(Haliaeetus leucocephalus)*	D,S, SI,MB	NE	MANL	MANL
Northern goshawk *(Accipiter gentiles)*	S,SI	NE	MANL	MANL
California spotted owl *(Strix occidentalis occidentalis)*	S,MIS, MB	NE	MANL	MANL
Great gray owl *(Strix nebulosa)*	S	NE	NE	NE
Willow flycatcher	S,MB	NE	MANL	MANL

Wildlife *(genus and species)*	Legal status[1]	Alternative 1 = No action	Alternative 2 and 4	Alternative 3
(Empidonax traillii)				
Mammals				
Townsend's big-eared bat *(Corynorhinus townsendii)*	S	NE	MANL	MANL
Pallid bat *(Antrozous pallidus)*	S	NE	MANL	MANL
Fringed myotis *(Myosti thysanodes)*	S	NE	MANL	MANL
Pacific marten *(Martes caurina)*	S,MIS	NE	MANL	MANL
Pacific fisher (*Martes pennanti*)	C	NA	NA	NA
North American wolverine *(Gulo gulo luscus)*	PT	NA	NA	NA
Amphibians				
Yosemite toad *(Bufo canoris)*	PT	NA	NA	NA
Sierra Nevada yellow-legged frog *(Rana sierra)*	PE,S	NA	NA	NA
Fish				
Delta smelt *(Hypomesis transpacificus)*	T	NA	NA	NA
Central Valley steelhead *(Oncorhynchus mskiss)*	T	NA	NA	NA
Lahontan lake tui chub *(Gila bicolor pectinifer)*	S	NE	NE	NE
Lahontan cutthroat trout *(Oncorhynchus clarkii henshawi)*	T,SI	NA	NA	NA
Invertebrates				
Great Basin rams-horn *(Helisoma newberryi newberryi)*	S	NE	NE	NE
Western bumble bee *(Bombus occidentalis)*	S	NE	MANL	MANL

[1]Legal status:

E = Endangered species listed by the USFWS under the Endangered Species Act.

T = Threatened species listed by the USFWS under the Endangered Species Act. The Delta smelt *(Hypomesis transpacificus)* and Central Valley steelhead *(Oncorhynchus mskiss)* are threatened species for the LTBMU. The project would not affect these species, because the LTBMU is outside their current and historical range.

P = Proposed species for federal listing by the USFWS under the Endangered Species Act. The North American wolverine *(Gulo gulo luscus)* and Yosemite toad *(Bufo canoris)* are proposed threatened. The project would not affect these species, because the LTBMU is outside their current and historical range. The Sierra Nevada yellow-legged frog *(Rana sierra)* is proposed endangered, with proposed Critical Habitat in the Desolation and Granite Chief Wilderness.

C = Candidate species for federal listing by the USFWS under the Endangered Species Act. The Pacific fisher *(Martes pennanti)* would not be affected by the project, because the LTBMU is outside its current and historical range. No federally listed wildlife species would require technical assistance from the USFWS.

D = Delisted species by the USFWS under the Endangered Species Act. Bald eagle was delisted on June 28 2007, and will be monitored for 5 years.

S = Sensitive species listed by Region 5, US Forest Service. Regional Forester sensitive species list was revised on June 30, 2013.

MIS = Management indicator species listed by Region 5, US Forest Service. Sierra Nevada MIS amendment on December 14, 2007

SI = Special interest species listed by the TRPA. Regional plan of Lake Tahoe Basin, code of ordinances, 1987

MB = Migratory bird.

[2]Determination:

U.S. Fish and Wildlife Service listed species:

NA = The project would not affect the species or its designated Critical Habitat.

Forest Service sensitive species:

NE = The project would not affect the species.

MANL = The project may affect individuals, but is not likely to result in a trend toward Federal listing or a loss of viability. Project activities may result in some loss of habitat, reduction of habitat quality, or timing of nesting, denning, and foraging for the species. However, the scale of this reduction is small, and design features and mitigation measures would reduce both direct and indirect impacts.

3.5.4 Analytical Conclusions

Alternative 1 (No Action)

No direct, indirect, or cumulative effects would result from the No Action alternative, because current conditions in the project area would continue.

Alternative 2 and 4

Direct and Indirect Effects: Individual special status species may experience visual and auditory disturbance during construction. Special status species may be disturbed during project implementation, but their habitat would be improved in the long term. Design features would minimize adverse impacts to special status species because active nests, dens, and designated wintering habitat would be protected by LOPs.

Overall disturbance would be slight and short term. Heavy public use of the project area likely has and will continue to preclude these species from nesting in some areas. Nesting, perching, and foraging habitat would be improved, because total roads and trails would be reduced. Redundant roads and trails would be decommissioned and rehabilitated. Reduced trails, paved surfaces, and compacted soils would improve the growth of native vegetation, hiding cover, and the prey base. No proposed roads or trails occur in areas of concern for special status species. Understory herbaceous and shrub cover would be reduced initially, because vegetation would be cleared during trail, road, and parking lot construction. Understory herbs and shrubs would recover beyond existing conditions, because off highway parking would be blocked, and redundant roads and user created trails would be decommissioned and rehabilitated. Disturbed areas would be revegetated with native plants, and would be reestablished after a few growing seasons. Canopy cover would be slightly reduced, because some trees would be removed during construction however larger trees would be retained.

Disturbance would decrease in Taylor Creek marsh, because a barrier would be installed between the marsh and Kiva beach. The barrier would discourage people from trampling riparian vegetation and stream banks. The barrier would not impede movement of wildlife. This would enhance riparian habitat, aquatic habitat, SEZ function, and decrease sedimentation into the creek. Riparian and habitat would be enhanced along the Lake Tahoe shoreline, because an exclusion fence would be repaired. Eroding slopes would be stabilized with vegetation, boulders, terraces, or stairs. Aquatic habitat would be improved, because BMPs would reduce erosion and sedimentation.

Cumulative Effects: Fuel reduction, campground retrofit, trail rehabilitation, highway improvement, and restoration projects in the analysis area would continue to enhance some conditions for special status species. This project in conjunction with past, present, and future projects would have a net positive effect on special status species and their habitat.

Alternative 3

Direct and Indirect Effects: Effects to special status species and their habitat would be less positive than the proposed action, because this alternative would improve fewer miles of existing road and trail improvement compared to Alternative 2. Fewer roads and trails would be decommissioned, fewer roads would be converted to trail, and existing parking lot capacity would be increased. On the other hand, this alternative would retrofit the Tallac volunteer RV campground. This campground is very dusty, is a source of atmospheric deposition, and is closer to Lake Tahoe than the Baldwin volunteer RV campground. This difference between alternatives is relatively small, and is not expected to cause additional disturbance beyond those described in Alternative 2.

Cumulative Effects: Cumulative effects would be similar to those described under Alternative 2.

Alternative 2 would be the most beneficial action for special status species and their habitat; because there would be more road and trail improvement, and less conversion of upland habitat to parking compared to Alternative 3.

Chapter 4 – Coordination and Consultation

The following individuals, agencies, and organizations were consulted during the preparation of this document.

4.1 Interdisciplinary Team Members

Ashley Sommer, Landscape Architect, Project Team Lead

Gina Thompson, Recreation Staff Officer

Michael Gabor, Forest Engineer

Michael Alexander, Assistant Forest Engineer

Cheryl Schumacher, Civil Engineer

John Maher, Tribal Relations and Heritage

Tom Fuller, Heritage Resources

Jackie Dumin, Tallac Site Manager

Gerrit Buma, NEPA Advisor

Blake Engelhardt, Botanist

Courtney Rowe, Botanist

Stanley Kot, Wildlife Biologist

Maura Santora, Aquatic Biologist

Shana Gross, Ecologist

Daniel Cressy, Landscape Architect

Duncan Leao, Forester

Shay Zanetti, Wildlife Biologist

4.2 Federal, State, and Local Agencies

Tahoe Heritage Foundation

Shay Navarro, Tahoe Regional Planning Agency

Lahontan Regional Water Quality Control Board

California Department of Transportation

California Tahoe Conservancy

Fallen Leaf Fire Department

Senator Diane Feinstein

Representative Tom McClintock

California State Parks

Eldorado County Board of Supervisors

Lake Valley Fire Protection District

Sierra Pacific Power Company

City of South Lake Tahoe

4.3 Tribal Coordination

Washoe Tribe of Nevada and California

4.4 Individuals

The following list represents individuals who responded during the scoping period

Russ Dahler

Gay Eitel

Robert and Leilani Thornburg

Reynolds Duncan

Allan Watanabe

John Bryden

Gavin Feiger

Amy Isenhart

Faizan Shaikh

Chris Slaback

Oscar Navarro

Tami Africa

Robert Isenhart

Nancy Swanson

Stewart Katz

Ronald Swanson

David Ayers

The following individuals responded during the 30 day comment period

John and Judy Shilling

Perry Obray

Robert and Charlotte Probst

Holden Brink

Bob Rowen

Morgan

John Bryden

John Long

John Roos

John LoBuono

Linda Cole

Frances Alling

Carol Bridges

Ann Rasmussen,

Jeanne Benin

Sherie Brubaker and Randy Matthews

Patti Acri

Larry VanSant

David and Lynne Briscoe

Kathryn Bricker

Jane Mitchell

Lynne Bajuk

Allen and Pamela Shaw-Miller

Dan Currier

Lachlan Richards

Alice Grulich-Jones

Kenneth McNutt

Robert lsenhart

Judith Hildinger

Jim Hildinger

Jim Weber

David Gottfredson

Ron Saxon

Dawn Armstrong

Reynolds Duncan

Jacqueline Mittelstadt (on behalf of Jameson Beach homeowners)

4.5 Organizations

Liz Maul Outreach & Education Manager, Lake Tahoe Humane Society and SPCA

Randy Curtis, South Tahoe Public Utility District

Clint and Kelly Ross, Camp Richardson Corral Permittee

Carolin Grubb, Tahoe Tallac Association

Robert Albin, Program Manager Choices Transitional Services

Sierra Club Lake Tahoe Chapter

California Land Management

Echo Lakes Association

South Tahoe Public Utility District

Anderson's Bike Rentals

League to Save Lake Tahoe

Emerald Bay Tract Association

Angora Lakes Resort

Spring Creek Tract Association

Lake Tahoe Historical Society

Stanford Camp

Emerald Bay Tract Association

Chapter 5 References

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Appendix A

Best Management Practices for the Historic Facilities BMP Retrofit Project

This document discusses the applicable best management practices (BMPs) for the proposed action's design features. Details are provided for application of the BMPs. These BMPs are designed to reduce or eliminate direct, indirect, and cumulative impacts to soil and hydrologic conditions and to reduce potential impacts (nutrient and sediment loads, affecting lake clarity) to Lake Tahoe, a unique national feature. Actual application of these BMPs are based on the proposed action and integration (further refinement) with project design features. All applicable water quality BMPs would be implemented.

Note: The USFS recently updated the Water Quality Management Handbook (Region 5 FSH 2509.22, Chapter 10), and in turn updated several of the Regional BMPs listed below. These changes primarily affected the Road Building and Site Construction BMPs (BMP numbers 2-1 through 2-26 below) and did not change the intent of the practices, but only revised the numbering system and the descriptions. The new Water Quality Management Handbook will be used for this project and protective measures will be taken to ensure project work complies with required permit conditions including RWQCB Board Order No. R6T-2011-0019, Updated Waste Discharge Requirements and NPDES General Permit No.CAG616002 for Discharges of Storm Water Runoff Associated with Construction Activity Involving Land Disturbance in the Lake Tahoe Hydrologic unit.

Summary of revised BMPs for Road Building and Site Construction from December 2011 Water Quality Management Handbook that apply to this project

PSW Region BMPs	Best Management Practice Description
BMP 2.2: General Guidelines for Location and Design of Roads Replaces former BMP 2-1 and 2-7 National BMP Road-2	Location, design and construction of roads will be agreed upon by the IDT in order to result in minimal resource damage. This includes design and location of drainage features and road surfacing.

PSW Region BMPs	Best Management Practice Description
BMP 2.3: Road Construction and Reconstruction Replaces former BMP 2-3, 2-4, 2-5, 2-6, 2-9, 2-10, 2-11, and 2-13 National BMP Road-2	Temporary road construction and road re-construction activities will be conducted during the dry season, when rain and runoff are unlikely and weather and ground conditions are such that impacts to soils and water quality will be minimal. This also includes construction of drainage structures, erosion control measures on incomplete roads prior to precipitation events, and providing groundcover or mulch on disturbed areas. The contractor shall limit the amount of disturbed area at a site at any one time, and shall minimize the time that an area is left bare.
BMP 2.4: Road Maintenance and Operations Replaces former BMP 2-7, 2-22, 2-23, and 2-24 National BMP Road-2	Assess road maintenance needs periodically as it relates to water quality effects. Provide the basic maintenance required to protect the road and to ensure that damage to adjacent land and resources is prevented. At a minimum, maintenance must protect drainage structures and runoff patterns. This also includes road surface treatments and drainage structure improvements as needed based on road use.
BMP 2.7: Road Decommissioning National BMP Road-6	Roads that are not needed will be stabilized, restored and revegetated in order to protect and enhance NFS lands, resources, and water quality.
BMP 2.10: Parking and Staging Areas New BMP, no former BMP equivalent National BMP Road-9	Construct and maintain an appropriate level of drainage and runoff treatment for parking and staging areas to protect water, aquatic and riparian resources. Infiltrate as much runoff as possible using permeable surfaces and infiltration ditches or basins and limit the size of temporary parking or staging areas. Rehabilitate temporary parking or staging areas immediately following use, including preventing continued access to these areas.
BMP 2.11: Equipment Refueling and Servicing Replaces former BMP 2-12 National BMP Road-10	Service and refueling sites shall be located away from wet areas and surface water. If the volume of stored fuel at a site exceeds 1,320 gallons, project Spill Prevention, Containment, and Counter Measures (SPCC) plans are required. Contractors are required to remove service residues, waste oil, and other materials from National Forest land following completion of the project, and be prepared to take responsive actions in case of a hazardous substance spill, according to the Forest SPCC plan.
BMP 2.13: Erosion Control Plan Replaces former BMP 2-2, 2-9, and 2-18 National BMP Fac-2	Effectively plan for erosion control to control or prevent sedimentation. Prior to initiation of construction activities, prepare a general erosion control plan for limiting and mitigating erosion and sedimentation from land disturbing activities. For this project, a Stormwater Pollution Prevention Plan (SWPPP) will be used in place of an Erosion Control Plan per Regional Water Quality Control Board permit requirements. Protective measures will be taken to ensure project work complies with required permit conditions including RWQCB Board Order No. R6T-2011-0019, Updated Waste Discharge Requirements and NPDES General Permit No.CAG616002 for Discharges of Storm Water Runoff Associated with Construction Activity Involving Land Disturbance in the Lake Tahoe Hydrologic unit.

PSW Region BMPs	Best Management Practice Description
BMP 4.2: Provide Safe Drinking Water Supplies Same National BMP Fac-3	Location, design, sampling and sanitary surveys will be performed by qualified individuals who are familiar with drinking water supply systems and guidelines. Coordination and cooperation will be pursued with State or local Health Department representatives in all phases of drinking water system management. Sampling and testing frequencies vary depending on the water source, the number and type of user, and the type of test. If State or local Health Departments do not perform the water sample analysis, State Certified laboratories must be used.
BMP 4.4: Control of Sanitation Facilities Same National BMP Fac-4	State and local authorities will be consulted prior to the installation of new sanitation facilities, or modifications of existing facilities to assure compliance with all applicable State and local regulations. All phases of sanitation management (planning, design, inspection, operation, and maintenance) will be coordinated with State and local Health Departments and RWQCB representatives.
BMP 4.5: Control of Solid Waste Disposal Same National BMP Fac-5	A public education effort to control refuse disposal will be a continuing process accomplished through the use of signs, printed information, mass media, and personal contact. Solid waste disposal methods, which define and describe collection, removal, and final disposal methods are described in the operating plan. Garbage containers are planned in areas that are convenient for recreationists.
BMP 4.8: Sanitation at Hydrants and Water Faucets Within Developed Recreation Sites Same National BMP Fac-3	The public will be informed of their sanitary responsibilities by posting signs, on recreation site bulletin boards and at hydrants or faucets, and by personal contact.
BMP 4.9: Protection of Water Quality Within Developed Recreation Areas Same LTBMU Practice	The public is encouraged through the use of signs, pamphlets, and public contact to conduct their activities in a manner that will not degrade water quality.